Jacquie McDonald · Aileen Cater-Steel

Editors

Implementing Communities of Practice in Higher Education

Dreamers and Schemers

Springer

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Foreword

Communities of Practice Go to University

Going to university is usually a sign that you are growing up. You may still have some maturing to do, but higher education will help you do that. Therefore, as we reflect on the trajectory of the concept of community of practice, a pair of books written by and for people who use the concept in university contexts is a good sign: the concept is growing up.

The History of the Concept

The concept of community of practice took a circuitous route to the field of education. It was initially developed as part of a research program whose purpose was to rethink learning for an education audience. The aim was to inspect and reconsider the assumptions about learning that underlie current school design. The strategy was to study learning as a phenomenon in its own right: What does learning look like when it is not the result of teaching? Decoupling learning and teaching was meant to give rise to new ways of thinking about learning. This in turn was to enable new ways of approaching the design of schools and other institutions of learning. To our surprise the concept was first taken up by organizations outside of education, in business, government, healthcare, and international development.

The concept has had a long and notably diverse career, both as part of a social learning theory and as an approach to enabling learning. In retrospect we see the theory as having gone through three phases. Each transition builds on the prior phase, but involves a figure-ground switch.

In the first phase, the concept of community of practice was derived from studies of apprenticeship in various contexts. What was common across these contexts was that learning a practice entailed becoming a member of the community that "owned" that practice. You start at the periphery and gradually move toward full

membership over time. In that phase of the theory, the existence of the community and its practice is taken as given and learning is theorized as an inbound trajectory into that community.

In the second phase, the community of practice is not taken as given. It is viewed as an emergent structure resulting from a learning partnership over time. This is a figure-ground shift from the first phase in the sense that, rather than the community defining learning, it is learning that defines the community. It was in this second phase that a question started to arise about whether you could be intentional about starting or cultivating a community of practice as a way to support learning. And indeed since then, this approach has been adopted in a large number of organizations across sectors. This applied use of the concept brought to the fore a number of new questions—about active cultivation, about leadership in convening and sustaining communities of practice, and about the relationship between communities of practice and organizational hierarchies.

In the third phase, there is again a figure-ground shift. While it was always clear that communities of practice exist in a broader landscape of different practices, the community remained the primary focus for analyzing and developing social learning capability. In the third phase, the primary focus is on a broader landscape of practice. In this landscape, learning capability depends as much on what happens at the boundaries between communities of practice as it does on the learning taking place inside them. In other words, boundaries between communities are learning assets just as communities are. From such a perspective, learning trajectories cut across a number of communities of practice in the landscape. It is not only a journey into the centre of one. Thus learning in a landscape involves two related but distinct processes. First it happens in communities of practice where learners define and develop specific forms of competence. Second it happens in relation to the broader landscape of practice: this includes many communities and practices in which we cannot claim membership or competence, but about which we can claim some level of knowledgeability that informs our participation.

In the complex world of the twenty-first century, the interplay of these two forms of participation—competence and knowledgeability—becomes central to what it means to know in practice. Applying this perspective to universities, we would pose the question: how can institutions of learning rise to this challenge? How can they enable forms of participation that encompass both competence and knowledgeability in complex landscapes of practice? A danger of ignoring participation is to simply view competence as a formal degree and knowledgeability as information. But social learning theory calls for approaches that go beyond degrees and information to a focus on robust identities that can successfully navigate a complex and changing landscape.

All three phases of the theory have pedagogical implications. These are relevant to universities as well as to education more generally.

Phase I highlights the importance of participation in practice for meaningful learning. Learning is viewed, not merely as the acquisition of information and skills, but primarily as a changing ability to participate in a human practice. Social

participation shapes who we become. A substantial change in competence entails a corresponding change in identity.

Phase II suggests that a university needs to consider participation in learning partnerships as a way to increase its learning capacity as an organization with a special focus on learning. Where can the institution foster useful learning partnerships? Among staff for professional development? Among students for mutual support? Among faculty for better teaching? Among researchers for innovative approaches? And with partners in the broader community?

Phase III locates the university in the broader landscape of practice in which it operates: disciplinary practices, obviously, but also funding, regulation, policy, and business, as well as all the practices where research is relevant and where students move after graduation. Learning is not the exclusive prerogative of the university; it happens all the time, in every practice, and across boundaries. How the university contributes to the learning capability of this broader social landscape is a key question for higher education in the twenty-first century.

These questions about meaningful learning and social learning capability are central to our theorizing today. And they are well aligned with a number of trends in higher education. The scholarship of teaching and learning is an emerging field that needs to embrace and contribute to social learning theory. Universities need to rethink their approach to learning and their role in society, including alternatives to traditional university courses, MOOCs, work placements, and modular courses, among others. Inventiveness in a globalized world is now key for our students and those of us responsible for their preparation. People need to collaborate in order to explore and develop these new approaches in productive and imaginative ways. University administrators, faculty, and support staff need to accelerate their learning as new approaches to serving students and doing research require new practices. All these trends make the collection of scholarly works in these two volumes timely.

The two editors need to be commended for their work. We have known Jacquie McDonald for a number of years and have followed her work at the University of Southern Queensland, where she was a pioneer of the use of communities of practice for learning and teaching in higher education. In 2013, Jacquie joined our fellows program, in which each participant proposes a person project to work on during the year. When she suggested editing a volume of collected papers on the use of communities of practice in higher education, we thought it was an exciting idea. Higher education is a field where the use of social learning has not been well documented and the potential for application is endless. But we were not sure about the range of existing projects. We even wondered if she would be able to find enough people willing to contribute chapters for such a book. We had no idea that the response to her call for chapters would be so high that they would produce two volumes instead of the single book she originally planned.

For us this enthusiastic response is good news. In a field with as much potential for learning innovation as higher education, it is important to document cases both to understand what is happening in the field and to trigger people's imagination about what is possible. We are impressed by the variety of areas of application reflected in the chapters: professional development for faculty, pedagogical and

curriculum innovations, collaborative research and writing, community-university partnerships, student communities, doctoral cohorts, and pedagogical approaches inspired by social learning principles. Projects are within and across institutions and disciplines, face-to-face and online, local and international. The response to the call for chapters is a clear indication of some fundamental shifts in the learning models underpinning higher education.

As communities of practice go to university, they bring social learning theory to bear on the practical and intellectual currents associated with these shifts. We believe that social learning theory stands to make a strong contribution and to mature in the process.

Grass Valley, CA, USA   Etienne and Beverly Wenger-Trayner
May 2016

Preface

This book profiles higher education Communities of Practice (CoPs) created and sustained by staff and students who dream of building dynamic communities where individual and community social learning is explored, challenged, shared and grown, within a vibrant, supportive environment. Such a dream requires informed and sustained scheming; firstly to establish the community, then to sustain member engagement and secure institutional support. This book complements a companion book, also edited by Jacquie McDonald and Aileen Cater-Steel *Communities of Practice—Facilitating Social Learning in Higher Education*, published by Springer. The two books are the result of the marvellous response of 69 submissions to the initial call for proposals, demonstrating the impressive scope and interest in higher education CoPs. The wide geographic reach of the contents of this book is indicated by the fact that the 76 contributing authors represent 10 countries (Australia, Canada, Germany, India, Ireland, New Zealand, South Africa, Sweden, UK, and USA).

Etienne and Beverly Wenger-Trayner say that the term 'community of practice' is fairly recent, although the phenomenon it refers to is age-old (Wenger-Trayner and Wenger-Trayner 2015). As they articulate in the foreword of this book, community of practice theory is informed by, and informs, social learning theory (Bandura 1977). CoPs have gone through three phases, giving different perspectives on 'what is a community of practice' as the theory evolves through the different phases. CoP theory now seems well established (Tight 2015; Wenger-Trayner and Wenger-Trayner 2015) with a well-accepted definition used in this book. It is one to which most of the authors explicitly or implicitly subscribe, that Communities of Practice are "groups of people who share a concern or a passion about something they do and learn how to do it better as they interact regularly" (Wenger-Trayner and Wenger-Trayner 2015). Wenger-Trayner and Wenger-Trayner (2015) also say that the three characteristics, the domain, the community and the practice, are the three essential elements that constitute a CoP. These elements; building the domain of knowledge, creating a community of people, and sharing practice were initially presented in Etienne Wenger's 1998 seminal book, 'Communities of practice: learning, meaning and identity'. These elements have been successfully adapted

in the Australian Higher Education context as the organizing structure for a range of topic and cohort CoPs (McDonald and Star 2008, 2014; McDonald n.d.).

Defining what CoPs are, and are not, provides a perspective to explore how CoPs are useful as an approach to knowing and learning in higher education. Many CoPs operate outside and across formal institutional structures such as faculty, discipline teams, individual course offers, and, what is sometimes perceived as the academic and professional staff divide.

The three different types of higher education CoPs identified in an Australian study (McDonald et al. 2012) were organic, nurtured or supported, and created or intentional. The research from that study found that members and/or facilitators may have intentionally set out to establish a CoP, or 'discovered' that they had created a CoP. Once they recognized that they were operating as a CoP, they were able to view the CoP activities through that particular lens, bringing an informed focus and understanding to past and future CoP activities. The CoP research and practice presented by the chapter authors will provide readers with such a lens to view how CoPs operate within different contexts. The chapters provide alternative perspectives to reflect on, and inform their own CoP activities.

Much has been written about the 'chilly climate' in higher education, which does not support collaborative activities; and about the changing role of academics, as government, institutional and student expectations are influenced by the corporatization of higher education. Palmer (2002, p. 179) noted that *academic culture is infamous for fragmentation, isolation, and competitive individualism, with no sense of being part of a community*. Changing educational and government expectations, and student demographics is also increasing pressure on staff as they are required to increase research output, teach diverse student cohorts, all with reduced administrative support, and increasing accountability and productivity requirements. There are also changes to the traditional autonomy and the identity of academic staff, away from what is retrospectively viewed as a 'collegial' past, towards a more managerial and commercial entity, with efficiency and output measurements, and top down compliance audits (Probert 2014). The result is an intensification of academic work, a decline in collegiality and feelings of alienation and stress. Despite the changing context and 'chilly climate', higher education staff and students have created ways to share and enhance learning through communities of practice. In Chap. 4 Knowles talks about CoPs building cultures of collegiality that are largely absent in academic life.

The chapter authors in this book share their experiences as they dream and scheme to create and sustain their Communities of Practice. The chapters have a more practical focus than the companion book *Communities of Practice—Facilitating Social Learning in Higher Education*. The chapters provide examples and case studies from students and educator perspectives, with examples of CoP implementation in both the sciences and humanities disciplines, CoPs supporting change initiatives, curriculum development and virtual communities.

The twenty-seven chapters of this book are collected in four parts:

Part I—Profiles of Higher Education Communities of Practice: Case studies
Part II—Communities of Practice—Curriculum Development
Part III—Student focused Communities of Practice
Part IV—Virtual Communities of Practice in Higher Education

An overview of each chapter is provided at the being of each part. We invite you to explore the different types of CoPs, their application in different contexts and foci, and share the challenges and triumphs presented by the contributing authors. It is our intention that the experiences detailed here may provide guidance to existing and future CoP facilitators and members in the Higher Education sector. The stories and case studies reflect the tremendous energy and tenacity of the chapter authors, as they 'scheme and dream' to ensure the success of their CoPs, despite the challenges of corporatization and intensification of academic work. There are opportunities for exploration into CoP activities in locations not represented in this book, such as Asian and African countries, and the role CoPs can play in digital education such as MOOCS. There is also an increasing trend of self-managed learning that takes place outside traditional institutions. How universities and CoPs support these independent learning journeys, and the social learning supported by ever changing digital media, is an interesting space for future activities and research. We look forward to sharing such research with members, leaders, and the schemers and dreamers of higher education communities of practice future CoP research and learnings. As a celebration of the inspiring CoP activities outlined by the authors we finish by sharing a (slightly modified) favourite quote from Henry David Thoreau (Levin 2003, p. 235).

Go confidently in the directions of your dreams,
Live the life (CoP) you imagined.

Book Development Process

A double-blind review process was used for all chapters submitted to the editors. Authors of selected chapters were invited to act on the reviewer's comments and resubmit their chapters to the editors. Chapters were checked and final revisions applied.

We have enjoyed the process of compiling these books and in particular working with the contributors who provided such wide-ranging contributions about Communities of Practice and Social Learning in Higher Education contexts. It is up to you, the reader, to decide whether the perspectives offered here are relevant to your research or practical application of CoPs in your context. We would be

delighted to hear your feedback on the usefulness of these books. You are invited to contribute to the dedicated 'Books' page at the Communities of Practice Higher Education blog—https://jacquiemcdonald.com/books/.

Disclaimers

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Toowoomba, Australia   Jacquie McDonald
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Editors and Contributors

About the Editors

Associate Prof. Jacquie McDonald is a Learning and Teaching Designer at the University of Southern Queensland (USQ) Australia. She has worked with higher education academics designing online and distance learning courses and programs for over 24 years. Her experience and research demonstrate the value of Communities of Practice (CoP) in building the learning and teaching capacity of educators, and contributing to scholarly practice and publications. Since 2006 she has led the successful implementation of communities of practice at USQ, which was recognized by a 2009 Australian Universities Quality Agency commendation and 2009 Australian Learning and Teaching Council (ALTC) Citation. She has led a number of institutional and national fellowships and grants to research and provide resources for leadership of communities of practice within the tertiary education sector. She has been invited by national universities to facilitate Community of Practice workshops and contribute to CoP initiatives. Jacquie is participating in a Social Learning Leadership Certificate program conducted by the international leaders of Communities of Practice—Etienne and Bev Wenger-Trayner.

Aileen Cater-Steel is a Professor in Information Systems at USQ. Her research interests include IT Service Management, IT Governance, e-learning, and research supervision. At USQ she facilitates a Community of Practice for Research Supervisors. Aileen has led two Australian Research Council Linkage projects in the area of IT Service Management and is an active researcher in the Australian Centre for Sustainable Business Development. Aileen's work has been published in many top-tier international academic journals. She has published 3 edited collections of research articles. Aileen is a Fellow of the Australian Computer Society. Prior to her academic career, Aileen held senior IT positions in the public and private sector.

About the Contributors

Peter Albion is Professor of Educational Technology in the School of Teacher Education and Early Childhood within the Faculty of Business Education Law and Arts at the University of Southern Queensland, Australia. From 2012 until 2015 he was Editor-in-Chief for the Journal of Technology and Teacher Education and he is currently an Associate Editor for the Journal of Online Learning Research. His teaching and research is in areas related to online learning and the integration of ICT in teacher education. His doctoral work investigated the development of interactive multimedia with a problem-based learning design using materials built around simulated school contexts and delivered in a web-browser. More recently he has worked in online and mobile learning, virtual worlds, and technologies education. Prior to joining USQ in 1991 he was a teacher and principal in secondary schools for 17 years.

Dr. Clare Archer-Lean is discipline leader of English Literature at USC. Her work explores the productive nexus between questions of sustainability and storytelling: how humans story their natural world. Her research particularly focuses on the ways in which literary and cultural representations of animals inform human perceptions of their own identities and their place in the natural environment. She has chapter, monograph and literary articles on animals in literature particularly in Indigenous story telling in Australia and Canada. She is also experienced in trans-disciplinary approaches and is lead investigator on a $27 000 competitive Queensland state funded (DSITIA, Qld) project on communication, values and dingoes on Fraser Island, 2015. Clare's most recent publications are: Archer-Lean, C., Wardell-Johnson, A., Conroy, G., and Carter, J., (2015) 'Representations of the Dingo: contextualizing iconicity' Australasian Journal of Environmental Management, vol. 22, no. 2, pp. 181–196, and Archer-Lean, C. Crew, G. (2015) 'Tracing Practise-Led Research to Locate a 'Nature' in Remembering Babylon in JLLC Journal of Language, Literature and Culture, vol. 62, no. 3, pp. 182–190.

Lyn Armstrong is currently a Lecturer with the Mathematics Education Support Hub (MESH), Western Sydney University (WSU), NSW, Australia. Lyn provides mathematics and statistics support to students at the university and a considerable portion of her time is spent with engineering students. Lyn has pursued an interest in peer learning, particularly in the area of mathematics, demonstrated by her participation in PASS, Peer Assisted Study Session, at WSU. Lyn strongly believes the opportunity to learn from each other provides a rich learning experience for students.

Shaveta Arora a doctoral scholar in Organizational Behavior area from MDI, Bharat. She received her B.Tech. from NIT, Jalandhar, specializing in Chemical Engineering. Her doctoral research is on Cross Cultural Dynamics. She additionally pursued a Postgraduate Diploma in Yog and Psychotherapy, where her thesis was on "Shiv Swarodya: Common psychological disorders". She has rich experience in

Human capital management consulting, project management, corporate HR, organizational design and development. She has held positions at middle to senior management levels with manufacturing as well as services organizations. She has consulted companies in diverse fields like Media, Pharmaceuticals, R&D, Automobile, IT/ITES. She has been appreciated for her deep understanding of talent management, capability building and comfort with technology and analytics. At present, she is working with Fresenius Medical Care, a Medical Devices Multi-national as Director-Human Resources. In this role, she is handling the entire gamut of Human Resources activities including HR strategies, budgetary strategies, key stakeholder management, establishing policies, procedures and guidelines; communicating and enforcing organization values and compliance with central, state, and local legal requirements by keeping up-to-date on existing and new legislation and enforcing adherence on needed actions. Her topics of interests are: Arts and Culture, Leadership, Organization Design and Development, Cross Culture Dynamics.

Theresa Ashford is the Academic Developer (AD) for the Faculty of Science, Health, Education and Engineering (FoSHEE) at the University of the Sunshine Coast (USC) in Queensland, Australia. A significant focus of this AD position is to support and advance learning and teaching at USC. This work entails working in multidisciplinary teams; research in learning and teaching innovations; using learning analytics to help make curriculum, pedagogical and assessment design decisions; and consultation across course and program groups. Theresa's research interests include teaching sustainability, digital ethics (Ph.D. work) and technology and learning. Recent grant work includes: working with program teams to develop programmatic assessment rubrics; researching lecture capture and learning; and researching the learning and teaching practices around scientific writing. Ashford is also leading a gamification initiative in first-year science courses. The two key aspects that span all of this work is firstly, how technology mediates/impacts/enables learning and secondly, a deep appreciation of the transformative power of tertiary education to change lives for the better.

Dr. Graham Ashford is an environmental and resource economist at USC. His experience includes designing and implementing climate change research and adaptation projects, leading environmental impact studies and national level State of Environment reports, analyzing trade, natural resource management and community development policies, and designing poverty alleviation and community development strategies. Dr. Ashford is the Associate Dean (Learning and Teaching) in the Faculty of Science, Health, Education and Engineering. He is responsible for leading Faculty efforts to maintain and enhance learning and teaching and develop high quality programs and enriched learning environments. Dr. Ashford is an experienced lecturer and curriculum developer. He coordinates the Bachelor of Environmental Management program and previously coordinated USC's post-graduate climate change programs. He leads or contributes to a number of high-level committees and initiatives to implement the University's strategic plan. In 2013, Dr. Ashford received a Citation for Outstanding Contributions to Student

Learning from the Commonwealth Office of Learning and Teaching to recognize the effectiveness of his methods and his sustained contribution to advancing high quality learning and teaching. In 2015, he was awarded a Senior Fellowship in the Higher Education Academy.

Barry Avery is an Associate Professor at Kingston University, teaching information technology to both undergraduate and postgraduate students in the Faculty of Business. He is researching the effective use of technology in educational research for his Ph.D., in particular the way that assessment is used in peer based learning communities. He is a Senior Fellow of the Higher Education Academy.

Associate Prof. Claudia Baldwin joined academia in 2006. Prior to this Claudia worked for over 25 years in land-use and environmental policy and planning in federal and state governments as well as in consulting both within Australia and overseas. Because of this, she is passionate about preparing planning students for the 'real world' and researches pedagogy of experiential learning. She was co-leader of the multi-university Commonwealth-funded Experiential Learning in Planning project (http://www.olt.gov.au/project-experiential-learning-planning-education-resources-and-tools-good-practice-2011. An associated educator toolkit is available at http://experientiallearninginplanning.com.au). Claudia's research interests focus around engaging communities for change. She specializes in using participatory and visual methods to research institutional and social-environmental change on topics as diverse as affordable housing, age-friendly communities, water allocation and coastal planning and climate change adaptation. Her project Infill Development for Older Australians in South East Queensland (www.usc.edu.au/seniorliving), won the 2012 Planning Institute of Australia (Qld), Excellence Award for Cutting Edge Research and Teaching, and the International Association of Public Participation Australasian 2013 Core value award for participatory research. Her book Integrated Water Planning: Achieving Sustainable Outcomes was published in 2014.

Dawn Bennett is John Curtin Distinguished Professor and Director of the Creative Workforce Initiative with Curtin University in Australia. Her research focus is enacting and enabling employability within higher education learning and teaching and she won a national OLT citation for this work in 2015. Research interests include identity development, academic work, and graduate work retaining a special interest on careers in the creative industries. A violist and a Principal Fellow of the Higher Education Academy, Dawn serves numerous editorial boards and she convenes the Australian Learning and Teaching Fellows' network. She is on the board of directors for the International Society for Music Education and peak body Music Australia, serves as a commissioner with the ISME Commission for Education of the Professional Musician, and chairs the Curtin Academy.

Rachael Bertram recently defended her Ph.D. in the Faculty of Health Sciences at the University of Ottawa, Ottawa, Canada. Rachael holds a Master's Degree in Sport Psychology, and has many years of sport experience as an athlete, coach and researcher. She has consulted with sport organizations and businesses on the

creation of development programs and the supervision of coaches. She has published several articles relating to social learning.

Puneet Bindlish born in Bharat, is a Fellow of Management, Organizational Behavior area from MDI, Bharat. He received his Bachelor in Engineering from IIT-BHU specializing in Mining Engineering. His doctoral research focussed on the fundamental aspects of leadership viz. its conceptualization, indigenous research paradigms and qualitative research methodologies for scholar practitioners of leadership. His thesis was titled "Defining Leadership: towards an integrative conceptualization". Owing to his multidisciplinary orientation, he additionally pursued a Postgraduate Diploma in Yog and Naturopathy, where his thesis was on "Leadership Development through Yog". His industry experience consists of working for both small and large enterprises across diverse geographies and sectors. During this experience, he was appreciated for his abilities of leadership, mentoring, technology, entrepreneurship, product management. He has been invited for lectures and panel discussions in diverse areas like leadership, entrepreneurship, traditional knowledge systems in management including business communication, technology, product management, health & medicine. Presently he works closely with Praan Group, Netherlands, to develop consulting frameworks to develop self-managed organizing structures, alternative economic practices and management education. He publishes his work in scholarly as well as practitioner-oriented outlets. His topics of interests are: entrepreneurship, organizational innovation, Leadership, Macro organizational behaviour, Organization theory, Creativity & Innovation, Research methodologies, Learnability, Computer assisted research profiling, Yog, Sanskrit, Agriculture, Martial Arts.

Lisa Marie Blaschke is program director of the Master of Distance Education and E-Learning (MDE) graduate program at Carl von Ossietzky Universität Oldenburg, Germany, as well as Associate Professor (adjunct faculty) within the MDE at the University of Maryland University College, USA. She is vice-president and executive committee member of the European Distance Education and E-Learning Network (EDEN) and an EDEN Fellow. Her research interests are in the areas of life-long and self-determined learning (heutagogy) and the pedagogical application of Web 2.0 technologies. Before rejoining academia in 2006, Lisa worked within international corporate environments in the software industry, leading and implementing enterprise-wide knowledge management and training solutions. Lisa is also head of a communications consulting firm, which offers a wide range of education services, from e-learning design and development to project management.

Melanie Booth, Ed.D. is the Vice President for Educational Programming at WASC Senior College & University Commission (WSCUC), the western United States regional accreditor, located in California, USA. Melanie designs and facilitates conferences, seminars, communities of practice, and other learning experiences focused on teaching, learning, assessment, leadership, institutional sustainability, and accreditation for higher education faculty and staff. Prior to joining WSCUC, Melanie was the Dean of Learning and Assessment and Director

of the Center for Experiential Learning and Assessment at Marylhurst University in Portland, Oregon. She has also held academic positions at Saint Mary's College of California, San Diego State University, and Grays Harbor Community College in Washington. Melanie is a recognized expert on Prior Learning Assessment/Credit for Prior Learning and has consulted with institutions nationally and internationally about PLA, competency-based education, and the assessment of learning. Her other areas of interest include experiential learning, faculty development, heutagogy, and adult learning and development. You can find out more about her on her website, prattlenog.com.

Pip Bruce Ferguson has been interested in action research for the improvement of her own and others' educational practice for decades. Her Ph.D. thesis investigated using action research to help the development of a research culture in the polytechnic where she then worked. She has been an active member of the New Zealand Action Research Network, the Action Learning, Action Research Association, and has just co-organized a Network for Educational Action Research in Ireland, where she is now working. She is a compulsive collaborator and enjoys co-writing with others.

Deborah L. Callcott, Ph.D. Lecturer Health and Physical Education; Edith Cowan University; Perth Western Australia. B.Ed. Physical Education and Health (Secondary), M.Ed. (Special Needs). Deborah has taught HPE in schools at Secondary, Primary and Early childhood level as well as teaching children with special needs for 10 years. Currently lecturing in Primary and Early Childhood Health and Physical Education, and being the First Year Coordinator for Education students for a number of years, her aim is to ensure that early pre-service teachers make a successful transition to tertiary education and emerge from University with the leadership qualities required in contemporary educational settings. A significant achievement has been the establishment of a student run organization which supports the social, emotional and educative needs of pre-service teachers. Consultation with all stakeholders and empowerment of the student body has resulted in the successful implementation of various strategies to develop a successful 'Community of Practice' at Edith Cowan University in the form of 'Network Teach'.

Joann Cattlin was the project manager on the First Year in Maths project from 2013–2016, based in the School of Mathematics and Statistics at The University of Melbourne. She has a varied background with experience as an academic researcher in a range of discipline areas, project manager, reference librarian and administrator. Joann is interested in the role of communities of practice in supporting academics approaches to teaching and recently completed a Masters of Information Management (RMIT), with a minor thesis on information seeking behaviour of academics in mathematics and statistics. She is currently project manager for an ARC project investigating innovative learning environments with the Melbourne Graduate School of Education at The University of Melbourne.

Dr. Deb Clarke is a Senior Lecturer in Health and Physical Education curriculum at Charles Sturt University (CSU), Australia. Deb is the inaugural Chair, New Scholars Portfolio of the Higher Education, Research and Development Society of Australasia (HERDSA) (2011–current). Deb is the recipient of Faculty, University, State and National Teaching Excellence awards and has designed and coordinated subjects in CSU's Graduate Certificate in University Learning and Teaching. Most recently Deb has been appointed as a Senior Fellow of the Higher Education Academy. Deb's research interests focus on new scholars, communities of practice and academic identity.

Dr. Thomas Cochrane is an Academic Advisor and Senior Lecturer in educational Technology at AUT University's Centre for Learning and Teaching (CfLAT). In 2011 he was awarded as an Ascilite Fellow http://www.ascilite.org.au/index.php?p=awards. His research interests include mobile learning, web 2.0, and communities of practice. His Ph.D. thesis was titled: "Mobilizing Learning: Transforming pedagogy with mobile web 2.0". Thomas has managed and implemented over 50 mobile learning projects, with a recent focus upon Android and iOS smartphones and the iPad as catalysts to enable student-generated content and student-generated learning contexts, bridging formal and informal learning environments. He has over 100 peer-reviewed publications, receiving best paper awards at Ascilite 2009, ALT-C 2011, ALT-C 2012, and has been invited to keynote at several international educational technology conferences including: the 2012 Australian Moodle Moot, the 2012 m-Libraries conference in the UK, the launch of UWS massive iPad project in February 2013, the 2014 IBSA VET Practitioners Conference in Melbourne, and an invited speaker at EdMedia2014 (Tampere, Finland).

Paul Corcoran joined the Ordnance Survey, Great Britain's national mapping agency in 1984 and undertook various surveying, Geographical Information Systems (GIS) and management roles, predominantly in the North of England. In 2006, he joined the School of Natural and Built Environments at the University of South Australia, Adelaide, as a Geospatial Science Lecturer. In 2013, he became Program Director for the Bachelor of Environmental Science, Bachelor of Geospatial Science and Master of Surveying.

Dr. Linda Corrin is a Lecturer in Higher Education in the Melbourne Centre for the Study of Higher Education at the University of Melbourne. She has been involved in educational technology-related research, curriculum design, and academic development in higher education for the past 14 years. Her Ph.D. research, which she completed in 2014, examined university students' use of technology in everyday and academic contexts with a view to informing learning and teaching practices in higher education. Her research interests include students' engagement with technology, learning analytics, learning design, and feedback. Currently, she is working on several large research projects that focus on exploring ways that learning analytics can be used to provide meaningful feedback to academics and students.

Alan Crean has a B.Sc. in Information Systems and has worked in higher education for more than 10 years. In that time Alan has had a wide variety of roles ranging from providing frontline support to students and staff on general IT issues via the IT helpdesk to a learning technologist within DCU's Teaching Enhancement Unit. Alan now works in a training capacity with the university facilitating the IT workers on the 4 DCU campuses in identifying their knowledge skills gaps and acquiring and providing the relevant training needed. Alan has strong experience with a wide range of technologies but particularly with using Google Apps for Education. Alan played a leadership role in organization the Google Apps for Education Conference, bringing over 150 educators from across the sector to showcase the use of Google Apps within the classroom.

Diane M. Culver is Associate Professor at the School of Human Kinetics, in the faculty of Health Sciences at the University of Ottawa, in Ottawa, Canada. Her research interests are in the area of (1) coaching and coach education, (2) social learning theory, and (3) qualitative research methods. With publications in journals such as The Sport Psychologist, the Journal of Applied Sport Psychology and Qualitative Research in Sport, Exercise and Health, she is also a member of the editorial board of the Canadian Journal for Women in Coaching and a reviewer for several journals. Diane's previous working experience includes coaching for the Canadian National Ski Team and the New Zealand Olympic Ski Team. She consults with athletes, coaches, and sport organizations facilitating the enhancement of their performance.

Dr. Jane Davis worked in teaching and learning for 34 years and now undertakes independent research. She completed her Ph.D. in E-research and Technology Enhanced Learning at Lancaster University in 2013. She has an ongoing academic interest in researching and publishing on issues of identity, invisibility and the social forces that impact on learning in the context of networked learning. She is now combining further study as a part-time student on the M.Ed. Autism at the University of Strathclyde with her role as a home educator to her autistic son.

Aimée deChambeau is the Associate Dean and Head of Electronic Services for University Libraries at The University of Akron (USA). She holds a Ph.D. in Sustainability Education from Prescott College and an MLS from the University of Pittsburgh. deChambeau has extensive experience in managing library services and systems in higher education as well as K-12. Her current research focuses on sustainable education and student success at the intersection of technology, communities of practice, and collaboration. deChambeau has additional research interests in the area of feminist pedagogy and collaboration.

Enda Donlon is a Lecturer in education at the Mater Dei Institute of Education (a college of Dublin City University) where he works with undergraduate and post-graduate students in developing their use of educational technology in teaching and learning. He has a particular interest in the use of digital technologies to faciliate and enhance the professional development of student–teachers during ITE school placements. Research interests include Web 2.0 technologies, virtual environments,

content management and information architecture, and open source technologies for education. Enda holds a M.Sc. from Trinity College, Dublin and a Ph.D. from the Institute of Education, University of London.

Patrick Doyle Learning Technologist. Patrick has an M.Sc. in 'Multimedia Systems and has over seven years' experience in researching and embedding appropriate technology in educational environments. He has collaborated with academics from disciplines ranging from medicine to nursing, and is researching the use of wearable cameras in educational environments. Having an inherent desire to find solutions to academic queries, he has initiated several collaborations between Irish tertiary institutions. Patrick also has experience in using technological tools to enhance the teaching practices within Universities.

Shalini Dukhan is a Lecturer in the School of Animal, Plant and Environmental Sciences (APES) in the Faculty of Science at the University of the Witwatersrand. She has completed a Ph.D. in Science Education. She lectures biology to first-year medical students, and supervises postgraduate students studying Science Education at the University. Prior to her involvement and research in investigating ways to support student learning through learner and staff initiatives she completed her studies in Natural Science. Shalini identifies, monitors, and provides support to undergraduate at-risk students at APES, and has identified and analyzed predictors for first-year student performance at this School. She established communities of practice amongst academic staff involved in first-year teaching for four biology courses. She is also involved in curriculum alignment of the undergraduate courses at APES. Her areas of research include student learning, lecturer practice, and academic performance.

Priyanka Dutt is currently pursuing Ph.D. in Management from Banasthali Vidyapith, Rajasthan, India. Her research interest areas include leadership, spirituality and its implication in life, skill enhancement and exploration of the Indian culture. Prior to this she has experience in education management as an Assistant Professor, Department of Management Studies at IIS University in Jaipur and corporate experience of about 6 years as Organization Development specialist and Learning & Development lead in organizations such as Vodafone and Marico. She holds a Master degree in Human Resources as M.A. in Personnel Management and Industrial Relations from Tata Institute of Social Sciences (TISS), Mumbai. As a part of academic experience she has been a core member of the Board Committee of the Management Department as well as one of the four pioneers for the National Entrepreneurship Network (NEN) initiative at the University. She also was the Programme Officer of the Rajasthan Contingent for the NSS Adventure Sports program organized by Ministry of Youth Affairs and Sports, Government of India. She recently entered motherhood and utilizes her time between her motherly responsibilities and research interests.

Suzanne Fegan has worked as an academic literacy lecturer at a number of Victorian tertiary institutions for the last 18 years, including La Trobe University for the last 10, where she has almost completed her Ph.D. on academic creativity in

the globalized university. At La Trobe University she also initiated the mural project that is the subject of this chapter. Prior to university-based employment, Suzanne worked in the community arts sector, painting murals with a variety of different client groups including psychiatric patients and prisoners. Her interest in the relationship between collaboration, art-making and well-being developed in this period, guided by empirical observations that people seem happier both when they are engaged in creative work and interpersonally connected. Suzanne has further published on the topics of creativity, neoliberalism, communities of practice and higher education, and continues to create small artworks in the dead of night.

Clare Gormley joined DCU in 2014 as a learning technologist. Since then she has worked with teams on a range of strategic projects including the design and development of an online M.Sc. in Biomedical Science and an online M.A. in Irish Studies. She has a Masters in Applied eLearning from Dublin Institute of Technology and her particular areas of interest include online learning design, content scripting, multimedia development, and video technologies. She is especially interested in exploring techniques and approaches that enable lecturers to leverage technology to create effective online learning experiences. Clare has over 16 years' experience in developing online learning, both in the corporate sector and in Higher Education. Prior to joining DCU, she worked closely with a team of academics at NUI Galway to design & develop learning materials for an online Masters in Software Engineering. She started her career with a multinational eLearning organization and has worked for companies specializing in innovative online learning approaches. On a personal level, Clare likes to read and is a keen member of the local book club.

Dr. Wendy Green is a Senior Lecturer at the Tasmanian Institute of Learning and Teaching, University of Tasmania, Australia. She has won national and university awards for curriculum innovations that enhance learning in 2011, 2012 and 2013. She has published widely in the areas of internationalization of the curriculum, student mobility, and communities of practice in universities.

Stewart Hase is a psychologist with a life-long interest in human change and adaptation. He has followed this interest as an academic, a therapist, a teacher, an organizational consultant and writer in a career spanning more years than he cares to think about. One of the areas of adaptation that Stewart has been fascinated about is how people learn. To this end he and a colleague, Chris Kenyon in 2000 developed a theory of learning as an extension to andragogy and called it the improbably sounding name of heutagogy or self-determined learning (SDL). Stewart has written over 130 papers, research articles and book chapters, as well as three books, and supervised over 25 Doctoral theses and numerous Master's theses. He currently lives in a small fishing village on the East Coast of Australia in between, and as far away as he can get, from Sydney and Brisbane. When not travelling, consulting and speaking at events, Stewart spends his time painting, writing, playing golf and out on his boat chasing fish. Four grandchildren also need a fair bit of attention. You can find more out about Stewart by visiting his blog at: http://stewarthase.blogspot.com, his website at: http://stewarthase.com.au.

Mick Healey is an HE Consultant and Researcher and Emeritus Professor at the University of Gloucestershire, UK. Until 2010 he was Director of the Centre for Active Learning, a nationally funded Centre for Excellence in Teaching and Learning at Gloucestershire. He is also a Visiting Professor at University College London, UK; The Humboldt Distinguished Scholar in Research-Based Learning at McMaster University, Canada; an adjunct Professor at Macquarie University, Australia; Visiting Fellow at University of Queensland; and an International Teaching Fellow at University College Cork, Ireland. He was one of the first people in the UK to be awarded a National Teaching Fellowship (NTF) and to be made a Principal Fellow of the HE Academy. In 2015 he received the International Society for the Scholarship of Teaching and Learning Distinguished Service Award. Mick has particular interests in students as partners especially through engaging them in research and inquiry and as change agents.

Mary Heath is an Associate Professor in the Flinders Law School, based in Adelaide, Australia. Her teaching focuses on criminal law and legal philosophy. She is Chair of the Flinders University College of Distinguished Educators. With Tania Leiman, she co-convenes the Flinders First Year Law Teachers Community of Practice. Mary has received institutional and national awards recognizing her teaching. She is currently leading a nationally funded project called Smart Casual, which is building online, discipline-specific professional development for sessional staff in law.

Dr. Evelyn Hibbert is an adult educator with experience in a number of different intercultural, vocational and higher education settings. She is particularly interested in developing learning communities and the ways in which cultural values affect learning. She has been involved in tutoring in academic literacy units for a number of different academic disciplines and in advising on integrated curriculum development that supports the needs of students transitioning into higher education from backgrounds with little exposure to Western academia. She currently tutors in the School of Education at Western Sydney University and is the Academic Dean at the Salvation Army Booth College, Sydney.

Adjunct Associate Prof. Raymond Hibbins Griffith University, is a sociologist with research interests in migration and identity formation, transnationalism, the emerging new Chinese entrepreneur, internationalization of the curriculum, transnationalism and education, the student as global citizen and communities of practice. His books, book chapters and journal articles reflect these interests. In his leisure time he practices sumi-e painting and shodo.

Dr. Luke Houghton is a Senior Lecturer in the department of International Business and Asian Studies, in the Griffith Business School, Griffith University where he is presently the Director of Learning and Teaching. Luke is an expert on the role cognition plays in complex problem solving in large social and technical systems. Second to that he has a growing interest in Higher Education research. Luke has been published in the *Australasian Journal of Educational Technology* and *The Journal of Information Technology Education*. He also has publications in

the *Oxford Review of Education, Higher Education Research and Development, Australasian Journal of Information Systems, Emergence: the Journal of Complexity and Organisation, Journal of the Operational Research Society* and *Systems Research and Behavioural Science.*

Prof. Patrick James recently retired as Professor of Teaching and Learning Initiatives in the Division of Information Technology, Engineering and Environment at UniSA. Prior to that he was Foundation Professor and Head of the School of Natural and Built Environments (NBE) at UniSA. He was also previously Associate Professor in Geoscience and Associate Dean of Science (Learning Technology) at the University of Adelaide. Prof. James engaged in geoscience research whilst at Adelaide University, including structural geology and tectonics, geological mapping, remote sensing, mineral and hydrocarbon exploration and environmental geoscience. At UniSA, he led the NBE School into research in Environmental Science and Sustainable Development, including better use of transport, land, water, materials, minerals and energy resources and better planning to reduce the risks associated with natural and anthropogenic hazards. His other main academic interests were in science education and in e-Learning, which developed into directions for implementing and evaluating learning technology. This included being a long-term member of the UK Association for Learning Technology (ALT), ASCILITE (Aust.) and AACE/Ed Media (US) and a developer and implementer of CAL, IMM, eLearning and other Technology Enhanced Learning (TEL) initiatives in teaching and he most recently managed a project with Open Universities Australia to implement a fully online Engineering Degree program.

Ankur Joshi is Doctoral Student (thesis defended and submitted) at Management Development Institute (MDI), Gurgaon, Bharat (India). His thesis was on Delivery of Elementary Education in Bharat: a Post Colonial Study Gurukul of System. The Gurukul system was studied in terms of its content, pedagogy and outcomes with an aim to inform education policy on holistic education. The focus was on internalizing the Vedic culture to appreciate the intricacies and apply the indigenous epistemology too. He is currently working at Centre for Promotion of Research in Indian Management and Ethos at Faculty of Management Studies, Banasthali Vidyapith. His research and teaching interests are interdisciplinary in nature covering areas of qualitative research, education delivery, public governance, corporate social responsibility, social Entrepreneurship, sustainable development, ethics, and indigenous research methodology.

Dr. Noni Keys has found her experience working for advocacy NGOs and teaching across diverse disciplines and institutions has led to her commitment to empowering students to become critically thinking, life-long learners. She currently enjoys communicating her passion for sustainability to students in first and second year courses at the University of the Sunshine Coast and collaborating with colleagues on research related to sustainability, transformative learning, and communication.

Deborah King is Coordinator of Learning and Teaching Innovation in the School of Mathematics and Statistics at The University of Melbourne, Australia. She has been a teaching and research mathematician for 20 years, teaching a range of undergraduate mathematics subjects and was Director of the Mathematics and Statistics Learning Centre from 2008–2014. Deborah recently completed national projects on assessment in tertiary mathematics and on first-year tertiary mathematics teaching. She now leads a national network, which aims to build a supportive community of tertiary mathematics educators to encourage the development of innovative approaches to mathematics learning and teaching and to broadly disseminate these initiatives. Deborah's research interests include the professional practice of academics and student-centred approaches to learning and teaching in tertiary mathematics.

Marianne Knaus is a Senior Lecturer and researcher in the School of Education at Edith Cowan University, in Perth, Western Australia. Marianne coordinates the early childhood mathematics programs and a first-year professional practice unit based in childcare centres. Marianne is interested in all aspects of early childhood education and has worked in the field for over 30 years as a teacher practitioner, a TAFE teacher and university lecturer. Marianne's Ph.D. focus was on childhood and the notions of being and time; a phenomenological study on hurried children. Her recent research is quite varied and centres on several topics including communities of practice and the transition to university, mathematics and the pedagogical knowledge of educators, play as a fundamental principle in children's learning and development, and the role of playgroups on school sites.

Tania Leiman is the current Associate Dean (Teaching & Learning) and the Director of First Year Studies at Flinders Law School. She teaches tort law, in the social justice internship and is a supervising solicitor at the Flinders Legal Advice Clinic. She coordinates the New In Law transition and peer mentoring programs for first-year law students. With Mary Heath, Tania co-convenes the Flinders First Year Law Teachers CoP. She is also a member of several other University-wide CoPs. Her 2011–12 Faculty Scholar project entitled 'Teaching First Year: 2012 and Beyond' examined the possibility of using first-year teachers' CoPs in other schools within the Faculty to support staff development. She has received a national and several institutional teaching awards.

Jason M. Lodge, Ph.D. is a psychological scientist and Research Fellow in the Australian Research Council funded Science of Learning Research Centre and the Melbourne Centre for the Study of Higher Education, University of Melbourne. Jason's research concentrates on the application of the learning sciences to higher education and digital learning environments. He is interested in the cognitive and emotional factors that influence learning and behaviour and how research findings from the learning sciences can be better used to enhance design for learning, teaching practice and education policy.

Sally A. Male is a Senior Research Fellow at The University of Western Australia. She leads research projects in the fields of higher education, engineering education, and women in engineering and has received three grants from the Australian Government Office for Learning and Teaching. Her research interests include work integrated learning, capabilities for engineering practice, threshold concepts and threshold capabilities, and intensive mode teaching. Sally is a Fellow of Engineers Australia, Editorial Board Member for the *Australasian Journal of Engineering Education,* Member of the Governance Board of Engineering Institute of Technology, and a Member of the Advisory Council for Women in Oil and Gas—Perth. Sally's publications are listed at http://uwa.academia.edu/SallyMale.

Beth Marquis is an Assistant Professor in the Arts & Science Program at McMaster University and Associate Director (Research) at the McMaster Institute for Innovation & Excellence in Teaching & Learning. She serves as Treasurer of the International Society for the Scholarship of Teaching & Learning (ISSOTL), and is currently Senior Editor of the Canadian Journal for the Scholarship of Teaching and Learning. Beth's SoTL research focuses on the intersections between teaching and learning and questions of equity and justice, and on film and media texts as public pedagogy. She's also committed to supporting and researching student–staff partnerships in higher education, and currently oversees McMaster's unique Student Scholars Program.

Kelly E. Matthews is a Senior Lecturer in Higher Education at The University of Queensland. In 2015 she was awarded an Australian Learning and Teaching Fellowship focused on Students as Partners. She is currently a co-chair for the International Society for the Scholarship of Teaching and Learning (ISSoTL) Special interest Group (SIG) on Students as Co-inquirers and co-leader for the International Collaborative Writing Groups initiative. Her research involves practical applications into contemporary higher education issues focused on undergraduate curriculum reform efforts and students' experiences of learning across degree programs. Kelly draws on the SoTL to engage colleagues in genuine learning experiences to build scholarly teaching capacity, and increasingly partners with students as co-researchers in SoTL.

Joanna Mendelssohn before her appointment to the University of New South Wales, Associate Prof. Joanna Mendelssohn was an award winning art critic for the Bulletin and critic for the Australian and the National Times. Her interest in critical writing arose from her research into the Australian artist and critic Lionel Lindsay (Lionel Lindsay: an artist and his family, Chatto & Windus, 1988). This in turn led to researching the Lindsay family's constructed narratives, which was the subject of her Ph.D. thesis, and later published as Letters & Liars: Norman Lindsay and the Lindsay Family (Angus & Robertson, 1996). She has curated exhibitions on the work of Australian artists, most recently Larter Family Values, an exhibition that examined the relationship between the artists Richard and Pat Larter. Her interest in the construction of narratives that shaped art history led to her instigating the project that became the Dictionary of Australian Artists Online, DAAO (www.daao.org.au).

This national collaborative project was funded by three ARC LIEF Grants. One of the projects that was made possible by the DAAO was a new initiative with Dr. Catherine De Lorenzo and Associate Prof. Catherine Speck, of examining the nature of recent Australian art historiography.

Deb Moulton is currently the Teaching and Learning Consultant in the School of Natural and Built Environments at the University of South Australia. In this role she works with academic staff to enhance their teaching skills and to implement new teaching and learning strategies in response to the changing needs of higher education. Her current interests are working with staff to develop more flexible and engaging learning options such hybrid courses, the use of more interactive teaching strategies and gamification elements. Prior to this position she worked as a Consultant on AusAID and USAID Education projects in the Philippines. She has been a primary principal, secondary assistant principal and has managed and been a team member on several state-wide education projects within the South Australian Education Department. In these roles she has written training manuals, reports and presented at both national and international conferences.

Vickel Narayan a learning and teaching consultant at the Centre for Learning and Teaching (CfLAT) at the Auckland University of Technology. Previously, Vickel was an Academic Advisor (eLearning) at Unitec Institute of Technology from 2009 to 2011. He has a keen interest in Web 2.0 technologies and its potential to engage students and teachers in the teaching and learning process. Vickel is particularly interested in exploring mobile Web 2.0 tools for creating, nurturing and maintaining virtual communities, social connectedness, fostering social constructivism, student-generated context and context.

Noeleen O'Keeffe is an Academic Co-ordinator/Digital Learning Specialist in the Open Education Unit, part of the National Institute for Digital Learning in Dublin City University. Noeleen has over a decade of work experience in elearning/digital technologies, technology enhanced learning and academic management for online distance education programs within Dublin City University and previously with the University of Ulster, Coleraine. Noeleen holds a Bachelor of Science from NUI Galway and a Master of Science in Biomedical Science from the University of Ulster, Coleraine.

Muireann O'Keeffe has worked in higher education for 15 years in various roles. More recently as an academic developer she has worked with academics on enhancing pedagogy within teaching contexts. She is currently completing her Doctorate of Education which explores the use of the social network service Twitter for professional learning. She is particularly interested in communities for professional learning, reflective practice, action research and qualitative research approaches.

Dr. Hans M. Oberg is an Associate Professor and Head of CeSAM; a unit that coordinates and conducts teacher training of academic staff, as well as training in the use of digital resources, the development of courses, teaching skills and

knowledge in higher education at Malardalen University, Sweden. Currently involved in the following research areas: teachers in higher education, the use of online teaching and networked learning, as well as distance and blended learning.

Associate Prof. Glennys O'Brien studied chemistry at the University of Auckland, completing her Ph.D. in environmental chemistry. She then worked for several years as an analytical chemist before taking time out for her young family and relocating to Australia. She is currently Director of First Year Studies in Chemistry at the University of Wollongong, a "teaching intensive" post she has held since 2006. Glennys has been co-Director of the Chemistry Discipline Network (ChemNet) since July 2012, and via the network, played a major national role in the development of the Chemistry Threshold Learning Outcomes. She has held several internal T&L grants and various governance positions within the University of Wollongong, is an investigator on two Category 1 ALTC-OLT grants and is a reference group member of the MathBench Project (Deakin lead). Glennys is a member of the Australian Council of Deans of Science's newly formed First Year Science Coordinators Working Party, setting up workshops to assist new coordinators. Glennys has extensive experience in all aspects of teaching large service subjects in first year, and has welcomed the networking opportunities of ChemNet to both share this experience and add to her collection of tricks of the trade.

Claire Palermo Claire Palermo is a Senior Lecturer in the Department of Nutrition and Dietetics in the Faculty of Medicine, Nursing and Health Sciences at Monash University. Claire entered academia after 10 years working as an Accredited Practising Dietitian in community-based preventive health. These formative years have been the inspiration for two mutually reinforcing areas of academic research excellence: education of the nutrition workforce and investigating the impact of food cost and access as a determinant of nutritional intake. She was awarded the Dean's Award for excellence in teaching in 2009. Her Ph.D. involved the evaluation of a mentoring program for public health nutrition workforce development. Claire is known for her work in developing the *Victorian Healthy Food Basket*, a tool to monitor the cost of a nutritious diet, and for her work as an *Office for Learning and Teaching* (OLT) fellow on competency-based assessment.

Lee Partridge is a Senior Lecturer in Higher Education Development working in the University of Western Australia (UWA) Centre for Education Futures (previously known as the Centre for the Advancement of Teaching and Learning) with a particular interest in the development of early career academics. Her work has been recognized with two institutional awards for teaching excellence, two national awards for Programs that Enhance Learning in 2011 and 2013 and a HERDSA Fellowship in 2013. In 2014 she was chosen to participate in an international research project examining the mentoring of undergraduate research which is facilitated at the Center for Engaged Learning at Elon University in North Carolina. She is actively involved in communities of scholars both within Australian and overseas. She has participated in three ALTC/OLT funded projects as a team

member. She is a member of a number of scholarly societies and has served an executive committee member in the Asia Pacific Forum of Academic Integrity (2009–2012) and HERDSA (2013–current). She is frequently invited as a guest speaker or research member in National or international conferences or projects.

Lesley Petersen Lesley Petersen has over 25 years' experience in learning and development within higher education contexts, specifically building her expertise in the areas of mentoring and evaluation research. She completed her Ph.D. in 2011 which explored how mentoring provides a support mechanism for professional practice and resulted in the development of an evidence-based mentoring model. Lesley uses her model and mentoring experience to assist organizations in implementing mentoring programs as a mechanism for supporting professional development and enhancing leadership capabilities. Lesley has assisted a number of academic institutions across New Zealand, Australia and Asia in setting up and coordinating communities of practice for lecturers and managers at middle and senior levels. Her research has also involved evaluating the impact of communities of practice as a teaching professional development mechanism. Lesley is recognized for her mentoring and research skills and is involved in managing and leading national and international research projects. Her work in this area include writing funding applications, conducting research to pilot new systems and approaches, and evaluate needs, strengths and areas for improvement in existing systems for organizational development. She is a published author including refereed papers in Australasian conference proceedings and international journals.

Liam Phelan is a Senior Lecturer and the Online Teaching and Learning Coordinator with GradSchool, at the University of Newcastle, Australia. He is also a Conjoint Senior Lecturer with the School of Environmental Life Sciences at the University of Newcastle, and an Adjunct Professor with the Krieger School of Arts and Sciences at Johns Hopkins University in the United States. Liam researches and publishes in two areas: education and environmental studies. He supervises Ph.D. candidates in both fields and also serves in editorial and review board capacities with journals in both fields. Liam is a Fellow of the Higher Education Research and Development Society of Australasia.

Dr. Clare Power is currently a Lecturer with the School of Education, Western Sydney University (WSU), NSW, Australia. Clare is the School's academic literacy coordinator as well as the coordinator of an undergraduate peer mentoring unit. Clare's passion for, and expertise in, peer learning developed through her award winning implementation and coordination of the PASS (Peer Assisted Study Sessions) program at WSU. Clare continues to research and publish in this area. Additionally, her Ph.D. research into sustainable communities informs her approach in the teaching space as a facilitator of learning and community formation. Clare feels privileged to participate in students' journeys of understanding and increased self-confidence through their learning experiences.

Dr. Debbie Prescott is head of the eLearning Unit at the University of Liverpool—a central Unit that supports staff across the institution to use technology effectively in their learning and teaching activities. She researches, and completed her Ph.D. in, the adoption and implementation of educational technology in Higher Education. She contributes to the development and implementation of the institution's policies and strategies around educational technology.

Pramila Rathore is an Online Educational Designer and has been working in the field of designing and developing online and blended learning resources in the higher education sector. Her interests lie in Information Communication Technology, Arts and Literature. She has technical expertise in the use of Learning Management System Moodle, Mahara, Camtasia, iSpring Suite and a range of other software and developing complex learning environments for online learning. A past teacher and course manager at University of South Australia, her current position is an Online Educational Designer for Teaching and Learning Projects within the Division of Information Technology, Engineering and the Environment (ITEE). In this role, she works with Course Coordinators on the development of flexible, online and blended learning solutions for Engineering programs. She devises strategies to incorporate student-centred, collaborative, reflective and interactive activities to maximize facilitation of student learning outcomes and promote experiential learning. She is interested in the use of innovative online technologies and multimedia tools that drive initiatives in online teaching and learning, particularly those that support collaborative and co-creative learning in synchronous and asynchronous environments (virtual classrooms, multimedia, ePortfolio, Videos, Wikis, Forums, Simulation based learning, Second Life, 3D immersive environments).

Dr. Arianne Rourke is an Associate Professor at UNSW, Art & Design. She teaches design history and theory courses to design, art and media arts students. Her research is in higher education pedagogy, specifically focusing on investigating methods for improving the use of visuals in instructional design to assist towards promoting the long-term retention of learning. Dr. Rourke has published widely her experimental research, which includes a co-authored book with Dr. Zena O'Connor titled: *Effective use of visuals in teaching in higher education* (2012) and a co-edited book with Kathryn Coleman, titled: *Pedagogy leads technology: Online Learning and Teaching in Higher Education: New Technologies, New Pedagogies*, (2011). Dr. Rourke has also co-edited books with Dr. Vaughan Rees, including: *Building minds, forging bridges: teaching in a visually littered world*, (2013), *Researching the Visual: Demystifying 'the picture that's worth a thousand words* (2014) and *Moving from novice to expert on the road to expertise, Developing expertise in the visual domain* (2015). She serves on a number of editorial boards in both the United States and Canada. In 2016 she is co-curating a book series on 'Transformative pedagogies in the visual domain' with Dr. Vaughan Rees to be published with Common Ground.

Aaron Ruutz is a Lecturer and Senior Program Convenor at Griffith College, partner to Griffith University. Aaron's teaching and research interests are in the areas of management, marketing, and academic development. Aaron's research is primarily teaching and learning focused on teaching innovation, online and blended learning, and effective teaching practice. Specifically, a stream of this research is positioned in the area of communities of practice and teacher professional development, where he has a particular interest in understanding how technologies can support teachers in their developing practices.

Lisa Ryan is an Associate Lecturer in Sustainability Education at the University of the Sunshine Coast, Australia, where she is a member of the sustainability community of Practice. Her research focuses on the professional development of sustainable schools teachers and systems approaches to change within teacher education. Her current Ph.D. research draws on postcolonial theories to explore how Eco-Schools teachers are negotiating global eco-schooling discourses in their local contexts.

Madeleine Schultz studied chemistry at ANU and completed her Ph.D. at the University of California, Berkeley in organometallic chemistry in 2000. She then worked as a research postdoc in synthetic chemistry and a chemistry academic before becoming fascinated by chemistry education and completing a Master in Education. Together with a team of chemical educators she founded the Australian Chemistry Discipline Network (ChemNet) in 2011 as a community of practice. Since then her engagement with chemical education in Australia and worldwide has opened many new horizons. She has held several national and internal grants in teaching and learning and has benefitted from interactions with leaders in the field. In 2012 she relocated to Germany and currently works as a synthetic chemist at the European Molecular Biology Laboratory while researching chemical education and maintaining the activities of ChemNet in her spare time. Her main interests are the learning and teaching of chemistry concepts and the transfer of pedagogical content knowledge.

Sally Stewart Knowles is a Research Development Advisor in the Office of Research and Innovation at Edith Cowan University where she supports staff with their writing for research and publication. Since 2003, following Barbara Grant's retreat model (The University of Auckland), she has facilitated over fifty academic writing retreats for several Australian Universities and research institutes. She has organized and participated in a cross-institutional community of women scholars called *Women Writing Away* (WA) who have been meeting seasonally in a restorative bush setting for the last 13 years. In 2014 Sally was the recipient of a Vice-Chancellor's Award for Programs that Enhance Quality and Performance for her writing retreat facilitation. She has a strong interest in how practice-led research from the creative and performing arts can infuse the research and writing practices of so called 'traditional' researchers. Other research interests are in the areas of transnational education, research writing pedagogies, and academic identities. She is an inaugural IDERN (International Doctoral Education Research Network)

member and has researched supervision for many years. Her doctorate investigated doctoral supervision, feedback and power relations, and was awarded the Murdoch University School of Education Prize for Ph.D. Studies in 2009.

Suzanne Stone has worked in the area of education for over 10 years, completing a Masters in eLearning in 2011. She has worked as learning technologist at St. Patrick's College since 2013 supporting staff to integrate a range of learning technologies into their teaching and learning. Having worked in the video/TV production sector for several years, Suzanne has a particular interest in the use of video in education and has developed professional development for staff around video production and editing. She is currently engaged in research around the engagement of students in the live online classroom, and also an action research project investigating workplace learning through Web 2.0 technologies.

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Prior to academia, Jane worked for non-government and government organizations on a range of community-based health promotion programs and has always had a strong interest in schools as settings for creating health, women's, and Indigenous health. Her discipline research focuses on the evaluation of health promotion programs, strengthening the theoretical foundations of health promotion, and the use of critical theory and the values and principles of critical health promotion to develop the competence of the health promotion workforce, reorient health services, and conduct health promotion research.

Associate Prof. Dana Thomsen, Ph.D. is an executive member of the Sustainability Research Centre at the University of the Sunshine Coast, Australia. As a human geographer, her research focuses on relationships within social-ecological systems and how these are transformed through learning and communication. Dana has led projects in both academia and state government and her research has made significant contributions to understanding and advancing sustainability within communities and institutions. Dana's publications on Defining Community, Sustainability Innovators and Sustainability Indicators have influenced regional policy and her publications on Vulnerability, Adaptation, Manipulation and Resilience have been included in high impact journals and have provided a critical review of established theory and practice. Dana recently led a collaborative project, awarded funding from the Australian Government Office of Learning and Teaching, to develop a Regional Community of Practice for Transformative Climate Change Education. Dana is currently working on several teaching and research projects in coastal and climate change contexts with an emphasis on communication innovations to advance adaptive learning processes.

Dr. Pawan Verma's thesis was titled "A comparative study of needs and aspirations of Adolescent students studying in UP boards and CBSE boards". He additionally pursued a Postgraduate Diploma in Yog and Psychotherapy, where his thesis was on "Shiv Swarodya: Treatment of Psychosocial Problems". His 18 years academic experience consists of Teaching, Administrative and Research. In which he has taught subjects like Industrial Relations, Labor Laws, Social casework, Group work, Community Organization, Family and child welfare, and CSR and HRM. Presently at MDI-Gurgaon's School of Public Policy and Governance, he works to liaison with Government Officials of various Ministries like MHA, MOTA, MoD, MES, Ministry of DoNER, Indian Railways, State Government and PSUs NGOs along with DoPT. He publishes his research work in the field of CSR, Education, and Leadership etc. His topics of interests are: CSR, Leadership, Education, Research Methodologies, Yog, Ayurved & Sanskrit.

Prof. Margaret Vickers Prof. Margaret Vickers is an Emeritus Professor of Education at Western Sydney University. Over the past 10 years her research has focussed on refugee education. She has authored numerous scholarly articles and book chapters examining policies and practices for supporting and educating refugee-background students who are entering the Australian community. In collaboration with A/Prof. F.E. McCarthy she published *Refugee and Immigrant Students: Achieving Equity in Education* (IAP, 2012), a book that was described by Quaynor (2013) in *Teachers College Record* as '… the best compilation currently available to begin a cross-national conversation on the possibilities and dilemmas of education for refugee students'. Five years ago, in collaboration with Dr. Katina Zammit, she established a cross-level mentoring program that continues to support students with refugee backgrounds at Western Sydney University. Vickers also has long-standing expertise on youth in transition, high school completion, VET and the senior secondary curriculum, and the influence of part-time student employment. She started out as a high school science teacher, and her career includes appointments as Chief Scientist at TERC in Cambridge, Massachusetts; as a research program manager at the Paris-based OECD; and in the youth policy division of the Australian public service.

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Etienne and Beverly Wenger-Trayner are internationally renowned social learning theorists and consultants. Their pioneering work in the field of social learning has been influential in such diverse fields as business, government, international development, healthcare, and education. Their consulting practice

specializes in contexts where there are large-scale social learning challenges. They bring people together across organizations, geography, sectors, and disciplines to address complex problems. Etienne is known for his seminal work on communities of practice, and is currently Visiting Professor at the University of Brighton. Beverly is known for her work with international organizations including cross-boundary processes and the use of new technologies. Together they are developing and publishing conceptual frameworks and practices to address the learning challenges facing public and private organizations today.

Dr. Katina Zammit is a Senior Lecturer and Director of Academic Program (Primary) in the School of Education at Western Sydney University. She began her teaching career as a primary teacher in Sydney's inner west, and has been a literacy consultant for the Metropolitan East Disadvantaged Schools Program, and in the NSW Department of Education. Her research interests include pedagogy for students from low SES backgrounds, multimodality, leadership for change and support of students from refugee backgrounds in higher education. She has been involved with the *Fair Go Project/Program* over its many iterations. Katina has been a co-chief investigator most recently with Prof. Margaret Vickers on an Office of Teaching and Learning (OLT) grant to develop a cross-level mentoring program to support students with refugee backgrounds at Western Sydney University. Katina works closely with teachers and schools developing communities of practice that support the learning of students and teachers. Katina has published in peer-reviewed journals and books, with her most recent work being included in the *International Handbook of Semiotics*.

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Part I
Profiles of Higher Education Communities of Practice: Case studies

The seven chapters in this section provide diverse examples of implementation of CoP in higher education setting.

Chapter 1 "Sustaining the Momentum: a cross-institutional community of practice for research supervisors" by Cater-Steel and McDonald reports on the history and outcomes of a CoP aimed to improve the capability of research supervisors at the University of Southern Queensland (USQ) and identifies critical success factors for sustainability of the CoP.

Chapter 2 "The role of higher education in facilitating communities of practice to support health professionals practice" by Palermo tells the stories of two CoPs designed for nutritionists wanting to improve the population's health through strategies that create environments to make healthy food choices easy.

Chapter 3 "Building a network and finding a community of practice for undergraduate mathematics lecturers" by King and Cattlin describes a case study of a discipline-based, cross-institutional CoP with the aim of building and supporting the leadership capacity of mathematicians teaching undergraduate mathematics in Australian universities.

Chapter 4 "Communities practising generous scholarship: cultures of collegiality in academic writing retreats" by Knowles reports on a follow-up study of a CoP for doctoral students and academics for ongoing writing retreats in an Australian university.

Chapter 5 "Using Technology to Build Engagement in a Global Scholarship of Teaching and Learning (SoTL) Community of Practice" by Clarke et al. describes the creation, facilitation and evaluation of a New Scholars' Scholarship of Teaching and Learning (SoTL) program in which technology was adopted in various ways to support transition of new scholars into the broader SoTL global community.

Chapter 6 "Researcher preparation for indigenous fundamental research through collaborative participation" by Bindlish et al. presents a collaborative auto-ethnography of researchers' preparation for undertaking indigenous fundamental research.

Chapter 7 "Imagining the world: Creating an artistic community of practice in an academic environment" by Fegan presents the story of a CoP developed from a university-based arts project in which 40 university student volunteers designed and painted concrete panels on the theme of globalization.

Chapter 1
Sustaining the Momentum: A Cross-Institutional Community of Practice for Research Supervisors

Aileen Cater-Steel, Jacquie McDonald, Peter Albion and Petrea Redmond

Abstract Research supervision is an important learning and teaching issue in Higher Education Institutions. This paper reports on the history and outcomes of a community of practice that has been meeting since 2009 to improve the capability of research supervisors at the University of Southern Queensland (USQ) Australia. The Community of Practice—Research Supervisors (CoP-RS) includes academic staff from all USQ Faculties and across all campuses. We describe the background that prompted the formation of the CoP-RS and then detail the activities undertaken to date. The outcomes and challenges are discussed with the view to identify critical success factors to ensure sustainability of the CoP. Conclusions are drawn and future research directions suggested.

Keywords Research supervision · Communities of practice · Professional development · Capacity building · Evaluation

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1.1   Introduction

Increasingly, Universities in Australia are under pressure to ensure postgraduate research students complete their projects in a timely manner. We also need to consider student satisfaction with the quality of Higher Degree Research (HDR) supervision provided and ensure adequate resources are provided to ensure effective supervision.

The objective of this chapter is to highlight the critical success factors that have contributed to the sustained operation of a community of practice that was formed to support the capacity development of supervisors of HDR students.

Previous research has shown that supervisors tend to base their supervision approach on their own experience as research students (Pearson and Brew 2002). Traditionally, it was presumed that anyone capable of performing research was able to effectively supervise a research project (Taylor and Beasley 2005). Furthermore, the role of Principal Supervisor was typically achieved only after serving an 'apprenticeship' as an Associate Supervisor "for the duration of a candidature, from admission through to submission of thesis and successful award of degree" (Monash University 2004).

Literature has emerged relating to the pedagogy of research supervision and the recognition of research supervision as a form of teaching (Manathunga 2005). Consequently, research supervisors are urged to reflect on their own research style and that of their students. Pearson and Brew (2002) mount a compelling argument that supervisors need to develop a "repertoire of knowledge and understanding about different aspects of supervisory practice" (p. 146).

Prior to 2008, much of the professional development for research supervisors at USQ was conducted within Faculties. It was organised in a sporadic, ad hoc fashion with little evaluation of training programs. In 2008, the Graduate Research Committee at USQ decided to implement an accreditation scheme for HDR supervisors. This raised awareness of the need for a coherent training program for supervisors.

A Community of Practice for Research Supervisors (CoP-RS) was established in 2009 and continues to meet regularly. The purpose of the CoP-RS is to provide a formal social network of USQ research supervisors to encourage education, dissemination of good practice and to build on the existing knowledge in research supervision. Support and guidance has been provided by USQ, Learning and Teaching Support (LTS) CoP expert Dr Jacquie McDonald, as part of her LTS Community of Practice leadership role.

In this chapter, we provide a brief overview of the community of practice literature, then using narrative inquiry, outline how CoP theory was, and continues to be, implemented in practice. Finally, we explain how the CoP-RS has overcome challenges to sustain its focus and function over seven years. Conclusions are drawn and future research directions suggested.

1.2 Background of HDR Supervision Development Project

A USQ Learning and Teaching (L&T) Fellowship project was approved in 2009 to address two key issues:

- Do research supervisors at USQ have adequate knowledge and skills to supervise students?
- Can the capability of research supervisors be improved by offering workshops and resources as part of USQ's professional development program?

The project followed guidelines promoted by Pearson and Brew (2002) and "focused on the development of supervisors' knowledge base, their skills and their orientation to their practice" (p. 148). It aimed to provide the following learning outcomes for research supervisors:

- knowledge of USQ institutional requirements and procedures including ethics and workplace health and safety;
- greater self-awareness of supervisors' own conceptions of research and supervisory practice;
- an understanding of what constitutes a productive research learning environment; and
- an appreciation of a range of good practice approaches to research supervision.

The L&T project comprised four main activities to be achieved in one semester from March 2009:

1. Establish a Community of Practice for Research Supervisors (CoP-RS);
2. Perform training needs analysis;
3. Develop and conduct induction and pilot workshops program;
4. Evaluate the program and report outcomes and recommendations to stakeholders.

The focus of this chapter is on the first activity: the CoP for research supervisors.

1.3 Prior and Current Research on CoPs

The community of practice approach (Wenger 1998) supports the development of a knowledge base for supervisors. Wenger's approach provides a framework where subtle, tacit types of knowledge can be cultivated, shared and sustained (Hildreth and Kimble 2004). Tacit knowledge is highly personal, and is understood without being articulated. It is the kind of knowledge that successful, experienced supervisors use in their everyday practice; however, it is hard to formalise and therefore difficult to communicate to others as it is unvoiced or unspoken. Lave and Wenger

(1991) and Vygotsky (1978) have identified the acquisition of knowledge as a social process and communities of practice provide an opportunity to share and articulate tacit knowledge. The CoP approach of sharing practice and building domain knowledge (Wenger 1998), creates an environment where tacit knowledge can be made explicit.

The term 'communities of practice' emerged from Lave and Wenger's (1991) study that explored learning in the apprenticeship model, where practice in the community enabled the apprentice to move from peripheral to full participation in community activities. Wenger, McDermott and Snyder (2002) describe communities of practice as:

> Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis … (As they) accumulate knowledge, they become informally bound by the value that they find in learning together. Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices, and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice" (pp. 4–5).

The community of practice model proposed by Wenger (1998) and developed further for business contexts by Wenger, McDermott and Snyder (2002) provides a framework for the building of successful academic communities of practice. The essential elements of a Community of Practice are defined by Wenger (1998) as:

- a domain of knowledge that creates a common ground and sense of common identity;
- a community of people who care about the domain and create the social fabric of learning; and
- a shared practice that the community develops to be effective in its domain.

In this project, the domain of knowledge is focused around research supervision and the community members are USQ research supervisors. At USQ substantial progress has been made in adopting the Community of Practice concept since it was piloted in 2006 in the Faculty of Business CoP for First Year Core Course Leaders (McDonald and Star 2006, 2008). The model has a number of unique features that have proven successful at USQ for implementing and sustaining CoPs in an academic context. These features include the use of the three CoP elements of community, sharing practice, and building domain knowledge which provide the organising structure for CoP meetings.

This CoP structure ensures that each of the essential elements of a CoP is addressed at CoP meetings and provides clear direction, outcomes and value-adding for members. The structure, community support, and outcomes have assisted in addressing initial scepticism about 'just another meeting', and ensure best use of the time committed, for time-poor tertiary educators (McDonald and Star 2008).

1.3.1 Brief History of Social Learning Theory and Communities of Practice

USQ CoPs are informed by social learning theory (Bandura 1964) moving the focus of learning from the individual to a cognitive process that takes place, or is situated, in a social context. Vygotsky (1978) made a major contribution to social learning theory by arguing for the importance of social relations and supporting learners to relate what they already know with what they could know, thereby influencing educational approaches and underscoring the importance of learning in a social environment. Mercieca (2016) provides an extended discussion on the social-cultural underpinning of CoPs. Mercieca notes that Vygotsky (1978) saw social relations as an important component of developing higher level thinking, and should not artificially separate intellectual and social activities: "Rather, we should conceive of the individual and his environment as factors that mutually shape each other in a spiral process of growth" (Vygotsky 1978, p. 22).

The term 'Communities of Practice' emerged from research into learning at the Xerox Palo Alto Research Centre in California in the 1980s (Tight 2015), and has moved from describing organic communities to suggest approaches to create and support communities, implement intentional and strategic communities, and to view not just individual communities, but members of communities operating across a whole landscape of practice. Etienne and Bev Wenger-Trayner have moved their social learning and Community of Practice research and theory from CoPs in a specific practice field to social learning and knowledgeability across a whole landscape of practice (Wenger-Trayner et al. 2015).

The early work of Lave and Wenger (1991) that investigated the apprenticeship model of learning showed that, rather than the novice apprentice learning from the master craftsman, learning took place through a complex set of social relationships. A whole social network, including other apprentices, supported the learning journey within the particular practice field, and eventually led to recognition as a fully-fledged member of the Community, hence the term 'Community of Practice'.

The Community members have valuable local knowledge and strategies to share with their colleagues. Within the CoP literature, this is highlighted by the emphasis on the practice of the participants, the sharing of tacit knowledge, and the role of apprentices, who learn the craft of their masters through observation, imitation and practice (Wenger 1998). Research and CoP literature has moved from this early identification of CoPs in craft 'training', to study of CoPs in industry, government, education, and international funding agencies. The explosion of knowledge and use of technology in Higher Education is equally reflected in its impact on business, government and all aspects of society. While increasing knowledge is valued, how to manage and share knowledge is a challenge to Higher Education institutions, educators and learners. As noted by Wenger et al. (2002) early attempts at knowledge management originated from information technology departments that

tended to confuse knowledge and information. Huge resources have been devoted to building (often unused) information systems and data bases. These can capture explicit information as knowledge 'objects'; however, tacit knowledge is "an accumulation of experience" (Wenger et al. 2002) that continues to grow with everyday experience, and people (in this case—research supervisors) are the living repositories of the knowledge, which can be shared within the CoP. With tacit knowledge, people are often not aware that they possess it or of how it can be valuable to others. Wenger et al. (2002) argued that tacit aspects of knowledge are often the most valuable and sharing requires extensive personal contact and trust, and the interaction and informal learning as experienced in CoPs.

1.4 Methodology

The methodology used to conduct the research for this chapter was based on narrative inquiry with reflective processes as a means to document the experiences of the CoP-RS facilitators. The narrative inquiry approach entails the documentation and analysis of sequential personal accounts of a specific domain of discourse, allowing the research participant to tell his or her own story (Hunter 2004). As faculty members, we are encouraged to use reflective practice to prompt considered actions to enhance our teaching (Fry et al. 2009; Schön 1983).

This research was motivated by our desire to document and share the details of the CoP-RS initiative. The authors met and discussed in detail our experiences in terms of the CoP-RS establishment, meetings, history, support challenges, and outcomes. We also accessed the CoP-RS repository, annual reports and results from the annual evaluation surveys. After agreeing on the format of the narratives one of the authors prepared a draft account that was reviewed by the other researchers. Through this process we were able to gain deeper understanding of the issues and outcomes of the CoP-RS since its inception in 2009.

1.5 Establishment of CoP-RS

One of the highlights of the L&T project was that it contributed to overcoming internal USQ boundaries between 'Research' and 'Learning and Teaching'. Financial support from the Pro-Vice Chancellor (PVC) L&T was provided with an Associate Fellowship grant. The project also involved the Human Resources department (recording of attendance for professional development register, scheduling workshops), the PVC Research (funding for CoP-RS refreshments) and also the Office of Research and Higher Degrees (providing lists of supervisor names). The planning and implementation of CoP-RS was a collaborative

partnership between two of the authors of this chapter: the Project Leader and a member of LTS. This is an example of the 'joint portfolio' between the teaching and learning centre and the research centre of the university as discussed by Murphy (2004).

To help establish the CoP-RS, lists of supervisor names were provided by each Faculty and were in five different formats. The files contained errors in listed names and some names were omitted. When the lists were combined, de-duplicated, and corrected, the total population of supervisors numbered 190 rather than the initial estimate of 80. Invitations were emailed to the supervisors to attend the launch of the project and the first CoP-RS meeting.

The role of convenor was shared by a domain expert, in this case the Project Leader (Aileen Cater-Steel) and a convenor with knowledge of CoP processes and professional development knowledge (Jacquie McDonald).

The establishment of the CoP-RS across all faculties at USQ commenced with the launch of the project by the PVC (Research). Support and guidance was provided by L&T CoP expert Dr Jacquie McDonald, as part of her Learning and Teaching Support (LTS) Community of Practice leadership role. CoP priorities and a yearly agenda were established from issues identified by members at the first CoP meeting. The CoP-RS meetings have a three part structure: fellowship and sharing refreshments; sharing practice; and building domain knowledge.

During the initial CoP-RS meeting, supervisors worked in groups to discuss, list, and prioritise issues in relation to research supervision. The issues fell into four categories:

- Lack of training, mentoring, workload allocation to support supervisors. Training requirements include thesis proposal defence, thesis writing, philosophy and methodology. It was suggested that a requirement existed for compulsory professional development for all supervisors and to undertake an audit of supervisors' skills and processes.
- Need to establish and maintain positive relationships with students and to recognise external pressures for student to complete in minimum time.
- Requirement for a central web-based repository so supervisors can access policies, procedures, definitions.
- Difficulties in supervising international students in Australia and across borders.

The final issue at start-up time was as a result in the doubling of the headcount of international research students over a 5 year period from 39 to 88 as shown in Table 1.1.

Table 1.1 Higher degree research students–student headcount from 2003 to 2008

Student group	Year					
	2003	2004	2005	2006	2007	2008
International	39	43	51	58	65	88
Domestic	146	157	158	157	203	241
Total	185	200	209	215	268	329

Source USQ Data

The second CoP-RS meeting focussed on sharing practices related to international students. Members discussed the challenges of supervising international students and suggested a range of solutions to overcome the perceived challenges. One suggestion implemented was the use of the existing USQ learning management system (Moodle) to create a community research 'course' that was not tied to any program or semester offer. This 'course' provides an online environment for supervisors to share resources, build learning communities and electronically answer frequently asked questions, for example, about policy issues.

Although the L&T project achieved its outcomes in terms of the establishment of the CoP-RS and the pilot workshops, there were challenges. Supervisors from all five faculties were invited to the CoP-RS meetings; however, only about 20 participated in the CoP at the early stage, with little interest from supervisors at USQ's branch campuses. It is not surprising that there was resistance as the project was associated with USQ's implementation of a supervisor accreditation initiative. Increasing expectations of accountability and performance have changed the traditional supervisor role, with the locus of accountability with "the institution rather than individual academics, particularly in Australia … where ranking relates to the institution rather than its 'component parts'" (Coaldrake and Stedman 1999, p. 11).

Since the CoP-RS was formed in 2009, the activities/functions have followed the following pattern:

- Annual update of members' contact details from Office of Research Graduate Students (ORGS) list of active supervisors;
- Funding application for year's activities;
- Planning meeting at start of year to set dates, venues, propose topics, speakers;
- 6–8 meetings per year, each of 2 h duration, with videoconferencing from main to branch campuses, with refreshments (lunch);
- Repository updated (Moodle Learning Management System) with agendas, reports, presentation files, templates, procedures, photos, documents etc.
- Annual online evaluation survey of attendees;
- Annual report of CoP-RS activities and outcomes to DVC (Research and Innovation);
- End of year celebration with recognition of supervisors with graduates—certificates and gift.

In addition, specific recommendations from CoP-RS meetings are referred to appropriate committees/officers, initially the Graduate Research Committee, and more recently to Office of Research and Deputy Vice-Chancellor (Research and Innovation).

The HDR student load has shown steady growth over the last five years as shown in Fig. 1.1. The number of academic staff involved in HDR supervision has increased accordingly.

HDR Student EFTSL 2011-2015
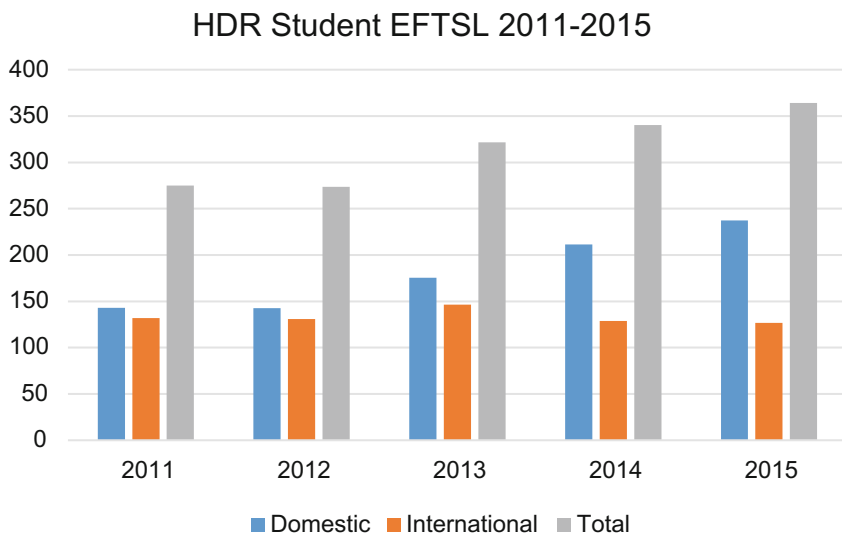
Fig. 1.1 USQ HDR student load 2011–2015. *Source* Terry (2016)

1.6 Sustaining the Momentum

1.6.1 Institutional Support

There is an administrative overhead to maintaining the CoP-RS in terms of refreshing the list of members, arranging venues and speakers for meetings, recording notes, updating the repository of documents, conducting the evaluation survey and identifying successful supervisors to be recognised in the year-end celebration. The facilitators of the CoP-RS were not provided with any workload relief for these activities, which were initially performed by a project officer funded via an Australian Learning and Teaching Council (ALTC) Fellowship grant (McDonald 2014).

In 2011, as the number of CoPs increased and became recognised at USQ as valuable initiatives for staff professional development and student support, the CoP support role was relocated from LTS to Human Resources (HR) and the level of support to the CoP-RS reduced to registrations of participants and bookings of venues. In this regard, the CoP-RS fared better than others as the Pro Vice-Chancellor (Research), as sponsor of the CoP-RS, provided ongoing funding for casual administrative assistance as well as the cost of refreshments.

In mid-2013 the organisational structure of USQ's Academic Division was radically changed. The number of faculties reduced from five to two and senior leadership positions changed. The incoming DVC (Research and Innovation) pledged to continue support of the CoP-RS and took over the role of sponsor, providing refreshments while the two Associate Deans (Research and Research

Training) provided administrative support from their professional staff. In fact, there has been high turnover in the staff providing administrative support but the care to maintain procedural documentation has enabled reasonably seamless handovers.

1.6.2 Facilitator Succession Plan

Recognising the risks of relying on one key person to organise the CoP-RS, since 2011 active members have been recruited to share the facilitation duties, plan the meeting schedule and agendas, and chair meetings. Care is taken to ensure both Faculties are represented in the facilitation team and that facilitators develop key leadership skills, capabilities or competencies that are needed to contribute to successful leadership by the facilitator (McDonald et al. 2012). Co-facilitation is an accepted approach in USQ CoPs and is acknowledged as a strength through sharing and building leadership capacity and ensuring succession transition (Etienne Wenger, personal conversation 2009).

1.6.3 CoP-RS Activities

As at the end of 2015, the CoP-RS has held a total of 47 meetings and attracted 1214 attendances. This represents 2428 hours of professional development. Topics for discussion have covered both administrative and academic knowledge and skills required by supervisors. Administrative knowledge includes topics such as USQ research strategy, intellectual property (IP) policy and contract framework, ethics approval processes, workplace health and safety issues relating to students, policies related to research finance support, administrative processes, USQ and Federal Government policies relating to admission, confirmation of candidature, submission of thesis, and examination. In relation to academic knowledge and skills specific areas discussed include nurturing the student-supervisor relationship, literature reviews, development of the research proposal and confirmation of candidature, thesis writing, and data analysis methods.

As well as invited visiting distinguished experts, senior managers are invited to address the meetings and update members on changes to strategy (e.g. Senior Deputy Vice-Chancellor, Deputy Vice-Chancellor (Research & Innovation), and Director of Office of Research and Graduate Studies). Other USQ professional staff with duties directly related to HDR student supervision are also invited to present topics e.g. Ethics and integrity manager, Grants officer, Legal officer, ICT Support Manager, Research Librarian, e-Research Analyst, Statistics Consultation group, and Director International Office.

1.6.4 CoP-RS Outcomes

An online survey of attendees is conducted annually with support from USQ's Strategic Business Management and Improvement staff. When asked why they attend the CoP, there are three main reasons given by supervisors:

- Professional development e.g. "To increase my skills as a supervisor and to learn of requirements and expectations of the University", "As a newly accredited supervisor, to learn from the experience of more seasoned supervisors".
- Sharing knowledge e.g. "To help others learn from my experiences and for me to learn how to better support my students", "To see what others are doing—and maybe foist my opinions onto them".
- Participation in a community e.g. "I enjoy the group interaction", "I like to reflect on my supervision and I prefer to do that with colleagues rather than by myself", "Interesting topics, collegiality and support network", "Networking opportunities".

In terms of how useful participants find attendance at the CoP-RS, the positive comments were aligned with the three motivating themes mentioned above:

- Professional development e.g. "I am not sure that there has been an impact on my students, but the meetings make me feel confident in my own abilities." "Yes, very useful in terms of thinking about the role and responsibilities and picking up tips", "Some good presentations to date".
- Sharing practice e.g. "Very useful. This includes an appreciation of how I may be able to help others develop their ability as a research student supervisor", "Very useful CoP as a supervisor in sharing good practices."
- Community "Good to share ideas and hear what others do.", "They have been really useful in terms of sharing ideas and challenges as well as support", "Sharing ideas and experiences of others are very useful", "Hearing other points of view", "The material delivered and the fellowship have been worthwhile".

The recent cessation of the mandated supervisor training workshops means that the CoP-RS is currently the only consistent form of professional learning for HDR supervisors. CoP-RS co-facilitation, leadership strategies, and implementation of the three essential CoP elements of community, sharing practice and building domain knowledge (Wenger 1998) have contributed to its ongoing success and impact. Factors that can assure its sustainability are an important consideration.

1.7 Factors to Assure Sustainability

On reflection, we consider that five characteristics of the CoP-RS contributed to its longevity.

(1) High level organisational support and recognition as evidenced by sponsorship from DVC, funding for activities, administrative support from Associate Deans.
(2) Consistent internal mechanisms: three element agenda structure and storage of resources on Moodle LMS as a repository.
(3) Ongoing support from functional groups outside the Academic Division, for example, Learning and Teaching Support, Office of Research Graduate Studies, Performance and Development (HR), and Sustainable Business Management and Improvement.
(4) Team of facilitators—committed to the CoP approach and practising subtle, yet powerful, facilitation rather than an 'heroic leadership' approach—reduces burn out. Multiple facilitators provide fresh perspectives and ensure the CoP is member driven.
(5) Visibility of effectiveness: surveys report good outcomes for participants and the CoP-RS has successfully lobbied senior management to improve conditions for supervisors and HDR students, for example, increased workload allocation for supervisors and improved scholarships for international students.

Maintaining CoP integrity and ensuring sustainability is an ongoing challenge. It has been awkward at times to maintain the balance of a facilitated, member driven, CoP, against pressure to use the CoP as an institutional performance management tool. Since the success and impact of CoP-RS became evident, facilitators have had to resist an effort by one Senior Manager to 'task' the CoP to do undertake a management priority. This is not unexpected, given the evolution of CoPs from an organic, bottom-up approach to CoPs being viewed as the key to success in a global knowledge economy (Tight 2015). Wenger, McDermott, and Snyder's guidebook (2002) on the cultivation of communities of practice suggested that "organizations need to cultivate communities of practice actively and systematically, for their benefit as well as for the benefit of the members and communities themselves" (p. 12).

The tension experienced by the CoP-RS is also noted by Reaburn and McDonald (2016) who stated the importance of 'managing up', that is, not allowing the CoP agenda to be driven by senior leaders/managers, while also engaging them to ensure the sustainability of the CoP. The facilitators of CoP-RS have managed to keep a level of autonomy while enjoying the benefits of rather formal organisational support structures.

Experience and research (McDonald 2014; McDonald et al. 2012; Ortquist-Ahrens and Torosyan 2009) suggest that effective facilitation is crucial for creating and sustaining CoPs. The importance of the facilitator role is articulated in McDonald (n.d.) and McDonald et al. (2012) and resources relating to this unique leadership role in an Australian context have been developed through two Australian Office of Learning and Teaching grants. They can be accessed via McDonald (n.d.) and http://www.cops.org.au/resources/.

Fig. 1.2 CoP life cycle model. *Source* McDonald et al. (2012, p. 7)
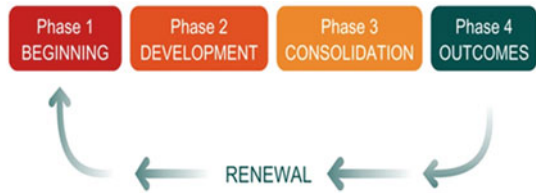
1.8   Conclusion

The CoP-RS has followed the CoP life cycle model as shown in Fig. 1.2 but as a series of annual iterations commencing with planning and ending with evaluation. It has become firmly established and institutionalised within the organisation while maintaining autonomy.

Critical success factors that contributed to the sustainability of the CoP-RS over the past seven years include support and recognition from senior management, consistent internal mechanisms, ongoing support from related internal departments, a committed team of facilitators, and visibility of its effectiveness.

Investigation of the impact of CoP-RS activities on the confidence and capacity of research supervisors, and subsequent impact on student outcomes is an area for future research. More broadly, the reasons for failure and/or success of higher education CoPs and strategies to ensure sustainability are also future research areas.

The CoP-RS has been effective in promoting research leadership and building a research supervisor community that has broken down the borders between Faculty and research disciplines. Despite radical changes to the organisation's structure and management, the CoP-RS has continued to provide rich learning opportunities and build a dynamic community with a high level of expertise and resources to support research supervisors across faculties and campus.

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Chapter 2
The Role of Higher Education in Facilitating Communities of Practice to Support Health Professionals Practice

Claire Palermo

Abstract The increasing complexity of health issues and health care delivery calls for strategies to develop the practice of health professionals. Communities of practice support the development of capabilities of its members through sharing practical experience, creating solutions towards a common goal and the development of new ideas for practice. They offer a unique approach in healthcare above other professional development activities due to their ability to situate learning within experiences and promote reflective practice. This chapter tells the stories of two communities of practice led by the higher educator sector designed for nutritionists wanting to improve the population's health through strategies that create environments to make healthy food choices easy. The case examples show the potential of communities of practice to develop participant's perceived competence and reduce their sense of professional isolation. Trust among a small group of likeminded colleagues with similar practice roles, together with experiential learning and effective facilitation, were essential for success. Having a facilitator as a member of the academic community was perceived to be valuable due to their ability to be independent, promote reflective practice, support learning and evaluate the impact. There remains a need to develop more robust methods to evaluate the impact of communities of practice in the health sector.

Keywords Competence · Food supply · Health professional · Nutrition · Population prevention · Practice

2.1   Introduction

As the health sector is challenged to improve the safety and effectiveness of health care in an ever increasing complex health system and burden of disability and disease, strategies to support and enhance the practice of health care professionals

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and teams are pursued. Communities of practice have been proposed to support and improve the practice of health professionals (Ranmuthugala et al. 2011). As one of a suite of available professional development activities, they provide a potential mechanism to support learning through experience and the development of new ideas and improved practice. In contrast to other forms of professional development such as conferences, workshops and training, they provide focussed and active learning by concentrating on the development needs of participants and promoting reflective practice. The collective learning, situated in practical work experiences together with regular and timely interaction are the key features of communities of practice that distinguish from other learning designs (Wenger et al. 2002).

Evidence based reviews of the use and effectiveness of communities of practice in the health sector have concluded that communities of practice are used to share knowledge and improve practice however their effectiveness remains unclear (Ranmuthugala et al. 2011; Li et al. 2009b). Measuring the effectiveness of communities of practice has been challenging, with the majority of evaluations focussed on perceived impacts from qualitative accounts or study designs that prohibit isolating the effect of the community of practice from other processes (Ranmuthugala et al. 2011).

The origins of communities of practice lie within social learning theory and describe an unintended, informal learning process that occurs through experience within a group of people with a common agenda (Wenger 1991, 2000). However, the concept has been artificially constructed to bring together professionals from within and across organisations for the purpose of practice improvement (Ranmuthugala et al. 2011). Little is known about the impact of 'arranged' communities of practice and if they have the similar impact on social learning as those informally bound together.

The role of a leader and/or facilitator in a community of practice and its success has been acknowledged (Li et al. 2009a; McDonald 2014; Wenger et al. 2002). The facilitator is usually well respected and connected within the respective community. They play a role in the administration of the community of practice and may facilitate by focussing discussions and supporting the development of individual members and maintaining relationships. They are not necessarily an expert but rather a leader in discussions that create joint solutions (Wenger et al. 2002). Traditionally facilitators or leaders come from within the organisation or community of practice rather than external to it (Li et al. 2009b). Less is known about the role of a facilitator independent of the organisation or organisation-type of the community who has been purposefully positioned to take on this role. There is a dearth of evidence on the role of the academic community supporting practice through communities of practice.

This chapter will draw on two case examples of how a university based academic facilitator supported nutrition practitioners from across organisations for practice improvement (Palermo et al. 2010; Holden et al. 2015). The chapter will tell the story of these communities of practice. An analysis of the key findings across the two case examples will be examined to specifically explore the role of a university academic as the facilitator of the community of practice as well as the

tools that promoted success based on evaluation of the case examples. The chapter aims to highlight the important role of higher education in supporting professionals in practice and discuss recommendations for evaluation.

2.2 Supporting Nutrition Practice

Improving the population's diet is potentially the most important contributor to improving health outcomes (National Health and Medical Research Council 2011). The nutrition workforce is unprepared to tackle seemingly intractable population nutrition priorities (Hughes 2003c). The nutrition workforce equipped with the task of prevention of nutrition related disease and maintenance of nutritional health of populations has been reported to lack the capacity to manage priority issues (Hughes 2003c).

In response to this, a university instigated initiative that aimed to build the capacity of the public health nutrition workforce, in particular develop competencies for working effectively in prevention. The university supported an academic member of staff, with existing links to public health nutrition practice through a work-integrated learning role, to commence a support model for such practitioners. The first initiative was set up as a group mentoring circle, based on the evidence that mentors had provided a key role in developing the competence of advanced level public health nutritionists (Hughes 2003b; Palermo and McCall 2008). Thirty-two nutritionists participated for 7 months and 12 of the group continued for an additional 12 months, naming themselves a community of practice due to their function as avenue for knowledge exchange and situated learning. Four years after the completion of the mentoring circle, one of the initial group participants suggested that this approach would be of benefit for nutritionists working with remote stores. As such a community of practice was set up by the university for nutritionists with a mandate to work with remote Indigenous stores across Australia. The two case examples are described in detail below. In both cases, the university supported the groups functioning, including, but not limited to, electronic communication. tele- or video-conference and web-based resource sharing. The academic facilitator was supported within the existing academic appointment time to administer and facilitate the group.

Case Study 1. Mentoring learning circle for novice public health nutritionists (Palermo 2010).

The Victorian public health nutrition workforce is particularly limited in its capacity to address population nutrition issues. The small size, mostly part-time or short-term tenured positions, priority for patient/client care services over community or population based strategies and self-reported lack of skills contributes to this (Hughes and Woods 2003). A mentoring learning circle, later called a community of practice was initiated for Victorian based public health nutritionists wanting to improve and reorient their work practice towards population based prevention.

Nutritionists working in Victoria with a job description or mandate to work in primary prevention were invited to participate. Participants with job roles that only involved patient/client care services and those who could not commit to a 6-month mentoring program were excluded. Participants were given permission from their organisation to participate and received no funding for involvement. Thirty-two recently graduated nutritionists participated in one of three groups that met formally for 7-months. Twelve of the original participants continued the formalised community for an additional 12 months. The impact of the community on the perceived competence and capacity for prevention was evaluated using a competence self-rating form pre and post invention together with in-depth interviews.

Case Study 2. A community of practice for public health nutritionists who work with remote retail stores (Holden et al. 2015).

The nutrition workforce who works specifically with remote Australian Indigenous community stores to improve the availability and consumption of nutritious food are challenged by their work role (Gregoriou and Leonard 2010). In the absence of a strong evidence base about what works to support their practice and based on the experience of one of the participants from case study 1, a community of practice was instigated with 12 nutritionists with a specific mandate to work with remote Indigenous community stores. The community of practice was limited to those working with remote Indigenous communities in a job role with a mandate to work in primary prevention with community stores. Nutritionists not working with stores specifically in their remote community work were excluded from participating. The group met formally for 7-months with a focus on developing their skills and abilities to influence the food supply and improve the consumption of nutritious food. Eight of the original twelve members continued with the community for an additional 18 months. The impact of the community on the perceived most significant change to their practice, as a result of participating in the community was evaluated using in-depth interviews with Most Significant Change technique (Davis and Dart 2005). An Australian National Preventive Health Agency grant supported the remote store nutritionist community of practice. The funding covered the bringing together the nutritionists from across Australia to Darwin for the initial face-to-face session and supported a research assistant salary for the collection of evaluation data.

The two case examples described in this chapter provide examples of constructed communities of practice with nutrition professionals working in community based settings to improve population health. The aims were to develop the skills, confidence and competence of participants to promote and improve the health of the communities they work with through initiatives and organised action to create environments that support easy and healthy food choices. While the focus of the two case studies differed, they both called for volunteer participation in a learning circle or community of practice from within existing professional networks. Participants were asked for a minimum of 6 months commitment to develop their competence in working in public health nutrition. They were classified as communities of practice based on the *domain* of interest (a commitment to primary

prevention through nutrition), the *community* whereby they developed relationships, participated in group discussions, supported one another's practice through sharing information and the *practice* of sharing experiences and approaches to addressing common problems seen in practice through continued collaboration (Wenger 2000).

The groups were initiated with a face-to-face workshop to meet fellow participants and develop guidelines on how the group would function. In addition time was allocated for participant's to identify learning needs and develop plans for their own development. Both groups met formally every 6 weeks for a period of 7-months utilising face-to-face and electronic (video or teleconference) communication for participants located in rural and remote areas. During the sessions the academic leader verbally supported the participants to reflect on their work and key learning through their own experiences and joint problem solving around issues that participant's brought to discussions. In addition, in between sessions, participants were encouraged to discuss issues and utilise email and phone contact for this purpose. The groups were encouraged to contact each other and the facilitator outside of the structured sessions for support.

An evaluation framework was developed to measure the impact of the communities of practice. In each case study the evaluation aimed to explore the experience of participants, their satisfaction and the perceived impact of the community of practice on their competence and work practice (WK Kellogg Foundation 2004). The evaluation framework utilised qualitative approaches the explore the experiences and impact, including in-depth interviews and focus group discussions based on the most significant change technique (described below). In-depth interviews were used to allow the participants to speak freely about their experience with an independent interviewer. Competency self-assessment was also used to measure self-perceived change in skills and abilities (Palermo et al. 2010; Holden et al. 2015). The following sections detail summaries from these evaluations particularly in relation to the functioning of the groups, the facilitation role and the impact and outcomes on the participants practice.

2.3 Practical Processes, Protocols and Tools that Contributed to CoP Success

In both case examples participants described the importance of a small group setting to support their learning and the value of learning from peers. Sharing stories and challenges from their practice and having multiple peers to provide thoughts on potential solutions drawing on their own experiences increased confidence to undertake their roles. The size of the group 8–12 was reported to be ideal as smaller groups allowed for all members to contribute to discussions and learn. While there was generally strong collegiality among the groups there were a couple of challenging behaviors in the groups that participants did not value. These included not

trusting the group and therefore not sharing stories, dominating discussions, raising issues not relevant to the focus of the community. The facilitator managed these issues by discussing with individual participants outside of the group setting. Having participants with similar levels of practice experience was also reported to be important in the evaluation of case study 1. The groups also valued structuring learning plans around a competencies framework which assisted identification of gaps in competence and allowed self-reflection of perceived development over time. Facilitating access to written resources and evidence through a web-based repository, was highly valued (Palermo 2010; Palermo et al. 2010, 2011; Holden et al. 2015). These findings are congruent with existing evidence of communities of practice and the value of situated learning and the boundary spanning that occurs (Wenger 2000).

Creating a safe and supporting environment for learning was instrumental to success. Trust was a vital component and this was established through sharing work experience and interests. Participants had to feel safe to expose their practice and challenges they faced to the group for the benefit of learning. The initial session or 'potential' stage of the communities of practice where rules for operation were explored and developed by the community, assisted in the establishment of trust. In addition allowing members to develop friendships within the group assisted. Participants also shared that in their work they often felt alone or isolated and that the community of practice stopped them from feeling this way (Holden et al. 2015; Palermo et al. 2010, 2011).

Some participants described the challenge of gaining support from managers to participate in the community of practice as it was not seen as a valuable professional development. The collective development, commitment, focus and expertise were the point of difference to other professional development opportunities. There is need to encourage communities of practice as a workforce development strategy within health system (Holden et al. 2015; Palermo et al. 2010, 2011).

2.4 Leadership Role

In the two cases, the university academic took the role in both administrator and facilitator for the groups. From an administrative point of view, this involved recruitment and selection of participants (based on criteria described in Box 2.1) and the organisation of group learning sessions to occur (e.g. room booking, videoconference, and invitations). As a facilitator the university played a role in facilitating and leading the group discussions. The organisation and skills of the facilitator were instrumental for success.

The facilitator used the principles of mentoring to guide their practice and behaviour when interacting with participants. In this case the partnership between facilitator and participants was defined as "a deliberate yet voluntary, non-judgmental relationship that provides support for the purposes of professional and personal growth and development for those in the relationship and development

of the profession as a whole" (Palermo 2010). Mentoring was used as the conceptual framework to guide the nature of the partnership based on evidence of the role of mentors in the development of expertise of nutritionists working in a similar field (Palermo and McCall 2008; Hughes 2003b).

During the initial face-to-face session the facilitator focussed on the aims of the group learning and set rules for how the group would operate effectively. Participants were asked to document key outcomes or learning they hoped to achieve from participation. A competency standards framework was used to guide participants learning needs assessments and plans (Hughes 2003a). The 6-weekly sessions were used to support participant's reflection on their work and learning that had occurred through experiences and documenting progress towards achievement of learning plans. Challenges and stories were shared and group participants contributed from their experiences. The facilitator used targeted questions based on reflective practice (Johns 2004) and appreciative inquiry (Cooperrider et al. 2003) to promote deeper reflection of participants and critical analysis of their work and learning.

In both case examples the role and qualities of the facilitator were evaluated as essential to success. Key attributes described by participants in evaluation of the groups included having knowledge, experience in and passion for the practice area, being approachable and available and facilitating trust among participants. The ability of the facilitator to promote critical reflection on practice and provide constructive feedback was also highly valued. Being sincere, open and solution focussed was perceived to be essential (Palermo et al. 2011; Holden et al. 2015). Case example 1 participants suggested that the facilitator should have teaching and learning as well as public health nutrition skills and experience and a recognised role in supporting the workforce (Palermo 2010). Having the facilitator independent of the organisations in which the participants worked was also reported to have established trust.

Both case examples commenced with a 6 weekly catch up for a period of 7-months, but both continued beyond this period for those who wanted continued support. Although not formally assessed, facilitator reflections indicate that while the stages of potential, coalescing, and maturing were realised for the 7 month period, the stages of stewardship and transformation only occurred for the groups continuing beyond this period. Many of the relationships established as part of the community of practice still exist today, although these have not been formally measured.

Having a facilitator with relevant experience in the practice context of participants together with skills in learning and teaching and a passion for development of the emerging workforce were found to be fundamental ingredients to success. Building the communities of practice within a research agenda justified the academic involvement as the evaluation framework supported research outputs in this regard. The communities of practice facilitated partnerships between the university and each organisation in which the participants worked for and connected the academic facilitator to current practice, ensuring teaching in this area and work-integrated learning experiences were relevant and current.

2.5   Impact and Outcomes

Figure 2.1 depicts the key influences on the success of the community of practice, developed as a synthesis of data from in-depth interviews with participants from both case examples (Palermo et al. 2010; Holden et al. 2015).

Assessing the impact of the communities of practice on the practice of participants was more challenging. Competency standards were used to benchmark participants self-reported level of competence across multiple competency statements. This proved useful in case example 1 which showed that overall participants reported an increase self-assessed public health nutrition competence from mean score, across 25 competency standards, of 3–3.4 out of 5 ($p < 0.05$). All competency standards showed a significant improvement except for three standards. When coupled with in-depth interview data this could be explained by high level of perceived competence in these three areas at the commencement of the community of practice (Palermo et al. 2010).

In case example 2, the most significant change technique (Davis and Dart 2005) was used to report on the impact of the community of practice. The most significant change technique involves the generation of participant stories of change to their
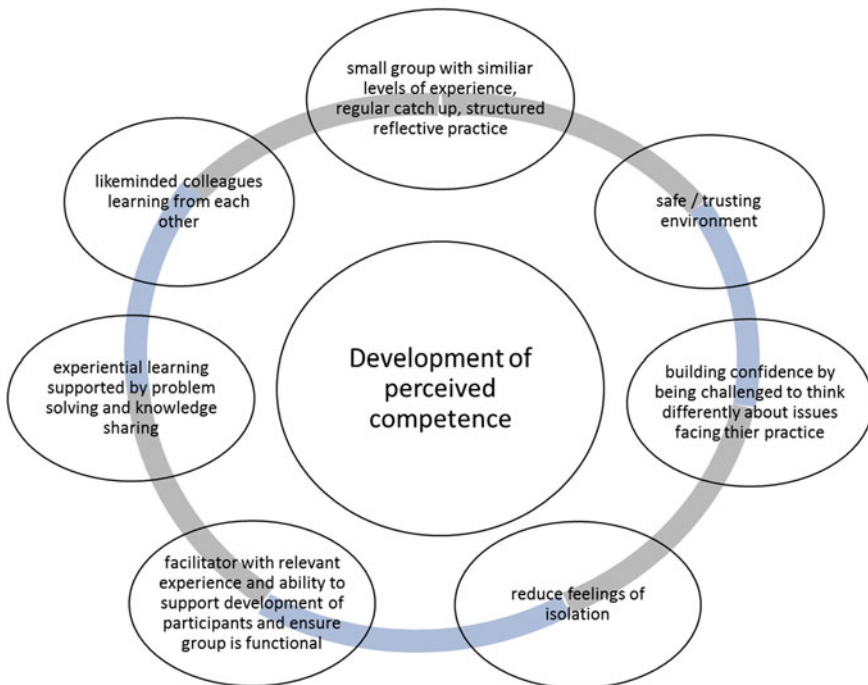
Fig. 2.1 Ingredients for success revealed to have a potential impact on the competence of participants from two case examples

practice with a process of prioritising the identified themes through group discussion (Davis and Dart 2005). Through consensus development, participants decided that the main change to their practice as a result of the community of practice was accomplishment of new knowledge, tools and approaches to their work in particular the use of advocacy and community development approaches and validation for their future career in improving the food supply (Holden et al. 2015).

While considering the limitation of self-assessment of competence and lack of a control group to isolate the effects of the community of practice, it appears that these communities of practice were effective in developing the self-perceived knowledge, skills and attitudes of their participants. There remains the need to develop more successful and robust strategies to measure impact of communities of practice involving the prevention workforce on the communities they serve.

2.6 Conclusion

The need to develop the health workforce to be better able to address the complexity of population health issues is paramount. These two communities of practice provide great hope that 'arranged' communities of practice that have a shared goal, trust, joint decision making and effective facilitation can contribute to the development of the health workforce. Academics should consider their role in facilitating communities of practice outside the university environment to support the development of partnerships and connect them to practice. Embedding research and evaluation into the design of communities of practice justifies academic involvement. There is a need to establish more robust techniques to evaluate the impact of communities of practice on the workforce and also the communities whose health they are working to improve.

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Chapter 3
Building a Network and Finding a Community of Practice for Undergraduate Mathematics Lecturers

Deborah King and Joann Cattlin

Abstract This case study details the development of a national network for mathematicians teaching undergraduate mathematics in Australian universities and the subsequent emergence of a community of practice. The network was intentionally established to build and support the leadership capacity of mathematicians who coordinate first-year mathematics subjects. To achieve this, events were held that focused on sharing knowledge, experiences, high quality resources and establishing supportive connections with colleagues. In the course of these activities, it became apparent that a fledgling community of practice existed with the development of a strong sense of identity and recognition of common challenges across institutional boundaries. The community leadership evolved over time, taking on roles from facilitation to advocacy on behalf of the network's members, forming a group identity and sense of purpose. This case study illustrates the potential for a discipline-based, cross-institutional community of practice to support individuals in their development as change agents and to provide a platform from which national issues in higher education can be tackled.

Keywords Mathematics · Mathematics education · Scholarship of teaching and learning · Network · Community of practice

3.1 Introduction

The complexity and scale of undergraduate mathematics teaching in Australian universities presents many challenges for mathematics educators as they strive to deliver high quality subjects and required learning outcomes for students. The

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significant diversity in institutional policy, in degree programs, in tertiary mathematics curricula and in student cohorts, all impact on effective approaches to the teaching of mathematics. In recent years, changes to mathematics entry requirements for many mathematics-dependent degrees has added a further complication, which academics are currently attempting to address through a range of institutional and faculty innovations and education-focused research projects. In spite of this, the tertiary mathematics education community in Australia is a small one, with limited influence over common teaching practices.

This case study details how the establishment of an education-focused national network of mathematicians teaching undergraduate mathematics in Australia resulted, unintentionally, in the emergence of a community of practice. The First Year in Mathematics (FYiMaths) network was one of the two main aims of the FYiMaths project.[1] The network was designed to support and enhance the activities of academics involved in teaching first-year mathematics subjects and managing fist-year mathematics programs. The second aim was to examine the nature and challenges inherent in the role of First Year Coordinator in Mathematics. The project involved collection and analysis of data from in-depth interviews with mathematicians in Australian and New Zealand universities and feedback surveys collected at project workshops. The data informed the development of the network by providing evidence of the key challenges facing academics teaching first-year mathematics and identifying areas of need that could be addressed through a supportive network.

The project was conducted by a multi-institutional team from four Australian universities. The project leader, a teaching mathematician engaged in education focused research, and the project manager, an experienced research officer and information manager, are the authors of this chapter.

In this case study we will outline the process of establishing the network and, we will discuss what contributed to the emergence of a fledgling community of practice and identify the key mechanisms necessary to sustain it. This chapter will explore the nature of the community of practice with reference to the original conception by Lave and Wenger 1991,Wenger 2000 and the development of theory and practices in business and educational contexts (Boud and Middleton 2003; Nagy and Burch 2009; Pharo et al. 2014). We will elaborate on our experiences of the differences between a network and a community of practice, how the needs of members determine the form of a community, the importance of leadership and how communities can develop as nodes within a network.

This case study highlights the potential for communities of practice to support academics within a single discipline to develop their teaching practices through information sharing, disseminating innovations, facilitating cross-institutional collaborations and empowering individuals to pursue change. The importance of leadership, belonging and collegiality will be explored to determine how difficult

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[1]The project was led by The University of Melbourne and included members from Curtin University, The University of Sydney and The University of Adelaide.

problems in higher education could better be addressed by greater collaboration at a discipline level. Learning is at the core of this community: learning how to deal with difficult challenges, learning to adapt to new teaching practices and technologies, learning where and how to find the information and contacts that can help. This case study will shed light on the conditions and support needed for the development of communities of practice within higher education.

3.2 Literature

The application of the principles and theories of communities of practice to a wide range of environments, has built on Lave and Wenger's original concepts of situated learning and the processes of developing skills and knowledge (1991). The ability of communities of practice to tap into and capture tacit knowledge has been the focus of many intentionally created communities of practice in the fields of business and knowledge management (Boud and Middleton 2003; Wenger et al. 2002). While many organizations see this knowledge as an asset to be managed, there are also significant flow on effects for staff moral and motivation from participating in a community. A number of studies in business have identified that 'knowledge' workers are more motivated by rewards from social interaction than financial gain, because they bring personal validation through recognition of expertise (Cohen and Prusak 2001; Markova and Ford 2011).

Communities of practice have been effective because they shift the focus of learning from formal instruction to a 'social process' involving collaboration, peer support and mentoring on a 'joint enterprise' (Wenger 1998). Communities of practice have been used effectively in higher education as 'top-down' management tools for facilitating staff development and supporting interdisciplinary teaching within single institutions (Cox 2013; Pharo et al. 2014; Warhurst 2008). An important element for their success is the ability of communities of practice to cross the boundaries of disciplines, faculties and work areas and 'provide a valuable corrective to the isolation experienced by many academics' (Pharo et al. 2014). The traditional collegiality within academic disciplines and institutions provides a logical basis for encouraging communities of practice as effective groups for professional learning.

Communities that grow naturally, as well as those formed intentionally, need 'multiple forms of leadership' (Wenger 1998, p. 231). McDonald et al. (2012) identified the role of leader as a 'facilitator' requiring different skills and approaches at different stages of the community's development. Wenger and Wenger-Trayner (2012) identified the importance of a range of leadership roles in supporting the activities of the community 'learning capability inherent in social groups, such as communities of practice, greatly depends on internal leadership. The leadership needs of these groups are diverse—from thought leadership, to social weaving, to facilitation, to logistics, to institutional connections' (Wenger and Wenger-Trayner 2012, p. 3).

Another model of community leadership was identified by Pharo et al. (2014), in a project which facilitated intentional communities of practice to develop inter-disciplinary teaching of climate change in four universities. In this instance, the community leadership was divided between 'activator' and 'facilitator', which at times overlapped and worked in response to the needs of the community.

While communities of practice are well established in the corporate sphere as a means of promoting change or supporting staff learning, there are perceived organisational limitations to their adoption within universities (McDonald and Star 2008; Nagy and Burch 2009). These limitations include the commercial pressures on universities, declining collegiality leading to increasing isolation of individual academics within institutions and university accountability and quality assurance processes (Bexley et al. 2011; McDonald and Star 2008; Nagy and Burch 2009). However there are examples of communities of practice in higher education institutions, which have been established to develop teaching practices (with a professional development focus) or to promote engagement with scholarship of teaching and learning (with an innovation focus) (Green and Ruutz 2008; Mann and Chang 2010; Yucel 2009). These examples of communities of practice provide exemplars for assessing the nature of the community identified within the FYiMaths network. While our network was intentionally created and founded on discipline collegiality, the sense of 'joint enterprise', 'mutual engagement' and 'shared repertoire' that emerged was generated from within, by the members shared sense of purpose in tackling the big issues in mathematics education (Wenger 2000, p. 229).

The community of practice framework was adopted to guide the authors in supporting the continued development of the group. This case study will provide insights into the development of a discipline-based, cross-institutional network and community of practice focused on teaching and learning in higher education. Our review of current literature found no further examples of communities of practice quite like this.

3.3 Background

In Australian universities, the teaching of mathematics is, primarily, undertaken by mathematicians and mathematics educators working within a department or school of mathematics. However, staff in learning support units and academics from disciplines such as engineering, economics and physics, also play a key role in the teaching of mathematics within their particular discipline. The organisational structure and number of staff engaged in undergraduate mathematics teaching can vary widely between institutions. The level of interest in educational research and innovation in teaching practices also varies, often being dependent on research priorities, personal interest or on the unique challenges facing students at a particular institution. Consequently, academics often find themselves developing new

programs in isolation with limited input from colleagues or knowledge of successful innovations, which may exist elsewhere (King et al. 2015).

Mathematics is a core component in a wide range of degrees including commerce, science, engineering, health science and education, and is often a compulsory subject for students, at least in their first year of study. The provision of such subjects, known as 'service' teaching, constitutes the majority of first-year teaching in many mathematics departments. As a consequence, lecture class sizes are generally very large, and are comprised of students from many different disciplines who have a wide range of academic backgrounds and interests. The resultant complexities in teaching such a diverse cohort include: determining a starting point for teaching which is suitable for the majority of students' backgrounds and skill levels (Whannell and Allen 2012), and building into each subject, a variety of contexts that are of interest to students from various disciplines. These difficulties can be significantly increased for those students with low levels of motivation to study mathematics or for those who suffer from mathematics anxiety (Gyuris et al. 2012). High failure rates, poor retention to second-year mathematics study, and low student satisfaction are common outcomes and are issues of serious concern for many institutions (Rylands and Coady 2009).

The role of academics managing and teaching first-year programs is often characterised by high workloads which are associated with teaching large cohorts, managing sessional tutors, large scale assessment requirements and student administration (King et al. 2015; Mcinnis 2000). In mathematics departments, these duties are normally the responsibility of a very small team, or in some cases, a single individual (King et al. 2015). In addition, these academics would normally be expected to maintain research activities in mathematics. It is unsurprising then, that academics in such roles generally lack time to explore alternative teaching practices or curriculum change and have limited opportunities for interaction with mathematics colleagues, both from within their institution and cross-institutionally. However, it is precisely these kinds of activities that have been found to be effective in supporting the development of teaching innovations needed to improve student engagement and retention (Kift et al. 2010; Talbert 2014).

The current opportunities for mathematicians to connect with a broad group of colleagues, or access information that supports and encourages innovative teaching, are limited to a small number of annual events across the country. Attendance at, or participation in, such conferences has not broadly been regarded by mathematicians as a way to seek practical solutions to everyday teaching problems. The development of relationships between colleagues teaching mathematics and science in different universities has been impeded, in part, by this lack of participation, and consequently, staff have suffered from isolation and a minimal exchange of ideas.

Although mathematics education is a large field of research in secondary and primary level mathematics, this is not the case for the higher education sector in Australia. At this level, there is limited published scholarship which focuses on practical solutions to common local teaching issues, and this is not widely accessed by mathematicians (Barton et al. 2012). While general advice and information about higher education teaching may provide some guidance for mathematicians,

most find that teaching practices and innovations from other disciplines are either not practical or not possible to implement in the context of a mathematics class (Kahn and Kyle 2003; Neumann 2001). While each discipline has its own specific teaching practices, in mathematics, the level of abstraction, large student cohorts and knowledge dense curriculum all combine to complicate, or limit, the adaptation of pedagogical innovation from other disciplines (Cretchley 2009; Greiffenhagen 2014; Jaworski 2009). This commonly held perception that 'mathematics is different' creates a barrier for mathematicians to access the large body of existing research and practice in higher education teaching. It is more common for mathematics educators to turn to trusted colleagues as a source of information and guidance on teaching issues (Wood et al. 2011).

In summary, the unique disciplinary difficulties in undergraduate mathematics education, the workloads and priorities in academic roles and the pedagogical limitations in mathematics, combine to create a multiplicity of challenges and also combine to present avenues for enquiry which have been largely unaddressed by any existing single group or forum. The establishment of the FYiMaths network provided the ideal environment in which a community of practice could flourish.

3.4 Establishing a Network

The initial objectives of the network were to provide opportunities for interaction between mathematics educators, to build collegiality within the group and to share experiences and resources, with a view to enhancing innovative teaching practices. Although some individual academics had already established their own relationships locally, such opportunities did not exist within institutional or discipline-based groups on a national scale. From within this intentionally established network, a community of practice emerged organically, as members formed relationships with colleagues around shared interests.

The project team addressed both aims of the project simultaneously, using a phenomenological approach to collect qualitative data through an extensive interview program. This approach facilitated engagement with mathematics coordinators as well as with the broader community of mathematics educators right from the project's beginning. The interviews, conducted at 25 of the 39 Australian universities, and one New Zealand university, provided data that helped to direct project activities and established a personal connection between the project team and key academics from these institutions. In retrospect, they were critical components in establishing the network, since they were the first contact between project team members and potential network members; we needed to establish our credentials at this point if we were to be taken seriously. Opportunities to build on and extend these connections were provided by the project's many dissemination activities. These included two workshops, a national forum and numerous presentations and seminars at conferences, workshops and individual institutions and a special issue of a journal. Through these activities contact with mathematics educators was

established in an additional twelve Australian universities. The data collection and engagement activities were interwoven, building the personal connections between individuals needed to establish the network, whilst also providing data and feedback to the project team that shaped the format and agenda of future events.

The full texts of all interviews were analysed and coded using NVivo. The key themes that emerged highlighted the difficulties that staff teaching undergraduate mathematics grapple with, most of which revolve around teaching large and diverse student cohorts, with limited access to collegial networks or professional development (King et al. 2015). These challenges were made worse as a consequence of the many students entering mathematics-dependent degree programs without the expected 'assumed knowledge' in mathematics, creating a multitude of difficulties for curriculum design. Since these students are, often, taught together in large classes, opportunities for innovative teaching techniques are limited. While universities do provide bridging programs, review curricula, and provide mathematics support services, these measures are often not adequate to overcome these challenges and there are high failure rates in first year mathematics at many institutions.

An unexpected finding, for the project team and for participants, was that many of these challenges were common to academics in mathematics departments across most universities in Australia. In this way, the network generated a new level of understanding by providing the 'interpretive support necessary for making sense of its (the community's) heritage (experiences of mathematics education)' (Lave and Wenger 1991, p. 98). Although individual institutions had developed strategies for dealing with these challenges, their responses had not been wholly effective, in part because individuals had limited access to information and guidance about alternatives. The network provided a way of focusing sector-wide attention on resolving some of these issues.

Network membership was informal and grew through targeted publicity, word of mouth and personal recommendations from participants. Membership was open to all mathematicians and mathematics educators in higher education institutions. In the initial 2 years of the network's life, the informal membership reached 170 members, with 52 members choosing to formalise their association, by listing their contact details on the network's website. A member of the network was defined as an academic who:

- attended a number of network events,
- contributed their opinions and expertise to the group and maintained two-way contact with the network leaders,
- encouraged others in their institution to become actively involved in the network,
- made connections with other members of the network and shared information, and
- inspired others to initiate ways of addressing educational concerns through research or activities in their own institutions.

The nature of FYiMaths network activities and the quality of interactions between its members matured gradually during the first year of the network's operation. Initially participation and interactions were tentative as project leaders and participants established a rapport and understanding of the issues and each other's needs and motivations. Over time attendance and participation in events, involvement in interviews, regular email contact by the leadership and sharing of information within the community established a sense of 'trust' and 'social capital' (Wenger 2000, p. 230). This mutual understanding and reciprocity identified by Wenger (2000) is a key element of the network that seeded the community of practice.

The network was not established with reference to any particularly theory or framework relating to social learning or professional development. The simple guiding principle was based on the idea of creating a means for individuals to establish contact with others and share information, with the potential for mentoring and collaboration to occur. However, the shaping of the network was also influenced by the success of a number of discipline-based networks[2] that had been funded by the Office for Learning and Teaching and had resulted in the development of a range of groups that were supporting learning and teaching initiatives through disciplinary connections.

From the outset, the project team decided that the project activities would be determined by the needs of the potential members. To facilitate this, the first workshop held by the team provided an opportunity for participants to share their experience and opinions about what they believed the major issues for teaching undergraduate mathematics at their institution were. This first workshop represented a transformational moment both for the project team, and the participants because it identified that there were unifying issues that would constitute the shared concerns and 'joint enterprise' (Wenger 2000) that would carry the group forward. The participants seized the opportunity to seek information from each other, share problems, work practices and ideas with enthusiasm. This established the shared knowledge, sense of purpose for improving outcomes in teaching mathematics and enthusiasm for learning from others (Wenger 1998).

At the same time the project team began to identify issues emerging from the interview data, which reinforced workshop feedback from network members. The most common challenges identified amongst mathematicians interviewed were:

- Teaching and engaging diverse student cohorts,
- Teaching students who did not have the expected mathematical background, and
- Developing innovative teaching practices under significant institutional constraints.

The establishment of the network, filled a gap within the mathematics community, as it drew together previously disparate and isolated individuals, who strongly identified with each other and shared many common experiences. In

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[2]Chemnet, VIBEnet, CUBEnet, AMSLaTNeT.

addition to the shared challenges, the project team realised that each mathematics department was isolated in their attempts to address these issues, often feeling their experiences were unique, or at least not shared by many other institutions.

The network was supported by influential mathematics and science peak bodies through financial sponsorship, through the advertising of events to their membership and by delivery of keynote speeches that endorsed and validated the network's goals. These bodies included the Australian Council of Deans of Science (ACDS), the Australian Mathematical Sciences Institute (AMSI), the Institute of Innovation in Science and Mathematics Education (IISME), the Australian Mathematical Society (AustMS) and the Office of the Chief Scientist. Collectively, these organisations represented the key groups that have an interest in undergraduate mathematics education. Their support was important because it gave the network validity and authority, which in turn provided intrinsic reward to members through recognition of their expertise and contributions to network activities. The peak bodies' involvement also provided members with access to information about the broader government policy and sector priorities. The members' insights and views on important issues, such as the challenges of teaching diverse cohorts, in turn provided these peak bodies with an intimate understanding of the impact that such issues have on the shaping of a mathematics program.

The mechanisms employed for establishing the FYiMaths network laid the foundations for the growth of the community of practice, which became a subset of the network, with many elements of the network's structure, activities and desired outcomes shared by both groups. The initiation of the network exploited much of the groundwork that the project team had completed during the interview phase of the project. The network's establishment was deliberately designed to be inclusive and consultative and this resulted in widespread participation in the network's activities. During this phase, contact was made with each university mathematics department in Australia, with members of the project team visiting two thirds of them, to meet and interview a number of their staff. This process was an effective way to establish personal connections, trust and a shared understanding of the project's intent.

In the course of project evaluation, (mid 2014), it became apparent that a community of practice had emerged within the network and that applying the principles of communities of practice could be useful as a model for supporting and developing it in the future. A literature review was carried out on the development and leadership of communities of practice with a view to developing these aspects of the project.

This case study uses the following definitions as the basis for analysis;

> A community of practice is a 'learning partnership among people who find it useful to learn from and with each other about a particular domain. They use each other's experience of practice as a learning resource. And they join forces in making sense of and addressing challenges they face individually or collectively.'

> A network is a 'set of connections among people, whether or not these connections are mediated by technological networks. They use their connections and relationships as a

resource in order to quickly solve problems, share knowledge, and make further connections.' (Wenger et al. 2011, p. 9)

Wenger et al. (2011) see networks and communities of practice as being 'two aspects of the social fabric of learning' (p. 9), and while there can be wide variation in the characteristics of both, they are commonly 'intertwined' (p. 10). The FYiMaths network and community of practice are a good example of this 'intertwined' relationship.

3.5   A Community of Practice

The emergence of a community of practice within the FYiMaths network was due, in part, to a confluence of people, events and issues. The network events provided a much needed forum for mathematics educators to connect with others with similar interests, share experiences and learn from each other. The format and coordination of project events fostered trust and personal connections by incorporating substantial periods of discussion time and social interaction, which allowed for both formal and informal exchanges of information and ideas. The timing of the network activities was also significant as it coincided with heightened concerns nationally, regarding mathematics education at both secondary and tertiary level, (Mather and Tadros 2014; Lopresti 2014; Ross 2014) which meant that participants could see that their collective experiences and concerns were reflected at a national level. The key issues raised in the network activities resonated across most universities and had a galvanising effect on the participants, who quickly identified the possibilities for collaboration to develop solutions to these issues and drive an agenda of change.

The main difference between our community of practice and network was the level of engagement by each member in addressing shared concerns. Wenger and Wenger-Trayner have defined a sense of community as 'the development of a shared identity around a topic that represents a collective intention' (2011). The network's focus was broad and members were from a variety of backgrounds in mathematics, science and education. They had different motivations in joining the network, but were chiefly interested in keeping abreast of current research and initiatives in tertiary mathematics, identifying colleagues with similar interests and establishing 'helpful linkages' (Wenger et al. 2011, p. 9). As the community of practice developed within the network, it became apparent that members' activities were 'about something and not just a set of relationships' (Pemberton et al. 2007). The 'something' constituted addressing the challenges in teaching undergraduate mathematics in Australian and New Zealand universities.

The key factors that signified the emergence of the community of practice were:

- The development of a 'joint enterprise' in addressing long-standing problems in teaching mathematics, focused on identifying practical solutions through sharing ideas, experience and collaboration.

- 'Mutual engagement' through making personal contacts, sharing information that could not be easily accessed by other means, mutual support and understanding.
- A 'shared repertoire' of experiences, interests and challenges. Members were like-minded people who were able to establish trust that transcended institutional boundaries because it was rooted in loyalty to a discipline (Wenger 2000, p. 229).

The emergence of a 'joint enterprise' was evident in the strong interest in collaboration and sustained exploration of key issues both through project events, the website and ongoing communication through email. While the network's aim had been to facilitate discussion and information sharing, the emergence of the community of practice was evident in a sustained 'spirit of inquiry' by individuals who wanted to develop practical responses to problems (Wenger 2000, p. 230). For example it was clear that participants wanted to take action over long standing concerns about university entry standards for mathematics and students' mathematical backgrounds. This was identified as a significant challenge shared by most network participants in interviews and workshop feedback. To facilitate further exploration of the issue the project team organised a national forum, which featured presentations and discussion of the evidence and multiple perspectives on the issue. The forum provided a shared learning experience, access to information and individuals not usually available and provided participants with some practical outcomes to progress the debate. The forum received media coverage and a communique was sent to government and peak bodies, taking individual members concerns to a collective concern that has impact sector wide. This contributed significantly to the development of the community's identity and shared sense of purpose, because it recognised their inherent expertise and perspective as necessary to the wider debate.

The project team identified other important areas for community collaboration including, innovative teaching practices to increase student engagement, diagnostic entry testing and assessment practices. These issues generated 'learning projects' within the community, such as mapping sector wide practices and policies, surveys, organising events to showcase expertise and supporting research projects. Involvement in these projects provided opportunities for learning, where the experienced members provided guidance to less experienced members (Wenger 2000). There was active interest in sharing teaching practices, in particular a number of participants inviting others to visit their institutions, present to their colleagues on specific innovations (such as a diagnostic test or sharing resources) as a way of initiating change.

The development of the community of practice showed that many network members wanted to initiate change and sought to develop collaborations as a means of addressing challenges in their own workplace that they did not have the skills, evidence, courage or authority to influence alone. Feedback from participants indicated that they had few contacts within their own department or institutions who shared their interests and concerns related to teaching. In some cases involvement in

the community provided impetus to implement long planned changes, by giving individuals access evidence and expertise that they needed to develop proposals for changes to courses and teaching practices. The continued growth of the community of practice was based on deepening these connections into working collaborations that resulted in research partnerships and local working groups, which could influence change in participants' own local work groups. Further examples of 'joint enterprises' on issues where members of the community have been inspired to undertake and then share research at workshops and conferences, such as implementation a new diagnostic test, assessment framework or mode of instruction.

'Mutual engagement' was evident right from the first project event (i.e. the first workshop) where participants immediately identified 'kindred spirits', with an interest in learning from each other. The workshops provided an opportunity that most participants reported were not available to them in their home institution, such as discussing teaching practice specific to undergraduate mathematics, sharing 'war stories' and building a rapport based on many shared problems. They also shared many common values, such as deep concern for students' learning and welfare and their passion for teaching quality. While some indicate that institutional competition and accountability measures may be an impediment to cross-institutional communities, this was not the case for us (Nagy and Burch 2009). The interaction of individuals at all project events was characterised by openness and trust, indicating the sense of identity through shared interest in mathematics education was stronger than institutional affiliations. It was also clear from the depth of feeling in participant feedback that many had long sought connections with colleagues in other institutions, but had not had been able to establish this on their own. The participants within the community also reported that they appreciated the recognition the group afforded them for their interest and expertise in teaching.

The community of practice allowed for members to participate at different levels according to their particular needs, interests, level of expertise and workplace constraints. Engagement varied from active participants, who attended events, to those who received email and accessed the website only. For the active participants, two levels of membership were identified within the network: 'contributing members', who participated in events, and contributed their experiences and opinions, and 'leading members', who had experience in mathematics education research, shaped discussions, initiated collaborations and who had developed new approaches in teaching. The emergence of these two groups reflects Wenger's idea's relating to the 'trajectory' of community membership that allow for varying levels of involvement and experience (Wenger 2000, p. 241).

A key element of the network that encouraged the development of the community of practice was its provision of an open forum for honest and critical discussion of problems. The social aspect of face-to-face events was highly valued by many and emphasised in participant feedback, with requests for extended free discussion time, sharing of contact details and enthusiasm for follow up events. This collegial approach was founded on a strong discipline connection, which was not limited by institutional or state-based differences. While individuals acknowledged different views, discussions were non-judgemental, confidential and piqued

curiosity, whilst respecting sensitivities about institutional reputations. This was important in developing the familiarity and trust required to encouraging exchange of information, encouraging 'novices' to participate and allowing the breadth of experience within the community to be realised (Wenger 2000). The sense of belonging and shared commitment to improving outcomes for mathematics students, quickly established this trust between members and also between members and the leadership of the group.

The development of a 'shared repertoire' and community 'artefacts' was facilitated by the project team and reflected the activities and interests of the community (Wenger 2000). Artefacts such as the website, reports and presentations supported learning by documenting ideas and knowledge that had not previously been contextualised within undergraduate mathematics or easily accessible. The creation of some artefacts, such as presentations, journal articles or research projects, provided individual members with a tangible outcome of their involvement in the community and validation of their expertise. The community used artefacts in their own work and by sharing them with colleagues in their own institution, for example reporting back on workshops they had attended, referencing FYiMaths reports and using resources on the website in their research and teaching.

The leadership of the community of practice responded to members' feedback and suggestions by tailoring information and its style of delivery to suit their needs. The project team were not attempting to identify best practice or even to champion particular practices. They acknowledged that teaching approaches were highly individual and were informed by academics' experience, institutional requirements, student cohorts and available resources. Feedback on presentations at workshops indicated that members were interested in practical and evidence based information that could inform their own practice, but could also be used as valuable evidence when building a case for local change or innovation. This meant that information in print was brief and to the point on the website and that posts and emails were regular, but not too frequent, with information targeted to key issues and interests. The website was developed to provide access to information and a level of interaction between members and with the leadership. Information was updated regularly and shared through news posts and a newsletter. A webpage directory was established where members were invited to list their contact details and areas of interest to facilitate sharing of information. This was used by individuals to identify possible collaborators for research, inviting members to state based meetings and developing email lists for circulating information about research activities such as surveys. The leadership's attention to its communication strategy was an important factor in ensuring that the momentum achieved through face-to-face activities, did not dissipate in between meetings.

The community of practice developed from within the network with no clearly defined boundaries, membership or leaders and reflected many of the aspects of Lave and Wenger's original descriptions of communities of practice (Lave and Wenger 1991). The feedback from participants in the community did not indicate that its members felt it differed from the network and did not seek to define itself in terms of a community of practice. The leadership, which was originally intended to

facilitate the network, evolved to match the needs of the emerging community of practice. The community of practice members looked for guidance and two individuals from the project team stepped into these roles.

3.6 Leadership Roles

The leadership of the community of practice developed over time and continues to develop as the community evolves its mission and grows in membership. The leadership roles were not formally established, but emerged naturally from the project leader and manager's roles in initiating the FYiMaths network. The original project team was comprised of five members from four universities, with the project leader and project manager as the main drivers. These two individuals operated as 'activator' and 'facilitator', drawing on the advice and guidance of the team (Pharo et al. 2014, p. 344). The nature of their differing responsibilities was largely defined by their particular skills and background and reflects Wenger and Wenger-Trayner's (2012) range of leadership roles.

The project leader (activator), a mathematician in a teaching-focused role, had many existing relationships within the national mathematics community and had connections with key peak bodies in mathematics and science, giving her access to mentors and advisers. This background, together with her recent collaborative projects in mathematics education, gave her an understanding of the broader higher educational landscape and the policy context for science, technology, engineering and mathematics (STEM) education. The project leader's expertise in scholarship of teaching and learning in mathematics lent credibility to her decisions on strategy and community activities. The project leader participated in the majority of interviews conducted by the project team, which allowed her to develop new relationships with potential members and gain important insights into the structures of many mathematics programs.

The project manager (facilitator), an experienced research officer and information manager, had experience researching scholarship of teaching and learning, knowledge of higher education policy and theories of communities of practice. These experiences, combined with her practical skills in communicating and managing information, informed her approach to supporting the network. Her leadership role centered on the management of information, maintenance of two-way communication between the leadership and the network members, and identification of key issues from the collected data and feedback. Her role as the frontline contact for most network activities gave her a personal connection with members, while involvement in interviews and data analysis provided a sound understanding of the issues.

In the design of all the project's activities, the leadership sought to 'reflect member expectations and (be) responsive to changing needs.' (Debowski 2014, p. 3). The leaders did not direct or set the agenda, but provided the opportunity for individuals to talk, to listen to each other's concerns and to explore the issues of

relevance or interest to them. A critical task for the leadership was to analyse and synthesise these contributions, informed by the broader institutional and higher education context and then develop appropriate activities, resources and initiatives. The sensitive and responsive approach taken by the leadership of the project and network facilitated the emergence of the community of practice in a number of ways.

The leadership legitimised members concerns by tailoring project activities to address them. One example of this was that many members experienced similar challenges in dealing with student diversity, but had very limited awareness of the extent of these problems across the sector, nor did they have contact with colleagues in similar roles in other institutions. This was further reinforced during the workshop where it was clear that face-to-face contact and interaction were not only a powerful method of developing an individual's sense of community, but central to the growing sense of shared purpose. The leadership identified the key issues that the community wanted to address and that bringing individuals together to discuss them could provide an effective mechanism for change.

The leadership identified that members of the community of practice had significant concerns about a single issue: the impact of replacing mathematics pre-requisites for entry to mathematics-dependent degree programs, by 'assumed knowledge' entry standards for mathematics. This change, adopted at many universities across the country, meant that many students were commencing their university studies, mathematically underprepared. Although many individuals had voiced their concerns in their respective institutions, it became apparent that their lack of success in effecting change on this matter was shared amongst the group. At the project's workshops, this shared concern began to gather momentum, as members realised that the problem was widespread rather than a local one.

In response to this groundswell of concern, the leadership organised a forum, in conjunction with IISME, to focus on the issue of 'assumed knowledge'. The purpose of the forum was twofold. Firstly, the forum was designed to draw attention to the full range of negative impacts that this under-preparation in mathematics was having on students' progression in this discipline and also the impacts on teaching and staff workloads. However, a second aim was to invite broad participation from science colleagues and the secondary school sector, to assess the impact of assumed knowledge on students' progression through science and engineering degrees and on the choices students make in senior secondary school. By bringing together speakers and participants from across the science disciplines, representatives of peak mathematics and science bodies and curriculum authorities, the leadership provided a link between the community of practice and the wider science and education sectors.

The forum had a galvanizing effect on the community because it demonstrated that the community provided an opportunity for collective action and was a force for change. The event established the credibility of the leadership by demonstrating that they could bring the group's concerns to national attention by issuing a *communique* to the Minister for Education, Universities Australia and Dean's councils, which subsequently received national coverage in the media (McNeilage 2014; Trounson 2014). The national forum proved to be a 'make or break' point in the

development of the community and had a significant impact on participants' enthusiasm. By taking action, the leadership demonstrated the seriousness of their intent to lead change in higher education. The members of the community reported having trust in the leaderships' guidance and initiatives so that the leadership effectively became an advocate for the members. The role of advocate provided a voice for the community that launched their concerns into the public domain in a way that had not been possible for individuals from separate institutions.

3.7 Factors Contributing to Success

The community of practice that emerged from the network has been successful in providing an active learning community for mathematics educators because it:

- recognized and validated the specific expertise of undergraduate mathematics educators,
- had a broad inclusive membership that fostered collegiality,
- identified common concerns and focused on key issues,
- provided access to information through an effective communication strategy, and
- provided leadership that was responsive to members, while also providing strategic guidance and connections with key peak bodies.

The community of practice acknowledged specific skills and perspectives of its members and validated their roles, which they did not receive from their work groups or organisations. The pre-eminence of discipline research in the higher education sector commonly means that academics specializing in teaching practice are not sufficiently recognised within their own institutions or rewarded for their work, despite the substantial contribution their teaching and coordination may make in their departments. The leadership provided events and a website that showcased this expertise by encouraging both experienced and novice members to present their research and teaching practices for discussion and feedback. The key events, the national forum and two workshops, which invited participants to present and facilitate discussion resulted in tangible research and teaching outputs, including publication by several presenters in a special issue of a journal (edited by the project team), two successful collaborations to gain national competitive grants, invitations to individuals to present at other institutions and fora and implementation of numerous teaching innovations in institutions.

The community provided professional development opportunities and access to information, in particular skills related to management roles, undergraduate mathematics pedagogy and scholarship of teaching and learning that most institutions have failed to provide (Wenger 2000). This was identified by the project team as a clear gap in current practice and informed decisions about the types of information provided on the website, the topics for presentations and the format of workshops.

The community included both experts and novices, individuals with diverse backgrounds and career paths and varied experiences of professional development in their own institutions. This diversity ensured a constant 'level of learning energy' (Wenger 2000, p. 230) as individuals with experience became increasingly active in providing guidance and newcomers were encouraged to ask questions and were supported to develop new skills.

In addition, the interwoven relationship between the network and community of practice provided links between mathematics educators (members) and the external institutions and peak bodies with broad sector influence, allowing members a voice in the national conversation on mathematics education. The relationships between the network, community of practice and external bodies contributed to the success of the group in a number of ways. Firstly, at a practical level, the involvement of peak groups extended the reach of activities through increased publicity to wider audiences.[3] Secondly, the expertise of these groups informed discussion and provided access to individuals that members otherwise would have had no contact with. Thirdly, these links also gave credibility to the group by recognising members' expertise and experience and validating their contribution to the debate by raising individual's concerns beyond the walls of their own institutions. These relationships reflect the boundaries of communities of practice defined by Wenger (2000), in that they represented an intersection of expertise and interests that provided learning opportunities.

The newly established connections between the community and peak bodies were based on preexisting connections between the project leader and key members of the reference group, who provided support and mentoring for the project. These relationships enabled the community to 'hit the ground running' by drawing on this expertise early in the planning activities. Throughout the project, the leadership was able to call on these groups for strategic and policy advice. The consultative nature of network activities highlighted the need to bring all interested parties to the table and ensure discussion and debate was informed, balanced and valid. The project leaders' negotiation skills and understanding of the broader educational and political climate were instrumental in guiding the activities of the community. The leadership shaped the focus and direction of community activities by strategically guiding discussion, information gathering through surveys and encouragement of individuals in research and publication.

It was important to participants in the community of practice that their input and time achieved tangible results, both for themselves and others. The leadership was conscious of this and ensured activities were targeted to members' needs, provided access to new information and were timed to make allowances for work schedules (Wenger 2000). To achieve this, the leadership ensured a broad range of topics was covered, representing experiences in a wide range of institutions and varying the

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[3]The Australian Association of Mathematics Teachers, the Office of Chief Scientist, Australian Council of Deans of Science, and the Institute of Innovation in Science and Mathematics Education.

format of presentations and interactive sessions. This approach to tailoring activities and information in response to members' input was crucial to building and sustaining membership.

The membership of the network was broad and inclusive, and extended across discipline and faculty boundaries to include educators from mathematics support centres, secondary teachers and other science disciplines. This extension to members outside tertiary mathematics indicated that the boundaries of the community were not defined by profession, role or discipline, but by the shared enterprise. The community countered the isolating influence of discipline silos and faculty structures that exist in many institutions and limit contact between mathematicians and their science colleagues. This is often in spite of mutual interest and the benefit that establishing such contacts would bring. This was a significant part of the success of the community because it brought together the expertise of mathematicians, scientists and teachers, which holds promise for real educational gains for students.

The project team's communication and administration strategy was instrumental in ensuring that members were kept informed and engaged with the project and that it encompassed the breadth of members and interests. The development of the website and use of email provided an important link with the community and source of current information between meetings. It also developed the personal connections between the project manager and network members that enabled her to develop a detailed understanding of issues, be responsive to members' interests and establish trust. The logistics and administration of events was also managed carefully to ensure they were inclusive, welcoming and accessible to as many individuals as possible. This was reflected in the publicity material, website, email invitations and articles posted on third party web sites.[4]

The success of the FYiMaths project in initiating a network and supporting the emerging community of practice was due partly to the serendipitous timing in bringing together individuals and focusing attention on issues that had been long overlooked. It was also fortuitous that mathematics and science education was receiving national attention due to the activities of other groups, such as AMSI and the Office of the Chief Scientist. The leadership of the community of practice was cognizant of these conditions and strategically guided activities to capitalise on these circumstances and achieve significant impact.

3.8   Evaluating Impact

The impact of the network and community of practice were evaluated as part of the formal processes of administration for the project grant and informally through regular reflection on member feedback. The project evaluation process included

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[4]Articles reporting on and publicising FYiMaths events appeared in HERDSA news, the AustMS Gazette and Inspiring Australia website.

formative and summative assessments of progress towards the stated goals. The formative evaluation included regular meetings with the team and the project evaluator. Our choice of project evaluator proved to be one of our success factors, since her experienced advice proved invaluable and enabled the network leadership to reflect and adapt their approach. This process of regular re-assessment of project activities and direction became part of the leadership's strategy in supporting and developing the community of practice. In addition to this, the leadership constantly reflected on input and feedback from members when making decisions and following all events. These two factors ensured that the developing community of practice was strongly focused on, and driven by, the interests and needs of members. Community members too were accepting of the breadth of interests and levels of experience within the group.

The qualitative data about the benefits of the network collected from surveys and participant feedback at the three network events, as well as from website comments and emails from members was analysed to identify the major concerns and interests of members. The major themes identified were:

- Establishing contact with colleagues from other institutions,
- Comparing curriculum and teaching practices in mathematics,
- Sharing experiences and problems with others with similar experiences,
- Learning about innovations in teaching and finding out about resources, and
- Finding practical information concerning implementation of teaching innovations.

The feedback from event participants influenced planning for subsequent events, particularly suggestions concerning increased time for informal networking and further topics for presentations and discussion. The following comments from workshop participants reflect the tone of many responses from members:

> I found out that there are more resources out there than I thought… I will use them to promote better practice within my department

> We've got a lot of new ideas, things that were brewing for a while and now we are empowered to make them happen

The formal evaluation report on the project concluded that the project had 'built an effective network for First Year mathematics coordinators' and that the project had made 'a significant contribution to mathematics education in Australia' (King et al. 2015).

The impact of the community of practice is also evident in more quantifiable activities, such as increased research output by members, website hits, and growth in membership. The community has seeded many cross-institutional research collaborations with at least three successfully gaining OLT funding to support projects. The website usage statistics are reviewed regularly to monitor the level of interest in topics and pages used most regularly. The website and social media usage count has steadily grown throughout the project with an average of 51 hits per day in March 2015, four times higher than at the same time the previous year. The response to specific items has given insights into areas of interest to members and influenced

the site's content and format, with new features added in response to demand, such as regular updates on the events, providing information on job vacancies, calls for conference papers and grant application opportunities.

The success of the community is reflected in the increased number of participants in the network as the membership is overlapping and connected. The network membership list has grown to include 180 individuals, who receive regular updates from the website, a quarterly newsletter, invitations to conferences, seminars, optional surveys and requests for information. Whilst it is too early to assess any real impact of the community of practice on learning outcomes for students, or professional practice by educators, it is clear that mathematics educators have become a more noticeable presence in the higher education sector.

3.9   Conclusion, Reflections, Implications

This case study illustrates that academic collegiality can foster naturally occurring communities of practice, given appropriate leadership, resourcing and activities. In particular, discipline based collegiality can be effective in initiating and supporting cross-institutional collaboration to develop teaching practices in higher education. This community grew from the strong sense of identity and shared purpose of members and was not limited by institutional barriers (Nagy and Burch 2009). The emergence of the community of practice was driven by a quest for answers, opportunities to learn from others and recognition of expertise that was not being provided by institutions or professional bodies. In turn the expertise and 'artefacts' developed by the community have been used by to respond to these problems.

The development of the FYiMaths network and community of practice reflect Wenger et al.'s (2011, p. 10) theory of an 'intertwined' relationship, and indicates that a network and community can develop together to meet different needs, particularly in relation to different levels of experience, members availability and motivation for involvement. The early success of the community exemplified the benefits of 'legitimate participation' (Lave and Wenger 1991, p. 111) in encouraging new members, establishing trust and providing a forum for shared experiences. The community's artefacts, such as the website, presentations, surveys and reports provided a tangible resource and point of reference for members, as well as those outside the community.

The leadership of the network and community of practice was responsive and met the diverse needs of the group by fulfilling the range of roles identified by Debowski (2014, p. 7)[5] While the activities of the community were guided by the members interests, it was the leadership that synthesised this input and made effective use of connections outside the network to advance their cause. Leadership

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[5]Leaders of networks need to fulfill roles as a; visionary, shepherd, governor, team leader and communicator.

that reflects members' needs and interests is one of the most important aspects of supporting the development of a community (Wenger 2000), which in this case study also included responding strategically to sector wide issues and coordinating community activities.

The FYiMaths network and community of practice are still evolving and both have an enthusiastic and dynamic membership. Our challenge will be to maintain the current momentum, activities and development of artifacts without ongoing funding. Over time the community may develop a shifting membership of 'newcomers' and 'old-timers', experience changes in identity and purpose and mature into a more formalized group (Wenger 2000). The continued involvement of members will depend on maintaining interest and a sense of purpose, by progressing work on key challenges and extending the community's expertise into new areas. Having local state-based nodes could be effective in developing a more distributed leadership and provide busy academics with an accessible forum for continued discussion and development of ideas. However, to be truly successful, we must be able to show that participation in the community of practice translates to tangible outcomes for staff and students.

This community has the potential to achieve significant advancements in student learning in the discipline of mathematics, by harnessing the expertise and 'spirit of inquiry' of academics (Wenger 2000, p. 230). The long term sustainability of the community will rely on building members' current knowledge and experience and supporting projects that can instigate change at institutional and sector level. The community will need to continue to actively explore emerging issues in mathematics education and higher education to extend members knowledge and to make a valuable contribution to the national discussion on them. That the network has already begun to establish itself as a key stakeholder in tertiary mathematics education augurs well for the future, however careful and strategic planning will be critical as we attempt to establish this community's place in the broader mathematics education community.

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Chapter 4
Communities Practising Generous Scholarship: Cultures of Collegiality in Academic Writing Retreats

Sally Stewart Knowles

Abstract In universities, constant pressure to meet publishing imperatives is producing a demoralised, isolated and fatigued workforce. While supporting research writing is recognised as critical for a vibrant research environment, often silence surrounds practices and processes leading to publication. The academic writing retreat model has proven efficacious in providing dedicated time to boost writing productivity and a collegial ethos that fosters cooperative models of intellectual generosity. Participants consistently endorse the model for being able to build on this community/culture that is largely absent from routine academic life. In this chapter, I explore the benefits for doctoral students and academics of ongoing writing retreat communities that meet in residential and on-campus settings. I report on a follow-up study of a community practising generous scholarship created as part of an Australian university's strategy to strengthen its research environment. Longitudinal data (from 20 writing retreats I facilitated over 3 years) and evaluations collected as a normal part of retreat practice provide evidence of publications, sharing of writing practices and publishing knowledge/experience, often leading to participant-led initiatives to establish new groups. I propose that retreat processes are pivotal in engendering a supportive and collegial network across disciplines and seniority levels, and a vigorous writing culture. They strengthen individual and collective writing identities, thereby subverting neo-liberal values that privilege performativity, erode collegiality and fracture communities. I conclude by suggesting that despite the demonstrated 'ecosocial' value of this sustained community of practice, retreats dwell precariously as 'fringe' communities, since funding concerns and time scarcity constantly destabilise the model.

Keywords Generous scholarship · Collegiality · Research writing retreat · Community of practice (CoP) · Evaluation · 'Fringe' communities · Participation · Writing for publication · Early-career researcher

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4.1   Introduction

In universities, constant pressure to meet publishing imperatives is producing a demoralised, isolated and fatigued workforce (Bexley et al., 2011). The effects of the corporate paradigm, with its managerial techniques for differentiating researcher/teachers' productivity, driven by the performance-based funding model, and unrelenting time pressures, are transforming academic life. Universities have not yet translated effective strategies and structured support into the cultural contexts, values and practices for building vibrant research communities. For workplaces that valorise writing (or 'generating outputs') and recognise that supporting research writing is a critical feature of such an environment, there is often silence surrounding practices and processes leading to publication and grant successes. In an uncertain institutional culture with changing rules and individualist performance measures without supports through this process, anxiety, confusion or feeling incompetent might be taken as key messages (Barcan 2013; Connell 2014). For many, this silence results in elevated stress levels, unproductive writing practices, and eroded confidence. Furthermore, the absence of collegial and supportive relationships leaves staff feeling marginalised and dispirited, with demotivated ambitions. When communities are fractured, through staff being robbed of time for communication and meaningful interactions, without "time to drift, reflect, ponder and dream" (Duncan et al. 2015, p. 6), we inhabit precarious and compromised identities as Teaching/Research Scholars. In such circumstances, making time for each other in informal learning communities needs to come to the fore. For it is by listening to, and offering collegial feedback through reading one another's work that provokes, affirms and challenges us, and enables the sharing of writing practices, artisanal strategies, and publishing and grant writing knowledge/experience. Practising craft knowledges fuels the courage needed to practise generous scholarship and write in the competitive, individualistic world of the academy.

The academic writing retreat model has proven efficacious in providing dedicated writing time to support the researcher's stated writing goals and in engendering a collegial ethos that fosters cooperative models of intellectual generosity (Grant 2006, 2008; Knowles and Grant 2014). Participants consistently endorse the model for being able to build on this community/culture that is largely absent from routine academic life. In addition to the lived experience of being a member of a community of writers, they also provide 'imaginative spaces' (Grant and Knowles 2000) in which we see ourselves as members of a community of writers even when we write alone.

These affinity spaces have successfully supported the sense of agency and personhood vital for the realisation of our own and our colleagues' personal and intellectual projects. In essence, retreats offer social spaces for enacting some of the virtues in academic life that can countenance the contemporary culture of exacerbated individualism and performativity, by emboldening and enriching us: through kindness (Clegg and Rowland 2010), hospitality, reciprocity and intellectual generosity. Through their sustained 'ecosocial' nature, given that retreats are often

residential and since research activity is realised within a total environment—encompassing home, workplace and community—social learning enriches knowledge and collegial sharing of practice connects us and enables us to learn from each other in informal ways. As Strum and Fedigan (2000) urge, "[if] we really seek to shatter the science/humanities and nature/culture dichotomies that paralyze action, we need to spend a lot more time living, working, and playing in each other's fields" (p. 532).

4.1.1 Overview of Chapter

In this chapter, I explore the benefits for doctoral students and academic "knowledge workers" of ongoing writing retreat communities that meet in residential, off-campus and on-campus settings created as part of an Australian university's strategy to strengthen its research environment and build capacity in early-career staff for publication and research writing. In particular, I report on a follow-up study to provide evidence of publications. I also draw on evaluations collected as a normal part of retreat practice that not only provide evidence of publications, but of participant's confidence in their own scholarly work that inspires them to actively engage with their respective research communities. My discussion of this collaborative and collegial writing-centred community is framed through the lens of community of practice (CoP) theory (Lave and Wenger 1991; Wenger et al. 2002) with a view to determining the extent to which research/writing-based CoPs can be embedded and sustained in a university context.

4.2 Context and Background

In today's universities grant writing and publishing in top peer-rated journals signals a successful academic career, and "research performance is seen as the most important measure of institutional and individual status" (Probert 2015, p. 2). In this climate, successful research writing involves elaborate and sturdy networks of peer support to actively contribute to the ongoing knowledge-making endeavours of these communities. Vibrant research cultures and vigorous writing communities are desirable because as Dickson-Swift et al. (2009) admonish: "*A research culture is a writing culture!*" (p. 229). Writing has come to be seen as 'normal business' in the doing of research (including an increased recognition of its value to artistic practice and scholarship). Traditionally, research writing has been mostly a private and invisible activity that was virtually unsupervised; whereas productivity is now intensely scrutinised. Indeed, "the academic workplace is probably one of the most highly writing-intensive workplaces imaginable" (Paré et al. 2011, p. 218), yet curiously writing remains a peripheral activity. Some of the reasons for the invisibility of what is purported to be a core activity might be attributed to the lack of

support for writing in the work environment (Murray 2011). The production of writing persists as an individual pursuit often enacted in spaces (far)away from the workplace.[1]

Given the importance of this activity and the expectations that staff should be publishing regularly, it is curious to ponder why colleagues consistently describe a longing for vibrant writing communities largely absent from routine academic life.[2] Several features of contemporary university life undermine writing productivity yet ways in which it could be supported are known, as I discuss below. Murray (2011) pinpoints three ways universities inhibit the development of communities of research practice:

> firstly, by limiting the terms of discussion of research assessment to outputs, thereby excluding the important aspect of research writing practice from strategic discussions, secondly, by inhibiting discussion of writing time and the positioning of that time within the academic workload and workplace and, thirdly, by marginalising the setting up and running of different types of groupings that focus on writing, thereby making it difficult for individuals to prioritise or secure funding for them. (Murray 2011, p. 14)

The valorisation of research writing through publication imperatives and scrutiny of the research environment have on the one hand produced measures and targets, while the effort needed to sustain productivity, through affording time and place and building community have only recently rated attention. An overemphasis on auditing productivity and incentivisation without finding a balance between individual needs for time and solitude to write and community to support a writer's need for sociality and reciprocity, neglects these fundamental processes. Thus, universities have not yet translated effective strategies and structured support into the cultural contexts, practices and value systems for building research communities to provide research environments conducive to researcher development and their ongoing practices. Balancing individual priorities and institutional capabilities to address this issue of writing support is worthy of further consideration.

The desire to strengthen the university research culture has produced an array of initiatives for supporting and improving publication rates and grant successes, and ensuring timely thesis submissions and building community. Writing groups have emerged as an effective means for sustaining writing and publishing productivity for time-poor scholars needing protected time, and sociality. A systematic review of strategies from international universities designed to boost publications (McGrail et al. 2006, p. 19) identified three intervention types: writing courses, writing support groups and writing coaches. All three interventions led to an increase in average publication rates but with variations in the resulting publication output. Writing retreats were shown to be effective in boosting publications rates and

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[1]By way of example, I am writing this chapter at a writing retreat in New Norcia, 132 kms north of Perth.

[2]Our end of retreat evaluations routinely capture this information of which I have a corpus of over 500.

ameliorating quality. The authors concluded that the most beneficial arrangement is a regular, ongoing community with an adaptable format to suit individual needs.

Despite the intensification in academic work and greater visibility of publication and writing, and research into the kinds of initiatives that can support writing endeavours, few studies have determined the ways these new measures are changing academics' behaviours to their writing. This discrepancy between the priorities of the publishing imperative and the realities of institutions is a central concern in this chapter.

4.3   Literature, Theory and Research Approach

In the current era of higher education, with the push for publications one of the "side-effects" of research assessment and 'performativity', according to Hey (2001, p. 81, cited in Murray 2011), is producing anxieties about success. An international study of early-career researchers noted that: "The collective anxiety of research-active staff in universities is almost palpable. They are faced with a growing performance setting where the track record of each individual is monitored and high performance is expected." (Debowksi 2011, p. 2) Yet in Clegg's (2008) study of how change is being experienced in HEd, academic ways of being in these sites were enacted with integrity within the co-existing scholarly, corporate and bureaucratic paradigms. Thus academics inhabit "multiply constituted ['spaces'], since for any particular individual, the site of the academic may include relationships with other colleagues globally, be a particular fragment of a department, and may include a range of activities, some of which are experienced as being academic and others of which are not" (Clegg 2008, p. 329). Hybrid identities within fractured communities are harder to nurture and sustain, given the sense of being in transition associated with the often-difficult liminality of writing and original thinking.

Writing retreats have emerged as a strategy that has been employed in other universities (including GO8 Universities, and overseas at The University of Auckland, The University of Glasgow, Brock University, to name a few). They offer "a time and place to learn that the solitariness of writing can co-exist with productive and stimulating sociality" (Grant 2008, p. viii). While the retreat model has been relatively constant, and the goal always to produce a piece of academic writing (for example, a journal article, book or thesis chapter, conference paper, research proposal), I/we have conducted retreats in many different venues (including institutional and non-institutional, luxury and school-camp style ones) and under different conditions (residential/non-residential, women only/mixed, academic staff or students only/mixed).

Since their inception at the site university, Edith Cowan University (ECU) in 2009, the retreats have incorporated diverse and overlapping communities of research writers, creative writers, practice-led researchers, doctoral candidates, supervisors, language and literacy specialists, academic/research developers, research co-ordinators. All have shared interests in the practice of (research) writing for publication.

4.3.1 Retreats as Communities of Practice

A writing retreat is a particular kind of CoP. The formation of a community "creates a social space in which participants can discover and further a learning partnership related to a common domain" (Wenger et al. 2011, p. 10). This partnership— formally or informally enacted—may have explicit or tacit intentions. The characteristic feature blends individual and collective learning in the development of a shared practice. The three defining elements of a CoP approach developed by Lave and Wenger (1991) comprise: A *domain* of knowledge that creates a common ground and sense of common identity; a *community* of people who care about the domain and create the social fabric of learning; a shared *practice* developed to become effective in the domain (McDonald 2014).

For research writing communities, these critical features are pertinent yet somewhat idiosyncratic. The shared domain of interest forming the retreat community focusses around knowledge production and dissemination to diverse peer-based discourse communities. Because the endeavour of research and writing for publication is the organising principle of the retreat community, membership is drawn from those who desire to develop expertise in scholarly and creative writing through participation and sharing of practices (i.e. research and writing for publication). Participants are drawn from heterogeneous groupings (faculties/schools). It is participants' writerly identity moreso than disciplinary identity that is foregrounded. The sense of a common goal (*we are all here to write*) creates a common purpose. Participants' disciplinary allegiances are backgrounded on some occasions and foregrounded on others. The emphasis on common purpose rather than academic field contributes to the objective of creating an environment conducive to exploring interdisciplinary interests or research across the university. Academic disciplines are notoriously adversarial (tribal and territorial!); thus, while co-operative relations do exist in academic communities, it is important not to idealise intellectual traditions given their competitive, individualistic and contested nature.

With situated learning theory, Lave and Wenger (1991) elucidate how practice in the community enables novices to move from peripheral to full participation in community activities when they interact and develop a common sense of identity. Many retreat participants highlight the transformation and identity shifts enabled through building knowledge and capacity around writing for publication, community belonging and shared practices. Writing for publication is a vital academic ability, yet "most staff will not at any stage of their career, whether as a student or as a staff member, be directly taught how to write for publication in refereed literature" (McGrail et al. 2006, p. 24).

Retreats provide situated professional learning as the writing is being developed and professional development is at hand when needed through tailored workshops, consultations, and peer review. In some cases, participants may need to realign their writing practices to meet the expected productivity targets, or conversely to learn not to sacrifice writing pleasure to productivity imperatives. When participants

arrive some are burdened by the pressures exerted by deadlines, and it takes time to settle down and connect them to the passion and purpose of their writing projects for them to sustain writing momentum. The retreat ethos (Grant 2006; Knowles and Grant 2014) actively seeks to disrupt institutional messages that brand researchers in particular ways. Central concerns of identity formation and building confidence take priority, especially given their gendered dimension.

Writing retreats constitute a *hybrid* type of CoP since they embody all three types of CoP (McDonald 2014): *organic*, *nurtured*, and *intentional*. One of the retreat principles is to ensure that the retreats change organically over time thanks to the participant feedback invited during and at the end of each retreat; they are nurtured—as they are designed to build the capacity of CoP facilitators who come forward and also to support participants who wish to form a new community; they are intentional—established to build researcher capacities for writing and publication as directed by the funding institution under the guidance of the facilitator who introduces processes to participants intent on completing a publication. In terms of the latter, alongside the structured moments of encounter orchestrated by the retreat designer, the participants negotiate their writing goals and how they will be achieved. While meeting institutional publication targets (performance management indicators) may be the driver, doing, learning and pleasure are central. In these moments learning is unstructured and informal within a shared field of practice. Following Lave and Wenger's (1991) conceptual framework, the "true concept of CoPs … is a concept that cannot be led, and CoPs are not a *thing* but a *process*. That process is a situation of unstructured, unintentional, situated learning" (McDonald et al. 2012, p. 17). Using Lave and Wenger's concept of CoP structure, retreats might more be accurately be defined as a "modified" form of the CoP structure because learning opportunities are supported rather than entirely unstructured. In terms of the latter, "[it] is a special form of participative social practice operating in the organisational background where participants increasingly, though unconsciously, contribute to the knowledge and skills of others, as they themselves benefit from the same reciprocative process" (McDonald et al. 2012, p. 18). Never reduced to a technique, community is seen as "a capacity for connectedness" (Palmer 2002, p. 186).

4.3.2 Building Writing Retreat Communities

Rowena Murray (2011) has drawn on three aspects of the CoP framing to also argue that writing retreats build collegiality through supporting writerly identities, enhancing learning processes, and sustaining communal participation. However, Murray (2011) identified a significant gap in the CoP theoretical framework, noting that sustaining research communities is undermined by workplaces because writing processes are illegitimised so the kind of engagement required to sustain the

community is neglected. Hence, the CoP cannot be realised in the participants' workplaces if their practices are invalidated or insufficiently integrated into their working lives due to workplace, disciplinary and personal influences. This situation poses a significant challenge for early-career researchers wishing to become more accomplished writers.

Thus far I have argued for the need to foreground the practices and experiences leading to publication and grant successes to ensure they do not remain backgrounded or tacit. Furthermore, as Petralgia (1999) articulates, the complexities of producing writing demand different processes for each writing task that have to be adaptable since they are different each time given the "almost impenetrable web of cultural practices, social interactions, power differentials and discursive conventions" (pp. 53–54). Awareness of the need for sensitivity towards processes and how institutional discourses are played out, implies that writing community participants have to be flexible, questioning of these meaning systems, and attentive to group dynamics and the more delicate investments individuals have in their writing projects.

As mentioned previously, the practices, processes and resources that enable staff to sustain their research and writing efforts, and the realities of achieving these in times of austerity have garnered little attention. The scarcest resource is time, just "how much more work can be compressed into a week" (Barcan 2013, p. 6). Writing manuals and writing experts advocate adopting a habit of daily writing irrespective of busyness; however, many academics find this strategy unachievable, even downright fanciful given their workloads and the fact that writing must be done in conjunction with the researcher's relentless pursuit of self-financing, while maintaining business as usual, in addition to stoking the fires on the domestic front. The vexed questions of workplace barriers to writing and an implied incompetence or irresponsibility on the part of writers who are assumed to be able to manage their own writing, plague many universities and suggest this major challenge remains unresolved.

Recently, research-based CoPs (Ng and Pemberton 2012) have shown their capacity to provide strong value to the participants and their institutions, especially in overcoming intellectual isolation, generating research publications and inspiring collaborations. To provide a snapshot of a research writing community in process,[3] I now turn to the research study and sketch some background to the site university to give a sense of the kinds of practices that contribute to developing sustainable research communities in a 'new generation university'.

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[3]The ECU writing community has developed over a sustained period of time and has demanded commitment from participants attending them and the university funding them. Being part of the university's research strategy has increased the impact of the retreats. But this is no longer the case as the funding has shifted to the faculties, and some faculties cannot fund them due to recent cuts; hence, the future of the retreats is uncertain.

4.4 Research Environment and Writing Support at the Site University

The site university Edith Cowan University (ECU) was established in 1991 under the Dawkins reforms when the Colleges of Advanced Education—or teaching colleges were converted into universities to create a unified national system in the late 1980's. ECU is a medium-sized Western Australian university with two urban campuses and a regional campus, with 22,984 students (3300 of whom are international) and 1771 staff (750 academic staff; 1021 general/professional staff). The university has a commitment to providing a high-quality research environment and aspires to be research-intensive, while retaining its strong teaching reputation. Funding bodies now scrutinise the strength of applicants' claims in research environment statements to discern if the university fosters the 'right' kind of research environment to realise the proposed research project and build researcher capacities.

Following a major review in 2009, four Research Development Advisors were appointed at the end of 2010 to expand the research education programme for early and mid-career researchers. This entailed providing dedicated administrative support for researchers at the faculty level to assist staff with research administration and research grant acquisition to alleviate the institutional constraints that hinder the research capabilities of staff. The Research Development Advisors implemented a new research programme for specific research groups including workshops and faculty-based writing retreats. At the institutional level, these initiatives are having an observable impact on the research climate by creating an alternative research culture and making research a positive collegial activity. My appointment as a Research Development Advisor entailed the brief of facilitating faculty writing retreats to create and sustain a vibrant research/writing culture within which to explore interdisciplinary interests and research across the university.

4.5 Research Approach

4.5.1 Data Collection

Qualitative and quantitative data have been systematically gathered to evaluate the retreat strategy. Between February 2009 and December 2012, 20 writing retreats (11 residential, 9 on-campus) were hosted by the site university. Participants were drawn from single faculties[4] or from mixed faculties in the case of the regional campus. These were attended by a total of 182 people, 42 of whom attended more than one retreat. Three data sets were obtained over a 4 year period, including the

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[4]During the time to the study these were: the Faculty of Education and Arts; the Faculty of Computing, Health and Science; the Faculty of Business and Law, and the regional campus comprised staff from several faculties.

end of retreat evaluations (234) gathered as a normal part of retreat practice. To capture publications data and to undertake a more in-depth study of the participants' experiences of the retreats, with Dr Susan Hill we designed an on-line survey.[5] To reassure participants who might feel 'measured' against completions or submissions, a statement in the covering email informed colleagues that the aim was to assess qualitatively and quantitatively the kinds of writing outputs that can reasonably be ascribed to the commitment and inspiration of a writing retreat. The third data set—testimonials and ethnographic material, plus a more detailed account of the methodology for the study is provided in Knowles and Grant (forthcoming).[6]

4.5.2   Sample and Analysis

Through the on-line survey and direct email correspondence, we obtained information from 162 of the 182 participants. Approximately 30 of the retreat participants have since left the university, but contact email addresses were obtained for many of these. The respondents were from across all disciplines and areas of professional practice reflecting the diversity of the retreat participants. Demographic data show the largest cohort were mainly women (n = 127), compared to men (n = 35).

The publications and demographic information data were analysed by Dr Susan Hill through quantitative analysis (SPSS); and qualitative analysis of the open-ended questions (7 questions) were analysed thematically. Analysis of this longitudinal data set (20 writing retreats over three years) shows evidence of publications and benefits to writing practices and sense of community belonging. The impressive data of the writing progress of retreat participants provides evidence of submitted and published research and grant submissions in Table 4.1.

Table 4.1 shows 162 respondents reported working on 267 different writing projects during the writing retreats. Of these, 143 outputs have either been published or accepted for publication and a further 27 have been submitted for review. These figures are by necessity constantly evolving and show data captured at the time of the study. For example, some of the publications reported as 'In Progress' or 'Submitted/Under Review' may now have progressed closer to publication.[7]

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[5]This project has been approved by the ECU Human Research Ethics Committee 27th September 2012. Ethics approval Permit No: 7984.

[6]Also refer to our previous publications. Knowles and Grant (forthcoming). Intellectual generosity in times of austerity and audit: Accounting for the intangible benefits of the academic writing retreat.

[7]Please note that while an attempt has been made to 'classify' publications in terms of eligibility for Higher Education Research Data Collection (HERDC) purposes, this may not be entirely accurate since a formal verification process has not been undertaken. For example, some creative books may not satisfy the HERDC definition of research, and some published conference papers may not pass the stringent HERDC requirements for peer review and national/international significance [update as ORI did check the RMS].

Table 4.1 Current progress of retreat participants' writing outputs at August 2013

Type of output	In progress	Submitted/under review[a]	Accepted for publication	Published[b]	Total
HERDC					
Book	5	–	1	5	11
Chapter in edited book	2	–	3	7	12
Journal article	57	18	7	53	135
Conference paper	4	1	5	12	22
Grant application	5	4	N/A	11	20
Thesis	26	2	N/A	29	57
OTHER					
Creative work	3	–	–	5	8
Research report	1	2	–	2	5
Other[c]	3	–	2	1	6
Total	106	27	18	125	276

The data show progress as recent as 8 months after having attended a retreat (December 2012) to a maximum time of 4 and a half years after having attended the first retreat (February 2009)

Note: Based on 162 participants

[a]'Submitted/Under Review' includes Grant Applications that were submitted but unsuccessful

[b]'Published' also includes 'Thesis Passed', 'Grant Application Awarded' and 'Report Published/Released'

[c]'Other' includes writing outputs such as letter to editor, book proposal, etc

4.5.3 Participants' Perceptions of Writing Communities

Below, illustrative data obtained from the survey and end of retreat evaluations show the value individuals attach to the retreats, the participants' publication productivity and the extent retreats have contributed to establishing a vibrant writing community. As the analysis is framed within CoP theory, I relate the data to salient aspects of the CoP framing: ways writing retreats build collegiality through development of writerly identities (within/across knowledge domains), sustaining communal participation through a sense of membership of a community of writers (community belonging), enhancing learning processes/practices.

4.6 Scholarly Writing Communities at Edith Cowan University

An overall outcome of the retreat programme (20 retreats) was the establishment of a writing community that continues to function as a community despite geographical separation. The distinctive philosophy around the retreats is explained in more detail in Grant (2008). Eight design principles for the retreat (Grant 2008;

Knowles and Grant 2014) attend to the complex mixture of needs that comprise an academic writing community and the writing task itself:

   i. consciously fostering a pleasant environment
  ii. securing a removal from the outside world
 iii. supporting a deliberate process of change in personal writing practices
 iv. exploring ways to find pleasure in writing
  v. making space for writing together
 vi. enabling collegial professional development in which participants learn from each other
 vii. establishing a balance between communal and solitary time
viii. ensuring retreats change organically over time in response to participants' input.

Retreats increase learning through participation and help academics to gain a sense of collegiality that has been dismantled and transformed by the various influences traced above. What creates community relies on promoting possibilities for collegiality through social networking and helping others. In a recent publication (Knowles and Grant 2014) using the metaphor of the retreat's holding embrace we traced the ways the retreat structure builds collectivity on different levels. We argued that this kind of writing community creates distinctive possibilities for academic identity work in doctoral students and across mixed levels of seniority. The qualitative responses obtained from retreat evaluations have consistently highlighted retreat benefits such as: the importance of goal setting, developing collegial networks, enhancing perceptions of self as writer, sharing writing practices, peer review of manuscripts and networking across the faculty, as illustrated below.

4.6.1 Retreat Facilitation

Retreats are facilitated by an experienced facilitator who is also a working writer. The design fundamentals of our retreats (Grant 2008) express our values as retreat facilitators and seek to attend to the complex mixture of needs of individuals, an academic writing community and the writing task itself. This role entails pragmatic dimensions such as booking venues, publicising and engaging the participants, and organising the programme. It also entails facilitation and interpersonal skills in running the opening and closing sessions, leading the workshops (or inviting and liaising with participants who take this role). The facilitator also provides strong academic guidance when holding individual consultations with writers, reading manuscripts, evaluating and reporting on the retreats.[8] Personal attributes include well-developed interpersonal skills to ensure community members interact

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[8]For a detailed account of how the retreat model works, see Grant (2008).

positively with each other to promote cross-disciplinary alliances and potential collaborations.

A central debate about CoPs concerns the leadership aspects. McDonald et al. (2012) note that designated CoP facilitators are informal leaders who lead in a general way; hence, the term 'facilitator' is preferred. The facilitator invests considerable effort in designing, orchestrating and negotiating the retreat programme and expends extensive emotional labour and energy in engendering the retreat ethos. The facilitator's role, as Grant (2008) asserts "is to be a repository of much that has come from many" (p. 5). Given the interdisciplinary focus of the retreats, which is a challenging and rewarding aim, and is described more fully below, it is critical for the facilitator to harvest the fruits of this collective knowledge to enact the ethos of generosity.

> The retreat was very well structured, researched and prepared. The fact that it seemed to 'just happen' reflects the immense underlying thought and work that has gone into it over many years. [The facilitator's] genuine enthusiasm and excellent scholarship added a great deal. (Lecturer, female 2010)

Facilitator's support/generosity should ideally be at a "deep level, rigorous and research-informed and -informing" (Carter and Laurs 2014, p. 166) to orchestrate the sharing of practice and assist new participants to settle and feel part of the process. Another kind of generosity is through reciprocity and generous scholarship. Whether it is manifested in the overall retreat experience, the attention paid to each participant's writing project, or the facilitator's breadth of experience, facilitators need to adopt a transdisciplinary perspective that draws participants together and bridges any rigid disciplinary allegiances or blindspots so that the diverse perspectives and experiences of participants are canvassed and shared. The expertise and professional integrity of retreat facilitators are critical for gaining trust of the participants. Pastoral care is also required as participants may experience health or emotional/confidence crises. Hospitality too is shown in lighting fires, removing ticks, sharing food/coffee/wine, and reading manuscripts beyond the retreat.

The key for practising "generous scholarship" (Russell 2006), since participants are invariably "working in communities from different epistemological, ontological or methodological positions" (p. 403), lies in open-mindedness and humility. With such a diverse mix of researcher orientations, facilitators need to draw out examples that are sometimes generic, sometimes embedded, or to illustrate overlapping concepts. In essence, the facilitation approach fosters collaborative models of intellectual generosity that exemplify supportive communities situated in their practice. This pivotal feature is the vital ingredient for building the community. For a more detailed account of the facilitation approach, refer to Grant (2006/2008).

4.6.2   Life-Cycle Phases

Retreats are seen as a slow process of change rather than a quick fix, hence the need
for sustainability.[9] Their dynamic life-cycle permitted by the stable but flexible
structure allows for renewal. To build the community the retreat model is staged
over several months. There are some important considerations regarding the timing
and any follow-up activities, plus the need for these interventions to be scheduled at
a crucial moment in the life of the community, in order to move from infancy to
maturity (McDonald 2014) and to ensure consolidation and renewal.

   The schema developed by McDonald et al. (2012), distinguishes four phases of
development for HEd CoPs: *beginning*, *development*, *consolidation*, and *outcomes*,
with an ongoing *renewal of the cycle*. I now describe each phase and illustrate the
participant's experiences at critical points in the cycle. In doing so, I will elaborate
some of the retreats' distinguishing features, in particular noting the planned ele-
ments of reciprocity and generosity, and their contribution to community building
and sustaining the retreat model. These cycles reflect the philosophy (8 principles
shown above), from the day-to-day life of the community to outcomes extending
beyond.

4.6.2.1   Beginning

Sometimes the first face-to-face encounter with the participants is during the
on-campus pre-retreat meeting in which participants are introduced to each other,
questions answered and any concerns about performance expectations dispelled.
This forum provides the perfect opportunity to establish the group identity of the
community. When the retreat gets underway, the facilitator needs to ensure a cli-
mate of confidentiality and trust endures for the duration of the retreat and beyond.
Community vision is created by discussion of the retreat ethos and the rationale for
the programme and the invitation for participants to actively shape the activities and
processes.

4.6.2.2   Power Relations and Collaborative Decision-Making

Initial contact emails and information documents set the tone for the retreat and
reinforce the aim of collaborative decision-making. In the opening meeting the
skeleton structure of the retreat which is set in advance (apart from meal times) is
negotiated. While the facilitator guides the process, participants drive the agenda for

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[9]In Australia and Aotearoa/New Zealand (NZ), we are both involved in pan-university writing
retreats that have convened about 30 times in the past decade or more (see Grant 2006). We have
also done retreats for groups from our own universities and, by invitation, for other institutions in
Australia, Canada and NZ.

their learning. For the most part, the programme is determined by the participants; hence, there is extensive focus placed on negotiating the timing of discussions, or other formal structures at meetings to ensure the parallel sharing, elicited through offers for workshops, according to expertise and interest.

4.6.2.3   Development of Community Through Practising Generous Scholarship

Community development occurs through generous scholarship effectively supported by the retreat architecture. In practice, the retreats typically last between 3–5 days and, with our original goal in mind, our preferred mode is to live in at a venue some distance removed from campus. Participants who join the annual on-campus or off-campus retreat (2–3 days) may also attend residential retreats. During the retreat the development phase plants the seeds for the emerging community and introduces various activities that are usually adopted after the retreat. The programme is weighted in favour of quiet writing time, only broken by a daily workshop on some writing-related topic (typically for about an hour and a half after lunch) and a work-in-progress meeting (typically for an hour after dinner for the residential retreats), in which participants take half-hour turns to present their work for discussion to a small group.

Two inter-related 'principles' are relevant to the ideas of CoPs and link to the writing retreat objectives. One of the stated objectives of the retreat explicitly includes building community by encouraging a mutually-supportive writing culture and community of peers. Community building means striking a balance between solitary time and group time. Another principle is submitting to individual and group discipline to build the community of peers and foster intellectual generosity. For example, there are some activities that are required such as work-in progress meetings and presentations. Conforming to this discipline also creates tensions for some participants. In submitting to the retreat programme, however, other kinds of 'freedom' follow: the freedom that comes from knowing one is contributing to a common good, or the freedom to explore pedagogical dynamics that might not otherwise be experienced. These partial freedoms are built on an ethics that foregrounds kindness, generosity, reciprocity, as well as obligation. These inspirational qualities are often mentioned by the participants as there are plentiful examples of generous scholarship and playfulness in the retreat evaluations.

> Many thanks…for making such a wonderful experience. Thanks to [Facilitator] for her wonderful leadership. Thank to my peers for their generosity, friendship and insights. I leave replenished, joyful and satisfied. (Professor, Male 2010)

Another key objective is to create an environment conducive to exploring interdisciplinary interests or research across the university. Again, the feature that supports this effectively is work-in-progress in which participants take half-hour turns to present their work for discussion to a small group. These sessions are designed to make maximum use of the expertise and diverse knowledge of the

group, promoting cross-disciplinary alliances as well as non-hierarchical mentoring. With the deliberate cross-disciplinary configuration, feedback confronts the presenter more starkly or reinforces the shared challenges of writing irrespective of discipline.

> I also benefited from the group critique time. I had initially been unsure of this as I was not with anyone from my specific area; however, the insight from other group members was very helpful, as they each focused on different aspects of the writing. (HDR candidate, female 2012)

> [R]egardless of discipline area, everyone shares similar issues with writing and publishing, and it was great to get feedback with others outside the disciplinary area. (Lecturer, Female 2009)

In the closing session, through invitation each participant proposes ideas for deliberate changes for maintaining writing momentum in everyday life; these proposals generally consist of intentions to emulate the kinds of practices and environments the retreat environment engenders. As noted above, there are frequent requests along the lines of further retreats, individual goals and changed habits, new group/pair proposals that might evolve and end naturally. The attendees are invited to join the *Women Writing Away* (*WWA*) group,[10] or to set up their own groups, or to attend future faculty (on/off campus retreats). I also invite participants to suggest ways the university can support their writing projects and include recommendations in the report.

Advocacy for space/time/resources can be done on behalf of the community by the facilitator once the report is submitted. Participants themselves often take this up with colleagues when they return to campus with renewed inspiration and determination to keep their writing going. Engaging participants in the development phase entails reconnecting them to their writing and encouraging them to stay connected when the retreat ends. For participants, the opportunity to engage in academic writing in a *visible* way, is one of the most stated benefits. As MacLeod et al. (2011) expounds, this is not the norm in academic culture and the vulnerable point for the CoP model. Many participants comment on the *invisible* nature of writing in relation to their workload concerns, citing teaching demands as the stress point:

> The complexity and immediacy of teaching demands, along with the increasing requirement for staff to be completely self-sufficient administratively, means that writing/publication tends to gets pushed to the bottom of a long list of priorities. Most academic writing gets done in holiday time. Writing retreats - both residential and on-campus - send a really important signal to staff about the value and importance of writing and publication. The retreats not only allow staff to make significant progress with their writing projects, but provide an important morale booster. (A/Professor, female 2010)

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[10]*Women Writing Away* (NZ), founded in 1997 and *Women Writing Away (WA)* founded in October 2003 are interuniversity writing communities that meet two or three times a year New Zealand at Lake Taupo and in Perth, Western Australia for a 4–5 day residential writing retreat. In WA I have organised 36 retreats and at least 20 women from the university/ECU have attended retreats for which they self-fund.

Increased synergy is often cited and a sense of belonging another benefit:

> Through the collegiality of the retreats, I learnt so much about structuring and planning writing, publishing, and also giving and receiving feedback. It also allowed me to see my place in the academic community. (Lecturer, female 2012)

These examples of the value of writing in community support the point made earlier in the chapter about the disjuncture between performativity pressures and actual processes to enable the production of writing. The experience of being in a retreat community leads to a strong sense of university-wide citizenship that is important for improving morale.

4.6.2.4 Operational Processes

Critical operational processes during the retreat manage group dynamics and resolve conflict for long-term relationships to develop and for developing the social aspects of building community. In particular, these planned elements of reciprocity and generosity contribute to community building and sustaining the retreat model and the ongoing community.

Ground rules are proposed that are carried over from previous retreats and opportunity for new ones invited each day to identify/resolve any issues. These focus on agreed expectations for working together since horizontalising relationships in writing retreats requires constant attention. The setting up of the retreat is critical as participants are thrown together and need to work out how to be with each other when the pressures of the academy distract them (and their writing commitments) and pull them in competing directions.

As noted above, daily work-in-progress sessions are a core feature of the retreat programme and participants make decisions about supporting each other's writing through being attentive to process. Reciprocation is always beneficial, yet as noted by Russell (2006), cultivating generous scholarship through "open-mindedness and humility" (p. 407), is not straightforward. The success of our dialogues relies on careful process for the feedback needs to be "critical *and* generous, … difficult *and* respectful" (p. 407) to ensure that such conversations will continue. This aspect of the retreat "significantly contributes to the growth of community and trust— although it has the potential to be overly challenging, to the point of being destructive. As a potent pedagogy, this is its danger and it is one that all who participate must take responsibility towards" (Grant 2008, p. 21).

Ideally, the work-in-progress structure is carried over to any subsequent on or off-campus initiatives that might form after the retreat, hence it is important for this to be a positive experience. The facilitator guides the process and plays and important role in introducing the structure to the group and ensuring it works.

4.6.2.5   Consolidation

The consolidation phase comprises new concepts and practices that are repeated over the course of the retreat (and in any subsequent retreat initiatives). The 5-day residential blocks of time are ideal for this as the pacing allows in-depth coverage and practice. Evidence gathered over the years suggests the effectiveness of the writing retreats arises from a highly innovative ethos and practice, explicitly applied and sustained over a series of days, and where repeat engagement is encouraged and valued. The latter lays down a foundation of comfort and predictability that is supportive for the rigours of writing.

Many participants introduce goal-setting after the retreats, which is modelled in the pre-retreat questionnaire and revisited in the opening and closing sessions. In the end of retreat evaluations and follow-up survey, participants (from senior staff and HDR students) mentioned how they have continued this practice and made good progress on their writing:

> Normally it would take me two weeks of solid work to complete a first draft of a short story, so setting a goal to complete a first draft within the 5-day period of the retreat was a stretch in every way. I managed it – just – thanks to the luxury of having uninterrupted time, a quiet tranquil setting and good collegial support. (Research Fellow, female 2012)

Retreats are aligned with the institutional objective of capacity-building for early-career researchers and those deemed research-inactive. A significant challenge faced in working with these cohorts is in enabling novices to move from peripheral to full participation in community activities when they interact and develop a common sense of identity. If there are insufficient opportunities for participants to interact and maintain momentum after the retreats, the peripheral status of early-career researchers or research-inactive staff as writers endures. During the retreat, key staff usually with a faculty responsibility for research and/or who have a strong writing interest, either propose writing workshops, or become facilitators themselves, or seed groups and networks after the retreat.

4.6.2.6   Evaluation, Feedback and Reporting

Decisions are also formally documented. As the retreat designer, my practice is to ensure the retreats change organically in response to participants' input. Suggestions are actively sought for changes to the model (and, if there is consensus, acted upon), facilitated through the end-of-retreat discussion. Also, on occasions, we invite feedback through formal processes—for example, the survey reported in Grant (2006) and the survey data reported here. These evaluations have enriched our understanding, since the conversations with each group and with individuals about the significance of their writing plus their struggles to write have immeasurably helped my thinking as facilitator and writer. There are usually only minor suggested improvements that allow the model to go forward and refinement to address any concerns.

Data from formal feedback processes suggests that it is not only retreats that are changing: in some cases, attendance at retreats is producing changes to institutional cultures:

> I think regular retreats like this are really, really important. For me, it is the annual regularity to reinforce improvements and create new research-related habits that is important. The faculty culture collaboratively changes to reinforce new cultural practices and commitments too. (Assoc/Professor, female 2012)

The practices referred to above are critical for a new generation university seeking to establish a research and writing culture.

Formal evaluation of the retreat is necessary to ensure continuing institutional support and ongoing funding. Stakeholders need to make decisions about investment based on reliable and informative data. In the pre-retreat information participants are informed that assistance with any further surveys would be appreciated and the evaluation form is distributed and collected in the closing session. After each retreat a detailed report is prepared for each Associate Dean (Research) and tabled at HDR meetings and distributed to the Office of Research and Innovation (Director). Faculty, administrators, participants (staff and students) deserve to be informed of the outcomes of participation and its impact on writing, learning, and changed practices. For the findings to be reliable, the sponsoring organisation needs to know about ongoing resources, to negotiate strategic alignment, and notification of any outcomes requiring action on the part of the organisation.

Three to six months after the retreat, a follow-up survey is conducted to gain information about participants' productivity and output in terms of publications. I sometimes offer to run ongoing on-campus groups. In this follow-up, the community and network members need to identify their own experience of participation in the retreat outcomes and the process of evaluation if they are to use them for reflection and to shape future actions.

4.6.2.7 Outcomes and Impacts

Ideally, the impacts extend beyond the retreat time and changes are implemented to support the participant's ongoing writing endeavours. Since introducing the retreats, many new writing groups have formed[11] and others announce their intentions to enact mini-retreats in the home environment when young children are involved or to get out of the home environment.

> I have used the retreat strategy - i.e. going to a friend's house without family and external distractors to tackle similar targeted, achievable writing goals (i.e. other chapters and conference papers). (Lecturer, female 2012)

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[11]In some departments such as Speech Pathology and Nursing there are now annual writing retreats organised by staff in those departments. Several writing groups are also in evidence from pairs to small groups in Creative Writing, mixed disciplines etc.

The community may maintain an on-line presence by communicating through social media to share resources between individuals or groups. The first year of trialling the residential retreats led to on-campus initiatives for colleagues who couldn't attend the residential retreats. Since this time, each faculty has been offered both residential and on-campus retreats.

4.6.2.8 Renewal of Cycle

Once the community/group identity establishes successfully, participants are committed to renewing their engagement. The retreat timing and the follow-up activities, plus the need for these interventions to be scheduled at a crucial moment in the life of the CoP, are likely to ensure consolidation and renewal. In the closing session, colleagues are asked about their goals and invited to announce how they intend to keep their writing going. This declaration, elicited orally and in writing, invites a commitment according to each person's unique context. Over a 3 year period each faculty was offered two retreats. Repeat attendance was encouraged to ensure a cohort and for the participants to build their publication and writing profiles. The timing was dictated by teaching cycles and the retreats were always scheduled in non-teaching weeks.

4.6.2.9 Participant-Led Initiatives

In the light of Wenger et al. (2002) admonition that groups need to be self-forming, informal and self-determining, the retreats are often successful in seeding further communities. Sometimes the retreat spawns new writing groups or retreats initiated by retreat participants. These spin-off writing groups evolve and end according to each group's needs, idiosyncrasies and workloads. The writing community formed at the initial retreat for one faculty continues to meet for a week-long writing retreat once a year, and is gradually expanding. Sometimes I am approached to discuss the materials distributed in the closing session about setting up a writing group. After the retreats several further likely points of contact might arise: through sharing of resources on the researcher's topic area, consultations for reading and reviewing of the participant's publication, sharing grant opportunities, collaborations etc. some participants request specific professional development topics. In some cases, pairs/dyads will form and act as critical friends meeting and sustaining their writing momentum and providing constructive feedback on publications and embarking on new writing projects. Women are invited to join the long-running retreat—*Women Writing Away* (*WA*),[12] for which participants self-fund. Several of the women staff

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[12]Women Writing Away (NZ) and Women Writing Away (WA) are in partnership and share resources.

from the university have attended these in addition to the university-sponsored ones. An anonymous donor funded a bursary to support a doctoral candidate from the University to attend its 32nd retreat in 2012.[13]

4.6.2.10 Practical Processes, Protocols and Tools

A number of practical processes, protocols and tools contribute to the success of the retreats. These include group size and composition, champions and sponsors, the positioning of the retreats within the institutional context and power structure. For the community to flourish, factors that support and inhibit the retreats must be recognised.

The group size usually ranges from half a dozen up to 20 to retain an intimate ambience. Another feature is to mix the groups since doctoral and early-career researchers gain much from writing alongside more senior academics who act as powerfully encouraging role models. Vertical membership offers some distinctive benefits. Any attendance by supervisor–student pairs, however, must be carefully negotiated so that both have space to pursue their writing and thinking outside the supervision dynamic. In our model, everyone is there to write! Gender, class, ethnicity are of continuing importance and these identities are claimed by many in the survey responses. Feelings of fraudulence thread the whole data set, therefore inspiring confidence and tackling any misgivings about entitlement, belonging and contribution make be required.

4.6.2.11 Sponsors and Champions

As noted above, the Office of Research and Innovation (ORI) provided initial funding and then faculties in subsequent years. Associate Deans (Research) were the points of contact for promoting and planning the retreats. They also received detailed reports on the retreats and recommendations.

4.6.2.12 Positioning Within Institutional Context and Power Structure

In addition to ORI's sponsorship and support from the Director and DVC (Research), the retreats were given high level support from the three Associate Deans (Research) for each Faculty and other senior staff. One dean attended several retreats for his Faculty.

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[13]In Aotearoa/New Zealand (NZ), an anonymous donor has sponsored women to attend their Women Writing Away retreats since 2013.

Further, this is about creating communities of writers and we cannot call ourselves a university unless this is considered a high priority. (A/Professor, male, 2012)

4.6.2.13   Supports and Inhibitors for Community Building

High-level support from senior colleagues and good administrative support are essential. Follow-up, institutional strategies such as the publishing support in some faculties impact on the degree to which these changes are sustained upon returning to campus. Sustainability is a critical concern and several in-built features of the retreats ensure this. Firstly, retreats are run as economically as possible so that they are seen as sustainable interventions in academic culture. Secondly, the retreats are an effective way to address ongoing institutional diversity issues and opportunities. Furthermore, the gendered nature of our writing retreat model (i.e. feminised or feminine, nurturing model in contrast to the masculine academic workplace) addresses critical social dimensions that are enduring. Thirdly, while many staff are overwhelmed by the pressures of research productivity, Clegg (2008) asserts that for some individuals, at least in universities where there is less of a preoccupation with league tables, there "might actually allow for the emergence of new, secure, hybridised identities that are not as hampered by the overweening pressure of research productivity" (p. 241). This tendency is salient for understanding the site university where many staff showed that while they were confused about how to play the performativity game, when supported they could overcome any perceived problems. Finding pleasure in writing is the surest way to sustain it:

> I think the biggest thing for me has been turning writing and the writing process as a treat - a way to carve out time to think and document. Sometime [for] the research component of our work because I seem to be cranking it out under pressure and timelines. The retreats have helped me in reframing this. To think about this as a positive act. (HDR candidate, female 2012)

4.6.2.14   Sustainability Inhibitors

What is deleterious to sustaining retreats is limited staffing capacity to follow-up on publication outputs for promoting the retreat benefits. This important advocacy role takes an inordinate amount of time due to the complexity and of tracking publications and reporting on them. Another challenge is meeting post-retreat requests for follow-up. Participants typically request additional retreats or further support, but it is impossible to meet all of these as actual or threatened funding cuts are a constant destabilising factor. Time pressures for facilitators and participants are another major difficulty as they juggle a perpetual calendar of deadlines. Suggestions for addressing these are provided below.

4.7   Writing Retreat Impact and Outcomes

Compelling evidence of impact was provided from the follow-up study of 20 writing retreats offered at ECU from 2009–2012. This sustained CoP was analysed from a unique data set. I know of no other university that has invested in retreats to this extent. It is very satisfying to see the emergence of a vibrant writing community glimpsed through the snapshots that the survey results, evaluations and testimonials have yielded. The evaluation results provide the justification for investing time, effort, and funds. Detailed reports produced after each retreat showed that participants consistently echoed the same glowing feedback. The participants also reported that practising generous scholarship is a valued outcome. This practice is unique in the current context in which competition and individual achievement are rewarded.

The architecture of the retreats: the mix of researchers at different levels and from various disciplines/institutions, the rhythm of sociality and solitude, the carefully structured moments of writing encounter, the reciprocal obligations that ensure a deep level of mutuality and generosity, the careful scaffolding of trust through both a domestic and academic intimacy, the embrace of the emotional aspects of academic writing are integral to the retreat model. These conditions and the facilitation style "provide a special kind of professional development and community founded on collegial, collaborative and personal contact" (McDonald 2014, p. 13). As Grant (2006) comments:

> As the retreat organiser and facilitator, the writing retreats embody some of my convictions about what academic development should look like at its best. For one thing, it should be embedded in the real work of academics and sustained so that changes in understandings and practices do actually occur. (p. 486)

4.7.1   Impact on Writing Productivity

The data provide a comprehensive picture of the impact of the faculty-based writing for publication and grant submission programme over 3 years. The impressive list of published work and work in development shows that the retreats have made a difference to ECU researchers' productivity and doctoral completions. Across the three faculties and regional campus, in terms of "hard outcomes" their productivity is impressive. Thus, a key finding was that this CoP allows sequestered time for the retreat community to engage more deeply with their emergent writing in ways that will sustain their writing and help to bring discrete writing projects to fruition.

However, discerning the impact of writing retreats on researchers and the resources that enabled their production is no easy task. Publication productivity is an imprecise measure of the success of writing interventions for academics (Grant and Knowles 2000). The writing done during retreats constitutes only a small part of the life of any writing project. For many participants, publications/grants arising

from writing retreats are produced before and after the 2-day or 4 or 5 day retreat attended. Furthermore, the lag time period from manuscript commencement to submission, revision, acceptance and, finally, publication makes analysis or comparisons of publication rates an extremely difficult and inexact science.

Notwithstanding these qualifications, the retreat experience has been highly valued by ECU researchers with nearly 100 % recommending them to others and wishing to return. Participants have wholeheartedly affirmed their value in providing dedicated writing time to produce tangible outcomes through allowing participants to engage more deeply with their emergent writing. The community—while dispersed—provides a dynamic collegial network of research writers.

4.7.2 Changed Practices

Consistent gathering of evidence for changed practices through researchers stating that they instigate new habits/routines and writing practices following retreats highlights increased morale and motivation to write and complete writing projects. The data overflow with such indications. The participants reported many changes in their approaches to writing and in their sense of themselves as writers. The most often mentioned benefit of the retreats is thinking time and intellectual support, in terms of the "soft outcomes". Other stated benefits impacted on writing regularity and pleasure.

There are ongoing concerns around gender and equity dimensions which feature strongly in our work (Grant and Knowles 2000; Grant 2006), as we continually ruminate upon strategies identified by our respondents to support the achievement of research outcomes, the time taken to bring writing outputs to fruition, and the kind of environment conducive to such endeavours. Some clues already gleaned were published in Knowles and Grant (2014). This publication validates the ecosocial value of the writing retreats in engendering a supportive and collegial network across disciplines and seniority, a vigorous writing culture and benefits in affirming individuals' writing identities, as well as the sharing of writing practices and publishing knowledge/experience. We drew on evaluations obtained from facilitating retreats at a range of universities to provide a cross-university and longitudinal perspective gathered over an 11 year period (2001–2012).

However, concomitant development of support for and resources to enhance outcomes for staff participating in these programmes has been neglected in some faculties at ECU. Support typically exists in institutional environments where attention to writing in doctoral education remains "in some senses reactive and often intellectually poorly resourced [with] 'questions of textuality and of rhetoric … submerged and marginal" (Lee and Aitchison 2009, p. 87). It takes considerable time, funding and energy to nurture communities. Intellectual development and replenishment of this kind should not be left to chance.

A striking finding is that the majority (99 %) of respondents to the end of retreat evaluations (n = 234; 2009–2012) indicated that they do not yet feel part of a

vibrant writing community/culture. Only 1 % say they belong to a vibrant community, some of whom are creative writers with established writing communities. This response pattern is consistent with those we have facilitated for other universities at Go8, Australian Technology Network (ATN), Innovative Research Universities (IRU) and New Generation universities. Hence, retreat participants consistently describe a longing for vibrant writing communities that elude routine academic life. It seems that we still have some way to go to create such a culture. Since writing productivity is the most important marker of success in academic life, leaving it to chance or relying on one-off professional development interventions will result in undeveloped research environments. This implies that we need to invest in some proven strategies. On a positive note, nearly all the respondents consistently endorsed the retreat model for being able to build on this community/culture. Grant has also found the same response pattern in the retreats she has facilitated in Australia, and New Zealand, Canada and the UK.

In addition to setting target quotas for participation and creating a campus writing culture which stresses the possibility of exchange for HDR students and staff, we recommend that to maximise the benefits of networking and exchange, faculties and centres consider offering a structured programme of intervention covering the whole publishing trajectory, and establish processes for formalising learning outcomes from participation. Fostering a campus-led expectation that writing and publishing will directly provide an academic learning opportunity will benefit both individual HDR students, staff and the university as a whole.

With the push to demonstrate a strong record of publications, our writing practices are changing in predictable and unintended ways. New writing habits, practices and writing spaces are emerging due to the intensive nature of the university environment that has made writing more time and task-focussed and prompting writers to invent creative solutions. The writing retreat model elaborated here has successfully cultivated writing communities that are effective in the ways they "innovate and solve problems [..] invent new practices, create new knowledge, define new territory, and develop a collective and strategic voice" (Wenger and Trayner 2015, p. 6).

4.8   Conclusion: Fringe Writing Communities?

Four important conditions sustain vibrant research writing communities as gleaned from this study. Firstly, writing retreats disrupt individualistic, isolated models of writing and competitive tendencies within academia by fostering collaborative, co-operative models of intellectual generosity. Retreats locate staff and HDR students in research communities and shape their writing and disciplinary identities in ways that fortify the researcher's confidence in their own scholarly work, and inspire them to be active in the ongoing knowledge-making endeavours of their communities. Not only do they engender generous nurturing of the academic self, but also towards others through collaboration and collegiality through thoughtful and generous peer feedback. Indeed, the establishment of a collegial atmosphere

that enshrines continuities of practice and strengthens academic identities, relationships and scholarly approaches across disciplines are the most distinctive benefits of the retreat model. A community constituted by those who are engaged in writing about their research and who are practising generous scholarship provides a secure and compelling *real* and *imaginary* space to which to 'retreat' to write. In the current era of higher education, where the constant pressure towards individualised performativity is producing a demoralised, isolated and fatigued workforce, such possibilities for intellectual (and spiritual) replenishment are to be welcomed.

Secondly, research assessment—the primary stimulus for research and publication—should also constitute a driver for the establishment of communities of research practice (Murray 2011). The 'research environment' element of research assessment needs to take account of the *actual* practices and experiences that lead to publication, so that these craft knowledges are explicitly foregrounded and so that through learning and developing understanding about these processes writers sustain their writing through adopting productive writing habits.

Thirdly, the retreat ethos emphasises the fundamental interdependence between individuals and their colleagues through creating affinity spaces in these writing communities. While individuals focus on their own writing projects that allow them to exercise agency and personal autonomy, the balance between personal projects and institutional strategy is accomplished through integrity and high levels of reflexivity. Choices are made "if not necessarily in harmony, then at least without a major rupture" (p. 340) [these] "small acts of defiance and resistance" (Clegg 2008, p. 342) are critical and real for the sustainability of robust CoPs, and so the tensions inherent in them must not be swept under the carpet.

Fourthly, the interdisciplinary mix of the retreats elevates intellectual stimulation and cross-disciplinary fertilisation. Feedback—either from each other through work-in-progress, through unplanned moments of dialogue, or during individual consultations with the facilitator—provides such rewards, to germinate more accomplished writing. While simultaneously engaging in multi-disciplinary communities through intermingling and enriching each other, participants venture through unexplored gateways interconnecting them and providing entry points to new communities. A shared sense of community, as Palmer (2002) advises, strengthens the core mission of the academy.

In closing, I regret to say that despite their proven 'ecosocial' value and capacity to bestow rich social bonds—retreats often lead to participant-led initiatives to establish self-forming/determining groups—they dwell precariously as 'fringe' communities, not yet forming an integral part of a research environment within which research activity is realised. Funding concerns and time scarcity are constant destabilising factors, despite the model having proven its worth. When such communities remain on the fringes of the academic landscape, prioritising is made difficult, lobbying by facilitators is weakened, and the collective energies of their proponents dispirited.

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Chapter 5
Using Technology to Build Engagement in a Global Scholarship of Teaching and Learning (SoTL) Community of Practice

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Abstract Higher Education scholarly societies exist specifically to enhance teaching and learning in the academy. Central to their missions are notions of collaboration, support, promotion of innovation and good practice, and encouragement of debate and publication. Presented as three case studies, this chapter describes the creation, facilitation and evaluation of a New Scholars' Scholarship of Teaching and Learning SoTL program, designed by one such scholarly society. Members of the Higher Education Research and Development Society of Australasia executive adopted technology in various ways to transition new scholars into the broader SoTL global community. New scholars are defined here as academics, both early career and more experienced, who have yet to publish a manuscript in a peer reviewed scholarly journal relating to teaching and learning. Grounded in the community of practice literature (Lave and Wenger in Situated learning: Legitimate peripheral participation. Cambridge University Press, Cambridge, 1991), the use of the technology aimed to connect members across geographic boundaries, time zones and institutions. The technological platforms created a shared space in which the new scholars (legitimate peripheral participants) were introduced to the language and conventions of SoTL (shared repertoire) and to those tasks specifically related to the practice of SoTL (joint enterprise). The program, in its varying iterations was evaluated with ethical approval, by the facilitators using anonymous online surveys and individual telephone interviews with consenting participants. Participants' feedback was overwhelmingly positive regarding the expert and collegial support and encouragement offered. Survey and interview data revealed participants valued the quality of the resources, the chance

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to engage with like-minded scholars, the opportunity to receive critique on works in progress, and the integration of technology that afforded the offering of the program, in its varying forms. This chapter further presents the challenges faced relating to ensuring participants in the communities of practice were engaged in activities that replicated SoTL practice, and sustained connections with globally dispersed members.

5.1 Introduction

This chapter illustrates the design, formation, functioning and efficacy of three case studies of communities of practice (CoPs) whose principal enterprise was to engage participants in the Scholarship of Teaching and Learning SoTL. The communities of practice were created as part of a professional learning project, funded by a Higher Education, Research and Development Society of Australasia (HERDSA) Seed Grant received in 2013 and subsequent Strategic Grant received in 2014. HERDSA is a "scholarly society for people committed to the advancement of higher and tertiary education. It promotes the development of higher education policy, practice and the study of teaching and learning" (http://www.herdsa.org.au/).

The three core or centripetal delegates of the CoPs were members of the HERDSA Executive New Scholars' Portfolio. This portfolio was launched in 2011 and its purpose and principal activities were to professionally support new scholars. Here we refer to new scholars as those academics, both early career and more experienced, who were yet to publish a manuscript in a peer reviewed scholarly journal relating to teaching and learning.

Working from Western Australia, New South Wales and New Zealand, the centripetal members sourced and employed a variety of technologies to prepare, facilitate and evaluate the New Scholars' SoTL project. These technologies assisted to connect the globally dispersed participants and share the repertoire of doing SoTL. The facilitators of the project viewed the knowledge of doing SoTL as "knowledge embedded in a community. This perspective views knowledge as a public good that is socially generated, maintained, and exchanged within emergent communities of practice" (Wasko and Faraj 2000, p. 156).

The three case studies presented in this chapter illustrate the varying ways in which technology was used to create, facilitate and evaluate social learning in higher education communities of practice. With ethics approval from the University of Western Australia, data to evaluate the efficacy of the project were gathered by a research assistant using telephone interviews, emails and online surveys. The surveys were designed, distributed and analyzed using Surveymonkey®. The evaluation results, in general, indicated participants' positive experiences of engaging in

the New Scholars' SoTL professional learning programs. As facilitators, we have learnt many lessons regarding establishing, maintaining and sustaining communities of practice in Higher Education.

5.2 Case Study 1: Synchronous Online Meetings

5.2.1 Soliciting Members of a Community of Practice (CoP)

The initial offering of the SoTL professional learning opportunities was designed as a series of five, 2 h synchronous online seminars offered each Friday in late November and December 2013. An invitation to participate in the HERDSA New Scholars' SoTL seminars was posted via the HERDSA News; a monthly email sent to HERDSA members and higher education institutions. These emails were more broadly circulated by members of overlapping CoPs and networks engaged in Higher Education teaching in Australia and New Zealand.

Participants for the New Scholars' SoTL seminars were selected on a "first in" basis with the facilitators limiting the participants to a manageable 15. To effectively operate an online CoP, Wasko and Faraj (2000) suggest that there needs to be size constraints. When CoPs are large, participants find it difficult to extract the information directly pertaining to their needs. Putz and Arnold (2001) further support the idea that a community of practice is a "group of people, small enough for its members to be acquainted, although they are frequently dispersed over wide geographical distances" (p. 184). The 15 participants hailed from tertiary institutions from both islands of New Zealand, and from New South Wales, Queensland, South and Western Australia. The popularity of the seminar series resulted in the facilitators creating a waiting list for future reiterations of the program: a clear signpost of the need for participants to be involved in a social learning initiative such as this.

The participants in the seminar series included academics, PhD students and academic developers with varying years of teaching and research experience. Furthermore, participants were studying or employed in a diversity of institution types, including private tertiary institutions, Polytechnics (NZ) and government funded institutions. There was also considerable diversity in the participants' discipline backgrounds. Teeter et al. (2011) state that CoPs are "sustained and evolved through structured engagement in a variety of activities across disciplinary boundaries" (p. 53). Despite the diversity of the profile of the members of the New Scholars' SoTL CoP, the common ground that cemented members' participation was their shared domain of interest or practice of SoTL (Lave and Wenger 1991). While the concept of a CoP seems to imply a somewhat homogenous group with a set of shared understandings, beliefs, values and practices, Wenger (1998) argues homogeneity "is neither a requirement for, nor the result of, the development of a community of practice" (p. 76). Diversities of understandings and overlapping competencies allow members of a CoP to contribute in complementary ways.

Drawing on what individuals know and can do, as well as can't do, has possibilities for creating a shared practice of mutual engagement (Wenger 1998). Thus the breadth of participants in the New Scholars' SoTL CoP was viewed by the facilitators as an asset, and acted as a catalyst to design aspects within the seminars that drew on the array of experiences and understandings of SoTL from the participants' multiple viewpoints. Participants acknowledged these interdisciplinary opportunities and shared their willingness to be involved in a collegial venture such as the New Scholars SoTL CoP, as follows:

> I really wanted to be able to see someone else's perspective on the engagement with SoTL. (Participant 1)

> The participants all had various experiences so some people I could relate to but others were quite different from me. So I learned a bit from everybody. (Participant 3)

Mirroring Lave and Wenger's (1991) initial apprenticeship model of social learning, the facilitators of the CoP were experienced leaders in SoTL in Higher Education, whose role was to initiate the legitimate peripheral participants (LPPs); the newcomers, in this case the new scholars, into the practice of SoTL.

As brokers and boundary members in varying overlapping teaching and learning communities of practice, the facilitators brought extensive experience and expertise to the New Scholars' CoP. Each had worked in professional learning units within their academic institutions, was a recipient of institution, state or national teaching awards/fellowships, and author and/or editor of SoTL. The role of the facilitators was to gradually socialize the newcomers to the language, culture, rituals and conventions of the community and to those tasks that specifically relate to the practice of SoTL.

Each of the facilitators assumed responsibility for designing and facilitating one of the online seminars. Wenger (1998; 2000) suggests that leadership in a CoP is often distributed and co-chairs or co-convenors facilitate meetings, communicate with membership, and ensure that the CoP's activities and outcomes are documented. Stepanek et al. (2013) state that facilitators "need to take an active role in nurturing CoPs", and the facilitation of a CoP requires a "blend of different approaches to maximize participation and learning" (p.1). The participants in the New Scholars' SoTL CoP recognized and applauded the breadth of pedagogies and perspectives presented by the three core members as illustrated by the following feedback:

> I enjoyed the different voices, expertise and contributions. I feel like I got to know the whole team. (Participant 4)

The participants in the New Scholars' SoTL CoP recognised the leadership capacity of each of the facilitators and also voiced the ability of the leaders to engage the participants in collegial dialogue and learning activities:

> The balance of facilitator speak, group work and learning activities increased my engagement in the sessions. (Participant 1)

The facilitators themselves, [helped me to learn] because of their expertise and knowledge. (Participant 4)

I felt more supported by the group facilitators for the fact that they were the content experts and the experts in running the program. (Participant 3)

Breaking off in small groups really helped. The fact that those small groups were led by someone who knew what they were doing, it wasn't just a group of people who didn't know what they were doing, like chatting with each other. (Participant 6)

Wasko and Faraj (2000) state that "knowledge exchange occurs primarily through open discussion and collaboration, creating an open knowledge forum supporting the dynamic interchange of ideas (p. 161). The CoP facilitators, while viewed as experts in their field, were simultaneously acknowledged as members with whom all participants "could join forces to promote professional development" (Participant 5).

5.2.2　Planning Participation in a CoP

The aims of the seminars were to create connections between globally dispersed new scholars, build the capacity of new scholars to undertake SoTL, and assist in socialising the new scholars into the broader Higher Education SoTL community. In saying this, the facilitators drew on Wenger et al. (2002, p. 38) notion "that through its practice—its concepts, symbols, and analytical methods—the community operates as a living curriculum".

The New Scholars' SoTL CoP provided space in which members could create and share knowledge, skills, and understandings as a result of their mutual engagement (weekly participation) in a joint enterprise (SoTL). Participation or membership in this community, albeit a microcosm of the broader Higher Education SoTL community, provided opportunities for the new scholars to learn the culture of the SoTL community: its conventions, codes of conduct, and covert rules (Wenger 1998). New scholars were also aware of their peripheral positioning in the CoP, reflecting their initial membership identity, as they voiced their motivations for joining the seminar series:

I wanted to find out more about it and how to improve my knowledge and skills. (Participant 3)

I've got a job where a lot of what I'm doing is encouraging people to increase their in SOTL and I just didn't feel like I had the skill set. (Participant 5)

This was a totally new area for me. So I was on a steep learning curve. My PD needs were vast. (Participant 2)

Johnson (2001) notes that CoPs operate as a collective in which members co-construct knowledge that is meaningful and useful to their work. In this case, members recognised the need to enhance their knowledge in the area of SoTL and sought out others with similar professional needs.

5.2.3   The SoTL Curriculum

In the planning of the seminar series, the CoP leaders adopted Skype® as a communication tool and Edmodo® as a virtual information space for storage and sharing of resources. These were tools which were known to the facilitators, were user-friendly and provided spaces in which they could share ideas, resources and store drafts of seminar presentations for perusal and feedback by each other. These resources acted as artefacts of the community's initial mutual engagement.

The CoP facilitators designed three modules of work relating to undertaking SoTL. Module One introduced participants to the nature of SoTL, the case for undertaking SoTL, the type of data used in SoTL and, the need for ethics approval. Module Two described the role of the literature review, designing a research proposal, writing data collection questions and analysing data. As sequential input, Module Three built on the preceding content, then examined a sample structure for a manuscript, and provided advice regarding avenues for dissemination of SoTL. Table 5.1 is an example of the content used to engage the community of practice in their joint enterprise of SoTL.

Before each session the participants were required to complete pre-meeting learning activities which were posted on the Edmodo site. These pre-meeting learning activities assisted in preparing the participants for the next week's online session. Often the pre-meeting learning activities related to sourcing participants' institutional approach to a topic such as ethics applications or sourcing teaching and learning grant opportunities. These activities allowed the LLPs to broker across boundaries of institutional CoPs; thus broadening their perspectives and extending their domain knowledge to their own tertiary institution (Wenger et al. 2002). Additionally, the pre-meeting learning activities allowed participants to gather their ideas and secure understandings of content, in their own time, before needing to discuss their newly acquired knowledge in the shared online community space. This strategy was employed to build participant confidence and capacity to interact in the online collegial environment. Participant 4 highlighted her growing confidence as follows: "Commenting at first was a bit scary but as I engaged with this process I felt more at ease and learned more". Figure 5.1 illustrates an example of the pre-meeting learning activities assigned before the first synchronous seminar.

The facilitators were mindful of creating learning experiences that provided opportunities for the new scholars to engage both with the facilitators, and each other. In this way, the sharing of expertise, knowledge, skills and those covert cultural rules might be shared amongst all community members. This perspective of knowledge sharing was not concerned with self-interest but rather care for members of the community (Von Krogh 1998). As *apprentices* in the practice of SoTL, the new scholars were provided with a wealth of learning experiences aimed at nurturing them into the CoP of SoTL scholars. A variety of strategies were employed to enhance participation and build trust in the online environment including small online break out rooms, offering a series of scaffolds and templates, posting pre-session readings, an initial welcome posting by the three facilitators and

Table 5.1 Example of the content of seminar 1 new scholars SoTL seminar series

Session outcomes	Resources and learning activities
Create a scholarly community of practice that shares interests in SoTL	• Welcome to HERDSA NEW Scholars SoTL seminar series • Seminar etiquette and expectations • Introductions: Deb, Lee, Lesley (Facilitators). Discussion of our *roles* as facilitators of the program, and our own SoTL interests/pursuits **Participant Activity** • Introductions and pre-meeting learning activities presentation by participants (Break out rooms)
Describe the nature of SoTL and provide examples of the types of issues that could be investigated as SoTL projects	**Facilitator Talk**: **The Nature of SoTL** SoTL can include investigating policy, critiquing practice, exploring perspectives, and evaluating change relating to teaching and learning. Essentially SoTL involves investigating a ***phenomenon or issue*** related to learning and teaching. This investigation is undertaken in a systematic way. So let's start considering the types of issues that you might investigate as a SoTL project **Participant Activity**: **Examples of SoTL in HERD journal power point** View the Power point slide examples of SoTL projects and identify the range of topics/focus areas that have been investigated that relate to learning and teaching • Discuss the "flags" of **what, how** and **with/about whom** as directions for investigation • Consider the "do ability" of these investigations for you as a single researcher, as a SoTL community **Facilitator Talk** • As examples of SoTL consider these curriculum design/evaluation projects • Critiquing scaffolding activities designed to assist students with academic literacy • Examining the role of marking criteria and rubrics in assisting students to achieve the stated outcomes of subject assessments • Scaffolding professional practice experiences to enable students to engage in reflective practice and demonstrate their achievement of graduate attributes • Creating a chat room with key questions and simulated case studies to encourage students on professional practice to share their professional experiences with their university peers

Table 5.1 (continued)

Session outcomes	Resources and learning activities
	• Exploring the use of e-portfolios in promoting the use of ICT
	• Designing learning contracts for research students and evaluating their success
	• Exploring the use of journal writing as a method for post graduate students to document their experiences, emotions and thoughts regarding supervision and the thesis process
	• Examining the link between subject outcomes, content, pedagogies and assessments
	Now: - Flag these SoTL projects with **what, how** and **with/about whom** and share your responses (Break out rooms)

feedback to participants interspersed between online seminar meetings. Participants describe these strategies of support:

> Not only did I get the support during the time that the meeting was on, but also when I finished I could write something, send it in, and then I received comments back. So I felt very supported. (Participant 1)

> The provision of the advanced distribution, or distribution before the lectures of the material and the fact that we had this conference type of set up on the laptop, I thought that was great. (Participant 5)

> I think the other thing that I found incredibly helpful were the different scaffolds that we were given that enabled a direction to be able to flow. The resources that we were given were really, really good resources, very well developed, very well used. Having stuff to read beforehand, like the pre-reading gave me the opportunity to learn about next week's topic before the seminar. (Participant 4)

The participants appreciated different aspects of the supporting strategies including pre-distribution of resources, scaffolding activities, and the ongoing support provided by the facilitators.

However, the way each individual participates in a CoP varies, with some participants acting as visitors, some consumers of information and others as active contributors (Stepanek et al. 2013). Some participants in the New Scholars' SoTL CoP needed further support and encouragement to interact. One participant indicated that "I chose not to verbally share online … the opportunity was there and I'm sure they [the participants] were very, very open and amenable but I did not take that step. I could type in the box at the bottom of the page and the others could just read it rather than me talking".

BEFORE the SEMINAR on Friday 22nd November you need to select a minimum of ONE of the following resources/learning activities to view/read/listen to, so that you come to the online facilitated seminar session with an understanding of the concept of SoTL.	
Session Outcomes	**Resources & Learning Activities**
• Define the concepts of scholarly teaching and the scholarship of teaching and learning • Differentiate between SoTL and discipline research • Justify the pursuit of SoTL.	View "The Scholarship of Teaching" power point included in the Edmodo Folder 1: Seminar Series Session 1
	Read Trigwell, K., Martin, E., Benjamin, J., & Posser, M. (2000). Scholarship of Teaching: A model, Higher Education, Research and Development, 19(2), 155-168. Retrievable @ http://www.tandfonline.com/doi/pdf/10.1080/072943600445628
	Listen to http://www.youtube.com/watch?v=xImc3KnDS60 Keith Trigwell's 2009 TLHE Lecture 3: The Scholarship of Teaching & Learning (20 minutes but worthwhile listening!)

	Now prepare some responses to the following questions and be prepared to **share these with the group** during Friday's online facilitated session.
	    1. Describe your understanding of SoTL and the types of issues that might be investigated when undertaking SoTL.
	    2. Outline why you wish to pursue SoTL.
	    3. What do you see as the advantages of pursuing SoTL for you? Your students? Your discipline colleagues? Your university? The academy?
	    4. Are there similarities between the responses of our participants?
	    5. How might we use these similarities to our advantage as a scholarly community?

Fig. 5.1 Learning experiences to complete before the first online synchronous meeting

5.2.4 The Technology

Participation in a CoP involves *action* and *connection*: action requires members sharing in conversations, negotiating meanings of practice, and connection, in relation to their place in the CoP, that is, their sense of engagement and affiliation or membership identity. In order to create conditions conducive to *participating* in a CoP, the facilitators selected Adobe Connect® as the online platform. Adobe Connect allowed for "virtual face to face" interaction; supporting a critical aspect of a virtual CoP: an online *social presence.* Tu (2002) defines social presence in a community as "the degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship" (p. 38). Adobe Connect allowed participants to both *see* and *hear* each other, as well as providing a chat space, in which questions, concerns and the sharing of resources and ideas could be written, and saved for future reference. Participants commented positively on the use of the online platform as follows:

I never go into something with technology thinking technology is going to be my friend. I always think that if the technology smells my fear it's going to hate me and it won't switch on. So, yeah I have a very equivocal relationship with technology. So for me the ease of being able to login knowing if something didn't connect I'd just log back out and log in again. It was just one link and I was there and everyone was there. (Participant 6)

So I think, you know as a novice doing it for the first time I didn't have any problems in actually logging on and working with the system and then, you know seeing people and hearing people. The facilitators had set it up, it was quite easy to log on, they'd made it quite simple and then on the website we had the extra materials located for us. It was easy to access, easy to download. So I enjoyed it. It was my first time actually, like being like a sort of student so to speak using on-line. (Participant 3)

I found the pedagogical approach of using Adobe Connect was excellent. I really enjoyed the fact that I could see the other people were there, hear them. We not only had the facility to listen but also to be able to respond using written comments or questions, which was a very good way to go. Yeah, I found it to be a very, very useful approach. (Participant 5)

The final two sessions of the seminar series were facilitated by an additional academic facilitator versed in the technique of *Shut Up and Write*: a pomodoro (or tomato timer) was used to measure discrete chunks of time dedicated to one specific task during the weekly 2 h seminar. In this case the Shut Up and Write space created a sanctioned time in which members of the CoP could read, think, and write about SoTL. At the commencement of the seminar, each participant in the New Scholars' SoTL CoP was required to outline the tasks which they aimed to achieve in each 20 min chunk of time, during the 2 h seminar session and at the completion of that time report their success, or otherwise to the CoP. Not only did this technique provide accountability to encourage an outcome, but members of the CoP shared their approaches to reading, skimming, brainstorming, drafting and reviewing manuscripts. As members of the CoP grew in their joint knowledge, and became comfortable with the unspoken rules and culture of the community (shared repertoire), their confidence to critique others' writing increased. Members' ability and willingness to engage more fully in the CoP was evident as the seminar series progressed. It was evident from the group conversations that members were moving from their LLP positions in the CoP to more central positions: leading feedback conversations and responding to others' questions regarding their SoTL projects. Furthermore, this need for accountability reflects Wenger et al. (2009) characteristics of a successful online CoP, in that members identified, negotiated and agreed on the focus of their work.

5.2.5   Developing a Sense of Community

A sense of community and feelings of being supported were evident as the seminar series progressed. Participant 5 stated:

> I mean considering we all didn't know each other we will all over the place, globally spread all over the place, in different time zones, in different countries, and sort of trying to hook up on this link that, you know periodically dropped out or wouldn't linkup or whatever. Given all of that stuff you would think that it would be quite chaotic and you wouldn't feel like you were part of a group but, you know in spite of that it was quite supportive, it felt like a really supportive environment, we started to feel like a community …

Seeley Brown and Duguid (1991) suggested that CoPs acted as a learning community: one in which members use their peers as a source of knowledge and professional development. During each of the seminars, opportunities were designed for members to participate in small group discussions, operating in virtual break out rooms in Adobe Connect. In this way, all members of the CoP were able to contribute toward the professional community's knowledge base (Buysse et al. 2001). Learning became collaborative, through a reflective and shared discourse. This essentially involved shifting knowledge transmission to knowledge co-construction within a learning environment that fostered trust, professional respect and open conversation between active and mutually engaged participants. Feedback from the participants clearly indicated the collaborative, positive and supportive nature of the online space:

> I felt supported by the group facilitators but the participants themselves all had various, so some people I could relate to, but others … were quite different from me. So I think I learned a little bit from everybody and the way that they did the actual online workshops helped to feel supported especially with the break out rooms. There were only a few people in each room so you felt safe to share your ideas and give feedback to others. (Participant X)

> … listening to what other people within the group had to say that was quite interesting. (Participant 1)

> I really wanted to be able to see someone else's perspective on the engagement with the scholarship of teaching and learning. (Participant 5)

> I think it's the discussions that I learnt the most from, like, with small groups as well as in bigger groups. (Participant 2)

5.2.6 Rhythm of the Community

As with every community of practice, there were members who "dropped out" at various stages. One participant failed to return after session one, voicing that the content did not meet his present professional needs and that he was further progressed in his SoTL journey than most in the group. As the weeks progressed, further members of the community failed to log into the online sessions, quoting competing commitments as their reasons for not attending. Given the time of year (nearing end of semester and Christmas) it was not surprising that examinations and marking, and family commitments took precedence to continued participation in the

community. Four from the original group of 15 participants joined the final session to confirm their own SoTL projects and set goals for further writing of their manuscripts. The successes of participation in the New Scholars' SoTL program and community were many, including: (1) the desire to continue with the community; (2) the connections made; (3) the increased awareness of SoTL; and (4) manuscripts for publication.

> I think keeping in touch with the mentors would be a brilliant thing and kind of keep the group going … let's have a virtual meeting every now and then to touch base and see how we've progressed. (Participant 2)

> I suppose the potential to be able to continue with the relationships made. (Participant 1)

> I now have a clear understanding of what SoTL actually is. (Participant 3)

> For me, I had a really good outcome from the set of seminars … I wrote an abstract and then I wrote a paper and delivered the paper at a conference and it looks like it's going to get published. And that was all just out of that seminar series! (Participant 5)

5.3 Case Study Two: Face-to-Face Pre-Conference Workshop

5.3.1 Introduction

Following the success of the online scholarship of teaching and learning (SoTL) seminar series conducted in November–December 2013, the HERDSA New Scholars' Portfolio team refashioned the seminars to present as a full day face-to-face pre-conference workshop at the HERDSA Conference in Hong Kong in July 2014. Interested participants were self-nominating and enrolled in the workshop as an addition to their HERDSA conference registration. Sixteen participants attended the conference workshop.

While some may not consider this case study as a CoP, the experiences in which the participants engaged, positioned them positively to act as legitimate peripheral participants (LPPs) in the broader community of scholars undertaking SoTL at the HERDSA Conference. Although short lived, the experiences of the participants reflected many of the characteristics of a CoP. The 1 day workshop demonstrated that participants were interested in, and committed to, engagement in a practice (joint enterprise), learned the rules of the broader community in which they acted as LPPs (shared repertoire), and collegially interacted and shared ideas and experiences (mutual engagement). When questioned as to the aim of the workshop, a participant stated:

> … raising awareness of SoTL as a possible source of publication, creating networks for people, showing people how they can do it. (Participant 4)

The authors therefore pose the question: Whether there are temporal boundaries to defining a learning community as a CoP? The opportunities offered to the participants in the workshops could be considered by some as *events* that assisted in nurturing the creation of a community of practice.

5.3.2   Workshop Participants

Sixteen participants from Australia, South Africa, Singapore, Hong Kong, Cambodia, Vietnam and the United Kingdom, enrolled in the workshop, indicating the international interest in SoTL. A lesson learnt from the first iteration of the New Scholars' SoTL program was that there was a need to identify the professional identity and the SoTL experience of the potential participants in the workshop *before* designing the resources and learning activities. In order to do this, the facilitators prepared and posted a brief questionnaire using SurveyMonkey® several weeks before the conference in order to gauge members' motivations for participating in the workshop, and ascertain their current SoTL endeavours. This process assisted the facilitators to more closely meet the learning needs of the workshop members. As Wenger (1998) suggests communities of practice function most successfully when the focus of their practice is negotiated. Furthermore, Stepanek et al. (2013) state that leaders need to address issues of interest to participants built around a flexible agenda and allow for input from the members. The post-workshop evaluation, which was posted online using SurveyMonkey® demonstrated the ability of the facilitators to meet the learning needs of many of the community participants. Results are identified in Table 5.2.

Data gained from the pre-workshop participant survey indicated that of the sixteen participants, 31 % identified themselves as current PhD students and 75 % classified themselves as an early career researcher currently undertaking a SoTL project. All sixteen enrolled participants completed the survey, a summary of which is provided in Table 5.3.

The final question in the survey asked participants what they were hoping to achieve from attending the workshop and a broad range of responses were provided. The responses were grouped into categories relating to (1) networking, future connections and collaborations; (2) awareness of SoTL trends; (3) targeting

Table 5.2 Post-workshop evaluation—meeting the participants' needs

Survey question	Response	N = 7 (%)
The content of the sessions was relevant to my needs	Strongly agree	5.57
	Agree	57.14
	Neither agree nor disagree	14.29

Table 5.3 Pre-workshop participant survey

Survey question	Response	N = 16
Have you published a manuscript relating to teaching and learning in either a refereed conference proceedings or in a peer reviewed journal?	Yes	56 %
	No	46 %
How would you rate your experience in the scholarship of teaching and learning?	Very experienced	12.50 % —2
	Somewhat experienced	62.50 % —10
	Little experience	18.75 % —3
	No experience	6.25 % —1
Are you currently undertaking a scholarship of teaching and learning project?	Yes	75 %
	No	25 %
Do you currently have an idea or area of interest in relation to the scholarship of teaching and learning?	Yes	93 %
	No	7 %
Have you undertaken scholarly reading in this interest area?	Yes	93 %
	No	7 %
Have you started collecting data in this interest area?	Yes	87.50 %
	No	12.50 %

journals; (4) responding to reviewers' comments; (5) preparing well written manuscripts; and (6) confidence. As newcomers to a *community* and a *practice*, it was not surprising that the participants desired assistance in both, increasing their knowledge of SoTL conventions, and culture but also the self-efficacy to undertake this practice. Upon meeting the group at the face-to-face workshop, the diversity of their SoTL experiences was further accentuated due to participants' global distribution. These differences were used in the workshop to foster richer relationships and encourage future participation in multiple global SoTL communities. The facilitators encouraged participants to share their individual understandings of SoTL in small group discussions and interactions. Putz and Arnold (2001) suggest that sharing experiences through participation in discussion, offers members of a community a sense of ownership and responsibility, and assists in creating a common understanding of terms.

Prior to the face-to-face workshop, the participants were required to access a number of resources and complete pre-conference activities. The resources had been posted by the facilitators on the Edmodo® site: a virtual space for storage and sharing. The completion of pre-conference activities was an embedded aspect of the online seminar series, (presented in case study one), and their intent was to assist the conference participants in preparing for engagement in the face-to-face workshop. In the post-workshop evaluation, participants were invited to rate the usefulness of the resources in adequately preparing them for the workshop. The results appear in Table 5.4.

Interestingly, as indicated by Edmodo logins, not all participants actually accessed the Edmodo site to view the resources, prior to the conference

Table 5.4 Post-workshop evaluation—Usefulness of pre-workshop resources

Question	Response	N = 7 (%)
The pre-session resources posted on Edmodo adequately prepared me for the workshop	Strongly agree	33.33
	Agree	16.67
	Neither agree nor disagree	33.33
	Disagree	16.67

workshop. However, of importance to note is that the resources on the Edmodo site have since been accessed (following the workshop) by many of the workshop members, even those who failed to attend. The CoPs literature suggests that in an online environment such as Edmodo, there are passive observers. These legitimate peripheral participants engage when a particular topic of interest is presented and then recede again to the periphery (Pemberton et al. 2007).

5.3.3   The Workshop: Content and Pedagogy

The workshop was a highly interactive event, and given that there were three facilitators involved, a breadth of learning and teaching methods and facilitation styles were adopted. Activities encompassed expository presentation of material, group discussion, action learning exercises, individual exercises, experience sharing, and scenario-based examples. Participants had opportunities throughout the day to contribute their ideas, concepts and experiences with SoTL, in their own discipline and from a wider institutional perspective. These opportunities for interaction, served dual roles: (1) encouraging participants to network and (2) broaden their understandings of the practice of SoTL. Feedback from the post-workshop evaluation indicated participants' agreement with the balance of teaching and learning strategies adopted by the facilitators during the workshop. Table 5.5 illustrates the results.

The workshop was divided into three key sessions. Session One, laid the foundations of SoTL, engaging participants in discussion and activities in which they shared their SoTL interests and current projects and explored key research processes and systems in the SoTL space. Much discussion was generated when responding to the questions "What's hot in SoTL?" for themselves as academic

Table 5.5 Post workshop evaluation—Variety of workshop experiences

Survey question	Response	N = 7 (%)
The balance of facilitator speak, group work and learning activities assisted in enhancing my understanding of SoTL	Strongly agree	57.14
	Agree	42.86

researchers, as well as for their discipline and for their department and the wider institution. These questions allowed the participants to consider themselves as members of broader communities, across whose boundaries they were moving when undertaking SoTL. Participants were negotiating their identity in multiple contexts: within the workshop, their own institution, the HERDSA conference community and the broader Higher Education SoTL community. Through engagement with others in overlapping or connecting CoPs, individuals create bridges "across the landscape of practice" (Wenger 1998, p. 161). This negotiation and boundary work remains largely invisible to other members of the CoP, as the individual silently weaves a link between their identities and multi-membership in various CoPs.

A central aim of the workshop was to provide participants with tools and techniques for engaging in SoTL. Having discussed the purpose and meaning of SoTL, the participants completed an exercise in which they brainstormed a SoTL phenomenon to investigate: resulting in the formulation of a central research question for their project. Although a number of participants had identified in the pre-conference online survey that they were currently undertaking a SoTL project, they still found this a valuable exercise as many had not progressed to the stage of deciding on their central question.

Having laid the foundations of SoTL, Session Two focussed on specific research strategies which aimed to provide participants with the building blocks for developing their SoTL project. The main strategies explored in this session included methods of data collection, principles of writing good questions, writing the literature review, defining the topics using mind and concept maps, and project planning and proposal writing. For this last aspect, participants asked questions of their SoTL project such as:

1. What is the purpose of my investigation?
2. Why is my proposal important?
3. Why is this an interesting topic?
4. What are the expected outcomes of my project?

Once provided with this toolbox of techniques and strategies, the participants had the opportunity to start formulating their research questions; constructing a mind map of their potential topics and generating a central research question. This activity provided a segway into Session Three of the workshop. The explicit focus of the final session was on data analysis methods, how to write an abstract and dissemination of findings. Methods of qualitative and quantitative data analysis were discussed, including different approaches to coding, sorting and theming data.

Similarly to case study one, participants used the Pomodoro method to devote workshop time to start constructing an abstract for their SoTL project, using a four-question framework of "Why? How? What? So What?" The concluding section of Session Three discussed the different options and avenues for scholars to disseminate and publish their research, exploring the choices between conference

and journal, a conference abstract versus a full paper and also, choosing the right journal for the nature of the research project.

The workshop concluded with a general discussion about how scholars could find time to write and think. Joining or establishing an academic writing group was also suggested as a useful mechanism for scholars to commit time to and focus on their writing.

The structure, content and teaching and learning strategies adopted in the workshop were designed to promote *access* for newcomers to the SoTL community. Accessing a community of practice involves engaging with the breadth of the community's activities or practice, and with a diversity of participants. As Lave and Wenger (1991) proffer, to be accepted as a full participant in a community, the newcomer must have "access to a wide range of ongoing activity, old timers, and other members of the community; and to information, resources, and opportunities for participation" (p. 101). As a result of their participation in the 1 day workshop participants would need to form new relationships with others interested in, and committed to SoTL, both in their own institutions and more broadly, for example amongst other HERDSA members. Having accessed both the artefacts and culture of SoTL practice during the workshop, this repertoire could now be enacted by participants as a demonstration of their *know-how* (Wenger 1998).

5.3.4 Post-workshop Evaluation

Participants were invited to complete an online post-workshop evaluation, designed to gather feedback on key aspects of the workshop including the content, process and effectiveness of the facilitators. Furthermore, participants were requested to indicate their future plans in regard to publishing in SoTL. A key aim of the survey, which was communicated to the participants, was to inform the re-design of future offerings of the workshop. Survey Monkey® was used as the technological software for disseminating the online survey.

It was apparent from the feedback that the participants appreciated the opportunity to share their own experiences in SoTL, from an individual, discipline and wider institutional perspective, and have time and space to work on their SoTL projects. Seven of the sixteen participants completed the post-workshop survey. When questioned as to the main reason for their participation in the workshop, the feedback included:

- Professional development;
- Interest in SoTL;
- Learn about how to undertake research on teaching and learning;
- To help me publish in SoTL;
- To know more about scholarship of teaching and learning;
- To understand SoTL better to help convey it to frontline teachers;
- Desire to better understand good practice in SOTL.

The feedback did indeed illustrate the joint enterprise or shared interests of the workshop members. Table 5.6 summarizes the participants' feedback in response to the survey questions:

The final survey question required the participants to indicate their achievements resulting from participating in the workshop. The responses were very positive and included comments such as:

- A greater understanding of how to design article outlines;
- General information and support for doing research and writing;
- The workshop helped with practical planning of SoTL projects;
- I have a better understanding of SOTL;
- Learned some good ways of presenting the material; and
- The workshop also gave me confidence and helped me identify the direction in which I want to take my SOTL research.

Ardichvilli et al. (2003), proffer that members of a CoP can be motivated to participate because of the potential tangible and intangible returns and community interest. In this case study, it appears that participants in the workshop gained returns in the form of enhanced knowledge (community interest), and increased confidence and self-efficacy (intangible returns). However resulting from this increased knowledge of and confidence in undertaking SoTL, the opportunity existed for participants to gain future *tangible* returns in the form of manuscripts suitable for publication. In unsolicited emails received from participants several

Table 5.6 SoTL post-workshop survey

Survey question	Response	N = 7 (%)
The workshop provided me with a good grounding in SoTL	Strongly agree	71.43
	Agree	14.29
	Neither agree nor disagree	14.29
Having the workshop facilitated by different presenters was effective	Strongly agree	57.14
	Agree	5.57
	Neither agree nor disagree	14.29
Participating in the workshop has motivated me to continue work in SoTL	Strongly agree	5.57
	Agree	57.14
	Neither agree nor disagree	14.29
Have you published in SoTL since the workshop?	Yes	2
	No	2
	Not Yet	2
	Paper under review	1

months after conducting the 1 day workshop, participants shared the fruits of their participation in the workshop as follows:

> I have substantially revised and added to my paper. (Participant 4)
>
> I wrote a research grant application as an outcome of participating. (Participant 7)
>
> I submitted an ethics application for a project (and found relevant literature, wrote up a draft introduction). (Participant 2)
>
> I now have one project well along the planning path and another one just on the drawing board. (Participant 6)

5.3.5   Community of Practice Considerations

So can a 1 day workshop context create conditions conducive to establishing a community of practice (CoP)? Interestingly, some of the feedback provided in the post-workshop survey indicated that people appreciated the opportunity to network with other scholars interested in the same topic and with similar intentions to publish in the SoTL arena and wished to continue this pursuit. One participant noted that "I would like the potential to be able to continue the relationship through the writing and research process. I want to continue with what was started".

A 1 day gathering of scholars is in itself not a CoP, but the opportunity for a CoP to emerge from such an event does indeed exist. As the first case study in this chapter highlighted, a group of people who did not know each other before engaging in the seminar series, found common interests across a fairly diverse range of members and quickly developed connections with each other outside the online learning environment. As participants in the 1 day pre-conference workshop suggested in their follow-up emails, this workshop event too has the potential to influence a similar outcome. The participants' state:

> I also anticipate to contact my mentor in the future for some feedback. (Participant 1)
>
> I have achieved a clear plan for a current SoTL project as well as a plan for a large long term SoTL project as a result for engaging in the workshop. I also have a set of resources which will scaffold my engagement in the SoTL process. Many thanks. I wish we could keep going. (Participant 6)

These comments are testament to the efficacy of a situated learning opportunity that falls within the framework of a community of practice. Professional learning opportunities such as the 1 day workshop can provide scaffolding for creating collegial relationships within a safe and supportive rehearsal space (Pemberton et al. 2007). Upon completion of the workshop experience, members follow outbound trajectories (Wenger 1998) but certainly hold the memory of the experiences of the community (Wenger et al. 2002).

Fig. 5.2 Homepage new scholars scholarship of teaching and learning modules (HERDSA 2015)

5.3.6 Case Study Three: Self Supporting Online Modules

In light of the experience gained from the previous two iterations of the program (case study one and case study two) it became clear that there was a definite desire for a resource such as that offered by the HERDSA New Scholars' project. The CoP that developed around the participants of the program set it apart from other excellent online resources such as the Vanderbilt Center for Teaching Guide (Chick, n.d.). As professionally rewarding as it was for the original three centripetal members to engage with the new cohorts of SoTL participants, it was obviously unsustainable. At the same time the number of scholars able to benefit from the program was limited by the time that the facilitators had to contribute to and participate in the CoP. The challenge then, was to design a program that was more independent of the centripetal members but still engendered an engaged CoP.

A small amount of funding was sought from HERDSA in the form of a Strategic Grant in 2014 to assist in the development of a fully online iteration of the New Scholars' program and CoP. At the time of writing this chapter, the online version was still in development. Figure 5.2 illustrates the homepage of the program.

5.3.7 Designing the Asynchronous Online Modules

The aim of this iteration of the program was to develop a fully online version which would provide flexible delivery to participants but still maintain the assets of the face-to-face and blended models in order to encourage and develop a productive

CoP. This was challenging, as unlike the previous two versions, there was no opportunity for participants to meet *live* in a real or virtual space. Stepanek et al. (2013) suggests that at least one opportunity for members to meet face-to-face is required for an effective CoP. Firstly here we need to define a virtual community of practice. Johnson (2001) suggests that virtual communities are defined as a "group separated by space and time (i.e., geographic location and time zone) … the other key concept behind virtual communities is the use of networked technologies in one form or another to collaborate and communicate" (p. 52–53). So it became clear the key to engaging participants; a first step to developing a CoP, was to ensure that the active tasks incorporated in both previous versions of the New Scholars' SoTL program were maintained using technology. The danger of allowing the online version to become merely a repository of resources which promoted a passive engagement with the content needed to be guarded against. As Wenger (2007) cautions "[a] website in itself is not a community of practice. Having the same job or the same title does not make for a community of practice unless members interact and learn together." The challenge then became: How do we ensure that we encourage active engagement through the provision of tasks that will in turn support the development of a CoP? Ensuring that there is an appropriate balance of artefacts and interaction is vital to the effective functioning of a CoP. Sveiby and Simon (2002) insist that collaboration is essential if communities of practice are to thrive.

5.3.8 *Challenges*

We were entering the murky domain of VCoP (virtual communities of practice) or OCoP (online communities of practice). The original understanding of a community of practice existing in a common setting has evolved with the growth of the internet to allow for an acceptance of the existence of VCoPs (Dubé et al. 2005; Hara and Hew 2007; Murillo 2006, 2008; Zarb 2006). There is however, by no means a consensus around these concepts. Many insist that a community of practice simply cannot exist without the crucial element of face-to-face interaction. Others (Zarb 2006) argue that the use of Information Communication Technologies (ICTs) in VCoPs, merely alters some of the characteristics and introduces new complexities and ambiguities. In doing so, they rationalize and justify the existence of virtual communities of practice and their associated field of study.

The literature provides us with a sturdy framework of concepts to employ in constructing our online community of practice. As a starting point it seems apparent that to develop a CoP (virtual or otherwise) the seminal characteristics described by Lave and Wenger (1991) need to be included. In summary, in the design of our online community of practice the following must be present:

- A shared domain of interest (in this case the Scholarship of Teaching and Learning);
- A shared competence related to the domain (New Scholars in SoTL);

- Members must learn from each other through the engagement in joint activities, discussion and the sharing of information; and
- The opportunity, support and encouragement for members to collectively practice the Scholarship of Teaching and Learning. They need to be able to "develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice" (Wenger 2007).

Wenger (2001) lists the type of software and online functionality that should be employed to help facilitate these components of a virtual CoP. These are reproduced in Figure X. Furthermore, Wenger (2001) lists e-products that could be employed to meet the eight domains of interaction he sees as necessary in a VCoP, namely (i) instruction, (ii) knowledge exchange, (iii) documents, (iv) ongoing integration of work and knowledge, (v) work, (vi) social structures, (vii) conversation, and (viii) fleeting interactions. Since 2001 when Wenger created this list, the variety of free and shareware products with good functionality has expanded considerably. Consequently it is now possible to accommodate all these requirements at little or no cost. These software products are illustrated in Box 5.1.

Box 5.1 Functionality considerations for online communities of practice. Reproduced from: Wenger (2001) Supporting communities of practice: A survey of community-oriented technologies

Typical facilities useful to a community of practice
The most common on-line facilities that communities of practice can use include:
• A home page to assert their existence and describe their domain and activities (Weebly)
• A conversation space for on-line discussions of a variety of topics (Edmodo, Facebook)
• A facility for floating questions to the community or a subset of the community (Edmodo, Facebook)
• A directory of membership with some information about their areas of expertise in the domain communities start with only a partial understanding of the value they will provide eventually (Edmodo)
• In some cases, a shared workspace for synchronous electronic collaboration, discussion, or meeting (Skype, Google Docs)
• A document repository for their knowledge base (Edmodo)
• A search engine good enough for them to retrieve things they need from their knowledge base (Edmodo)
• Community management tools, mostly for the coordinator but sometimes also for the community at large, including the ability to know who is participating actively, which documents are downloaded, how much traffic there is, which documents need updating, etc.
• The ability to spawn sub-communities, subgroups, and project teams (Edmodo)
Furthermore, a technological platform for communities of practice should ideally be:
• Easy to learn and use because communities of practice are usually not people's main job
• Easily integrated with the other software that members of the community are using for their regular work so that participation in the community requires as few extra steps as possible
• Not too expensive. If it requires a lot of investment up front, potentially useful communities will not be able to take advantage of the platform. Indeed, many communities start with only a partial understanding of the value they will provide eventually

5.3.9 The Role of Technology

The first version of the fully online New Scholars' SoTL site will showcase an introduction to SoTL: making use of a website designed using Weebly® (www.weebly.com). It will incorporate documents and videos via You Tube® and will link to Edmodo and/or Facebook as a site to facilitate discussions, form subgroups, develop a shared library and a directory of membership. It will encourage the use of Google Docs and Skype when synchronous interactions and learnings are desired. These easily accessible platforms satisfy the additional points listed in Figure X.

5.3.10 Evaluation of the Resource

As with the previous two case studies, this iteration of the program will be thoroughly evaluated to enhance the usefulness to new scholars. The content will be trialled by a group of international scholars engaged in collaborative research writing groups at the 2015 International Society for Scholarship of Teaching and Learning (ISSOTL) Conference. In addition, members of HERDSA will be asked to use and provide feedback on the resource. Of particular interest and focus will be the degree to which an effective community of practice can be established and maintained.

5.3.11 The Role of the Scholarly Society

The three case studies presented in this chapter describe the initiative of one scholarly association. It begs the question why others shouldn't follow the example set, especially given that they espouse aspirations such as "collaboration" and "support", "promotion of innovation and good practice" and "encouragement of debate and publication". Global communities of practice can indeed be nurtured through the use of technology to facilitate social learning in higher education.

5.3.12 Final Reflections

Given the New Scholars' SoTL program was offered using different approaches: blended, face-to-face and fully online, the lessons learnt from each of the iterations are many and varied. Based on participants' feedback from the first two iterations of

the program, there are however, commonalities in the lessons learnt. These lessons have already assisted the facilitators to create learning opportunities for the fully online modules that are conducive to creating a scholarly community of practice. As we know, CoPs are devised for the specific purposes of knowledge co-construction; and to create social spaces and structures in which professionals can share their skills and relationships. Wenger et al. (2002) acknowledge that by participating in CoPs, "practitioners can connect across organisational and geographic boundaries and focus on professional development" (p. 20).

Finally, here the authors offer their experiences, in an effort to inform other scholarly societies as to the possibilities available when creating professional learning opportunities for their members. Derived from participants' feedback, we offer the following as design principles, for creating a Higher Education community of practice aimed at introducing members to SoTL:

- engage new scholars in the *work* of the broader Higher Education scholarly community. In this way, the newcomers "practise" the *practice* of the community;
- provide opportunities that mirror the practice of a *range* of old timers in the community of practice, so new scholars can be exposed to the *breadth* of the community's practices;
- use multiple presenters, who offer a diversity of perspectives and approaches to SoTL, in order to provide newcomers with sufficient diversity of practice, culture, conventions and rules so they might learn the shared repertoire of the community;
- negotiate spaces which are collegial, provide reciprocity and the positive exchange of ideas. This might be achieved through negotiating and establishing community rules for engagement;
- offer opportunities for ongoing support, not only from the facilitators but from all members in the community;
- create learning spaces in which the newcomers can negotiate their identity, and trajectory, both within and beyond the community. Remind the members that their involvement in, and commitment to, the community may be short-lived, but other overlapping communities are available to assist in sustaining their interest, and developing their skills;

Lastly, ensure that there are a variety of active ways in which all members can engage in the community. Members engage and learn in different ways, so meeting their needs, interests and acknowledging their growing levels of confidence need to inform *who* facilitates the learning, *what* is presented to learn and *how* the learning opportunities are fashioned.

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Chapter 6
Researcher Preparation for Indigenous Fundamental Research Through Collaborative Participation

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Abstract A researcher is the most crucial constituent in any research and re-search under Communities of Practice, specifically for research domain concerning the social aspect of human existence. This chapter presents a collaborative auto-ethnography of researchers' preparation for undertaking indigenous fundamental research. The chapter has three major sections 'why researcher preparation?' followed by 'how it was achieved (process of researcher preparation)' and finally describes 'the way ahead'. The researchers had a common interest and common philosophical orientation, so the researcher preparation activities were conducted in a 'community' formed by the researchers. This community involved the authors who 'interacted' and 'experienced' the indigenous phenomenon. The account could help other researcher(s) in forming a community with varied areas of interest, but with similar philosophical approach.

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6.1 Introduction

Although, all the research activities are carried out by researchers, but more often than not, researcher's preparation is either ignored or its importance is under-mined. The proponents of interpretivist research traditions believe in a central role of the researcher. Though, other traditions (especially positivists) might argue that research is researcher agnostic and hence 'researcher preparation' is not needed. They argue that researcher preparation is limited to the need to learn the observer agnostic observation instrument(s). Further, as a legacy from the physical sciences' research, a researcher's preparation is believed to be the working knowledge of constructs and subsequent analytical techniques. Here the observations are mostly taken by inanimate instruments and, a researcher has to only be concerned about the ability to operate them. Unlike physical sciences, useful research in social phenomenon requires researcher's ability to engage both with the observed and observer communities, in order to make fundamental observations preferably in an integrative way. Further, this concern is centered around two critical aspects of researcher preparation—Why? (the need) and How? (the process adopted).

The ontological model of any phenomenon to be researched upon may have some specific epistemological, axiological and praxeological requirements. Subsequently, there is an added dimension of futurology which concerns with *the way forward* for both physical and social sciences. Although, undertaking these engagements is not new however, the need of inculcation of required abilities in researcher deserves attention. This chapter presents the process adopted by the authors to prepare them for their research journey. This includes critical philosophical questions which were asked, discussed, debated and analysed on the ontological aspects behind this preparation and the research itself. Since the researchers had a common interest and common philosophical orientation, the above activities were conducted in a 'community' formed by the researchers. This community involved the authors who 'interacted' and 'experienced' the indigenous phenomenon.

The chapter is an outcome of the qualitative study that underwent to understand the phases of the journey of researcher preparation. The same is presented in the form of a participative account, much like a collaborative auto-ethnography (Chang et al. 2012). The researchers formed a community among themselves which got involved in various practices that led them to be able to pursue an indigenous research. The term indigenous here means that is culturally and contextually embedded. The researchers by indigenous fundamental research mean that culturally grounded research which is of fundamental in nature. Here purpose was not to look for some artefacts that can be created, rather phenomenon which can be experienced. The philosophical orientation towards current research approach, firm belief in the indigenous research, and interest in this exploration were a few dimensions that bounded the community.

6.2 Why Researcher Preparation?

6.2.1 Focus on Researcher

The chapter's core concept of importance of researcher preparation cannot be explained better than a shlok from YogVashishtha (see below).

ज्ञाताज्ञानंतथाज्ञेयंदृष्टादर्शनदृश्यभूः।

कर्ताहेतुःक्रियायस्मात्तस्मैज्ञप्त्यात्मनेनमः॥

> Knower, Knowledge and to be known; seer, observation and object; doer, reason and action - we pray to God from whom all these emanate.

6.2.2 Overcoming Challenges in Indigenous Fundamental Research

Any research of non-universalist or indigenous in nature has to overcome certain challenges posed by the dominant paradigm, which currently is a colonial one. In addition to that, if the research is fundamental in nature, it has to grapple with additional flow of practice or applied research, which more often than not, is governed by dominant paradigms. Each of the authors from the profiling of research literature in respective fields concluded that there was skewness towards dominant paradigms or worldviews.

Traditionally, the critical fundamental research falls in the domain of critical management studies, which critique the management studies. Mostly they had been in relation to some or other form of domination like colonialism, neo-imperialism and capitalism (Parker et al. 2007). The purpose in these studies is to critique an idea or phenomenon with an aim to improve social reality.

1. *Trilateration versus Triangulation*: This is a challenge of incorporation of indigenous worldview in interpretation of observations especially when the indigenous view is not the dominant paradigm. *Triangulation* refers to locating an object with the help of observations made by three (two independent) observers on the same plane as the object. *Trilateration* refers to locating an object with the help of observations made by three independent observers on different planes as the object. The resultant extraneous location(s) values are ignored after considering the requirement or imposing condition. It's best known application is Global Positioning System (GPS). Here three satellites observe the object on the surface of earth. Surface of earth becomes the imposing condition, if we are using GPS for locating someone on earth's surface. The other location(s) obtained from calculations by satellite observations alone, would yield locations away from surface also. These are ignored, using the imposing condition. Similarly, a worldview acts as an imposing condition

when choosing the interpretation for the observations. Presently, social science research uses triangulation, where observers are observing the object from the same plane and the location is assumed to be located on that plane and interpreted accordingly. After doing a research case on Tine Mena—the youngest Everest Climber from North East Bharat (Dutt et al. 2013), two of the researchers (Puneet and Priyanka) realized that the worldview and context or indigenous perspective of object (or researcher) driven by the requirement, applies the imposing condition on interpretation. When this is recognized in the research, the approach can be said to be using "trilateration". This further led to the observation that the present academic literatures in various domains have a significant skewness towards a western universalist worldview. These worldviews are however, on closer examination, found to be occurring in multiplicity. The challenge was, how to achieve trilateration without being accused of universalist bias towards the indigenous paradigm.

2. *Resource constraints*: Most of the Indigenous Fundamental Research requires huge commitment of resources in terms of time and material. This involves almost being a subject yourself, which can be an unpredictable process with respect of time, and therefore very difficult to manage as a project. The nature of material expenses, often are different in routine applied research projects. This poses a difficulty for funding agencies to ascertain criteria to commit funds to this kind of research. Another aspect is the context requires a longitudinal observation in a worldview or a philosophy. Though rate of change in philosophy or worldview is low and changes are gradual, but the ways through which we understand them, get dynamically changed. Thereby posing challenge to have a prolonged engagement, which may be a validity requirement too, for this kind of research.

3. *Academic imperialism*: Though scholars had been pointing to this for quite long, it is now being considered as grave challenge having multifold implications (Hiner 1990). Scholars have discussed this in terms of academic dependency in social science (Alatas 2003) as well as dominant imperialist paradigm influencing the degree of focus on region specific issues given by researchers from that region (Kwek 2003). The dominant education system uprooted the researchers from their own culture leading to an inadequate cultural immersion along with a colonial baggage. This, further, influenced researchers' exploration of techniques for problem identification and their solution from imperialist dominant paradigm, usually western. Linda Smith, one of the foremost researchers in decolonization studies (Hereniko 2000), further remarks that "*Research is probably one of the dirtiest words in the indigenous world's vocabulary*" (Smith 1999). Entry barriers are created through language, tools and techniques, methodologies of research. All of these cause more harm than good to indigenous fundamental research ways and of course, hinders the growth eventually. The reason for calling these as entry barriers is that, unless and until a researcher follows the dominant path, the research is not considered worthwhile. The related aspect is the limited access to research from alternative paradigms. Very few formal bodies of knowledge exist in conventional

academic structures that are truly indigenous in nature. The word *'alternative'* with which these paradigms are half-heartedly explored, is itself a symbol of academic imperialism. Why should an indigenous community term their own systems, tools and methods as "*alternative*"? The alternative is always with respect to another system which is naturally more prevalent traditionally and not forced upon owing to domination. In case of indigenous environment, the word "alternative" in fact, can be logically put before the imposed system. Another aspect is the discouragement from the researcher community for indigenous research. A fellow researcher after a noisy presentation on decolonization, remarked: "*Forget about speaking, people can hear stuff which doesn't even occur to our minds*".

4. *Organized plagiarism*: The indigenous knowledge and ways of learning are often termed as unscientific and the scriptures are not adequately quoted or referenced as the contemporary academic literature. While the academic world comes down heavily on any kind of plagiarism, why should there be such double standards for similar unethical practice? A researcher is always expected to cite sources of knowledge. This organized plagiarism is not only hurting the knowledge discovery for future research (as the old scriptures have more details in many cases than presently investigated so far), but also incurring increasing resources on research with methodologies that do not incorporate indigenous ways of knowing adequately.

5. *Researcher lacking the required indigenous gaze*: This is indeed a great challenge for indigenous cultures in geographies rooted by imperial or colonial forces of the west. The thrust on colonial or western knowledge, even after, getting independence from colonial masters, resulted in pursuit of obtaining western knowledge, books, tools and techniques. This sort of extroverted westward approach unintentionally or intentionally demeaned indigenous knowledge, texts, tools and techniques. These geographies *studied everything in English rather than study English alone*, resulting in total disconnection of researchers from their indigenous roots. This becomes a grave challenge now, as the access to fundamental scriptures is limited and consumes a lot of resources in exploration for those sources. Further the researchers today are retarded by ways of knowing or learning any phenomenon. This stops short of helping researchers understand indigenous phenomenon to acquire the wisdom and knowledge of the traditions in the spirit in which they were originally conceived of. This leads to several unrecognized indigenous epistemologies and ontologies —posing challenges to integration and further inter-convertibility of indigenous research, even if someone dares to get this far. Eventually failing to get an indigenous gaze, a researcher knowingly or unknowingly starts contributing to indigenous digestion i.e. digesting own indigenous knowledge.

6. *Vast content available in non-academic outlets*: Present literature comes predominantly from a few countries with religious or cultural homogeneity. The indigenous cultures provide a very high degree of diversity in every sense. Therefore, the contemporary means of storage and retrieval of academic knowledge content are often found inadequate to full access or disseminate

indigenous knowledge. Also it deprives an honest researcher from the wealth of knowledge available from past researchers traditionally. Under pressure, the research community tends to be basing their future research on research which they could access to conventional limited sources and hence leading to wastage of resources in duplication of effort in areas where indigenous knowledge is far more advanced than considered in the contemporary academic outlets.

7. *Limitations of positivist approach*: Positivism asserts that the only authentic knowledge is that which is based on sense, experience and positive verification. This could be totally opposing to the idea of cultural immersion for indigenous knowledge discovery. The cultural immersion open doors to indigenous sources of knowledge (Prasad 2005). Why should an indigenous researcher wait for some outsider to approve his indigenous ways of knowing and knowledge, for relevance and scientific value? The challenge is varying degree of capabilities in researchers to taking responsibility for exploring the knowledge in their own indigenous sources. This is a capability to pursue research in an open and integrative intellectual manner, and not through rabble rousing jingoistic perspective towards one indigenous way or knowledge.

6.3   Methodology

This chapter is a reflective account of collaborative efforts made for indigenous fundamental research. The researchers' epistemological and ontological stance was the common ground for the formation of this community. The research interest varied from Leadership to Education Policy and to organisation studies, but the common ground was the need to study the phenomenon from indigenous perspective. Along with this, all the members were on similar level of 'limited' understanding of the indigenous research. However, a benefit that went in favour of the community was that in indigenous studies, they came to know, special emphasis is laid on peer learning, dialogues and discussions. The process was very well in synch the concept that—the communities of practice groups of individuals formed around common interests and expertise provide the ideal vehicle for driving knowledge management strategies and building lasting competitive advantage (Wenger et al. 2002).

Further, the auto-ethnography (Ellis and Bochner 2000) used in research has a variant in which multiple people are involved and it is termed 'collaborative autoethnography'. Drawing from this, the chapter presents a participative account, a collaborative auto-ethnography of the members of this community (Chang et al. 2012). This method has been gaining importance in recent times with various scholars to have opted to present their work as collaborative autoethnographies or participative accounts. Researchers presented the experience of the doctoral supervision (Sambrook et al. 2006), a seven person's work on experience of mothering (Geist-Martin et al. 2010); five person collaborative work explored the experience and ethics of writing and living in intensity (Gale et al. 2013).

This is an account of the researchers' experience during the research journey than a sequential preparation followed prior to undertaking research. This provides initial account of how critical thinking brought change in lives of the researchers and built their perspectives towards reality, which in turn influenced this research. As mentioned above, the researchers (authors) were involved in preparing themselves for carrying out indigenous fundamental research in apparently different fields—Education (Public policy), Leadership (Organization Behaviour), Corporate Social Responsibility (Public Policy). This preparation needed—researcher's decolonisation, their "reverse social engineering" and adequate "cultural immersion" into the indigene (in this case, it was ancient Bhartiya (Indian) culture). Just like a typical qualitative research, most of the observations are in the form of discussions, researchers' logs of online/offline chats, short text messages, email and artefacts like photographs, recorded audio/video. The entire collection of this raw material used to be frequently made available with all researchers over cloud from individual recording services like email, text messaging, multimedia recorders.

Wenger (1998), stated that engagements in social context involves a dual process of meaning making. This dual process includes researchers getting involved in activities, conversations, reflections, and other forms of personal participation in social life. In the present case authors kept accounts of such discussions, chat logs, S logs, email logs, photographs and shared them with each other through google drive cloud sharing, email, text messages tools etc.

The other part of the process which Wenger (1998) discussed was creation of "physical and conceptual artifacts—words, tools, concepts, methods, stories, documents, links to resources, and other forms of reification—that reflect our shared experience and around which we organize our participation."

In the present case, these began in very informal manner, with sharing just an idea, a research article or some related interesting news. The process grew to in-depth discussions on the topics, each person bringing different perspective to the same topic from his/her understanding of the phenomenon. The process also significantly added to mutual appreciation, healthy competition along with the cooperation. The dialogues and discussions fostered creativity and led to development of jargons within the community. Those jargons then got refined over the time and got classified into above themes of decolonization, reverse social engineering and immersion.

6.4 How: Process of Researcher Preparation

6.4.1 Four Phased Preparation

To begin with the preparation phase, overcoming the challenges mentioned above was crucial. Any alternative approach demanded researchers' adequate immersion in non-dominant worldview(s) or the indigenous worldview in this case. But there

were challenges in adopting indigenous worldview, to address those special emphasis on researcher preparation including prolonged immersion in the culture centered on the non-dominant worldview was needed. This potentially addressed some challenges in indigenous fundamental research.

Following is a description of various phases undergone during researcher preparation. Although the researcher(s) involved did not go into research with a priori structure of this preparation. This emerged to be an agreed upon model of research.

6.4.2   Reverse Social Engineering and Self-decolonization

The researcher hails from contemporary Indian education system, a colonial residue still prevalent. Some of the shortcomings of this background have huge impact on researcher's ability of doing indigenous fundamental research. Hence, researcher preparation is an attempt to overcome the shortcomings. For this, identification of shortcomings was the most important part. This included *reverse social engineering* for becoming aware of impact of a world view. One of major hindrance in doing indigenous research was the colonial residue in our way of life. The residue has remained because of unsuccessful decolonization of the society as a whole. Hence, *self-decolonization*-was adopted.

Social engineering has traditionally been more of an art than a science, here different options are tried, and if they work, they are continued over and over again. The process through which researcher got 'socially engineered' was identified and understood step by step. Few researches have highlighted this aspect and relate it with colonialism or imperialism (May 1980). This process for reversing this social engineering is being referred to here as *Reverse social engineering*, similar to reverse engineering—a common term in machine design where we try to know about a machine by reversing the steps that led to its assembly. This process helped the researcher to unplug from matrix of soft powers and subsequently view reality indigenously.

This social engineering is done through various channels like education (Wilson 1978), social norms, television, homo-consumerism, making one believe to be a beneficiary of political or corporate rule, and, media (Dworak et al. 2007). Such ways (that kept an average researcher engrossed in reality that social engineer wants them to see) employed for social engineering and its impact on researcher, were identified and understood. During their identification and understanding process, their historical origins and intentions of social engineer(s) behind them were explored. Hence, this step was really an eye-opener. The questions that were encountered during this sub-phase and introspected upon, included (but not limited to):

(1) *Consumerism*: Why huge amount of money is required in form of the advertisements for products? The standard answer taught in marketing classes

is very superficial—one needs to market its product; people are not aware of their needs etc.; needs-wants-desire. As a marketing person it is expected that one ensures that products or services which were once considered as desired shift to the category of the needs. Hence, as a researcher and student of management, does it help if one falls prey to this trap?

(2) *Beneficiary of services (the common man phenomenon)*: The critics of British education system claim that victims of the system (post abandonment of indigenous systems of education) were cited as beneficiary. On one hand indigenous systems were being abandoned and people were 'provided' English education. The self-denigration was being attempted by making public believe that they were 'common man' a recipient of services provided for their betterment. This continued for a long time and policy decisions/schemes which were highly boasting of services to beneficiary were actually aimed towards victimizing the public. This continues till today which was found highly questionable. The people should be always taught to aspire for the sky, reaching new heights (which are done in very few cases). The indigenous communities from natural worldview are told in narratives since early childhood that they are descendants of great saints and seers, becoming 'great person and at the same time remaining humble is what elders would tell.

(3) *Perpetual upgrade and planned obsolescence* (Bulow 1986): New, latest, upgraded version, higher savings, less weight (Fishman et al. 1993): All such tricks are taught as tools for ensuring higher sales and repeat purchases in management courses (Waldman 1993). Being a B-school graduate and a researcher, how does one fall in the trap?

(4) *Existing politico-legal framework*: Management study and research in this domain calls for interdisciplinary knowledge. This took to the understanding and explore the constitution, legal system, prevalent today and what was in past. The deeper understanding of the origin of laws in post-colonial societies that are prevalent today, revealed that some date back even to 1830s, 1850s, 1870s and so on until their independence. What kind of independence have these countries achieved? The intentions with which those were framed at that time were schismatic in nature—ruler and ruled. Today in democratic form of society, that schism still exist—state and people. The clashes between police and general public are manifestations of this schism. Legal pluralism (Merry 1988; Griffiths 1986) studies reflected towards the framework of plurality of the legal order. This was found very relevant for such post-colonial societies—especially like Bharat, which has long cultural history (Eberhard and Gupta 2005). The customary laws get developed over the time and they seem more relevant that statutory laws. Prior to the understanding of this concept, it was very difficult to present the views in common public or scholarly community—as people would label the person as anti-nationalist or anarchist.

(5) *Existing Financial system*: Discussions with the fellow researchers from other areas like finance and economics, helped developing greater understanding of the financial aspects of social engineering like banking, securities, investment banking etc. at the root level. Discussions with professors and area experts,

especially people who had been involved with the fundamental research or thinking at fundamental level, or who had been working on the lines of critical studies, helped build understanding of the current issues. These all helped in what could be called 'unplugging from the matrix'.

(6) *Existing Socio-economic system—Misinterpretation of history*: (intentional or unintentional) Various aspects taught during school and still are part of dominant discourses got challenged. These included economy as well as social structure to name a few. The historical statistics by Angus Maddison and historical account by William Digby presented a completely different picture of pre-colonial era. The school books and common discourses presented a view that colonised nations were uncivilized to which British civilized, it had internal issues-kings fought, no national unity etc. All these were challenged in historical accounts other than those colonised versions. For example Fig. 6.1 presents the graph of percentage of India's share in world income for past 2000 years, which simply puts the point that colonisers devastated the economy of a well performing nation. But this fact was subdued in the narratives in the history in schools and discourses of public. The nation was and is always portrait as a poor nation developed or modernised by the colonisers. The same story applies to various nations which were colonised by Britain for purpose of looting their wealth, indigenous knowledge, social structure etc.

After reverse social engineering, further a crucial sub phase was initiated, which is termed here as 'self-decolonization'. Once being aware of the ways of social engineering and its impact on researcher with regards to his/her ability to understand the indigenous context naturally, it was time to get back to roots of indigenous culture. But, how was the question and hence, it led to series of questions—major among them was—Who decides for us? The critical questions in this case can be categorized as follows:
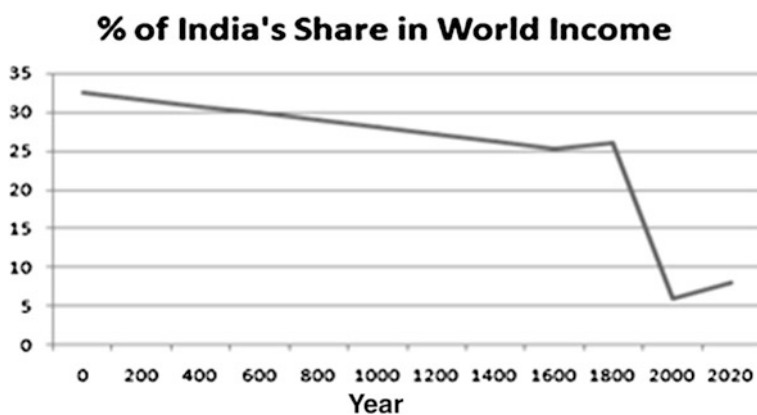
Fig. 6.1 Sample historical pre-colonial statistic not part of post colonial history education [*Source* derived from Historical Statistics by Angus Maddison cited in Bolt and van Zanden (2014)]

1. *Language*: What language we speak during our interaction? Here in this particular case, the imposed language from dominant worldview is English. It is well known that the promotion of English language has imperialist origins. Macaulay on his views about British education in India mentioned—"after studying English there would be no idolater left in India, who would have real faith in his or her religion" (cited in Aggarwal 2012). It has generally argued that English is global language, and it has become a norm to keep on re-iterating this, without any proof of documented support. In fact it is only spoken in USA, UK, Australia, Canada and a few other countries. What about China, Japan, Germany, Russia, Brazil, France, India etc. Do not these countries exist? This is clearly creating a facade about global language. Although now scenario is changing and the world leaders-heads of various nations—by choosing to speak in official languages of their respective nations are also setting some precedents for us to ponder over. Here the language encompass both its verbal and script aspects. The importance of scripts as part of cultural interaction has been highlighted by many researchers. Many studies have been done on linkages among language, cultural systems and world view (Hill and Mannheim 1992). Hence, as a researcher one cannot neglect the impact of using or not using indigenous language and script on ways of knowing in an indigenous environment. In our case it was Devanagari script and language was Hindi and Samskrit. An FMRI (functional magnetic resonance imaging) based study reported that Devanagari enables more complex cortical activation in brain (Das et al. 2009). The study holds true for languages with script that have curves, linearity, sometimes half words are used, somewhere vowel comes before the alphabet and somewhere at the end. These aspects of the script impact the functioning of brain and its ability to handle "cultural objects" (Kumar et al. 2010). An Irish saying puts above discussion simply as—"people who loose tongue, loose voice and then loose soul."

2. *Clothing*: Which dress is acceptable or decent in OUR society? Why colonial residue or colonial hangover should continue even after independence? Be it general dress-up or special occasions like convocation ceremony. Based on type of manufacturing of clothes two categories can be considered—handloom and machine made. The fineness achieved in handmade was found to be an interesting experiment. The patience it reflected was never thought off. The comfort it provided along with energy as compared to machine made, was much higher. This increased the productivity levels too. Regarding colour it was found that during prayers in different communities follow different norms which are best suited for the place. For example in Bharat we use yellow, saffron, red or white colours mostly. It was found that these colours when formed are created with minimum violence as compared to other end of spectrum i.e. violet, indigo, blue green etc. The reason for avoiding black is that black is absence of colour and not a colour. The economic side of this is that—handmade cloth provides employment to large number of people. It doesn't accentuate a rich-poor divide as it is localised production and localised consumption. The work gets

distributed over large number of people. Recent incidents from Bharat in public domain like—Students of IIT-BHU, Jairam Ramesh and Margret Alva not wearing graduation ceremony gown; dress despotism in Tamil Nadu being challenged are illustrations that change is happening.

3. *Medicine*: How we will take care of OUR health? Terming our own systems as alternative is something that decolonization or postcolonial philosophy rejects. Instead of accepting terms such as 'unscientific' or 'ancient' or 'non-conforming' to modern requirements are not to be taken as is. These all were given a thought and followed a deep study of indigenous systems.

4. *Food*: What and when to take food and 'how to eat'? In the above section on reverse social engineering, a mention of consumerism was included. The food that is being served to us through advertising campaigns, shops and mall, was closely observed. Based on that decision was taken which food is to be taken, when to be taken and how it should be prepared. For all this, the context—place, time, season and person matters.

5. *Expression*: How, what, when do WE celebrate, express, greet? Cultural expressions are embedded in daily activities. These include festivals, music, dance, greetings, etc. When this gets influenced (for good or for bad) impacts the understanding of culture, societal interaction. One ritual practice might be righteous for particular culture and in sync with that context, but same imitated in different context might not be relevant or may even prove disastrous. As Linda Smith categorically stress on the fact that imitating other's culture consequently make our own culture disappear (Smith 1999). Apart from these the literature on indigenous researches mentioned a few other questions that needed a thought from researcher (Denzin and Lincoln 2008):

   (a) *How do we will learn and do research?*: The ways of knowing are crucial part of any intellectual or research journey. The dominant scientific methodology currently has not been able to openly accept 'ways of knowing' beyond observation and inference. But, different cultures or worldviews provide for various other ways of knowing too, that go beyond five senses doing observation or ways of inference. This may require epistemological expansion in the case researcher belongs to a culture that has higher number of ways of knowing.

   (b) *What will we learn/research?* This question has various facets. Are we going to research the things that have been recorded in indigenous literature but which are ignored by western or current academic disciplines? Will we try to research the same thing again through different techniques and waste our time in confirming the results? Will we depend on the west for the original contributions and follow the pursuit?

   (c) *What is our purpose behind learning/research?*: The research which is done, would be relevant for whom? Is it of regional importance or national or international? Or is it only serving purpose of soft imperialism?

(2) *Other Aspects*: some of other aspects, though related to above, deserve special attention, are as follows:-

(a) *Education*: surfaced as an important tool for domination. The colonisers used indigenous elite to strengthen British power (Chaturvedi 1986) and education was and is used as a tool to maintain domination over the nations. The 'internal colonialism' by people from indigenous communities who became like English, who became a class and caste by themselves was and is a bigger challenge, than colonialism by British.

(b) The *literature*, works of great authorities and quotes enforced and substantiated this understanding. For example, Mahatma Gandhi said on indigenous education

(c) On referring to the literature, it was found that *indigenous methods/ literature/techniques/knowledge* have gained some space. In countries like New Zealand, Australia, Canada, Iran etc. the focus of government and researchers has been on indigenous know

> *…I say without fear of my figures being challenged successfully, that today India is more illiterate than it was fifty or a hundred years ago, and so is Burma, because the British administrators, when they came to India, instead of taking hold of things as they were, began to root them out. They scratched the soil and began to look at the root, and left the root like that, and the beautiful tree perished…* (At Chatham House, London, October 20, 2013)

ledge. Countries with rich base of indigenous knowledge, like Bharat, can learn from it.

(d) *Decolonizing history*: Post colonial societies failed to gain access to institutions of history-which is most powerful tool for exclusion and inclusion (Ashcroft et al. 2006). Hence, exploration for decolonization to various definitions of decolonization. This pursuit of the researcher was accomplished through past literature. (Dharampal 1983; Digby 1901)

> *Decolonization is about centering our concerns and worldviews and then coming to know and understand theory and research from our own perspectives and for our own purposes.* (Smith 1999)

6.4.3 Developing Integral Perspective

This is very crucial part of the researcher preparation that separates us from post-modernists. The above process should not end in anguish with oppressors. There should exist a mutual respect for each other. Hence developing an integral perspective is in that pursuit. The Beliefs can alter observations; those with a particular belief will often see things as reinforcing their belief, even if to another observer they would appear not to do so. Even researchers admit that the first observation may have been a little imprecise, whereas the second and third were "adjusted to the facts," until tradition, education, and familiarity produced a readiness for new perception. The knowledge and experience the researcher had during reverse social engineering and self decolonization were apparently extrinsic

in nature. But these had an intrinsic impact on researcher's perspective towards the phenomenon too. In this case, the perspective was for the purpose of doing research in an indigenous integrative paradigm. This perspective has been termed as Yogic perspective, a perspective for observing everything as a part of cosmos and making sense in some connected or integral way. Philosophically, this has been referred to, in literature, partially as *Integral Unity* by Rajiv Malhotra in his book Being Different.

(1) *Philosophical reconciliation*: This calls for inculcating multi-paradigmatic thinking. For this purpose, indigenous scriptures of Bharat offer philosophical reconciliation by *shad-darshansamnvay* (reconciliation of six philosophical ways).

(2) The traditional ways of learning scriptures usually has four phases *Agama* (constitutes oral learning from Guru), *Swadhyaya* (practice of the orally learned content and contemplations), *Pravachan* (teaching to fellow students) and *Vyavahar* (bring the knowledge in action). The pure traditional way could not be achieved due to various constraints—(not limited to) time and resources. However, studies of scriptures were attempted through simulation of traditional ways by one or more of following simultaneous ways—regular gurukul visits—(discussions and learning of initial visits were recorded), learning Sanskrit—various sources like books, Sanskrit experts, internet and practising the routine followed at Gurukul. This process holds relevance to this particular case of current research, in various aspects. It builds the base for integral perspective to look at any phenomenon. Though above process is largely experiential and quite difficult to be translated with high accuracy, still an effort has been made below.

(3) Moving away from binary reductive categories (Kincheloe and Steinberg 2008) has helped the researcher to be ready to explore the knowledge from multiple dimensions and multiple sources. The inculcation of a feeling that 'some is not other than me' or 'someone is not different'. The concept of existence of non-duality is similar. A shlok from Bhagwadgeeta about moving away from binary reductive categories is presented below.

निर्मानमोहाजितसङ्गदोषाअध्यात्मनित्याविनिवृत्तकामाः।
द्वन्द्वैर्विमुक्ताःसुखदुःखसंज्ञै-र्गच्छन्त्यमूढाःपदमव्ययंतत्॥

Devoid of false ego and illusion, free from degraded association, perspective of the eternal and the transitory, disassociated from lust, completely liberated from the dualities identified as happiness and distress; the wise reach the imperishable shelter of the supreme God. (Bhagwad-Geeta15.5)

(4) *Dissolution of inter-disciplinary boundaries*: The moving away from categorization also enabled dissolution of subject boundaries. The hyper specialization in which current education tries to mould person, impacts the learning. Exploration of Sanskrit literature opened such avenues. The Sanskrit text had interdisciplinary concepts intertwined in form of stories at multiple levels. This

was also facilitated during interactions with fellow researchers. At the same time interaction during seminars and presentations provided useful inputs. How is this related to the current research?—Leadership as a concept is studied in organizational behaviour literature majorly, at the same time in other allied areas. Although social science has created specialization for in depth understanding, but reality cannot be understood considering individual pieces of complete frame and its disconnected pieces. A story of blind men and elephant (which is narrated in discourses in India), would be very relevant here.

> **Blind men and elephant**
> There was an experiment conducted with six blind men. They were asked to touch and feel the elephant's body and based on this they had to determine what an elephant looked like. Each one touched different parts and based on that understanding of the elephant varied. One who felt a leg said it was like a pillar similarly others felt other parts and reacted (like tail—rope; trunk—tree branch; ear—hand fan; belly—wall; tusk—solid pipe). The person who experimented this, later on explained them, that all of them were right in their terms. Everyone was telling it differently as each had touched the different part of the elephant. Hence, elephant had all the features they reported and rather more than those.

Using the analogy of an elephant for leadership, for this particular research, although it would be very difficult to cover the whole elephant but appreciation that elephant exist was definitely required.

6.4.4   Immersion into Indigenous Worldview

अनभ्यासेविषंविद्याअजीर्णभोजनंविषम्।विषंसभादरिद्रस्यवृद्धस्यतरुणीविषं॥

Knowledge without application is poison; Food undigested is poison; Assembly is poison for the poor; Young woman is poison for an old man. (Neeti Saar)

After *vairagya* from social engineered aspects and critical questioning based on decolonization, *abhyaas*of indigenous ways of living was required to build a more permanent internal awakening required to view the phenomenon. This experiential part is the most crucial aspect when we talk of first person empirical enquiry or embodied knowing. More so, any researcher with unsatisfactory, insufficient or no answers to the fundamental questions on existence or the 6 big Worldview Questions (consciously or unconsciously), is bound to feel anxious, unclear, insecure and fearful (host of unsettling behaviours) about total immersion in any worldview. Further, this may affect the research ways considerably. After philosophical reconciliation is consciously endeavoured, immersion in non-dominant/indigenous (natural) worldview would accord the researcher, the required comfort to grapple with phenomenon with an indigenous perspective. This immersion in this case was of an integral nature for the purpose of further pursuing indigenous fundamental

research from an integrative paradigm. This required initiation at two levels—context and culture.

Context: This was followed by internalizing the best possible option(s) for cultural adoption after self-decolonization, that was suitable for the *context.* This was preceded by further understanding of the indigenous context through its constituents—place, time, season, and person and micro level aspects.

Culture: This sub-phase concerns adoption of indigenous cultural aspects across five dimensions of the culture. Details about these dimensions have been provided in the section of self-decolonization. Following are the brief description of adoptions across these five dimensions:

(a) Language: It relates to the ability to interact and assimilate a cultural object. In this case script was devanagari and languages were Hindi and Sanskrit.

(b) Attire: For the clothing aspect, handmade natural fabrics, which were suitable for the context were adopted. Most of the duration of research, they were *kurta* and *dhoti*. A shlok regarding definition of the attire from Sanskrit-

वस्त्रलक्षण

शीतवातोष्णसंत्राणंलज्जायांरक्षणंपरम्।

देहलंकारणम्वस्त्रभतः शान्तिप्रयच्छमें।।

Attire or clothing is that which saves from cold and heat, maintains grace.

Look ornate on the body and should be soothing

(c) Medicine: Medicine usage was minimal and based on principle of least non-violence and natural harmony at body, mind and emotional levels with the environment. Medicine systems which were closest to nature were followed, for instance: naturopathy, and ayurved-medicinal system.

(d) Food: Food routine includes observing fasts (vrat/upvaas), taking context dependent food, and ahimsa. The food dimension is further broken down into 5 sub-dimensions on the basis of sense-organ through which food input is received in the body:- Eyes/Vision [Natural and indigenous visual interactions. Reduced television viewing for improved cultural assimilation (Mander 1978; Parenti 1993)], Mouth/Taste (organic, natural, fresh, homemade—food), Ears/Sound [Natural and indigenous audio interactions including music. Reduced multimedia viewing for improved cultural assimilation (Dworak et al. 2007)], Skin/Touch, Nose/Smell.

(e) *Bhavabhivyakti* (expressions) were given careful thought. Celebration of festivals in traditional manner, greetings, social behavior-expressions, exploring nuances of time, season and relevance of them. Art and culture—appreciation of the traditional techniques, relation of such expression and search for god within it. All these were crucial as dominant worldview is dominant through these powerful forms of customs, symbols, rituals and stories, which can potentially skew the research towards one direction and not result in a truly integrative research. This dimension is the most difficult one, as it may call for
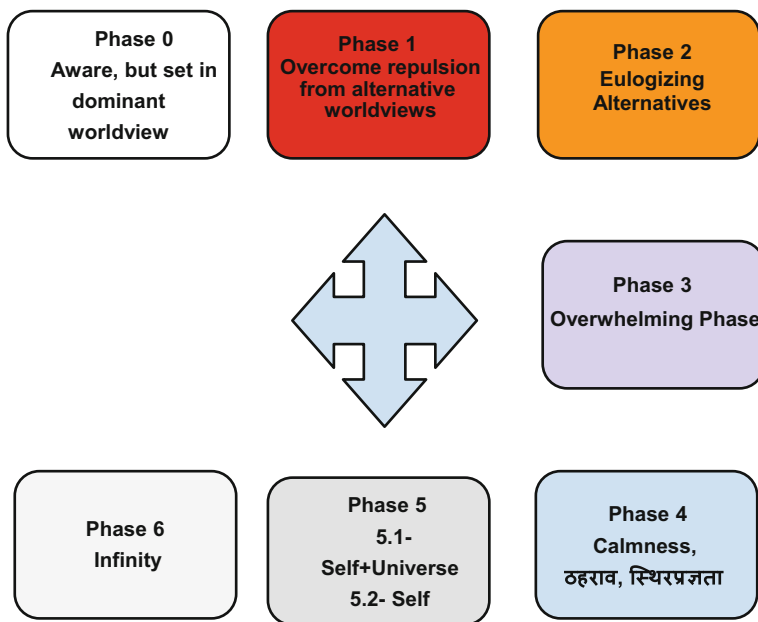
Fig. 6.2 Experience phases during researcher's indigenous worldview immersion

a complete change in the way of life, especially for a researcher who has not been raised in an authentic indigenous environment. In this particular case, it was attempted through ways like emulating ways learned from elders, visits to gurukul, developing competencies to understand sanskrit text, reading literature on decolonization and indigenous research, asking critical questions etc.

This immersion would bring about comfort with chaos and Natural 'standHards'. It would further go through phases of indigenous worldview transformation as shown in Fig. 6.2. Fear of unknown or fear of rejection would lead to fall back to Phase 0 from any of the phases (1, 2, and 3).

Phase 0: Aware, but set in dominant worldview—Initially the researcher became aware of the phenomenon that there is something in current worldview that is unsuitable.

Phase 1: Overcome repulsion from alternative worldviews—this phase initiated the process wherein acceptance grew for alternative worldviews, those were no more outdated, untouchable or someone which cannot be appreciated.

Phase 2: Eulogizing alternatives—This phase was next step wherein alternate worldviews were eulogized by researchers. But still the appreciation was in early phases.

Phase 3: Overwhelming phase—Researcher became overwhelmed in terms of benefits of the new worldview (actually own worldview) provided. This included capacity to work, knowledge base, depth etc. and all seemed infinite in quality and quantity.

Phase 4: Calmness—Then gradually researchers reached state of calm, identified own area of work.

Phase 5: Self + universe/self—The distinction between self and universe started fading away. Although this enlightened state does not remain for all long and waves are felt sometimes by the researchers.

Phase 6: Infinity.

6.4.5 Preparation for Indigenous Research Ways

The generation of new knowledge is the academic contribution of the CoP, and a crucial part along with self-learning. The fundamental purpose for formation of our CoP was the 'researcher preparation for indigenous research'. Below is presented, the outcome of our community activities. The section summarizes the learning of our community members, and the knowledge we created for the academic community.

(1) *Epistemological expansion*: Post culture and philosophical immersion, epistemology is settled according to the said worldview. In this case, the ways of knowing expanded to the following set and the researcher developed conviction in integrating the ways of knowing or prāmāanā:-*Prātyākshā or Observation/Perception*; *Anumāanā or Inference*; *Upāmāanā or Analogy*; *Shābdā or Verbal/Oral Traditions*

Further, since a natural or dharmic worldview has embodied knowing as one of its core features, a first person experiential enquiry into phenomenon in its natural way is encouraged. This was inculcated by changing the lifestyle to adopting more nature based and observer centric standards against nomothetic artificial standards.

(2) *Reversing the Gaze* and MaanasPratyaksh: Re-See, Reflection on literature and professional experience. This research is not how researcher's indigenous culture is seen through an external dominant paradigm, in fact how the researcher sees a dominant paradigm and how he sees the indigenous context. It is about creating indigenous understanding of the reality. The lens used for understanding and analysing the problems is not the same as dominant paradigm, often, seen propagating through direct or indirect ways either intentionally or unintentionally by the research community. In other words-*we don't not get judged infact we judge ourselves, and for our purpose* i.e. for improving our social reality. All these done, one crucial part as far the research is considered was the presentation and communication of the research to the audience. For this purpose too, an indigenous framework or a reversed gaze perspective, was attempted to do justice to the articulation of indigenous experience. Preparation involved for the same has been described in next sub phase.

(3) *Building Conceptual Foundations*:

Bharātiyā Research Methodologies -PādārthPāribhasha—*Definition of Definition. For this tārkāsāngrāhā was studied.* Also, it was important to follow certain indigenous frameworks for building reason and presenting arguments. Purv*ā*P*ā*ksh*ā* and uttarpaksha—an indigenous way of presenting a *shāastrāarth* was adopted. *P*urv*ā*-p*ā*ksh*ā* and uttarpaksh framework was understood. *For PurvāPākshā*—Western research methodologies, management theories and leadership literature were studied. For the same, preparatory and advanced level courses were taken—Foundation courses in Management (1 year of foundation courses in contemporary management disciplines ranging from Economics, Accounting, Financial management, Human resources, Business communication, Marketing, Operations, Statistics etc.), Research Methods, Crafting Research output, Case Writing, Micro Organization Behaviour, Macro Organizational Behaviour, Leadership, Spirituality-Leadership and Management, Creativity and Innovation.

(4) *Research—testing the waters*: The researchers endeavoured to do research and publish papers and cases in different domains (as listed in Table 6.1). These provided beginning thrust and opened avenues for further research.

Table 6.1 List of publications of the authors

S. No.	Name of author(s)	Paper title	Name of journal/Case publication house
1	Bindlish, P., Dutt, P., & Pardasani, R.	From growing convergence of spirituality and leadership towards a unified leadership theory	Spirituality, Leadership and Management
2	Pardasani, R., R. Sharma, R., & Bindlish, P.	Facilitating workplace spirituality: lessons from Indian spiritual traditions	Journal of Management Development
3	Joshi, A., Verma, P., Dutt, P., & Bindlish, P.	Introducing Corporate Social Responsibility (CSR) to a spiritual and 'superstitious' India	Journal of Management (Parikalpana)
4	Sumedha Chauhan, Ankur Joshi	Understanding Implications of Social Networking on Personal Life using Grounded Theory Approach	Business Sciences International Research Journal
5	Ankur Joshi, Puneet Bindlish, Pawan Verma	A Post-colonial Perspective towards Education in Bharat	Vision: Journal of Business Perspective

(continued)

Table 6.1 (continued)

S. No.	Name of author(s)	Paper title	Name of journal/Case publication house
Case publication			
6	Preety Bansal, Puneet Bindlish, RupaliPardasani, Shaveta Arora	Infogile at Crossroads: Leaking 'Beginner's Luck' of an Entrepreneur	Journal of Case Research
7	Puneet Bindlish, Priyanka Dutt, Sharda Nandram	Natural Leadership: Everest climber in everyone Story of youngest Everest Climber from North East, Tine Mena India	Amity Case Research Journal
8	Ankur Joshi, S K Tapasvi	Mithilasmita: Can Traditional Art Be Preserved Through Intellectual Property Protection Only?	Ivey
9	Puneet Bindlish, Madhushree Nanda	Creativity & Innovation at Edfora	Under review
Conference papers			
10	Puneet Bindlish, Shaveta Arora	Quantum Creativity—A World View Perspective	GCMRM, MDI, Gurgaon
11	Puneet Bindlish, Neerajain	Relevance of Vedic Ways of Learning in the Contemporary Management Education System	18th International Conference on Learning, University of Mauritius
12	Puneet Bindlish, Priyanka Dutt	Spirituality and Leadership: the growing convergence	UGC National Conference on Human Resource Management, Jaipur
13	Ankur Joshi, S K Tapasvi	Issues and Challenges in ensuring Public Accountability: The Indian Context	International Conference on Contemporary Debates in Public Policy and Management, IIM Calcutta
14	Ankur Joshi	Colonialism and Indigenous education: an autoethnography	GCMRM, MDI, Gurgaon
15	Ankur Joshi, Sumedha Chauhan	Tolerance in Indian Society: Implications on Society, Natural Resources and Lifestyle	Impact of Globalization on Urbanization and Migration in India, IIPA, New Delhi
16	Rajen Gupta, Puneet Bindlish, Ankur Joshi	BhagwadGeeta Worldview and Management Education	presented at SOIL Conference, at Chinmaya Mission, Delhi
17	Puneet Bindlish, Ankur Joshi	Indispensable Research— Integrate various disciplines into management to accelerate research	Daily News & Analysis (Mumbai)

6.5 Lessons Learned and the Way Forward

The chapter is being written at a stage wherein authors do not claim to have achieved the final research destination. This is a description of the process adopted for researcher preparation so as to enable them to be able to do research in the indigenous phenomenon and through the indigenous ways. This journey is exploratory in nature which could be described later on in the lives of the researchers. Although some short term vision is in the field of indigenous education policy and leadership theory. It is acknowledged that this chapter cannot be articulated with accuracy, largely due to its highly experiential and non-sequential nature. Therefore, archives of these interactions in the form of chat logs, audio-video recordings, pictures, remarks etc. are stored and can be made available on request to future researchers. Author can be contacted for those requests directly.

6.6 Conclusions and Summary

The chapter took the reader through the collaborative experience of the researchers (authors) which they undertook for pursuing indigenous fundamental research in their respective areas.

The readers could benefit from this account if they are pursuing indigenous research. The researchers interested in forming a community of practice even with varied areas of interest can come together to form a CoP from a similar philosophical stance. This experience had been articulated in the manner covering the various ontological aspects of the research, so that it finds a general appeal across various fields of research. Initially it talked about the challenges in indigenous fundamental research which researchers experienced. Then came the description of various preparation phases—(A) Reverse social engineering and self-decolonization, (B) Developing integral perspective (Philosophical reconciliation, Moving away from Binary deductive categories, dissolution of interdisciplinary boundaries), (C) Immersion into indigenous worldview (context, culture) and finally, (D) Preparation for indigenous research (epistemological expansion, reversing the gaze, building conceptual foundations, certain publications which authors did during the various stages of this preparation).

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Chapter 7
Imagining the World: Creating an Artistic Community of Practice in an Academic Environment

Suzanne Fegan

Abstract The following account tells the story of a small funding grant that launched a university-based arts project in which 40 university student volunteers designed and painted 68 concrete panels on the theme of globalisation, over a 2-year period. In the weekly project sessions, held in an underground theatre dressing-room, a community formed which embodied many of the qualities described by Lave and Wenger (Situated learning: legitimate peripheral participation. Cambridge University Press, Cambridge, 1991) as characteristic of a Community of Practice (CoP). Most notably, this project came to be one in which the participants, "share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Lave and Wenger, Situated learning: Legitimate peripheral participation, p. 1, Cambridge University Press, Cambridge, 1991). Initiating a voluntary, meagerly funded arts project in a university where time is short for everyone was a risky proposition, but I felt it was important to offer an opportunity to students to counter-balance the cognitively focused nature of university study. I wanted to know how Gen Y students felt about the globalised world. Also, knowing that university student life can be marked by loneliness and isolation (Sawir et al. in J Stud Int Educ 12(2):148–180, 2008), I was curious to find out whether a communal arts experience might lead to greater levels of well-being. The project participants were not fine arts students, and most had not painted 'since kindergarten'. Nevertheless, they showed willingness, and even passion, to translate their feelings about globalisation into sketches and then into metre-long painted panels for public display. This commitment to the project endured, week after week, for 2 years, even through wintery nights and exam periods. It was at odds with some of the literature on university student engagement, which argues that contemporary Gen Y university students are pragmatically focused on gaining their qualifications and hence do not involve themselves in campus life (Levy and Campbell 2008). What kept the participants returning to the mural space? I pondered this question at many points during the 2-year project. It seemed evident that they enjoyed being there, and this was affirmed regularly in their weekly mural

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journals and in the project sessions. Csikszentmihalyi argued that creative acts are linked to a sense of well-being and happiness in humans (Csikszentmihalyi, The Futurist 31(5): 8–12, 1997); when this is combined with a sense of meaning, it becomes what he calls, "vital engagement", or "a relationship to the world that is characterized both by experiences of flow (enjoyed absorption) and by meaning (subjective significance)" (Nakamura and Csikzentmihalyi 2002, p. 87). The mural participants seemed to invest a strong sense of meaning in their mural panels; they took great care in painting the images and often spent sustained periods of time in concentrated silence as they worked. Their regular attendance at the mural sessions, and also their intensity in approaching the task suggested that intrinsic motivation played a role in maintaining participants' interest levels in the project. On the other hand, the collaborative nature of the project seemed to generate its own level of enjoyment and intrinsic motivation. In the mural space there was frequent laughter, appreciative commentary on each other's designs, and often the sense of initial weariness transforming into focused energy in the design and painting process. It seemed that the social practice embodied in this project was also a generator of well-being for the participants. Indeed, through an "enabling, confirming and supportive process… that foster[ed] interpersonal development" (Rendon 1994, p. 44, cited in Penn-Edwards and Donnison Int J First Year High Educ 5(1): 31–41, 2014), the participants formed a cohesive learning community as they worked through the design and implementation stages of the process: creating images for their panels, rendering the images and learning how to mix and apply paint. In common with most university students, it was clear that the mural group participants already negotiated many roles in their daily lives, and had been, "socialised into multiple, overlapping communities of practice" (Morton Linguist Educ 23 (1):100–111, 2012, p. 109). Nevertheless, the mural project allowed them not only to form friendships and a distinct learning community, but also to cross boundaries and gain new expertise in areas that were often remote from their disciplinary studies. In this chapter I argue that this community of practice, based around a creative arts project in an academic environment, enabled the participants to connect with each other and with their creative potentialities, with visual design and with a social form of learning that enriched their university experience.

Keywords Visual arts · Arts-based creativity · Academic environments · Community of practice

7.1   Introduction

Among the many changes to higher education in the last decade, a renewed interest in the student experience has been an important milestone, as teaching practices and methodologies have undergone extensive revision from the traditional didactic model. This model emphasised that students should learn by acquiring the requisite knowledge from experts in the field, and reproduce it in different forms of

assessment (Hughes et al. 2013). In contrast to this, the work of Lave and Wenger (1991) broke with tradition by asserting that all learning was social, and that learning itself was primarily a social act, comprising participation of individuals in communities of practice. The community of practice, a term first conceived of by Lave and Wenger (1991) refers to a group of individuals united voluntarily by their passion for the practice or purpose that they have undertaken. Communities of practice (CoPs) have recently become popular in Australian higher education, to the degree that prestigious grants have been awarded for setting up academically focused CoPs (Nagy 2014). The CoP that will be discussed in this chapter is perhaps atypical of many CoPs, in that it comprised a long-term, applied arts experience for people who were not artists but were full-time university students, working creatively in an academic environment.

7.2 Why a Mural Group?

My reasons for wanting to facilitate a university-based art-making group were not entirely straightforward. The idea for a mural group originated in my perception that learning in higher education is dominated by cerebral activity to the exclusion of most sensory forms, creating a university experience for students that is sensorily limited. Lave and Wenger argued that "painting a picture of the person as a primarily "cognitive" entity tends to promote a non-personal view of knowledge, skills, tasks, activities and learning" (1991, p. 52). This is congruent with broader perceptions of contemporary higher education institutions as narrowly defined, far from being holistic, and increasingly accountability focused as they are obliged to become more like traditional corporations than centres of learning. This remaking of the university means that "universities must be streamlined, remolded and remade by the forces of the market in order to become more rationally organized, economically responsive, "accountable," and to produce economically useful products (Ward 2012, p. 131). In this environment, educational environments appear to be growing increasingly depersonalized (Quinn 2010, p. 47) with increasing reliance on online teaching modules and reduced face-to-face teaching.

As a kind of local counter-balance to the conditions imposed by global education, I initiated an arts project in my own workplace, a Victorian university. I hoped to provide a socially oriented environment in which elements common to many other social situations were present: good music, good food, good conversation. For the record, there were no performance indicators, intended learning objectives or summative examinations. On the other hand, I did hope that there would be fun involved, but avoided mentioning the word in the funding documents, due to its connotations of being 'lightweight', non-serious and particularly alien in academic domains.

In setting up the mural group, through campus-wide promotions to all students, I was very aware of the possibility that students would not have room in their busy schedules for an (unpaid, voluntary) extra-curricular activity [ECA]. In the first

entry of my reflective mural journal, I noted, "Can't help feeling nervous about this. What's in it for the students?" Despite my initial misgivings, there was a surprisingly enthusiastic response from the students who came to the two recruitment meetings. This is captured in an early comment from one of the participant's journals, provided to each participant at the beginning of the project, in which to reflect on each mural session:

> Since I had been at work all day, I had second thoughts about joining an after-work activity. I was soon appeased as I began to get to know everyone and started on my ideas for my panels. I feel like a dam that's been holding back the fiery waters of creativity within me … This dam is a culmination of the 'necessities' of life: my education, work, relationships. Things I 'should' do" (Mural participant L).

In the literature, there is evidence that certain kinds of ECA can be beneficial to students, especially undergraduates. A survey of first-year university students' extra-curricular activity found that ECA contributed toward a positive adjustment to university, particularly when the experience, "provided the student with a sense of connection to other individuals … and brought out positive feelings for the student" (Tieu and Pancer 2009, p. 344). This suggests that social activity remains a strong component of student engagement. Similarly, Clegg et al. (2010) argued that, "There appears to be a prima facia case for seeing ECA as making a positive contribution to student futures" (p. 616).

A second reason for starting the group was to explore and possibly expand the participants' views of themselves as creative. Although many universities proclaim the importance of creative thinking and creative capabilities in their Graduate Statements, it is hard to discern any explicit encouragement of what might be called 'open-ended creativity' in the higher education sector; that is, creativity that is not determined by an economic rationale or endpoint. This is not to say that creativity does not exist or is not encouraged in some ways in universities; for example, inquiry and problem-based learning is now commonly practiced in many institutions, and these learning modes are said to encourage more creative modes of thinking (Chan 2013). Of course, creativity, like 'intelligence' or 'culture', spans a vast range of human attributes and capabilities. However, in higher education its ambit tends to be undifferentiated from cognitive labour. Most university learning is in some way directed toward assessment and this usually entails a range of higher and lower order cognitive skills, including memorisation, analysis and synthesis, combined with the hard slog of researching and writing assignments. In contrast, there is very little emphasis in higher education on the generative capacities of art, imagination, intuition or playfulness. Yet, these qualities may be of great value in an increasingly volatile world that is also facing an uncertain future. As Murphy (2013) argues,

> Intuition lies at the root of the process of discovery. Practically mute, intuition is the antithesis of institution. Yet without it the institutions of art and science cannot function. That is their inherent paradox. Intuition or counter-intuition is the medium of cognition that draws unlikely connections between ideas. In doing so it generates powerful and surprising explanations (p. 42).

Australia like many western liberal democracies, has adopted a neoliberal policy framework and applied it to public higher education institutions around the country, resulting in a corporatized and entrepreneurial model of education that has many detractors (e.g. Olssen and Peters 2005; Ball 2012; MacLaren 2012; Ingleby 2015). The neoliberalised, or performative university emphasises "a technology that links effort, values, purposes and self-understanding to measures and comparisons of output" (Ball 2012, p. 19). In the performative academic environment, we are, "required to spend increasing amounts of our time in making ourselves accountable, reporting on what we do rather than doing it" (Ball 2012, p. 19). While Ball's comments apply more to academic staff rather than students, it is likely that the socio-cultural context of the university influences all of its players: students, academic staff, administrators and others.

A third catalyst for the mural project was a felt sense of needing to do more to develop or deepen environmental awareness in students. As Barlett (2008) noted, universities have enormous potential to develop sustainability awareness in their students and staff. Yet, she continued,

> anyone involved in higher education would have to admit that most student behaviour with regard to sustainability is unchanged, most faculty are not engaged, most trustees do not see sustainability as a high priority, and—to choose only one indicator—most campuses remain massive greenhouse gas generators (p. 1078).

It appears that institutional change in this respect moves slowly. In a more recent survey of university sustainability measures in Europe and America, it was reported that, "Although reporting could provide a framework for universities to assess and communicate their sustainability efforts, it is still in its early stages (both in numbers of institutions reporting and in level of reporting) when compared to sustainability reporting in corporations" (Lozano 2011, p. 75). In Australia, there is a recognised need for sustainability education in primary, secondary and tertiary education sectors yet, according to the Australian Education for Sustainability Alliance (2014), "Australia currently does not provide high quality and integrated sustainability through formal education and lifelong learning" (p. 1).

I saw the mural project as stimulating participants to think about the effects of globalisation, sustainability and the environmental consequences of rampant neoliberal government policies. Participants in general seemed interested in and aware of the complex nature of globalisation, and the final 68 images after 2 year's work on the project reflected concerns about pollution, multiculturalism, identity, cultural richness, commercialisation and the clash of old and new cultural forces, among other themes. For example, a female international PhD student created a series of four images that captured her multiple roles and configurations of identity (See Figs. 7.1 and 7.2). Each day she struggled to juggle and manage her various roles: as scholarly researcher, mother, wife, employee—and angel who could help all. She spoke of this as putting on and taking off different parts of her identity, like clothes. Another image (Fig. 7.3) reflects an ancient monument, highlighting one of the few structures untouched by globalisation.
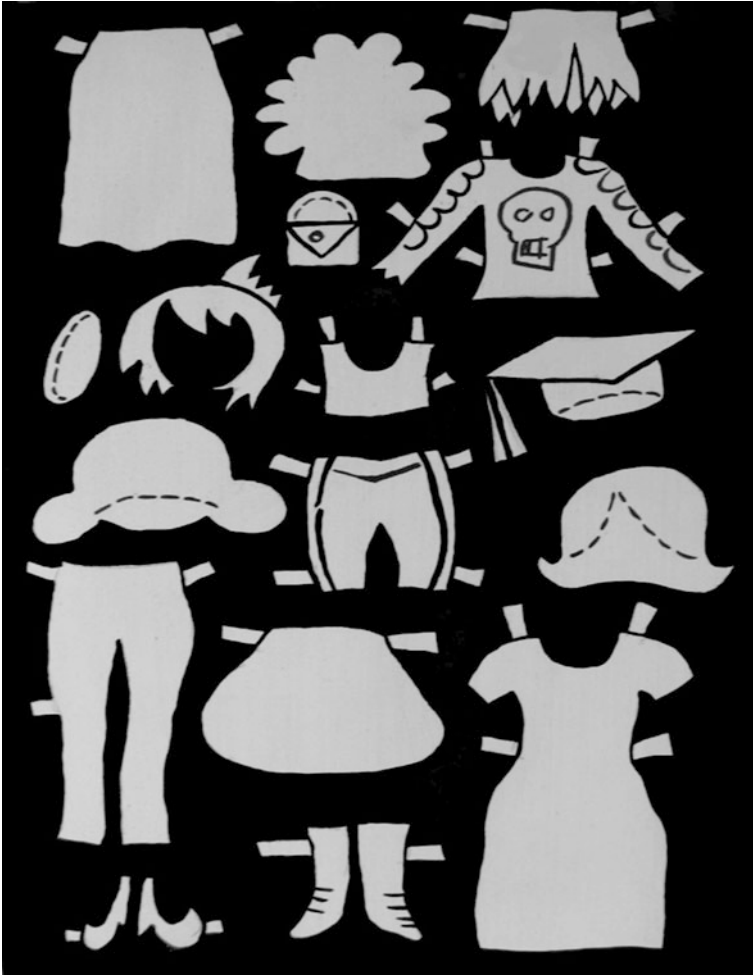
Fig. 7.1 Identity: negotiating multiple roles in the globalised world ∼ academic, housewife, jogger, wife, scholar

In summary, I wanted to gather a group of students together to make some public art, to see if it felt good to them, and whether it made a difference to their sense of engagement with the university and with the globalised world they lived in. Guided by research and indeed my own arts practice, I was aware that art-making, among other creative acts, can generate feelings of well-being in those making it. Mihaly Csikszentmihalyi is perhaps the most well-known exponent of creativity as generator of happiness, and pioneered the concept of 'flow'. In a 1996 interview with a youth magazine journalist, he memorably described 'flow' as, "*Being completely involved in an activity for its own sake. The ego falls away. Time flies. Every action,*

Fig. 7.2 Identity: negotiating multiple roles in the globalised world ∼ on-demand angel
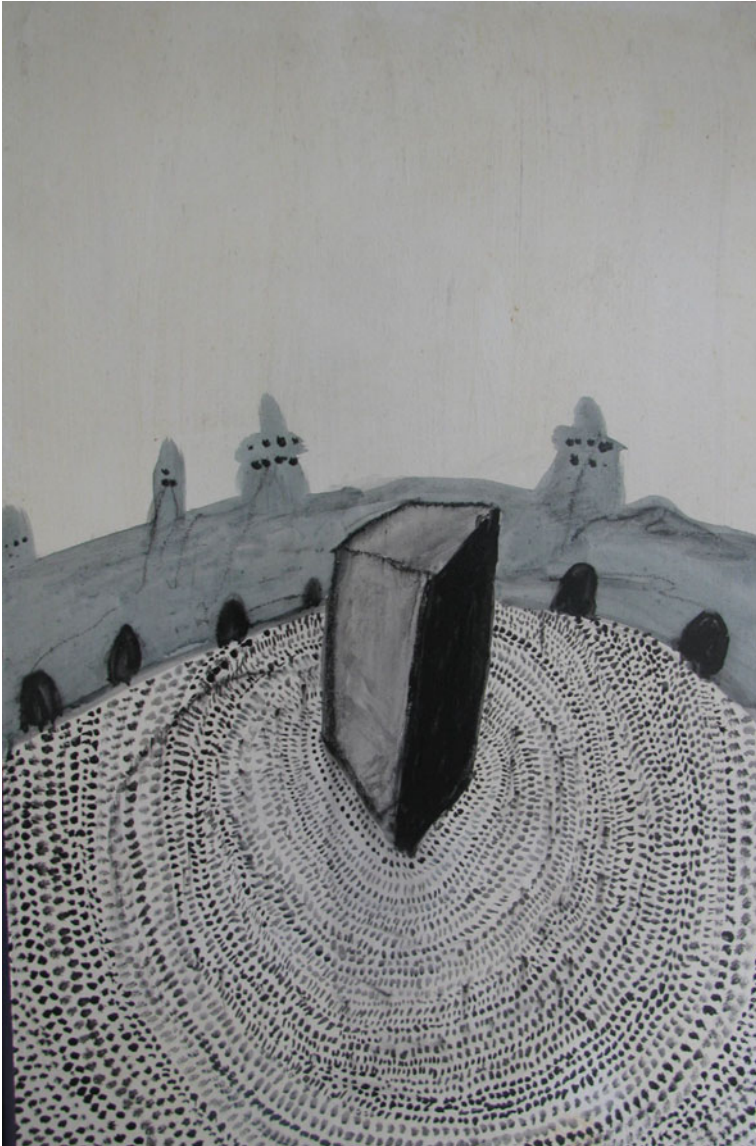
Fig. 7.3 Handmade ancient monuments, standing outside the globalization process

movement, and thought follows inevitably from the previous one, like playing jazz. Your whole being is involved, and you're using your skills to the utmost" (Wired magazine 1996, p. 1).

Csikszentmihalyi understood the experience of flow to be closely connected to feelings of joy and elation; hence, it made sense to him that, "For many people, happiness comes from creating new things and making discoveries. Enhancing

one's creativity may therefore also enhance well-being" (1997, p. 8). While I had no preconceived ideas about how project participants might be affected by the design and painting processes of the project, comments made in their journals over the 2-year period indicate a consistent sense of wellbeing was derived from their hands-on participation in the design and painting of the panels. This seemed to be due to a range of factors, but particularly commented upon were the act of being creative itself, the relief and release this seemed to bring about, and the environmental ambience of the mural space:

> I think it is a great idea to come to this relaxed place with beautiful music. Although it has been a while since I draw or created something, it was very nice to think about it and do it. (Mural participant S)

> Very relaxing and enjoyable. Strange … but I really just enjoy mixing the colour, absolutely enjoy it. And the background music is gorgeous (Mural participant J).

> Getting familiar to the people in our group, two newcomers joined us too. Generally like the atmosphere, very creative and really relaxed…Those aren't the worst circumstances to create some artistic outcomes (Mural participant L).

A fourth working hunch that underpinned the creation of the mural group was the notion of social learning. I reasoned that coming together to create art in a social context would likely amplify the benefits of being creative. There is considerable evidence for this in published accounts and while much of this is oriented toward inducing creativity in workplace teams (e.g. Mendenhall and Hillstrom 2006; Mueller and Cronin 2009), some accounts deal with creativity in tertiary students. For example, Walker (2010) conducted three separate experiments with 106 American college students, aiming to discern whether creative flow was more enjoyable as a solitary or a group action. His results indicated that: "Solitary flow, while quite enjoyable, is not as enjoyable as social flow" (p. 3).

It is important to note that the university mural group members appeared to be drawn to participating in the project largely through intrinsic motivation. There were no physical or monetary rewards or inducements, and the only extrinsic carrot was the rather distant promise of having the finished mural panels mounted somewhere on the campus (a promise which was fulfilled 2 years later). This suggested that motivation for participating in the mural project came from the creative act itself and/or the social learning and participation that the project afforded.

7.3 Background to the Mural Group

The mural group commenced as a cohort of around 20 students after a short promotion around campus on social media and coloured A4 posters. Approval for the project was readily given by the (then) Vice Chancellor, and a modest amount of funding was provided by the Equality and Diversity Unit on campus. This provided for equipment and snacks for the mural sessions.

After around 3 weeks the participant numbers narrowed to around 10 'regular' students plus a floating number of around 10 participants who attended intermittently. Some participants explained that they felt too time-pressured to continue on top of a busy work and study schedule, while others seemed to manage the weekly commitment. On any given week, between five and ten participants could be expected to attend the session, and this number stayed relatively constant throughout the 2-year duration. With some funding made available to the project, I was also able to recruit a professional artist and colleague, Paul, who assisted participants to realise their panel-designs. Together, we provided design advice—on request—and practical applications, such as showing team members how to enlarge and project their images, as well as painting techniques. New participants joined the group from time to time, while others left once they had graduated. Around 40 students in total participated in the mural project, excluding those who only came for one session. The cohort was culturally diverse: from a range of countries including America, China, Malaysia, Saudi Arabia, Turkey, Germany, Chile and Australia. Students from all five faculties were represented as well as the range of academic levels, from 1st year students to PhD students near completion. Participants worked alongside each other in two large rooms of the underground theatre change-room, grandly lit by old-fashioned dressing-room lighting and mirrors.

Common to all the mural participants was an absence of experience in making art, so we first set about the process of 'opening the space' for participants to design an image, following the warm-up exercises. It was essential to keep this phase straightforward and non-threatening to the participants, who were not necessarily confident and certainly not experienced in design. I provided a large box containing hundreds of different postcards, through which participants could rummage, looking for images that triggered ideas. Then I simply asked them to sit down and come up with a little drawing or doodle that expressed what they felt about globalization. If a design had not materialised by the session end, I suggested that the participant go home and play with the image, importantly placing no pressure on them to come up with a realized design. The space that had been provided for the mural panels comprised 17 thick concrete pylons that surrounded a campus lecture theatre on three sides. Each concrete pillar had four sides; hence the mural participants were encouraged to conceptualise and design their work as a four-sided space. The size of the original drawings could be and usually were quite small—again reducing the pressure of producing something 'big'. "Think about what you know or feel about globalization, and then just start doodling", I said to participants. I hoped this would help to minimize any performance anxiety and also develop their intrinsic motivation, as it seemed self-evident that without a strong internal desire to be there, participants would not feel the need to come to the mural group after a day of university classes, and the mural group would not have endured.

As it soon became clear, even by the 2nd week of the group, there was a sense of familiarity and of being part of a bigger project. It also became clear that for most of the participants, the project was collaborative, and at least some of their enjoyment

in it was derived from their social connections with each other. These connections developed as they learned design and painting techniques and worked together toward the final goal of 68 painted panels.

7.4 Methodology

Ethics Approval was granted for the mural project, which allowed me as Chief Investigator to interview student participants and to use their (anonymous) written words and presentational images in my research and for subsequent publications. I distributed participant information and consent forms and once the volunteer students had agreed to take part in the mural project, I gave each participant a ruled, hard-cover journal in which to record their experience of and reflections on the 2 h weekly mural session. I explained to the participants that I was interested in finding out about their experience of globalisation and of being in the mural project; specifically their reflections at the conclusion of each session. To maintain security and privacy, I stored the participant journals in a box between sessions, and redistributed these each week. To my surprise, the participants seemed to enjoy their 10 min of written reflection at the conclusion of each session. Invariably, a deep silence would descend on the group as members recorded their thoughts and feelings on the session.

The content of the participant journals, maintained in some cases over a 2-year period, formed part of the data that is discussed in this chapter. Once the mural project concluded, with the 68 panels mounted on their columns, I set about analysing the journal entries thematically. What emerged from this process was a clear sense of what held the group together over the 2-year period. In summary, this was a strong sense of community and its passionate involvement in the project. These are congruent with Snyder and Wenger's (2010) three main criteria for being a community of practice, that is: domain, community and practice, which are discussed below.

7.5 From Mural Group to Community of Practice (CoP)

How did the students and staff who participated in the mural group become a Community of Practice? According to Snyder and Wenger (2010), there are three dimensions to most Communities of Practice, and this university-based, student-staff group exhibited the three dimensions clearly. The first is the **domain,** which characterises the particular focus of the CoP, or its reason for existing. Given that CoPs are voluntary and self-selecting, a workplace CoP might form in order to develop members' capabilities around a particular skill or knowledge area (Ng and Pemberton 2013), whereas an academic CoP might be formed by researchers interested in sharing research or knowledge on particular topics. Snyder and

Wenger emphasised that a shared passion for the group's central activity is a prerequisite for being a CoP. The mural group CoP seemed to grow around the participants' expressed need to do something creative, and to do it in a community-oriented environment without too much externally imposed pressure.

> There is this part of me which always wanted to express through something more than words (Mural participant P).

> After a long day of work it was really beautiful to come and do some art in this peaceful place (Mural participant R).

The second element that characterises CoPs is the **community**. Snyder and Wenger describe this as, "the quality of the relationships that bind members" (2010, p. 110). From the first week of the mural project, the participants expressed a strong sense of belonging in the mural group, and this was very likely a contributor to their senses of intrinsic motivation. In the participants' weekly journals, there is a frequently mentioned sense of camaraderie and being part of a meaningful project, in which team values prevailed. For example, a participant who had just started a teaching placement commented in her journal, "*I'm locked onto 5 weeks of solid work with no time for myself at night-time because I'll be planning etc. But I thought, No! I'm going to come to mural group tonight. I won't let the team down … It's reassuring to know that this group of people are here for me every week … ☺*" (C, mural participant).

The third key characteristic of CoPs is that they engage in a central *practice* in which ideas, knowledge, stories and information are shared. The practice elements might include "its repertoire of tools, frameworks, methods, and stories—as well as activities related to learning and innovation" (Snyder and Wenger 2010, p. 110). The mural CoP worked with a range of tools, including paintbrushes, paint, paper, pencils and transparencies that projected their images onto the concrete sheet panels. Most of these resources required a little initial training in technique: to mix tonal colours from primary colours, for example; or to magnify and project a small image onto a concrete mural panel. The 'old-timers' often passed on these processes, once acquired by members, to new participants. Lave and Wenger employ the terms 'apprentices' and 'old-timers' in respect of CoPs, and these roles were evident in the mural project.

The process of acquiring the necessary design and painting skills for completing a mural panel was informal; there was no Subject Learning Guide or any particular criteria to be met, although Paul and I would certainly demonstrate how to do things, as needed. However, it seemed that new participants often 'picked up' the skills by watching the 'old-timers', much in the same way that Lave and Wenger (1991) describe the West African Vai and Gola tailor apprentices who learn by observing and practicing in initially peripheral but on-the-job ways, that is, situated in the work environment. Wenger (1999) argued that the CoP community plays the role of a living curriculum for apprentices, and if this was so in the mural group, it may explain the evidently high levels of intrinsic motivation, in which sensory, hands-on experience combined with social engagement was valued over theoretical learning.

7.6   Social Collaboration in the Mural Group

Collaborative endeavors of the participants in designing the images approximated a kind of apprenticeship, although not a traditional one of master and apprentice. Several times I observed 'Old-timer' members approaching new participants to find out whether they wanted to start a new project or work collaboratively on an existing mural theme. Carlile and Jordan (2012, p. 117) argued that, "Social engagement and exploratory talk are important in the generation of creative ideas… Such talk requires rules of discussion and criteria for agreement or challenge".

The self-generated 'rules of conduct' in the mural group allowed for a shared sense of creative generation. While some participants preferred to work on their 'own' designs, most seemed to welcome group participation in the design and painting stages. This worked particularly well in the later stages of the mural, when 'orphan' panels needed to be completed by remaining participants after their original designers had left the university. Panel designs involving more than one person were discussed and negotiated in detail before enlarging and rendering the image onto the concrete panel. Participants often supported each other in working up or executing their designs.

> It was difficult to get going at first. We had many ideas but weren't sure how to go about expressing them. Once we started to just draw we began to put our ideas together [and] we agreed on a more negative take on globalization. It really helped working with someone else as we could play off each others' concepts and finish each others' drawings (Mural participant P).

Lave and Wenger's notion of 'learning in practice' (1991) was evident in the mural space, as the cohort members naturally assumed roles of sharing knowledge with other participants. The 'old-timers' of the group comprised up to ten students who rarely missed sessions over the 2-year duration of the project. These participants often took the role of 'inducting' newcomers into the group, or teaching them the ropes. From observation, this usually did not include artistic advice but did include some of the techniques learned in the mural sessions, such as what primary colours to mix in order to get a dusty pink tone. To give participants a good understanding of how to mix tonal colours (and on my behalf to save money for later topping up mural group paint supplies)—I purchased mostly primary paint colours plus a few extra specialty paints (for example gold, silver and copper colours).

Lave and Wenger identified the phenomenon of legitimate newcomer peripherality in learning situations where the learner, or apprentice, participates in the activity in a way that involves them, "both absorbing and being absorbed in the 'culture of practice'" (1991, p. 95). This could also be observed in the casual conversations that took place between newcomers and 'old-timers', the latter pointing out equipment, demonstrating techniques and generally inducting the new participants in an informal way. Newcomers arrived regularly into the group via word-of-mouth recommendations, so there were a number of opportunities in which to observe the acculturation process that transformed newcomers into legitimate

peripheral participants (Lave and Wenger 1991), and after a while into old hands. Lave and Wenger describe legitimate peripheral participation as, "engagement in social practice that entails learning as an integral constituent" (1991, p. 35). The participants seemed very aware of the learning that took place between newcomers and more established members, and this relationship was viewed positively:

> I've noticed how comfortable all of the old-timers have become and how nurturing of the new ones as well. Our collective creativity and shared experience has really bonded us. Such a relief and a release to be back (Mural participant T)

7.7 The Creative Process

The theme of globalization was the only 'brief' for guiding the panel design; it was a logical choice as globalization is broad enough to be interpreted in multiple ways, is relevant to and affects most people in different ways, and is somewhat contentious (Is globalization mainly a good thing or a bad thing?). To my surprise, the majority of participants took to the design process with apparent ease. I had anticipated struggle, lack of confidence and lack of drawing ability or perceptions of inability to hinder the design stage. However, almost without exception, participants came up with designs either in their first or their second mural sessions. The designs were frequently arrived at collaboratively, as the participants tended to form groups spontaneously and work together for several weeks on developing and realizing images. Participants' comments on their own creative processes in this respect bear some similarities, particularly in reference to the experience of "flow". As noted earlier, the participants were neither visual arts students nor identified as artists, so it is interesting that their unprompted descriptions of the creative process all included the same descriptor: flow.

- "*I like talking while working – it allows the subconscious to flow. Brilliant!*" (Mural participant A).
- "*It's great to watch the first steps of the 'newbies'. They start off so cautiously and then jump into the flow!*" (Mural participant S)
- "*I'm really happy that this creative energy is flowing through me and I can envision my art-work*" (Mural participant T).
- "*We are getting close to exams so it is very useful this session to get distracted and just let ideas, imagination and creativity flow*" (Mural participant P).
- "*Felt really relaxed tonight. Jumped straight into ideas I had been thinking of over the [Easter] break. I just let my pen flow and I really felt like I was releasing something from inside. It felt so good.*" (Mural participant E).
- *Phew! When you release yourself, creativity flows! Such a rush!* (Mural participant V).

It is clear from these comments that participants experienced the creative process in this context as being firstly a very positive phenomenon and second, that it did

not require a tremendous struggle to generate or express their creativity; the process seemed to arise naturally and without strain. Interestingly, when interviewing a broad range of people about their creativity, Csikszentmihalyi also noted the same descriptor was used repeatedly: "What struck me was how often the respondents used the analogy—they called it—it was like being in a flow" (recorded interview with Howard Gardner and Mihali Csikszentmihalyi 2004, 14.45).

Also of interest was the process of socially-generated creativity, as the participants seemed to move smoothly from understanding themselves as creative and seeing their creative practice as collaborative:

> I don't think I can really distinguish where my creativity starts and stops – since it is affected & shaped by the environment, the time, my moods and, most importantly, other people (C, mural participant).

> Creativity is amazing—it holds us so close to our work. The thought of someone taking over my panel—Eek! But the ironic thing is—it's also the teamwork. So community and individualism always seem to play a part in the process (Mural participant D).

> I found it very satisfying to be able to express myself freely. I cannot draw, and my imagination and creativity have long been suppressed, but this project I think will give me the opportunity to finally find inspiration through other peoples' experiences and ideas (Mural participant S).

When UK academic Alison Phipps said, "We are all creative now" (2010, p. 42), she was also commenting wryly on the now-accepted ubiquity of creativity, once considered the domain of geniuses and now considered viable for all, particularly in the context of the so-called 'creative economy'. Acknowledgement of universal creativity is usually considered a positive phenomenon, and current rhetoric in higher education systems worldwide affirms the benefits of creatively enabled graduates. However the structural adjustments that have come with neoliberalisation, "run counter to the known conditions under which creativity flourishes", according to MacLaren (2012, p. 159). Anheier and Isar (2010) also argue that the neoliberal 'creative economy' and its 'creative industries' have, "very little to do with the multi-dimensional complexities of creativity as it unfolds and manifests itself in a multitude of artistic and cultural practices"… Instead they, "masquerade an affinity to the world of artists but with no real evidence of the labour and imagination that go into art-making" (Anheier and Isar 2010, p. 21–22).

While this may be true for some areas of higher education, the operational conditions of the mural group either deliberately or serendipitously enhanced a number of the known or optimal conditions for creativity generation, that is, sufficient time to work on images, absence of surveillance and evaluation, a high level of personal autonomy, and the clear goal of producing a set of four designed and painted panels (Hennessey and Amabile 2010). I also added good food and music to the mix, and the playful elements that comprised the warm-up games (discussed on page 22).

7.8   Facilitation of the Mural Project

Although the participants did not specifically mention leadership or facilitation in their journals, it seemed clear to me that the rather flat structure of the group was one of the factors that contributed to allowing them control of their own creative processes. Although I coordinated the project, and both Paul and I assisted in technical/artistic expertise when requested, the participants were free to make decisions about the subject matter (as long as they conformed in some loose or self-defined way to the brief of 'globalisation'), and about how they envisioned the design of four-panel structure. This seemed to enhance group members' sense of ownership in the space and in their own designs.

> Painting is very liberating when it's for fun, and not for specific recruitments. I am just glad for having this space for myself, and meeting all these people. That makes it a great experience. Very good thoughts crossed my mind while painting, forgot about normal day's problems. (Mural participant M)

> With the relaxing music, drawing without interruption, I hope this class will never finish (Mural participant T)

In the second year of the mural project, my role as facilitator had reduced somewhat as people gained sufficient assurance in their practice to not request or need much assistance; this was because there were generally more 'old-timers' than 'newbies'. Thus, apart from the prompting of warm-up exercises and concluding with journal entries, I found that my leadership had mainly devolved to the rather pleasurable role of sharing decision-making and co-painting with the other participants. Did this arrangement constitute shared leadership, and if so did it change group participation in any way? Hooker and Csikszentmihalyi (2003) argued that a degree of commitment and cohesion must exist between group members before any shared leadership can evolve. This enables a "group psyche" (Hooker and Csikszentmihalyi 2003, p. 219), where the group members experience a greater sense of connectedness and agreement. This then creates enhanced potential for shared leadership within the group. An important corollary of this is the effects of shared leadership on the group, as this "provides the conditions necessary for flow ... and intrinsic motivation at the group level" (Hooker and Csikszentmihalyi 2003, p. 219).

As flow is necessary for creativity, it may also be that the devolved leadership structure of the mural group enhanced the group members' sense of agency and creativity. Indeed, a comment made in one of the participant's journals alludes to the experience of 'group psyche' (Hooker and Csikszentmihalyi 2003) as she experienced it in the design process: "*I think today was very effective and productive. It seemed our group shared and related together more with ideas and thoughts. It was almost as if our minds became one, because we were all interested in our "Fairy-tale" murals*" (Journal entry, participant N).

Shared leadership has been defined as "an emergent team property of mutual influence and shared responsibility among team members, whereby they lead each other toward goal achievement (Wang et al. 2014, p. 181). There was always a clear

understanding in the group that if a participant needed help or advice to finish his or her panel(s), s/he could call on other group members, as well as the facilitator. As participants worked in close physical proximity to each other, requests for help or advice were always handled directly and informally. I came to understand that this shared responsibility, decision-making and social collaboration also helped to reduce the potential stress-factors of finishing panels on time, or producing a piece of finished design for public display. Another element that seemed to facilitate the relaxed informality of the group was the element of play.

7.9 Play, Nourishment, Music

In the 1940s, cultural theorist Johan Huizinga postulated that play was intrinsically important to humans as well as animals, rather than serving particular functions such as a "discharge of superabundant vital energy, by others … the satisfaction of some "imitative instinct", or a "need" for relaxation" (1949, p. 2). Instead, Huizinga asserted that play is … fun. He observed humans and (other) animals in play-states and concluded that the quality of play was irreducible to another function. Instead, "the fun of playing resists all analysis, all logical interpretation… We play and know that we play, so we must be more than merely rational beings, for play is irrational" (1949, pp 3–4).

An important element in the mural group was the creation of a playful and hospitable environment, so each week I brought a basket of food and drinks, as well as an eclectic selection of music (in truth, the kind of music I like dancing to) and a good quality CD or MP3 player. I regularly began the mural session with a warm-up aimed at getting people into a more relaxed open state, one of the preconditions of creative generation according to Csikszentmihalyi (1996) and others. Patrick Bateson (2015), while sensibly acknowledging that, "Having fun is a good reason to be playful" (p. 12), also identifies clear links between playfulness and creativity:

> Play is also about breaking away from established patterns and combining actions or thoughts in new ways. Play is an effective mechanism, therefore, for encouraging creativity since creativity also involves breaking away from established patterns of thought and behaviour. Creative people perceive new relations between thoughts, or things, or forms of expression that would normally seem utterly different. They are able to combine them into new forms, connecting the seemingly unconnected (2015, p. 14).

A typical play activity consisted of loosening up physically by throwing juggling balls to each other: an uncomplicated but focused activity which allowed participants to consciously shake off the embodied tension of a day spent in cognitive concentration. We often followed this activity by a 'follow the leader' style kooky diamond dance, where participants formed themselves into a four-pointed diamond pattern, with each person facing in the same direction. The leader was whoever stood at the diamond point, and he or she would choose a particular movement (e.g. swivelling hips, shaking hands in the air) and dance to the rhythm of the music. Others would follow until the leader changed, by turning to the left or the right. This invariably

invoked screams of laughter as participants 'hammed it up" in the lead position, with others following their moves—producing an overall comical effect.

> The warm-up exercise is always fun. I wouldn't normally dance like an idiot in a group of people, but here it's all fine (Mural participant T).

The effect of this warm-up play activity seemed to be to relax the participants, allowing them to transition into the mural-space in a more energised state. Lemke, in his discussion of academic culture, observes that one of the entrenched characteristics in higher education teaching and learning is the suppression of expressive affect, and the virtual exclusion of playful activity:

> Academic culture … either acquiesces in or has to work against a very long-standing attitude that feeling and emotion is somehow opposed to reason and interferes with it. We also tend to inherit the view that learning is a kind of work, and therefore that it is distinct from and opposed to play. In this view, work should be difficult and tension-producing, while play should be easy, fun, and relaxing (Lemke 2013, p. 72).

Morton (2012) suggested that "many students seek and find a form of legitimate peripheral participation outside of their formal instruction in classes" (p. 109) and it seems likely that the mural group participants, while clearly participating in multiple arenas of activity, found reasons to continue their mural participation because, among other reasons, they learned new and rewarding skills. With a professional and widely exhibited artist in the room, the mural group members were able to use their limited peripheral participation to acquire skills and strategies from the expert, and then to move on to practicing and sharing some of these skills. However, it seemed equally clear that the acquisition of new skills was not the primary driver of motivation to participate in the mural project. In other words, the facilitation of the mural group was also not just about teaching participants how to design & paint, but more about creating an environment in which unrestricted creativity could emerge and flourish. As such, being the lead facilitator of the group, I remained focused on maintaining a convivial and relaxed atmosphere, to optimise the sense of well-being for participants. I often told new group members: "Play!! Have fun!! And have faith! Let go: let your creativity come out". This was derived from my own painting practice, where I found that a relaxed and open frame of mind often resulted in more successful outcomes than an overly outcome-focused mindset.

7.10   Well-Being as an Outcome of the Mural Process

The purpose of most communities of practice (CoPs) is to achieve a goal that is desired by the participants, rather than externally imposed by an external authority. The clear purpose of the mural CoP was to design and paint mural panels for public display, but clearly it would miss much of the project's richness to describe this as the only outcome. Gains in self-confidence, self-esteem and wellbeing seem to stand out. This experience is commented on frequently in participants' journals, in which a sense of 'relief' and 'release' is also mentioned frequently:

> It was the best 15 min for me today. Working on my thesis the whole day kind of makes my brain drained out. Coming to paint gives me some spaces to think of other things. It was a relief (Mural participant).

> I really am stressed out with essays but I have a need to be a part of this, commitment and desire to get the job done (Mural participant S).

> I can say that creativity has allowed me to breathe fully tonight. Great stuff! I was so excited to come back here after another stressful day – a wonderful release! (Mural participant N)

> Today I've draw[n] for my first time. I think it's a beautiful experience because it's very enjoy[able] and funny. When I started to paint I've got fear but [after] I started I'm relaxed (Mural participant T).

> Expressing ourselves also seems to create a very accepting and warm atmosphere. Coming here exhausted but leaving refreshed is a good sign of the positive creativity and healing energy! (Mural participant B)

> I appreciated my time here and the colors of others really brightened my life throughout the winter months. It is nice to feel completion as part of a group. (Mural participant L)

> El arte es el gran transgressor. El arte amplia la realidad. For me has been so liberating to be here (Mural participant S).

7.11   Cultural Diversity in the Mural Group

The need for supporting international students in Australian universities has long been recognised (e.g. Floyd 2015; Baird 2012; Ashton-Hay and Roberts 2012) and one of the many support mechanisms from which international and other culturally diverse students can benefit is by harnessing their interests and/or needs in academic or social communities of practice (Montgomery and McDowell 2009). The mural group, as mentioned earlier, was very culturally diverse, and this was viewed positively by at least some group members, as indicated by journal entries. However, the impacts of cultural diversity on creativity reveals mixed findings in the literature. Harvey (2013) introduces the notion of 'convergent creativity', which is, "a creative process in groups that involves both generating and elaborating new ideas, which are traditionally described as divergent thinking, and the ability and willingness of group members to recognize, appreciate, and therefore build on and combine one another's ideas" (p. 823). She suggests that, "although deep diversity may improve divergent thinking, it can also interfere with a group's ability to engage in convergent creativity; that is, to build on and combine ideas" (p. 823). So—did the culturally diverse mural group benefit creatively from its own diversity? Given the number of other factors that affected the mural group dynamic, it is difficult to say with certainty how its diversity affected creative processes. However, it appears that it did not produce negative effects and is more likely to have been a positive influence, especially if judged by the following two comments from participant journals.

> I think it's a family and a good group and good friendships. It's interesting that everyone of us comes from different cultures; wonderful to have experiences and views of the world It makes you richer, and the murals will be very rich! (Mural participant J).

I can't believe we are finally getting to the end. We are all so excited it's nearly finished. I will miss the different foods brought by S, the multicultural music and everyone in our happy mural family. I love this group. We rock!! (Mural participant P).

7.12 Challenges Faced in the Arts-Based CoP

Despite a mostly positive response form participants, it cannot be said that the mural project was entirely pleasurable and unproblematic. For the student participants, the 2 or 3-h block of time each week added to their significant load of full-time study and (often) part-time employment. I often suspected that for some of the participants, the snacks provided in the mural sessions constituted dinner, knowing they would return home late from mural sessions.

Similarly, I undertook the project as an unpaid volunteer working outside of my full-time employment hours (and PhD study hours); at times the many hours of attendance at mural sessions plus associated project administration felt like a significant burden, from which there was no escape. The workload factor has implications also for future arts projects in higher education, particularly in times of economic austerity, and when arts funding is ever more thinly spread. On the other hand, with growing competition among Australian universities and intense interest in strategies for retaining students, the creative CoP might begin to look like an attractive proposition to university funding bodies.

7.13 Discussion

The mural project provided an unusually long experience of working on a voluntary arts project with student volunteers who, by their very adherence to the project, demonstrated that the social and creative processes of designing and painting the panels were both meaningful and positive for them. Communities of practice have long existed in higher education, and academic communities of practice have been examined extensively in the literature, (e.g. Churchman and Stehlik 2007; Ng and Pemberton 2013; James 2007; Nistor et al. 2015). According to Ng and Pemberton, an academic CoP, "has the potential to play a critical role in the development of research, as it represents the social structures that focus on knowledge and explicitly enable the management of knowledge to be placed in the hands of practitioners" (2013, p. 1526).

The mural project was explicitly constituted as an arts-focused, rather than an academically-focused group, so that it could provide a more holistic experience for the students who participated, during the course of their academic studies. Nevertheless, like more academically-oriented CoPs, it worked to place management of mural-making knowledge "in the hands of practitioners" (Ng and Pemberton 2013, p. 1526). It seems likely that on the basis of many of the journal

entries made by participants, the experience of being in the mural group extended their expressive capabilities.

Arts-focused CoPs may also be a valuable way of supporting transition or otherwise marginalised student groups into the university, and helping them to remain engaged. Penn-Edwards and Donnison (2014) acknowledge that in a student's first year of higher education it is critical that both the institution *and* the community provide support, including "shared practices and resources" (p. 32) to the transitioning student, or else risk disaffectedness and possibly attrition. Higher education CoPs that comprise civic and social non-education community members are rare but should be encouraged, so that first-year students feel more supported both socially as well as academically, and as a result are more likely to continue their university studies (Penn-Edwards and Donnison 2014). The mural CoP was not specific to first-year students but a number of the participants were in their first year at university. In the case of the participant comments below, it is clear that for these students, the social bonding facilitated by the mural CoP allowed for an enriched university experience:

> Being involved in mural group during my first and only year at [X University] gave me a taste of how rich a life you can live whilst studying at university. In the past, I have found it difficult to make new friends through my course of study - as lectures and workshops are not the ideal place/time for chatting socially

> I really think that this mural project has transformed how I see the university. Without it, I would have missed a way to express myself and a way to meet others. Those images would never have existed. People would have never been encouraged or empowered (Mural participant T).

Apart from the effects of cultural diversity on the group, and the sustained levels of interpersonal contact throughout the 2 years, it seems likely that acts of creativity in the mural project were in themselves also beneficial for participants. Creative choices presented at each stage of the process, including the design of images that embodied their perceptions of globalisation; deciding on colour schemes for the images, and linking the 1st, 2nd, 3rd and 4th images that comprised a four-part column. Friedman (2014) concurs that creative work can bring powerful rewards, arguing that, "the creative process creates opportunities for intense activity and accomplishment, can open people to inner depths and to powerful connections with artistic colleagues and cultures, and can provide a sense of transcendent meaning" (p. 39).

As universities transform themselves into digitally-focused corporate-style entities with ever-diminishing face-to-face contact between staff and students, the community of practice has potentially many riches to offer students and staff, not the least being social connection and learning. Similarly, while a mural-making group is not for everyone, it is now more widely acknowledged that creative work, including art-making, has the potential to heal and transform personal afflictions (McNiff 2007) as well as generating wellbeing. Indeed, de Botton and Armstrong (2013) propose that, "art is a therapeutic medium that can help guide, exhort and console its viewers, enabling them to become better versions of themselves" (p. 5).

Despite the inexorable imposition of neoliberal values into higher education, there has also been a parallel if gradual acceptance of alternative research methodologies, including arts-based research (Weber 2014), into higher education. In 2011, Prosser commented that, "A striking phenomenon of visual research a decade ago was its apparent invisibility" (p. 479). This is starkly illustrated by a simple Google Scholar search using the search term "arts-based research". Using date parameters "1970–2000" (i.e. 30 years), the search returned 1, 480 hits. By comparison, using the same search-term but setting the date at "Since 2011" (i.e. 5 years), a total of 8910 hits were returned. This significant surge of interest in visual and other arts-based research is a welcome addition to traditional research methodologies, particularly given its ability to transcend cultural barriers (Vicars and Senior 2013). Arts-based research can add depth and richness to the epistemological array, in a time when academic freedom is under threat and imaginative thinking has been constrained (Beresin et al. 2015).

Yet, despite growing acceptance of arts-based research, creativity in academia remains a troubled discourse, to the degree that, according to MacLaren (2012), "the term 'creativity' now has so much baggage its use in academia is, or at least should be, problematic" (p. 160). With the increasing constraints brought about by decreased funding to higher education in Australia, including curricular standardization, continuous high-stakes testing, and surveillance, university staff are expected to do more with less. Similarly, students are obliged to become more and more resourceful about managing their own learning, including decreased personal contact with university teaching staff. The university-based community of practice cannot resolve these complex issues, but it can provide a sustainable and enjoyable means of learning together. Further, an arts-based CoP has the potential to augment these benefits, adding the satisfaction of creative work to a socially-infused practice.

7.14   Setting Up an Arts-Focused University-Based CoP

While the benefits of an arts-focused CoP have been enumerated in this paper, the mechanics of setting up and maintaining one require further elaboration. The following tips and strategies may be of assistance to those wishing to set up their own arts-based CoP.

- **A Sense of Purpose**
  The university CoP had a clear aim of designing and painting a set of concrete panels that would be mounted for public display on columns in a central location of the university campus. Additionally, the mural theme of globalization was readily embraced by participants, who could visually interpret this in an almost infinite number of ways.

- **Selling the Idea**
  Once approval was given by the Vice Chancellor, there was no difficulty in obtaining a work-space, as well as a location for displaying the finished panels.

On a more speculative note, it is likely that the Vice Chancellor saw the project as 'win-win', in that it was inexpensive (being facilitated by volunteers and a small university grant) and likely to increase retention and engagement in participants. There was also the possibility of an artistic 'deliverable' that could make the university look good.

- **Some Expertise in the Room**
  This project had the good fortune to be able to employ a professional artist for the project, as well as my own (more modest) experience as a visual artist. However, basic knowledge of painting techniques would suffice, given that the participants had very limited experience of drawing and painting initially. While they clearly appreciated the professional assistance provided to them, the techniques for mixing paints, applying paint to the panels and using a projector to enlarge and transfer designs are easily learned and reproduced. Additionally, because there was no expectation that the participants should be 'expert' artists, the goal of designing and painting mural-panels was made low-stakes and achievable.

- **Maintaining Enthusiasm and Engagement**
  Enthusiasm and engagement were generated by the techniques and practices discussed in the paper: a shared, enjoyable practice with clear aims, playful conviviality in carrying out the work, and the act of being creative, either individually or as part of a group.
  The university-based mural project provided a space for the student participants to open up their creative channels and to connect with each other, learning the ropes of mural production that culminated in a seventeen-column public exhibition of 68 panels. Their regularly maintained journals indicate a consistent level of positivity about the project, and a thematic analysis of these journal entries indicates that the pleasure and satisfaction was derived both from their enjoyment in the social collaboration and contact, as well as the creative activity itself. However, with only a modest funding arrangement that did not encompass any payment for the facilitator (myself), and only a small amount for the professional artist, it could be said that the mural project was more a labour of love than an adequately-funded university project. In light of decreased funding to the arts in Australia, and diminishing university budgets in most Australian universities, the establishment of an arts-based CoP is likely to be risky, and hampered by minimal funds. As such, the notion of a sustainable arts-focused CoP may be implausible if economics is the only metric. Yet, the mural CoP sustained itself by the strength of its community and the creative painting practice. That so many of the participants experienced (and wrote about) the pleasurable phenomenon of 'flow' during the mural sessions is perhaps a testimony to the power of art and community to engender wellbeing.

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Part II
Communities of Practice—Curriculum Development

The chapters in this section illustrate the application of CoP in curriculum development.

Chapter 8 "Enabling stories: Narrative, leadership, learning and identity in a faculty-based teaching community of practice" by Green et al. explores the potential of CoPs in universities to foster academic identity and social learning through a critical, reflective account of a faculty-based Teaching CoP (T-CoP).

Chapter 9 "Choosing change: Using a community of practice model to support curriculum reform and improve teaching quality in the first year" by Heath and Leiman describes the authors' experience of facilitating a CoP with teachers of first-year law students as a change management strategy.

Chapter 10 "Communities of Practice: a practical approach to enhance student learning at a South African university" by Dukhan describes establishment of a CoP at a South African university to communicate academic performance improvement strategies and discuss the alignment of the curriculum across the schools.

Chapter 11 "A facilitated Community of Practice: enabling student success in the blended learning environment" by Power and Armstrong explains the implementation, facilitation and experiences of a CoP; video-based Peer Assisted Study Sessions (vPASS), which utilized recorded lectures and collaborative learning methodologies for at-risk undergraduate students.

Chapter 12 "A Community of Practice for Blended Science and Engineering Learning and Teaching at UniSA" by Moulton et al. outlines a pilot project to encourage Blending and Flipping of classes at UniSA by the implementation of a formal CoP of academic and professional staff, in science and engineering.

Chapter 13 "Sustainability Focused CoP: enabling transformative education" by Ashford et al. describes a CoP at the University of the Sunshine Coast with the aim of enhancing the incorporation of sustainability content in several disciplines.

Chapter 8
Enabling Stories: Narrative, Leadership, Learning and Identity in a Faculty-Based Teaching Community of Practice

Wendy Green, Aaron Ruutz, Luke Houghton and Raymond Hibbins

Abstract This chapter explores the potential of communities of practice (CoPs) in universities to foster academic identity and social learning through a critical, reflective account of a faculty-based teaching community of practice (T-CoP). This 'T-CoP' is situated in a multi-disciplinary, multi-campus business faculty in a large Australian university. Our chapter begins by situating the T-CoP within its disciplinary, faculty, institutional and national contexts, and explaining how and why we intentionally designed it in order to foster inclusion and shared ownership. Key findings from our ongoing critical participatory action research project conducted in, and with the T-CoP are interrogated in order to address the following three questions. Firstly, how can we develop leaders, and a practice of distributed leadership, appropriate to the work of CoPs in universities? Secondly, how might CoPs in universities counter the still dominant traditional paradigm of 'professional development' as acquisition, and encourage their members to move towards more transformational approaches to professional learning? Thirdly, how do we negotiate the tensions between the need for a CoP to develop its own distinctive identity as a

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community and domain of practice and yet remain open and accessible to new members?

8.1   Introduction

> I find it helpful more than anything just to know that you're not alone. That's the number one value to me of our teaching community of practice [T-CoP]; the problems that I am experiencing are also problems being experienced by other lecturers. In the CoP we just discuss and work our way through our issues. You pick up the simplest of ideas… But I've also learnt to think differently about my teaching. People aren't afraid to discuss things. At staff meetings… [new lecturers] just sit there and shut up because they feel they are junior, whereas at the T-COP everyone really is on an equal playing field, which is good, a really good thing. There was even an issue I could talk to the Dean [Learning and Teaching] about because she attends the meetings. And, as I've become more involved in the CoP, I've drawn more on the expertise of the more experienced members. So, for younger staff particularly, I think the T-CoP is a form of professional and personal development.

These words were spoken by a young lecturer—let's call him Frank[1]—as he reflected on his experience as a member of a faculty-based community of practice (CoP). Frank's reflective account of his experience was collected as part of a critical participatory action research project, which we conducted in, and with this CoP. In this chapter, we will return to Frank's story, as well of those of others in the same CoP, in order to explore the themes hinted at in his opening words: the social construction of knowledge, identity, agency and shared, or distributed leadership within a CoP, and the critical role of narrative in all of these processes.

Our chapter begins by describing the CoP, and situating it within its disciplinary, faculty, institutional and national contexts. After considering the particular challenges CoPs in universities face we elaborate on how and why we *intentionally* designed a CoP in our context, to address these challenges, rather than relying on the kind of "spontaneous, self-organizing and fluid processes" sometimes associated with CoP practice (Roberts 2006, p. 630). Next we explain our methodological approach, by linking Lave and Wenger's (1991) and later, Wenger's (e.g. 1998) work on the negotiated process of identity- and knowledge-making in CoPs to our chosen methodology: narrative inquiry. Through this theoretical/methodological lens, we interrogate our data in order to address three key questions, namely:

1. How can we develop leaders, and a practice of distributed leadership, appropriate to the work of CoPs in universities?
2. How might CoPs in universities counter the still dominant traditional paradigm of 'professional development' as acquisition, and encourage their

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[1]To protect privacy and ensure confidentiality, all names used in this chapter are pseudonyms.

members to move towards more transformational approaches to professional learning?

3. How do we negotiate the tensions between the need for a CoP to develop its own distinctive identity as a community and domain of practice and yet remain open and accessible to new members?

8.2 Context and History

Now entering its eighth year, the CoP discussed in this chapter has always focused on teaching and the scholarship of teaching and learning (SoTL), rather than 'pure research'. Hence, its first members affectionately dubbed it the 'T-CoP', and the name stuck, as will be apparent from the fragments of members' narratives, which appear throughout this chapter. As previously explained (Green and Ruutz 2008), the T-CoP came into being in the aftermath of a painful process of 're-structuring', whereby a number of disparate and autonomous departments were amalgamated into one organisational entity, and countless staff had to reassess their disciplinary identities, allegiances and ways of working. All four authors of this chapter were active participants in the development of the T-CoP. Two of us remain active members; the third and fourth have moved to other institutions where they continue their commitment to developing CoPs in their new context.

Initially proposed by the members of the faculty's Learning and Teaching Development Unit (LTDU), and supported by a one-off University Grant, the T-CoP aimed to build a safe, authentic learning environment, in which *all* teaching staff (sessionals and permanent) within the faculty could learn to teach better by sharing and developing their teaching practices. In the context of significant organisational change, a small group in the newly reformed faculty were inspired by the idea of a CoP that would be consciously nurtured by their members, because they valued it as a vital source of ongoing professional development. Consistent with Lave and Wenger's (1991) definition of 'communities of practice', the T-CoP began with, and has maintained a commitment to building community, sharing practice and constructing domain knowledge (about teaching in higher education, particularly in the business disciplines). With Lave and Wenger (1991), we came to understand that learning (at work) occurs when meaning is shared, contested, negotiated and developed by people in social contexts. In the following section, we tell the story of the birth and development of the T-CoP, beginning with its national and institutional and disciplinary context.

8.2.1 National, Institutional and Disciplinary Context

The T-CoP is situated in a multi-disciplinary, multi-campus business faculty, in a large Australian university. The university itself introduced policy to support CoPs

approximately a year before we began to think about forming a CoP within the faculty. Over time, institutional support for CoPs has waxed and waned, until recently when university-wide support has become more consolidated, in tandem with support for SoTL; as a result, there are more details about CoPs on the university's website and dedicated professional development staff assist CoPs in developing innovative SoTL activities and grant applications. With some assurance of survival, several CoPs in the University have emerged and it is now not uncommon for academics to be a member of more than one of these.

In spite of this increased support, material assistance—for example, for administrative assistance, or recognition and reward for CoP facilitation or membership—is still not universally available to CoPs across the university. Hence CoPs, including ours, typically rely on support from their members' immediate supervisors, or faculty leadership, and as a result, continue to worry about the survival of their CoPs if/when their source of support moves on. More broadly, developing CoPs in universities presents considerable challenges (McDonald and Star 2008; Nagy and Burch 2009). Within our national context, significant decreases in public funding for higher education have meant that Australian universities are becoming increasingly commercialized, particularly in relation to teaching. Successive Australian governments, like others world-wide "manage the politics of education … on business, and learning as a consumer commodity provided in competitive markets" (Marginson 2010, p. 15). Economic rationalization (Schapper and Mayson 2004) has gone hand in hand with massification (the rapid growth of student enrolments, both domestic and international), the rapid institutionalization of online teaching and the heavy reliance on casual teaching staff. At the same time, the increasing importance of global rankings, which position research output as a key marker of institutional excellence, means that individual academics more than ever, must 'publish or perish'.

It can be argued that business faculties have borne the brunt of these changes in the Australian context. Because business degrees allow for larger classes and do not require expensive facilities they are relatively cheap to deliver. Hence, "many Australian universities now regard their business faculties as cash cows to be milked of money to subsidise other parts of the university" (Hughes 2005).

In this highly competitive, rapidly changing context, where many academics feel under-prepared, under-skilled for their teaching role (Green and Whitsed 2013), CoPs can provide opportunities for meaningful, situated professional development (Green et al. 2013; McDonald and Star 2006, 2008; Warhurst 2008). Although the value of CoPs is apparent in the literature and to some extent, in university policy (McDonald et al. 2012), universities have largely failed to understand what institutional support is required to build sustainable CoPs. Aside from relatively small amounts of funding for administrative support, CoPs require time from "time poor" academics (Houghton et al. 2015), who are already struggling with high teaching workloads, and increasing expectations for research output. University managers are unlikely to provide the material support necessary to develop and sustain CoPs unless they are convinced of their efficacy.

Other barriers may reside in our own academic values and work practices. In academe, the ideal of collegiality develops paradoxically in a culture "infamous for

fragmentation, isolation, and individualism" (Palmer in Cox 2006, p. 94). Moreover, the "current 'rules of the academic game'" can function to exclude some groups, such as women (Churchman 2005, p. 15), or casual staff from the collegiality. Thus the idea of 'community' is viewed with suspicion. One of the most significant challenges however for university CoPs is to develop their own informal and distributed approaches to leadership (McDonald et al. 2012) within the quasi-corporate, competitive enterprises that many universities have become (Churchman and King 2009, p. 509).

From the outset, we were aware of these challenges. As we explain in the following, we set out to *design* a CoP that could address the specific challenges of teaching within our particular faculty, as well as those discussed in the CoP literature. In conceptualising our approach as one of design however, we were mindful of the tensions this word suggests in relation to CoPs. There is an "inherent uncertainty between design and its realization in practice, since practice is not the result of design but rather a response to it" (Wenger 1998, p. 233). In a faculty context where everything is typically "counted"—teaching hours, articles published, quality and impact rankings, et cetera—(Nagy and Burch 2009), we did not want to signal that the CoP would be more of the same. We needed to be flexible and open to "the surprises, divergence and conviviality" (Cousin and Deepwell 2005, p. 60) necessary for the development of a CoP. Ultimately, after many discussions during our planning phase, we came to understand, with Wenger (1998), that although learning within CoPs cannot be designed, or predicted in advance, but it can, and should be *designed for* (Green and Ruutz 2008). In the following, we explain how and why we planned for an on-going, open and evolving community in order to address the specific challenges of teaching within our specific context.

8.2.2 From Idea to Reality

Planning began when a member of the LTDU invited academics and sessional staff from each department within the faculty to a meeting to discuss the possibility of a faculty-based CoP. Care was taken, at this early stage, over the decision about who would be invited to these initial discussions. Including champions—those known to be committed to practising and leading good teaching in the faculty—was important, but just as critical was the need to include perspectives that were broadly representative of the wider faculty membership in terms of seniority, discipline, gender, and cultural-linguistic backgrounds. In the longer term, this strategy proved useful, because each member of the planning group was able to draw their peers into the T-CoP. This initially disparate band of colleagues, which, as we will explain shortly, coalesced into the T-CoP's 'core group' of 16 members. Spent approximately 3 months discussing, debating—and very importantly—imagining how it would function and the key values that would underpin it. In addition, some of this group met separately to discuss CoP theory, its seminal texts and more recent

critiques. However, all decisions about the T-CoP at this stage were made by consensus within the larger core group. (Hence 'we' in this section of the chapter refers to this group).

When planning the CoP, one key question concerned us: How could we develop and sustain an *inclusive* CoP? How could we construct 'a learning architecture' which would invite and support "rich forms of learning" (Cousin and Deepwell 2005, p.63), while accommodating the differing needs and commitments of potential members throughout the academic year? With membership being sought broadly from across the faculty, from tenured full-time, part-time, contract, to sessional, and from senior Professor to junior Tutor, we imagined a range of 'pathways'—both physical and virtual—which would enable staff to determine how they engaged at any given time, given their role and needs. Initially designed as one of the key aims of membership growth, the recruitment strategy continued longer term. Physical pathways into the T-CoP took the form of monthly face-to-face (F2F) semi-structured meetings, beginning with a member's presentation of good practice, followed by discussion. These meetings have continued, but over time, other F2F connections have developed, as members have voluntarily sought opportunities for peer review of teaching, informal smaller work groups, mentoring and collaboration on SoTL projects.

The 'virtual pathways'—initially offered via a website designed for the T-CoP by a community member, later via variously social networking tools—are another story (Houghton et al. 2015). We planned to support online engagement from the beginning, with one member volunteering to take primary responsibility for developing a website customized to meet community needs, and working in collaboration with the University's flexible learning services, and others in the T-CoP who volunteered their time. Despite numerous efforts by some T-CoP members since then to engage colleagues in T-CoP activities online through various platforms, little online activity has occurred.

Following Wenger, McDermott and Snyder (2002), we also envisaged four different modes of engagement, or roles for T-CoP members. Initially, the core group debated and developed shared understandings of each of these roles, as follows.

8.2.2.1 The Sponsor

In seeking the involvement of the Dean, Learning and Teaching (L and T) as our *sponsor* we distinguished between the roles of "champions" and "sponsors" (Wenger 1998)—the former, we hoped, would be active faculty members of the T-CoP, while the latter provide funding, support and legitimacy, without setting the agenda (Green and Ruutz 2008). The Dean's sponsorship has provided the T-CoP with small funds, visibility and legitimacy—all necessary gifts for a CoP that was, and is a bottom up initiative. Importantly, she has recognized and rewarded the work of the facilitator, initially through teaching relief, more recently through additional research/conference funding.

8.2.2.2 Facilitator and Core Group

The function of the *core group* during the planning stage was to establish a shared set of T-CoP values, guide community development, identify the first topics to be addressed by the community, and to advise on the development the T-CoP website. Knowing that stressed, time-poor academics (McDonald and Star 2006) were unlikely to develop and sustain the T-CoP without leadership, we spent some time discussing the kind of leadership required. We decided the T-CoP would be facilitated by new T-CoP member academics.

8.2.2.3 Active Members

We imagined *active* membership as an in-between space, a place to consider entry to the core group, and the facilitator's role, or as an exit point for 'retiring' facilitators/core group members. We saw that easy movement between these spaces was critical—especially for active/core members who needed to know that their commitment would not be interminable!

8.2.2.4 Peripheral Members

We anticipated involvement of members at the *periphery*, and our *critical* reading of Lave and Wenger's concept of "legitimate peripheral participation" (LPP) initially informed our approach to engaging them. LPP constructs peripheral members as "newcomers" to a community as learners on a trajectory toward full participation, as they both absorb and are absorbed in the "talk" of the "old-timers" (those experienced in the ways of working in the community). LPP presumes there will be a graduated re-negotiation of relationships between newcomers and old timers. As we argue in previous publications (Green et al. 2013; Green and Ruutz 2008) however, such a process is unlikely to occur 'naturally' in modern, complex workplaces such as universities, where no one has the monopoly of expertise.

8.2.3 The T-CoP's Evolution

Over time, the T-CoP has evolved. The *core group*, as a formal, bounded entity dissipated as some members moved to other universities, others got too busy, and none were replaced. While this development has seemed unproblematic to date, reflecting on it now, in view of our findings in this study, has underscored the important role the core group originally played in recruiting new members and maintaining their active input. One development, which has already commanded the attention of the T-CoP, is the widening gulf between the *active members* and the *periphery*. While the T-CoP continues to recruit new members, too often

newcomers engage once, never to return. Perhaps the T-CoP needs to revive the active recruitment functions of the core group. Another problem, recognized by some T-CoP members is the lack of virtual engagement from all but a few, despite the expectations and the efforts of those few over the years. However one role has remained constant: the rotating facilitator. In narrative interviews (discussed later in the chapter), T-CoP members stressed the value of the community's democratic spirit, its intentionally flat rather than a hierarchical structure, and the way this has been fostered by its successive facilitators. During our time as T-CoP members we, the authors of this chapter, have been amazed by the growth of the T-CoP and the transformation of many of its members—for example, Frank, who we have already introduced—and utterly bemused by the way some of our expectations have been dashed.

The gaps between our early expectations and the reality of the T-CoP as it has evolved over time, prompted us to undertake an explorative study of, and with the T-CoP. Although questionnaires, designed by and for community members to gauge satisfaction with particular activities and seek input regarding future events, are collected at the end of each T-CoP meeting or event, many members believed that participation in in-depth, semi-structured interviews would provide opportunities to reflect more deeply on the community's impact.

8.3 The Study

Our study can broadly be described as critical participatory action research (CPAR), in that it involved direct participation of community members in a dynamic research process that was intended to benefit practitioners beyond the site of the original research (Kemmis 2007).

Given that narrative is integral to the work of CoPs (Lave and Wenger 1991) it seemed appropriate to collect and analyse our data in the form of members' stories. Stories are the means by which individual members both absorb and become absorbed in the culture of practice. "For newcomers, the purpose is not to learn *from* talk as a substitute for participation; it is to learn *to* talk as the key to legitimate peripheral participation" (Lave and Wenger 1991, pp. 95, 109). Hence, we saw the "narrative interview" (Riessman 2008) as an apt way to capture and facilitate reflective practice, in ways that make implicit aspects of learning about teaching visible for interrogation and analysis.

The research team invited participation from T-CoP members who were selected purposely to represent T-CoP membership in terms of discipline, campus locale, gender, ethnicity, type and level of appointment, and length of time in the T-CoP. A total of 15 members participated; each one was invited to tell their own story about their experience of, and in the community in individual, in-depth, loosely structured interviews, which lasted between 60 and 90 min. Prompted by their interviewer, each interviewee reflected on the community's impact—on themselves, their students, their T-CoP colleagues, and the whole faculty. Each author

conducted roughly equal numbers of these interviews, including one interview with another member of the research team.

Interviews were recorded, transcribed, and then analysed, first by each researcher separately and then again collaboratively. Analysis was inductive and iterative; we moved recursively, back and forth between the transcripts, the literature, and emerging themes until consensus about the "best fit" was achieved (Polkinghorne 1995, p. 12). All interviewees were invited to give feedback on the emerging analysis.

Initially reading "horizontally", "across" the stories (Creswell 2007) in order to analyse common patterns in the stories, we produced some important insights into continual professional learning and practice architectures, transforming teaching and academic identity, working with new ideas, and associated implications for learning technologies, including online, in CoPs (Green et al. 2013; Houghton et al. 2015). In writing this chapter, we returned to the data and conducted a fresh analysis in order to address some remaining questions. This time, we were interested not only in exploring what was said—the themes that stand out, explicitly begging attention—but what wasn't said, what was left underdeveloped or even silenced. Taking Althusser's (1968) approach of "reading against the grain", or reading "symptomatically", we were particularly alert to what might be exposed if we reread the chapters in conjunction with an analysis of the context (Lee and Poynton 2000) in which universities operate. In another departure from our previous approach to the data, we have focused on particular stories in more depth. Whereas we'd previously read "across" the stories (Creswell 2007) in order to emphasise narrative patterns this chapter provoked a second, close "vertical" reading of individual narratives, chosen for their explanatory power (Creswell 2007). In deciding which stories to re-present here we were guided by Flyvbjerg's (2001) modes of "information-oriented sampling"; that is, generally one narrative—such as Frank's—was chosen for closer analysis because it is typical of many in the study in regard to one or more themes, while occasionally, another—like Malcolm's, which we consider in relation to our first question—was chosen because it was a "paradigmatic" case, in other words, an exemplar from which guidelines for good practice can be drawn. In all, six members narratives are included as the sample in this chapter. We now turn to address the three questions that motivated our re-analysis of the narratives.

8.3.1 How Can We Develop Leaders, and a Practice of Distributed Leadership, Appropriate to the Work of CoPs in Universities?

One omission that struck us as curious when we returned to the data was the word 'leadership'. With the exception of Malcolm, our interviewees were remarkably silent about leadership, or any related term, such as management, facilitation,

coordination, et cetera. Considering recent research (Fallah 2011; McDonald et al. 2012; McDonald and Palani 2011), which suggests leadership is critical to the survival of CoPs, its absence in our study begs further inquiry. In the following, we reconsider firstly the recent research on CoP leadership, and leadership in universities more broadly. Secondly, we examine Malcolm's explicit, and quite expansive reflection on his own leadership role, and on leadership in the T-CoP, in order thirdly, to analyse the complex nature of leadership within university CoPs.

8.3.1.1 Leadership and (University) Communities of Practice: An Inherent Contradiction?

Lave and Wenger (1991) construe a community of practice not as an entity to be led, but as a process in which learning is 'distributed' (p. 98) among the CoP members. Situated learning (in CoPs) differs from instruction in that the former cannot be led, designed or managed. Burch et al. (2012, p. 8) review of four early seminal texts on CoPs confirms that they make "no claims concerning how CoPs might … be led, managed or facilitated". Yet, Wenger's later writing is contradictory: he continues to stress the essential informality, pervasiveness and self-management of CoPs (Wenger 1998), while arguing that CoPs must be "cultivated" by managers (Wenger et al. 2002).

Wenger and colleagues' later work presents us with a "paradox" (Fallah 2011, p. 359): how can a CoP be both an informal, spontaneous process and an entity that requires the management support and leadership that is highly invisible, and visible "as appropriate"? In 2006, Wenger addressed question this by proposing that an alternative ontology of leadership within CoPs—leadership as "stewardship"— needs to be developed. With Fallah (2011) and Burch et al. (2012), we see the concept of 'distributed leadership' as theoretically promising for CoP research because it construes leadership as an emergent practice of multiple people (Spillane 2006), not the "mythological heroic" construction within 'top-down' notions of leadership (Fallah 2011).

Significantly, the concept of distributed leadership has also been taken up within higher education leadership research more broadly, as a means of conceptualising a form of leadership appropriate to the unique environment of educational institutions. Universities in particular aim to foster creative, innovative and collaborative thinking, yet collaboration is hindered by historically rooted divisions; for example, between academics, whose primary loyalty, identity and authority is tied to their discipline, rather than the university, and professional staff, whose source of authority and purpose is based on their role within their university. These divisions have become more complex over time, with the emergence of a "third space" in which less "bounded professionals work alongside academics" (Whitchurch 2008, p. 1)—as well as sessional academic staff—to improve teaching and curriculum design.

In their review of the literature on distributed leadership in educational institutions, Bennet et al. (2003) found the following common elements: leadership emerges as an asset of the community; the boundaries of leadership practice are open and fluid; and different kinds of expertise are spread across several people. Although these essential elements resonate with Lave and Wenger's understanding of situated learning through CoPs as an emergent and shared social practice, many authors caution against an uncritical adoption of distributed leadership in universities. As Gosling et al. (2009, p. 305) argue, "because [distributed leadership] so immediately … 'makes sense' … it may also distract from some underlying difficulties—the *realpolitik* by which power goes to those who control budgets". In reality, leadership in universities develops as a mix of formal and informal approaches, where distributed leadership, at its best, both supports and is supported by formal leadership positions (Gosling et al. 2009; Jones et al. 2012). For CoP leadership, this means balancing the need for ongoing institutional support against the ability of CoP membership to determine their own agenda—a challenging task, requiring skills not normally associated with disciplinary academics (Green and Ruutz 2008; McDonald and Star 2008).

There is a danger that current interest in distributed leadership "idealises the notion and glosses over what people actually do when leading" (Gosling et al. 2009, p. 300)—and we would add, how they actually think about leadership. Many academics confuse leadership with management, which is seen to undercut traditional values of 'collegiality, autonomy and freedom based on individual achievement' (Flavell et al. 2008, p. 26). In a context of increasing managerialism (Jones et al. 2012), and decreasing capacity for academics within disciplinary units to influence upwards (Bolden et al. 2008), many academics see irreconcilable tensions between their role and identity as disciplinary scholar and that of management. Hence, becoming a leader—even an active participant in distributed leadership—in higher education "is an identity project in itself" (Gosling et al. 2009, p. 304), involving a conflict of social identities (Haslam 2004).

Since the T-CoP's inception, there has never been any explicit discussion about leadership. The difficulties of reconciling one's academic identity with any notion of leadership may explain the original core group's preference to speak of facilitation rather than leadership, as well as the relative silence on this topic in our interviews with T-CoP members. This silence, considered alongside research highlighting the importance of distributed leadership to the survival of university CoPs (McDonald et al. 2012), makes Malcolm's reflection on leadership in the T-CoP a particularly interesting one to explore.

8.3.1.2 Malcolm's Perspective on Leadership in the T-CoP

Reflecting on the T-CoP, Malcolm explained that leadership was not something foisted on members from above, or outside, but instead, emerged over time through negotiation within the community, until finally, a shared understanding had

developed across the T-CoP. Regarding the role of the facilitator, or 'coordinator', to use Malcolm's term for it;

> This really emerged as time went on. Eventually, some time after my stint as coordinator, I prepared a document, which outlined what the role is. That was passed on to the (then current facilitator), who modified it a bit and took it to the (T-CoP's sponsor, the Dean L and T). I think the important aspects are: managing the initial grant that supported the start-up of the T-CoP and negotiating retention of the funds for the T-CoP's use; talking to the Dean, L and T her about the activities of the group and gaining her support, liaising with her personal assistant who advertises the meetings, organises the catering, books the rooms, coordinates the audio-visual support to link different campuses; keeping members involved, and establishing the agenda for the year with the members and following through with it; liaising with guest speakers; and yeah, liaising with (those more involved in managing the online communication). You also tend to be the point of contact for Faculty and University Learning and Teaching Committees.

Malcolm's reflection on the role of the T-CoP facilitator echoes key findings in McDonald et al. (2012) study, which investigated perceptions and practices of leadership in CoPs within Australian universities. In line with that study, we can identify five key dimensions of leadership in Malcolm's narrative, namely; (1) building and/or sustaining the CoP, through facilitating engagement, organising processes, driving action/making things happen, and sourcing funding; (2) defining the CoP direction/agenda, by identifying relevant issues, and attending the CoP 'vision'; (3) building relationships within the CoP and managing expectations of members; (4) informing or advising members and ensuring that the CoP continued to hold value for its members; (5) managing up/advocating for the CoP. Regarding this last dimension McDonald et al. (2012) research demonstrated a clear expectation that leading a CoP entails interacting with leadership structures inside and outside the CoPs' immediate context (in our case, the faculty).

Integral to Malcolm's understanding of effective CoP leadership was its capacity to 'lead change' by exerting influence. While he emphasized the importance of the support coming "down" from the Dean's Office, he argued that influence must work in many directions at once.

> It's been good to see how the T-CoP has had an impact on the broader culture of the faculty and its leadership. Being able to send sending messages up through the hierarchy, we have a direct influence on some decisions. Then there is the more indirect influence beyond its members: the existence of this group - the fact that it's continuing, it's across campus, - gives a message to new staff that there's a group of people who are particularly serious about teaching.

For Malcolm, leadership within the T-CoP is something shared equally between the core group and the facilitator.

> When I was coordinating, I would be in regular contact with some of [ex-core-group]. They generally are the ones who meet (or email) to help coordinate the activities and bounce around ideas as to how to make the T-CoP work better. As facilitator, I found them really helpful.

Malcolm went on to explain that leadership, as a dimension of the T-CoP is emergent, diffuse and collectively developed and shared, was critical to the T-CoP's success in building a "positive supportive culture amongst us".

> It's gone on just as successfully from one coordinator to another. So it's not really dependent necessarily on those coordinators, although everyone adds their own flavour to it. I guess I see myself as part of a community - whether I'm coordinator or not - you know there's that sharing of passion, sharing of ideas, sharing of knowledge. When Paula was coordinating, I was involved in defining the role a little bit more clearly. Now that Michael is coordinating, he drops in from time to time, and talks about the T-CoP, so I give him my advice. Whenever I have an idea about how to improve the T-CoP, I'll talk to my colleagues about it, so we're almost in this action research cycle of improving things as we go.

Malcolm's identity does not seem to change as he moves in and out of the facilitator's role. Reflecting on this, he echoes observations made by several theorists of distributed leadership. Like Gibb (1954, p. 902), Malcolm describes leadership that "passes from one individual to another … [because being a leader or a follower] is but a transient status". It is "fluid and emergent, rather than as a fixed phenomenon" (Gronn 2000), an activity—rather than a fixed role—that is "stretched over" various individuals (Spillane 2006). Significantly, Malcolm emphasized that distributed leadership did not develop naturally, but rather, it was the result of careful planning and consensus building from the beginning.

> I think we had a good model to start with and a good understanding - a shared definition of what the CoP is about, a shared philosophy - as well as a good structure, so we all understood what communities of practice were, and how ours was set up. There's a sense of responsibility that comes when you realise that it's not something imposed from above, but something that functions and sustains itself by the energy and motivation of the people involved with it.

However, Malcolm was acutely aware of the precariousness of the T-CoP's ability to influence practice, or even survive in an institution, which provides insufficient support for CoP activity. If, as in our case, a CoP depends on the informal support of individual leaders for its survival, what happens when they move on?

> The T-CoP has good support from the Dean [as sponsor]. The Dean's support - especially ensuring that the coordinator has some recognition and reward - is so important to its survival. All I can hope is that whoever takes the Dean's place eventually will be as equally supportive. It will be vital for the T-CoP's survival.

In closing, Malcolm echoed comments made by several other interviewees, in his reflections on the challenges and the possibilities for the T-CoP going into the future.

> Looking ahead, it is important that the T-CoP adapts according to the big changes that are occurring in the Faculty and University. There are new initiatives, which have been rather clumsily introduced to the Faculty - the introduction of assessment rubrics, for example. It would be good if [management] passed some of these ideas through the T-CoP [whose members] can give a fair critique of these initiatives, how they have worked in practice or how they might work in practice. So although I don't want the T-CoP to become institutionalised - that would spoil the whole purpose of the community - it can be a place that can be part of adapting to change.

8.3.1.3   Some Reflections on Leadership in CoPs

Malcolm's final comments form a cogent argument for the importance of the T-CoP not only surviving, but also increasing its capacity to lead teaching policy and practice. In fact, all long-term T-CoP members we interviewed expressed similar views about the value of past actions and the need to increase its influence within, and beyond the faculty, yet unlike Malcolm, they did not associate such action with leadership. Instead, they typically interpreted such achievements as a result of informally cultivating relationships with influential senior academics in, and through the T-CoP. As Paula, another past facilitator and long-time active T-CoP member explained:

> [The T-CoP] is forming a collective voice… It's [effective] because the people involved are viewed as people who are genuinely interested in teaching… [the School Executive] takes us seriously. So it's helped me [to see] there's a channel for feedback to the hierarchy who are making decisions. It is valuable because it has led to a couple of specific changes… [for example] having a sessional academic on the [faculty] Learning and Teaching Committee… and decreasing tutorial sizes in first year.

Previously (Green et al. 2013), we interpreted "talk of the old-timers", like Maria as a revival of *praxis*, "a story of personal and social change, of becoming more scholarly, reflective and confident university teachers within the inter-subjective space of the T-CoP, actively shaping the conditions of practice" within the faculty. However, Malcolm's reflections, read alongside Gronn's (2002, p. 318) frame distributed leadership as a complex interplay between agency and structure. With Gosling et al. (2009, p. 303), we see "rhetorical" value in the concept; the concept of distributed leadership arguably describes and valorizes the work done by the T-CoP facilitators more effectively than the word 'facilitator'. Along with other informal leaders such as course co-coordinators, informal CoP leaders fulfil a difficult, time consuming and somewhat risky role, juggling the demands of the institutions against the needs of their disciplinary colleagues, and negotiate "a frequent sense of tension between their identities as academics and managers". In recognizing its rhetorical value however, we do not gloss over the "social, political and power relations" within universities (Gosling et al. 2009, p. 300). If CoPs need to develop informal or distributed leadership structures, which are often unsupported by the institution, how do we, from within those CoPs, develop the capacity to "manage upwards, downwards and across formal leadership structures in higher education" (McDonald and Palani 2011, p. 199)? Such work requires time, motivation and specialized skills—and how many discipline-based academics have all of this, in a context of increasing economic rationalism, which rewards competitive individualism?

A previous analysis of our narrative data (Green et al. 2013) brought to the surface unspoken divisions within the T-CoP between the "old-timers", who operated as a "tightly-coupled" community (Boud and Middleton 2003, pp. 200–201), committed to a transformative approach to personal and collective change, and the "new-comers", who operated as a more "loosely-coupled community" (Boud and

Middleton 2003, pp. 200–201), more focused on a "transactional" and individualistic approach to professional development (PD). The tendency of newcomers to focus on 'what's in it for me' is understandable: time poor academics' prefer "just-in-time, just-for-me" approaches to PD (Scott et al. 2008, p.xvii). However, such approaches are utterly at odds with distributed leadership, which 'stretches across' the members of the CoP, in "the co-performance of … reciprocal interdependencies" (Spillane 2006, p. 58), which entails ongoing personal/professional development. In the following section, therefore, we ask:

8.3.2 How Might CoPs in Universities Counter the Still Dominant Traditional Paradigm of 'Professional Development' as Acquisition, and Encourage Their Members to Move Towards More Transformational Approaches to Professional Learning?

As T-CoP "old-timers", we were surprised by a dominant narrative theme among newcomers: an (unmet) expectation that the T-CoP would provide 'PD' that could be used for 'leverage' in academic career progression. At the same time, some newcomers, like Frank, along with the old-timers, spoke of professional development within the T-CoP as transformation.

Given that the T-CoP was originally planned as a community where practitioners could learn, change and develop together, as opposed to a platform for 'delivering PD', these differences begged further exploration. The following two narratives provide some insight into the structural and cultural factors shaping the tension between 'transactional' and 'transformational' approaches. James' story is particularly interesting because it shows how one senior academic struggles to make sense of his transformational experiences of co-constructing learning within the T-CoP, while maintaining his unquestioned assumptions regarding the transactional nature of 'PD'. On the one hand, James was acutely aware of the institutional pressure to publish. For this reason, he felt most academics were unlikely to engage fully in the T-CoP. In James' view, academics are "selfishly motivated" because of institutional pressures and the individually focused key performance indicators for research. These pressures, he felt, undermine attempts to build community in the faculty. For this reason he noted that many people attend the T-CoP to improve their performance as measured by the promotion criteria. However, he felt that his interaction with the community differed from senior colleagues'. He wanted to attend the T-CoP in order to share ideas about teaching and learning. Yet, he spoke of his learning within the T-CoP as disappointing, and limited to "cherry picking bits and pieces" that were useful to him.

Mike's story illustrates similar tensions from the perspective of a young sessional lecturer. Mike appreciated the way the experiences of others in the T-CoP reflected his own, and although he never really understood the purpose of the

community, he acknowledged that he grew personally and professionally through the experience. Being employed as a casual lecturer probably removed the issues of institutional pressures and norms discussed by James but ambition, growth and development were not absent from Mike's story either. As a casual lecturer always looking for work, his initial intentions in joining the T-CoP were two-fold: to learn and to build useful contacts that might lead to future teaching contracts. He spoke at length about how SoTL research presented at the community transformed his perspective about what the university could do to establish clearer guidelines for academic practice. He also found the process of engaging in a conversation about practice "useful". Yet he was focussed on what he could get from the T-CoP, and did not consider what he could contribute to it. He attended to draw knowledge from people so he could use it to help improve his teaching evaluations and thereby help his own performance goals. Yet, like James and other newcomers, Mike was confused about the "real purpose" of the T-CoP and frustrated that it didn't offer more.

Many newcomers spoke about appreciation of the T-CoP—of the collegiality and new knowledge they gained—*and* frustration that its benefits were not easily translatable into personal career goals. Given the varying pressures on tenured academics and sessional staff, as discussed earlier in this chapter, it is understandable that new members will come to CoPs expecting to find neatly packaged, 'just in time, just for me' skills. Yet, from the perspective of the old-timers, and some newcomers, the T-CoP should do and actually does far more: for them, it was clearly a place that fostered their personal/professional growth. According to Malcolm, for example, the philosophy of the T-CoP was congruent with his philosophy of teaching: in both, he understood learning to entail the co-construction of knowledge.

According to Wegner and Nückles (2015) academics' differing perceptions about CoPs—which they characterise as either "acquisition" or "participation"—can be linked to differing approaches to teaching. Those taking the former approach, who *perceive* a CoP to be a place of self-interest where in new tools and ideas can be gained tend to be "teaching-centred", while those taking the latter approach tend to be "student-centred". Clearly, the transactional, or acquisitional approach is at odds with Lave and Wenger's (1991) conception of CoPs, where professional development emerges as a by-product of CoP interactions (Bianchini and Cavazos 2006). This is more likely to occur in CoPs if goals are explicit, and the supportive environment of colleagues and co-mentoring facilitates development and nurtures relationships (Akerson et al. 2009). From our perspective, Wegner and Nückles' (2015) metaphors could provide a useful language for exploring the dissonance between old-times' and newcomers' expectations, and developing a learner-centred community in which engagement and participation, even with those on the fringes, produces emergent collaborative transformative learning.

A good first step in this direction has been undertaking this study, because it has revealed how the old-timers, who originally co-constructed their understanding of the T-CoP within the core group, have let it remain implicit, rather than fostering a discussion about it with newcomers. A good second step would be to foster

conversations between old-timers and new-comers about the nature of situated learning within CoPs generally, and the T-CoP in particular. Of course, dismantling the view that CoPs should "deliver PD" to members will be difficult, given the pressures on academics. While individuals are rewarded by focusing exclusively on individual career goals instead of participation and learning through shared knowledge, then the tension evident James' and Mike's narratives will persist. Nevertheless, the T-CoP needs to challenge the concept of professional development as "knowledge acquisition" through the "talk" of the community—paying attention to the language old-timers use to explain the workings of the CoP to new-comers. This community talk is the means by which individual members both absorb and become absorbed in the culture of practice. 'For newcomers, the purpose is not to learn *from* talk as a substitute for participation; it is to learn *to* talk as the key to "(Lave and Wenger 1991, pp. 95, 109), and the development of individual and community identity.

8.3.3 How Do We Negotiate the Tensions Between the Need for a CoP to Develop Its Own Distinctive Identity as a Community and Domain of Practice and yet Remain Open and Accessible to New Members?

In this section we begin by considering the interplay between identity formation of individual academics within the T-CoP and development of the T-CoP's own distinctive identity through the narrative of Paula, a mid-career experienced academic, with a strong focus on and passion toward teaching, and learning how to teach better, in support of her student's effective learning. For Paula, the T-CoP has been instrumental to her personal/professional development, and conversely, Paula has been critical to the development of the T-CoP's identity.

> I suppose the T-COP leads you… into this teaching and learning web. I now know people that I didn't know … it sort of extends your networks out a bit, and expands your brain in that sense as well, right out of the faculty.

8.3.3.1 Member Identities and T-CoP Identity

In the modern university, where the link between learning and being can be uncertain, CoPs play an important role in supporting social and collegial participation between academics (Ryan 2015). CoPs can blur and shift traditional "tribal" disciplinary boundaries by providing safe cross-disciplinary spaces for pedagogical learning and identity formation experiments (Warhurst 2008). Collegiality is critical to this identity formation; by supporting member ownership and autonomy, it

provides opportunity for a deeper, more critical reflection on practice, at all career levels, from senior, mid-level, to junior. As Paula says;

> collegiality sets the T-CoP apart… It is a community of interest where like-minded people in similar situations share ideas.

Community-led support can be vital for developing academics who lack onto-logical security (Giddens 1991), particularly as the influence of the disciplines is weakening in the academy (Hanson 2009), because it provides them with a reliable reference point. Developing a voice is a central aspect of early identity reformation (Churchman and King 2009), one in which support from colleagues and peers is important (Lave and Wenger 1991). For early career academics and sessionals, access to experienced 'champions' of teaching in the T-CoP had a profound pos-itive impact on their identity reformation, while learning to unlearn, relearn, and reassess their identities through participation with other members was what senior teaching members most appreciated in the T-CoP. As Paula, a mid-career academic explained:

> I had a little chat to Tom [an award winning lecturer and CoP colleague]. I said I just feel [terrible] because I get good evaluations for [my third year course), and I get [terrible] evaluations for first year. Tom said … You're obviously a good teacher in one course, what is it about first year? I said it's just the size that scares me, and the number of people in the room. He said if you just do what you do with third year, but try and translate that into first year, I reckon you'll do better. I thought about that, because Tom's a great teacher.

The T-CoP's social learning space offered an opportunity to reconsider past approaches and develop contextualised solutions that made sense—and it fostered risk taking.

> …it certainly gave me the confidence. I was a little bit riskier, I think, too. I've heard people talk about risk. Sometimes you've got to take it, you've got to take a risk in order to break through or change your practice. So I was a bit riskier.

Paula's narrative was typical in that it illustrated how the core group's vision was embraced by members and was critical in supporting their identity as teaching academics, Like many we interviewed, Paula felt the inclusiveness of the T-CoP was one of its core strengths.

8.3.3.2   Inclusive, Rather Than Exclusive/Exclusionary—Building Agency and Knowledge

Paula spoke of how the T-CoP empowered members individually, and collectively through the growing power and influence of their shared values, to contribute to the School's teaching and learning agenda. Engendering active participation, openness, confidentiality and trust amongst teaching staff, enabled many interviewees to develop a clearer understanding of the faculty leadership and structure, and ulti-mately opportunities for collaborative development. The experience of collectivity

in the T-CoP enabled members to act as a positive social force, and advisory body within the faculty.

However, some interviewees raised concerns over the scope and boundaries of the T-CoP, its growing agenda, and whether it should remain a social space for learning—semi-structured, adaptive, open, and fluid—or be shifted and structured to be a more formalised strategic performance tool of the School. Some were concerned that the bureaucratic nature of the traditional School hierarchy would unduly influence the development of the T-CoP and its members. Furthermore, establishing the CoP clearly within the faculty's boundaries offered an opportunity to contest existing departmental and disciplinary teaching and learning regimes (Trowler and Cooper 2002). While some worried that membership had not grown substantially; they were opposed to the idea of mandating attendance. Instead they wondered whether barriers had developed over time that was blocking newcomers' entry to the T-CoP.

Certainly, the significant time and effort required to broaden T-CoP membership presents a challenge. Another challenge as discussed in the previous section and in another study (Coates et al. 2009) comes from those who want a tangible, immediate payoffs or formalized "delivery of PD" from their CoP. How should a CoP, established to foster serendipitous, informal, social learning address these challenges? In a discussion of how communities of educational enquiry are built, Cassidy et al. (2008) suggest an answer: CoPs must intentionally foster a climate of openness, egalitarianism, discipline, mutual respect and valuing of difference. Boud and Middleton (2003) add the dimension of stability as another essential dimension of a successful CoP, while Mathias (2005) argues that a CoP must develop a "metacognitive" sense of itself as an entity through open reflective discussions. The ability to transform the T-CoP's own identity as it matures, while maintaining its essential dimensions will be critical to its survival as a safe, welcoming space for academic identity work.

8.4 Conclusion

Evaluation of the processes and impact of university CoPs is vital, not only as an accountability measure to secure the institutional support necessary for its survival, but also to facilitate the reflective learning of its members. Through the narrative study we designed and conducted with a faculty-based teaching community of practice, we found that mutual engagement, joint enterprise and shared repertoire are blossoming in this CoP. Moreover, the T-CoP has acted effectively as change agent in the faculty, by providing a safe space for academics to get creative, test ideas, and innovate, on their own terms. Nevertheless this study has revealed tensions, shared by other CoPs in universities, which need to be addressed if it is to sustain the learning, agency and identity (re)formation of its members.

We opened up three areas of tension for further inquiry. Firstly, we considered the apparent contradiction in Wenger's work regarding 'leadership' within CoPs, and concluded that while there are still unanswered questions regarding distributed leadership and power in universities, the term has significant rhetorical value, as a means of recognizing the work of CoP facilitators and members. Secondly, we considered differing expectations of, and orientations to engagement in CoPs, which we characterized as 'transactional' and 'transformational'. Thirdly, in finding that the T-CoP has developed a metacognitive sense of itself as both a safe space for personal/professional development and a change agent within the faculty, we asked how we might maintain this collective identity of the T-CoP without it becoming a barrier to newcomers' participation. We concluded that exclusionary practices may have occurred inadvertently over time through the old-timers' 'talk', or more accurately failure to 'talk' to newcomers about the T-CoP's values and ways of working.

In considering all three issues, we underscored the value of story-telling itself, not just as a research method but also as practice. Narrative is critical to the development of individual and collective identity. The T-CoP stories we analysed suggest that identity (re)formation is an ongoing personal/professional project of individual academics that is best undertaken in a safe community. In reality however, academic identity is generally forged within the competitive environment of one's discipline/department/faculty, and its particular "doings, sayings, and relatings" (Kemmis and Groontenboer 2008). The departmental/disciplinary narrative is integral to this process; it is the means by which individual members both absorb and become absorbed into its culture and practices (Lave and Wenger 1991). Dominant discourses circulating within university departments/faculties regarding both leadership and professional development are at odds with T-CoP understandings and values; in the case of leadership T-CoP talk regarding its distributed nature is emergent, while in the case of professional development, the talk, which had once been made explicit through a process of consensus building, is now implicit, and thus opaque, and confusing to newcomers. This, in turn may be functioning to exclude newcomers from more active participation.

These findings once again (see Fuller et al. 2005; Roberts 2006) bring into question Lave and Wenger's notion of 'legitimate peripheral participation' (LPP), which constructs newcomers to a community as learners on a trajectory toward full participation, as they both absorb and are absorbed in the talk of the old-timers. LPP presumes there will be a graduated re-negotiation of relationships between newcomers and old timers. Our study clearly illustrates that LPP does not occur naturally within university CoPs, and that if left to chance, even within well-meaning, highly motivated CoPs, newcomers may feel excluded, or confused. To counter these tendencies, we must foster reflexivity in CoPs by inviting all members to discuss historically relevant values in light of current practices.

As for the T-CoP, opportunities for periodic reflection, which the original core group once shared, need to be re-established, and offered to all members, whether active or peripheral. This would enable members to discuss the tensions facing the T-CoP, and review existing practices, decisions and strategies. Managing the

relationship with the faculty executive and maintaining vital sponsorship will also be paramount, if the T-CoP is to continue to play a critical role in supporting staff, and the faculty in handling rapid change.

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Chapter 9
Choosing Change: Using a Community of Practice Model to Support Curriculum Reform and Improve Teaching Quality in the First Year

Mary Heath and Tania Leiman

Abstract Significant, competing pressures for change have become constants in tertiary teaching. Many academics choose to change teaching and course design to better reflect pedagogical research and support learning. Some changes, however, are imposed by institutional policies responding to the wider higher education context. Whether change is chosen or imposed, managing it is made more difficult by increasing workloads and decreasing opportunities for collaborative decision-making and professional skills development. This chapter describes our experience of facilitating a community of practice with teachers of first year law students as a change management strategy. We established the community of practice with twin hopes. Firstly, we sought to support a research-based first year pedagogy, centred in an integrated approach to curriculum and student support. Secondly, we needed a pragmatic intervention to support implementation of a new curriculum and major changes in university policy with a new cohort of first year staff. A community of practice offered a promising model for achieving pedagogical goals through addressing teachers' needs, rather than simply escalating demands on staff. We chose a community of practice approach believing it would allow teachers to strengthen collaborations, build skills and share best practices, all of which we believed were essential to creating an integrated first year experience that could result only from a *team* of first year teachers. This chapter discusses the initiation, development and achievements of our community of practice before turning to considerations of life cycle, leadership, resources and long term sustainability.

Keywords Community of practice · First year experience · Legal education · University teaching · Change management

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9.1   Introduction

Teaching and learning in the higher education sector are subject to significant and competing pressures for change. Many teachers face multiple and competing forces for change. Some changes are chosen voluntarily by academics seeking to improve the quality of teaching, implement pedagogical research findings and support student learning. Other changes are imposed by faculties, universities, or regulatory bodies. Some changes are both educationally sound and externally imposed (James 2013, p. 792). Whether change is chosen, imposed, or both, managing it skilfully is made more challenging by increasing workload pressure and decreasing opportunities for collaborative decision-making and professional skills development across the higher education sector (Thornton 2012).

These challenges formed the broader context in which we established the Flinders University First Year Law community of practice (CoP), which is the focus of this case study. We took the decision to propose the CoP at a time of profound change at institutional and school level. We had responsibilities as key members of the team required to implement a complete curriculum redesign for the law degree (Associate Dean of Teaching & Learning and Director of First Year Studies). The new curriculum was designed to implement graduate qualities and respond to university—mandated uniform subject unit values. At the same time, our school's cohort of first year teaching staff changed. Curriculum redesign had brought subjects and teachers into the first year from other parts of the degree, and the school had recruited new staff who would be teaching for the first time. Many would be teaching under stress, with limited first year teaching experience. We believed the principles behind the carefully designed new curriculum, the coherence of the first year, the wellbeing of staff and the quality of student experience would be in jeopardy if these changes were implemented without careful attention.

Faced with these risks, we sought solutions that might go beyond merely implementing institutionally required change toward taking the opportunity of the new curriculum to generate a more coherent and exciting first year experience for students and staff alike. As committed and passionate teachers, we aspired to provide students with an integrated learning experience as they transitioned into the first year of the law degree. We believed that achieving this goal would require a collaborative staff environment in which teachers could work closely and innovatively to build our shared teaching practice.

Our central educational goal, the change we had chosen (and wanted to invite our colleagues to choose), was the implementation of a transition pedagogy approach to the first year. Sustained research into the experiences of students as they transition to university demonstrates that integration across subjects, across year levels, and between the curriculum and co-curricular programmes is crucial if universities are to respond effectively to ever more diverse cohorts of students (Kift 2009). Embedding these pedagogical responses within the first year, where they are

particularly critical, demands ongoing collaboration between first year teachers and requires of those staff a significant capacity for professional development. Indeed, an integrated first year programme would be impossible without it. However, the direction and form of changes in Australian higher education in recent decades has significantly diminished many of the collegial contexts that might historically have supported the "integrated, coordinated and intentional" (Kift 2008a) teaching and curriculum practices demanded by the principles of transition pedagogy (Kift 2009). These changes have limited the capacity for the informal transfer of experience and knowledge amongst staff which might, in the past, have been enabled by collegial interaction and collaboration in relation to teaching practice. In disciplines and units where this may never have been a well-established process, the difficulty of establishing these processes is significant.

In the quest to achieve our twin goals of an integrated learning experience for first year students and greater collaboration among staff, we wanted to find models that might address the pain staff were feeling in the face of change rather than adding to it through strategies based in compulsion, such as the creation of mandatory policy. We recognised that we were not outsiders in the process of disciplinary and institutional change, but participants who stood to benefit or suffer from the way in which change was managed. In order to achieve strong learning outcomes for students, we believed it would be necessary to build and upskill a cohesive team of teachers for the first year of our degree, and this necessity suggested that a strategy centred on co-operation should be preferred.

The community of practice seemed to us ideally suited to support our goals. It held promise as a pragmatic intervention which might nurture cooperation and knowledge transfer amongst staff. It offered a way toward these aims that would be focused on sharing the strengths, skills and knowledge of staff while addressing their needs and concerns at a time of intense change. We hoped that by using a community of practice approach we would be able to enhance the wellbeing of our colleagues, particularly those new to first year or new to teaching, at a time of particular stress. Supporting relationships amongst staff would also be essential to creating an integrated first year experience that could result only from a *team* of first year teachers.

We begin this chapter by setting out the current higher education context. Then, taking our experience of a first year law teachers' community of practice as a case study, we consider what communities of practice might have to offer to the challenge of implementing change in this context—whether the impetus for change arises from teachers' collective aspirations to offer high quality educational experiences to students, from externally imposed requirements or, as in our case, both.

We discuss the achievements of our community of practice in supporting members' sense of participation in a team of teachers working together to support first year learners. These achievements include the sharing of high quality teaching and assessment practices and research-based approaches. They also extend to an improved level of integration between orientation and mentoring programmes and

the explicit first year curriculum. We describe members' collaborations on shared practices, documents and processes for the first year in both formal and informal contexts, and some of the ways in which the community of practice began to influence the practices of our school as a whole.

Finally, we turn to considerations of life cycle—managing a community of practice as it moves from establishment and innovation to maintenance; leadership roles, responsibilities, resourcing and succession; and ultimately to issues of sustainability and viability in the longer term.

9.2 Change in the Current Higher Education Context

Margaret Thornton has observed that "[t]he recent pace of social change in universities has been akin to being strapped to a rollercoaster and being unable to alight" (Thornton 2012, p. xii). These changes are driven by forces well beyond universities, including the global market in higher education. In Australia, they are also driven by federal government policies directed toward widening participation in higher education, responding to a changing labour market and assuring quality in Australian higher education. New regulatory regimes are accompanied by new implementation agencies, quality assurance regimes and accountability processes. In our discipline (law), where expansion in the number of law students long ago outstripped the demand for lawyers and the challenges of internationalisation and the digital economy are increasingly acute, there are also pressures from a changing profession. In addition, law schools are subject to external accreditation and must teach in accordance with the 'Priestley eleven'[1] areas of law which are required for professional admission under the Uniform Admission Rules.

As Nick James argues, change in tertiary education (as elsewhere) is driven by the neoliberal or "corporatist" objectives of "accountability, efficiency, marketability and growth" (James 2013, p. 790). These objectives sometimes coincide with what James terms "educationalist" goals: those that advocate "teaching in a manner consistent with principles derived from orthodox education scholarship" (James 2013, p. 779, pp. 785–792). However, this is not assured. Sometimes, the economic and political context in which pedagogical research must be implemented makes improving educational outcomes more difficult (Thornton 2012, p. xv). The Bradley

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[1]The Priestley 11 requirements form part of the Uniform Admission Requirements set out in the 'Uniform Admission Requirements: Discussion Paper and Recommendations' prepared by the Law Admissions Consultative Committee of the State and Territorial Law Admitting Authorities in 1992. They are the minimum academic requirements that must be completed by law students wishing to be admitted to practice as a legal practitioner. For further information see http://www1. lawcouncil.asn.au/LACC/images/pdfs/Uniform_Admission_Rules_2014_-_June2014.pdf accessed 21 February 2015.

Report found that the increased productivity and efficiency of the Australian higher education sector was "being achieved at the expense of time spent with individual students, good feedback on assessment and social interaction" (Bradley et al. 2008, p. 74). This finding provides clear evidence that corporatist and educationalist objectives are in tension in the Australian higher education system, and that pedagogical goals are suffering in the pursuit of ever greater efficiency.

The achievement of the efficiency remarked upon in the Bradley Report has come about in part through a steady contraction of public funding for higher education in Australia over recent decades paired with a steady rise in student numbers (Ryan et al. 2008). Significant legislative changes proposed to further reduce public funding have repeatedly come before the Australian Federal Parliament in recent years under both major parties. Both student-staff ratios and academic casualisation are rising steeply (Bradley et al. 2008, p. 71). Between 1989 and 2007, the number of students per teaching staff member (including casual staff) Australia-wide rose from 14 to almost 22 (Coates et al. 2010, p. 384). Staff-student ratios in law nationally are approximately 1:30, double the ratio recommended in a government review of legal education in 1987 (Thornton 2012, p. 85). Efficiency has come at a cost. The Bradley Report found that the quality of educational experience is declining (Bradley et al. 2008, p. xii, p. 70). This is of particular concern in the first year, since Bradley also found that Australian first year students experienced lower levels of student engagement and satisfaction than later year students (Bradley et al. 2008, p. 76).

In an interesting but unsurprising parallel, research into the academic workforce has revealed decreasing job satisfaction. The researchers reporting these findings argue that staff dissatisfaction arises from the fact that "in Australia … the higher education systems have been through the most profound changes anywhere in the developed world" (Coates et al. 2010, p. 382).

This is a context in which resistance to change is inevitable. With others, we observe that "in the face of constant change, many otherwise-engaged staff currently feel overwhelmed and change-weary, while other colleagues may have little interest in, or understanding of, educational theory" (Kift 2008a, p. 18). Even when educationalist goals that many staff would accept as desirable and pedagogically sound are being advocated, implementation of those goals may be resisted. As many others have observed, policies are not self-actualising, and enforcing them inevitably creates resistance (James 2013, p. 798).

In this environment, any strategy for meeting the goals of improved teaching and staff collaboration must be attractive, effective and sustainable. As others have suggested, Australian academics face a "rising tide of expectations and competencies … impinging on work practices" limiting the time available in which to engage in "elective pursuits" (Nagy and Burch 2009, p. 235). This is particularly problematic if improving teaching quality is seen as an elective pursuit. However, it also has implications for organising staff collaboration, since any non-compulsory meeting is, by definition, 'elective.'

9.3 A Community of Practice Model in the Tertiary Education Context

The community of practice [CoP] model has been in use since the 1990s, primarily within industry. Its adoption amongst university teachers in Australia is more recent and still emergent (Nagy and Burch 2009, p. 235). However, CoPs amongst university teachers have resulted in benefits such as improved teaching quality and teaching awards (McDonald and Star 2006, p. 2).

The CoP model is premised on "people who share a concern, a set of problems, or passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis", with such interactions focused on the development of a sense of community, shared practices and shared knowledge (Wenger et al. 2002, pp. 4–5). A presentation by Cassandra Star and Jacquelin McDonald in 2010 convinced us that a CoP might meet our needs for professional development, collaboration and mutual support in the context of implementing our new first year curriculum. We further believed that it might address some of the sources of resistance to improving teaching quality by offering resources to the time-pressed, support for the discouraged and change-weary, and a focus on what we as teachers wanted to achieve and how that could be organised, rather than a focus on the implementation of university policy.

This is not to imply that the implementation of university policy and the chosen goals of staff can ever be entirely separate domains. As Nick James has persuasively argued, teaching policies in the contemporary environment are often driven both by the neoliberal or "corporatist" objectives of "accountability, efficiency, marketability and growth" and by "educationalist" goals that many tertiary teachers would endorse (James 2013, p. 790).

9.3.1 A Shared Domain

The domain on which we hoped to build our CoP was our shared experience and expertise in teaching first year law students. Flinders Law School has approximately 250 new first year students each year, with intake twice a year. Flinders University is an outer suburban Innovative Research University. In national terms, it has a higher than average representation of mature age entry, first in family and low socio-economic status students. The law school was established in 1994. The law degree integrates practical training for legal practice (which is a postgraduate qualification in most Australian law schools). The curriculum meets external accreditation requirements and is dominated by compulsory subjects in which students study areas of law required for entry to the legal profession. The first year curriculum at Flinders integrates training in fundamental legal skills such as case

reading and statutory interpretation into substantive law subjects. It also requires students to take a specific subject which focuses on legal research and writing.

We were aware that our colleagues taught different subjects in different ways, and came from a wide variety of different backgrounds. Some had theoretical and practical grounding in pedagogy, with wide exposure to teaching and learning ideas and innovations. Others had a narrower focus on legal doctrine, and were not as familiar with current educational literature. Some were commencing to teach in the tertiary environment for the first time, entering academia from a career in legal practice.

We circulated information explaining the community of practice concept, identifying our common goal of furthering knowledge and building capacity about our roles as first year teachers, and explained that this would be at the heart of the CoP. We personally invited each of our colleagues to join us to consider how we could support each other as first year teachers, and this in-person approach proved crucial to our colleagues' decisions to attend initial gatherings. From our first meeting, it was very clear that others were as keen as we were to be part of a first year teaching team. It was equally clear that we faced some very pressing shared challenges. We began the CoP by sharing experiences and practices, and from there set about collectively developing and maintaining shared resources, approaches and ways of working (Wenger et al. 2002, pp. 4–5).

9.3.2   A Space for Collaboration

CoPs emphasise collaboration, and this is one reason we opted to implement this model, rather than setting up a committee. We were motivated by accounts of CoPs in higher education as staff driven and responding to staff aspirations (McDonald and Star 2006, p. 176). A CoP had the potential to function precisely where we needed change to be supported: in the domain of shared knowledge about first year teaching and in developing teaching practices. Intentionally creating and nurturing this collegial context would be both challenging and critical. A CoP might allow an approach that would respond to the needs of academics tasked with the implementation of the curriculum, rather than solely focusing on institutional priorities (McDonald and Star 2006, p. 176). A CoP could foster professional development alert to and driven by the shared interests of its members, resulting in skills improvement and collective responses to identified problems, situated within the "social context of real practice" (Viskovic and Robson 2001, p. 326). In doing so, it might deflect resistance to research-based teaching practices driven by ignorance about the scholarship of teaching and learning (James 2013, p. 805) or by a refusal to accept that the scholarship of teaching and learning (and cross-disciplinary professional development grounded in it) are relevant to our discipline (James 2013, p. 806).

9.3.3   Intentional and Bottom-Up

As we have explained above, our CoP was the product of planning, rather than emerging organically. There is significant debate about whether an intentionally created entity can be properly conceptualised as a community of practice (Garavan and Carbery 2007). However, the term is now widely applied to entities which have been intentionally constructed (Garavan and Carbery 2007, p. 36). Flinders University could certainly be seen as having enabled awareness of the CoP model and legitimised it through offering staff development on successful applications of this model in higher education. However, our CoP is neither an institutionally "imposed" structure (Nagy and Burch 2009, p. 240) nor a spontaneously emergent CoP. Rather, it is "bottom-up"—initiated by staff rather than by management—with formal leadership and priorities focused on shared concerns arising from members' teaching.

9.3.4   "Craft or Task Knowing"

We would suggest that this CoP is concerned with "craft or task knowing" (Amin and Roberts 2008) in which central elements of the knowledge concerned are carried by individual teachers and the social context within which we teach. Amin and Roberts (2008, p. 358) characterise craft or task-based knowledge as made up of elements including "[e]xperience, tacit knowing, embodied know-how, continuous learning", all of which we would argue are present in the tertiary teaching context, and all of which were enabled and demonstrably improved through the existence of the CoP. We would further suggest that the outcome of the social dynamics which Amin and Roberts (2008, p. 359) propose as characterising craft or task based knowledge, namely "a high degree of mutuality born out of shared work" are also present. Key first year staff and most first year students participate together in the co-curricular transition programme, New in Law. As the study plan for the law degree at Flinders Law School prescribes compulsory core subjects that must be undertaken in the first year, first year staff teach similar cohorts of students, and share responsibility for teaching key legal skills. These skills are designed to be embedded across the degree, scaffolded in various subjects taught in the same semester and built upon from one semester to the next.

9.3.5   Informal and Voluntary

Early research on the CoP model characterised CoPs as entirely informal rather than having a clear organisational structure (Garavan and Carbery 2007, p. 36). However, some contend that an intentional CoP requires relatively formal structure

and clearly identified managers or facilitators "bringing drive, vision and enthusiasm to the CoP" as well as facilitating it (Garavan and Carbery 2007, p. 36). A relatively formal structure is what our CoP members have required of the CoP. Intentional facilitation has been crucial to its ongoing success as well as representing a risk to its long term sustainability. As facilitators, we have undertaken many of the key roles identified by Garavan and Carbery (2007, p. 38) including "fostering interactions and building relationships based on trust and mutual respect." We have invited and encouraged other leadership and offered mentoring without new leaders emerging. However, in the long term, if other leaders do not emerge, the CoP's ongoing existence will be placed in jeopardy if we are unable to continue to perform these roles.

Some authors have expressed scepticism about the take-up of the CoP model within higher education. Nagy and Burch observe the potential for CoPs in higher education to be "viewed by sceptical academics as a masquerade for a predetermined agenda that is really another committee" (Nagy and Burch 2009, p. 242). Without denying their claim, we would foreground the agency of staff who choose to set up a CoP, even where this takes place in an institutional context. Like many of our colleagues, we are simultaneously administrators and subject to administration (James 2013, p. 802) in the process of curriculum change and the ongoing process of both seeking out and being compelled to undertake teaching improvement.

We acknowledge the real issues which ground the concerns raised by Nagy and Burch (and share them to some extent). Since membership of our CoP is voluntary, however, members need to be convinced that attendance is in their interests in order to continue to participate. Similarly, we would not have been prepared to initiate it unless we had been persuaded of its value to us and the wider projects in which we participate. From the inception of the CoP, its agenda has been placed firmly in the collective hands of those in attendance. We have resisted attempts to have it meet the goals of non-members, for example, by becoming a forum for addressing a review of the degree. We maintained a strong commitment to ensuring that each gathering of the CoP retained a high proportion of unstructured time for informal conversation and checking in with each person present (often over a shared meal or coffee) rather than adopting a standard committee structure. The environment of the CoP allowed staff to build friendships and many described it as fostering a sense that they were part of a teaching team rather than dispersed individuals teaching the same cohort. Students began to comment in a similar way, clearly perceiving that staff were in conversation with one another in a way that previous first year student cohorts had not appeared to notice. We canvassed members' views about CoP priorities through email discussion, an online forum and surveys to ensure that members unable to attend specific meetings could also have input.

From the first meeting, informal interaction among staff increased. Some staff team-teach subjects, with two or three staff sharing teaching within a subject in a variety of ways, but others do not. As a result of the CoP, staff chose to work more closely with one another across subjects designed to build upon one other (but which cannot effectively do so without staff co-operation). Staff cross-subscribed to

online forums in one another's subjects, shared emails sent to classes and discussed ways of ensuring learning outcomes could be achieved and student stress better managed. While some aspects of teaching and subject administration, such as requirements to provide basic information about subjects and assessment are mapped out in university documents, many remain tacit and based in experience. Strategies for teaching, assessment, managing common difficulties, use of the learning management system and so on began to circulate informally among teaching staff to a much greater extent than previously. The shared nature of the curriculum and central teaching tasks made this information significant to members, and the CoP created a context in which informal conversation meant that staff heard about one another's strategies for managing high volumes of email or the challenges of online submission, feedback and grading for example. Innovations in the use of the learning management system were mentioned in passing, discussed and in some cases demonstrated to the CoP or between interested members. Conversations referring to the pedagogical literature as a basis for teaching approaches gave rise to questions and requests for more information both in CoP gathering and outside them.

Once it became clear to those attending the CoP and other leaders in the school that the CoP was producing outcomes superior to those achieved by many committees, there was little incentive for management to require the CoP to conform to expectations of the institution or to achieve particular benchmarks. The collaborative ownership of the direction of the CoP, and the absence of mandated attendance are factors we take to be central to its success. This does not mean that the CoP stands outside the wider power relationships and managerial structure of the university, but it does explain why those who have chosen to participate may have done so.

9.3.6 Within a Discipline

Nagy and Burch (2009) argue that fragmented loyalties to discipline, department and University militate against the success of CoPs in academia. Like some of the other successful university CoPs (McDonald and Star 2006), we have located our CoP within a discipline, taking advantage of the loyalty of teachers to their discipline to generate coherence within the CoP.

Our CoP has faced competing demands at times. Early in the life of the CoP we decided not to accept requests from staff co-ordinating first year teaching in other disciplines to join the CoP. Our priority at that time was on creating a safe and welcoming environment which strengthened relationships between teachers of first year subjects within the law degree. Aware of the centrality of these relationships in building a successful CoP, we were not prepared to expand membership during those earlier stages. This would suggest our CoP membership is both "open", in the sense that all first year law teachers may participate, while at the same time being "limited", as only those first year teachers who share the domain of teaching in law

subjects may attend (Wenger and Snyder 2000; Borzillo et al. 2011, p. 26). We also resisted pressure to have the CoP operate as a committee which would consider responses to a degree review, with the goal of protecting the centrality of staff-established priorities as the heart of the CoP's work.

On the other hand, we have offered CoP-developed resources to other year levels, other parts of our school (criminology and legal studies) and other disciplines when relevant or requested and seldom experienced a sense of fragmented loyalty. These requests, and the enthusiasm of CoP participants for extending the strategies agreed on within the first year into the upper levels of the degree are indicators of the success of our CoP. It has been recognised as an exemplar within our institution and has been used as a model by other CoPs at Flinders University. Some of the achievements of this CoP have become catalysts for an integrated institution-wide approach to first year experiences across the university (Kift 2008b).

9.3.7 *Acknowledging Workloads*

Critics of CoPs in the university context have argued that the "onerous workloads and long working hours", increased stress and reduced job satisfaction that currently characterise academic work (Ryan et al. 2008, p. 179) militate against the success of CoPs. There is a sense in which this contention is irrefutable. For example, identifying times when staff can gather is very difficult. At one point when about twenty people filled in a timetable planner, we were able to identify only one hour of the entire week when all relevant staff might be available.

As instigators of the CoP, we could not ignore this challenging environment. We needed to be able to demonstrate that the CoP would offer sufficient rewards to warrant staff investing their precious time in it. This required a persistently creative approach to problem-solving: but staff attending were very motivated to find resolutions to our shared difficulties that might meet these criteria. We also sought institutional recognition for staff time and effort by achieving recognition of CoP activities as administrative workload for those who attended.

However, we would argue that in this environment, the potential of the CoP model to build collegiality is particularly significant. While collegiality is not sufficient to create a strong focus on educational quality, in our view, high quality teaching cannot be achieved without teacher collaboration.

9.4 "Walking the Halls"−Reflections on CoP Leadership

Wenger, McDermott and Snyder propose three levels of CoP participation—core, active and peripheral membership—with members having the potential to move between levels over time (2002, p. 56). Borzillo et al. (2011) expand on this,

identifying "community leaders" and "facilitators and subject matter experts" as playing key roles in supporting the integration of peripheral members (Borzillo et al. 2011, p. 28).

Being initiated *by* first year teachers *for* first year teachers has been crucial to the success of our CoP. As both community leaders and facilitators, we had credibility amongst our colleagues: we are experienced teachers teaching and subject coordinating in major first year compulsory subjects, and have both received recognition through national teaching awards. We also had a wide network of relationships amongst staff enabling us to connect on a personal level with each of them individually. Our experience certainly fits the description of "'walking the halls' of the organisation to connect CoP members" (Borzillo et al. 2011, p. 27).

9.4.1 Roles, Responsibilities and Recommendations for Future CoP Champions

We were not in a position to commit the "20–50 %" of our workload that has been suggested as necessary to promote and supervise a CoP in industry or business contexts, which no doubt contemplate a different model (Borzillo et al. 2011, p. 27 citing Wenger et al. 2002). We absorbed this additional responsibility into our existing roles as Associate Dean of Teaching & Learning and Director of First Year Studies (with responsibility for the New in Law co-curricular programme) respectively. These roles provided important initial synergies, which was especially crucial to managing our workload as the CoP commenced and we invested a good deal of work in its success, chatting with potential members, setting up meetings and developing or editing the resources agreed to at those meetings.

We attribute the success of the CoP to our having undertaken many of the roles identified by McDonald and Star (2006, p. 177). Securing funding (albeit minimal) to support the CoP's activities enabled production of professionally designed and edited resources and the provision of enticements such as a shared lunch. Negotiating institutional and school level support legitimised staff involvement and made it easier to recruit people to come along to the CoP and explore what it might offer them. Generating professional development opportunities for members based on their needs, and enabling the production of high-quality teaching materials and online resources for use within the school meant that staff within and outside the CoP were able to see that it met identified staff needs and saved time otherwise invested in generating these things on a subject-by-subject basis. The CoP thus provided value rather than only taking up precious time. Our capacity to assume the role of "subject matter experts", (Borzillo et al. 2011, p. 27) particularly in relation to legal education and transition pedagogy assisted the success of the CoP, as did our administrative roles at School level, which meant we had the institutional knowledge and capacity to identify threats to the CoP and potential resources for achieving its goals. We have been prepared to advocate for and speak widely about

the CoP's successes and challenges within our own institution, where we also participate in institutional level CoPs formed subsequently. Our CoP involvement has provided a platform from which to influence formation of integrated institutional strategies addressing the first year experience.

9.4.2 Energising

Our "intellectual and social leadership", and "passion for the …field", in this case teaching first year law subjects, was important in "energising the community" (Borzillo et al. 2011, p. 28 citing Wenger and Snyder 2000), especially in its early stages. We took these to be crucial elements of a leadership model that was focused on enabling collaboration and facilitating mutually agreed activities. In accordance with Wenger et al. (2002, p. 3) account of "cultivating communities of practice", we argue that in this case, "[d]esign and development are more about eliciting and fostering participation than planning, directing, and organizing [our] activities". Like others across the sector, in our school, staff faced high demands and sought support for the challenges that faced them as the implementation of the new curriculum came closer. We offered the CoP as a potential place to find solutions, a place to "assist academics [to] re-invent their part of the academy to make it a more satisfying and effective arena for professional practice" (McDonald et al. 2008, n.p.) rather than a site in which staff would be directed or asked to undertake more tasks.

9.5 CoP Life Cycle

Wenger et al. (2002, p. 69) note that "[a]lthough communities of practice continually evolve" there are "five stages of community development: potential, coalescing, maturing, stewardship, transformation" and that during each stage corresponding developmental tensions emerge. Alternative models have been constructed by a variety of authors (Ray 2006; Gongla and Rizzuto 2001).

9.5.1 Potential

Our CoP was conceived in late 2009 as a response to the suite of challenges outlined above. In that year, our university undertook institution-wide curriculum renewal directed at standardisation of subject unit values and the elimination of subjects with small enrolment numbers. These changes were widely perceived as motivated by efficiency, rather than pedagogical, goals. However, as Sally Kift

observed in a 2012 article in *Campus Review* in relation to national quality assurance and risk management processes: "We can tie ourselves up in disciplinary knots and approach … regulatory requirements reactively in minimal compliance mode …. Or we can respond conscientiously and try to do the right thing by our disciplines, our stakeholders and our students." Faced with pressures for change from the institution, and under the leadership of the then Associate Dean of Teaching & Learning Elizabeth Handsley, our school chose what Kift termed a "virtuous compliance" model, taking up the challenge by deciding to undertake a complete review of the curriculum for our law degrees.

This project would require integration of the prerequisites for admission to legal practice and the graduate qualities of our institution as well as our practical legal skills programme in a clearly stated and incremental progression throughout the degree. This was a substantial and time consuming undertaking. In taking up this model, our school also needed to meet professional accreditation requirements; seek ways to address an increasingly diverse student cohort; introduce an honours stream and cater for the addition of mid-year entry.

At the same time, a significant turnover of staff had the effect of creating a new cohort of teachers of first year subjects including some who had not taught in first year subjects before. For this and other reasons, previous collective staff identity, commitment and shared leadership had fragmented. Implementing the extensive changes envisaged by the curriculum review in this climate risked poorly coordinated, under resourced teaching and learning in the first year. More hopefully, it also presented a unique opportunity to take new approaches to the first year, less restricted by past teaching approaches and settled relationships between staff. Additionally, we wanted to move from existing co-curricular transition programmes being viewed as something separate from teaching in the first year, to instead establishing them as an essential link between first year subjects and a platform on which "second generation" approaches to the first year experience could be built (Clarke et al. 2013, p. 2).

We started by "discovering what [we] could build on and imagining where this potential could lead" (Wenger et al. 2002, p. 72). Key questions prompting our search for an appropriate and effective change management approach included the following: How could we offer first year staff inspiration and resources to manage the changes they faced rather than further burdening them? How could staff development opportunities best be tailored to current needs and concerns? What would assist in structuring the development of a supportive team focused on building skills for responding to the changing first year environment and sharing tools for best practice? How could teaching staff be exposed to current pedagogical research, encouraged to implement research-led teaching practices and then supported to integrate those practices across the first year of law? This "Potential" stage (Wenger 1998; Gongla and Rizzuto 2001) was the first in the life cycle of our CoP, acknowledging that "people face similar situations, but have not yet formed a shared practice" (Ray 2006, p. 323).

9.5.2 Coalescing

As literature on CoPs in the business and IT context notes, institutions are more likely to "sponsor the formation of [CoPs] and support their ongoing activity" if they recognise the benefits and possibilities for developing "new responses and solutions" (Gongla and Rizzuto 2001, p. 842). In late 2009, and prior to seeking any funding for the CoP we recruited the Law School Dean as a "champion" following the advice of Star and McDonald in a professional development session at our institution. The Dean was prepared to support the CoP's existence and activities as well as agreeing to provide recognition of the CoP as administrative load in workload calculations. Initial funding was obtained through an internal faculty Teaching and Learning Innovation Grant of A\$6000. This funding for facilitation, catering and administrative support meant that facilitation was not solely based on goodwill, though goodwill has certainly also been required. A small amount of annual funding has since been provided through a Flinders CoP programme run by the office of the Deputy-Vice Chancellor (Academic) (see Star et al. 2013).

We discussed the idea of the CoP amongst our colleagues in advance, generating interest and anticipation. As well as sending email invitations, we personally approached each of our colleagues to invite them to join us in the CoP to consider how we could support each other as first year teachers. Organising the first meeting to take place over a free lunch together was crucial in the early stages in encouraging more reluctant colleagues to attend. This gathering of "scattered" individuals "grappling with similar problems" (Ray 2006, p. 324) conforms with Wenger's (1998) second "coalescing" stage, where "members have interacted and found one common emerging point and its potential" (Ray 2006, p. 323).

Participation in the CoP by other first year teachers is voluntary though encouraged and rewarded to some small degree by the school through being recognised as administrative workload as described above. Given the multiple and competing pressures on staff, this recognition and reward is important in indicating the value the school places on staff collaborating on teaching and lowering the barriers to staff participation.

Our CoP commenced in early 2010 and met approximately every 6 weeks during semester for its first 2 years of operation. Meetings since have been held less frequently—three or four times per year. CoP meetings have been attended by an average of 10 people of the approximately 20 staff teaching across the first year, with those in attendance varying considerably from meeting to meeting. Initial meetings focused on establishing members' needs and prioritising them. From the beginning, we invested significant time in convincing subject coordinators in our eight first year subjects of the benefits of participation in the CoP due to their critical roles in agreeing to and promulgating consistent practices. Ultimately, they all agreed to implement the consistent practices negotiated within the CoP, though a few did not choose to become CoP participants. Their agreement was based on the substantial body of agreement the CoP came to represent, the quality of the

resources developed, and the ease with which they could be implemented due to our development of shared language, prepopulated administrative forms and template documents.

9.5.3 Maturing

At our first meeting, in discussion about what people were hoping for from the CoP, every person present expressed the longing to be part of a first year teaching *team*. This sense of goodwill and common purpose set an early positive tone, and proved essential for some of the more challenging 'nuts and bolts' conversations that were to follow. In its initial phase, the CoP was primarily engaged in discussion. With a number of staff relatively new to the institution or to teaching in the first year, allowing space for building relationships was an early crucial step. By seeking to model an attitude of welcome and hospitality, we hoped there would be space for conversations to arise, experiences to be recounted, and uncertainties to be aired. It was important in this phase to listen deeply to people's concerns about current process or practices. They proved to be crucial to the projects we would collectively undertake. However, as leaders of the CoP we found it vital to reframe these pain points as opportunities for positive problem-solving and the creation of effective alternatives whenever possible. Real as people's concerns were, we believed that the CoP could only meaningfully respond to staff concerns if it could build up a sense of agency, inspiration and collective action rather than becoming an arena for the airing of difficulties which were left unaddressed. As facilitators of the CoP we often took responsibility for drawing themes from CoP discussion. Members themselves sometimes proposed potential solutions. At other times, we proposed solutions and offered resources which might help bring these solutions into existence: our own time and effort, or our admittedly small pool of funding.

Tangible early results that saved staff time soon began to emerge from listening closely to time-poor staff speaking about the everyday challenges they faced in the first year and the innovations that they thought would make a difference to the pain points in their workloads. For example, we reached agreement for the first time on common administrative processes across the first year where these were not already mandated (e.g. word counts, late penalties, extensions). This marked the third stage, "maturing", by setting standards, defining our agenda and developing relationships (Wenger 1998).

We then began by substantially revising and updating an *Essential Guide for Law Students* to create a single uniform reference point for all first year students. This document was then professionally formatted and printed and made available to all commencing students as part of the New in Law co-curricular transition programme which takes place in orientation week. New in Law welcomes students, introduces student peer mentors, offers information to ease the transition to university and supplies necessary information about citation, university policies and student wellbeing. Staff sought to make this information centrally and consistently

available in a single document, so that it could be eliminated from its multiple forms in individual subject level documentation, which had previously been produced, updated and rewritten by up to eight different people. This also meant that this information was now available to all students even before formal teaching had commenced.

We followed up by creating uniform subject assessment documentation (required by university policy) prepopulated with our agreed administrative arrangements. Providing timely, consolidated, accurate and consistent information about such a wide range of matters significantly reduced the level of student stress and concern about these matters, thereby reducing the number of inquiries about these anxiety-producing details for all first year subject coordinators. This problem-solving approach also allowed us to benchmark current best practice in assessment and learning (for example, Boud and Falchikov 2006; Wilson 2009), and disseminate relevant recent research to the members of the CoP. Exploring and implementing research-led teaching in this way allowed those members of the CoP more steeped in the pedagogical literature to work with colleagues who had less exposure, thus building capacity across the CoP.

Next, we generated template documents to engender consistency across all compulsory core first year subjects (subject guides were the key initial example). Staff organised cross-subscription of subject coordinators to 'all student' and 'teaching team' emails for other first year subjects which allowed synergy between subjects, allowed staff to learn from one another's practices and sometimes provided early warning of emerging problems which could be jointly resolved in a timely way. All first year subject coordinators were given access to the Flinders Learning Online [FLO] (Flinders' learning management system) webpages for all other first year subjects. We coordinated due dates, eliminating student complaints about conflicting assessment dates before they could arise. We shared best practices in teaching and subject coordination, such as just-in-time emails to students about emerging events and milestones in student learning. We also provided resources to support teaching staff and lighten workload as the need or demand arose within the CoP (such as collaboratively produced marking rubrics).

Where the CoP identified a need or desire for school level policy change in order to support our initiatives, we approached the school's Teaching and Learning Committee, thus keeping the CoP's role distinct from the functions of school committees, yet exercising influence upon them.

New members of staff are invited to attend the CoP personally by one of the facilitators. Not all staff chose to remain involved in the longer term. McDermott (2001 cited in Borzillo et al. 2011, p. 28) describes these members as "lurkers" [who] might not contribute actively, [but] still extract value from the CoP by finding out who is working on what, and by learning about the CoP area in order to subsequently contact the appropriate members. Lurkers often approached us or other members of the CoP outside of meetings for advice on how to implement learning management system strategies discussed in the CoP, to seek support or to ask for information (for example, about where to learn more about active learning processes).

These overt and tangible results had capacity to save staff time and stress by meeting student needs in the coordinated fashion which the literature on first year pedagogy (Kift 2009; Kift et al. 2010; Wilson 2009) and student wellbeing (Field and Kift 2010; Kelk et al. 2009; Lizzio 2006, p. 2; Tani and Vines 2009) suggests is important to transition, retention and student success. Less tangible (Wenger and Snyder 2000, p. 140) but potentially even more important results have included: building and strengthening relationships amongst teaching staff; building support for first year teachers in the school (especially those new to the school); shared problem-solving as issues arise; development of a team focus on first year cohesion; a greater sense of connection with the New in Law co-curricular transition programme; raising the profile of key issues facing first year students; dissemination and discussion of teaching research about first year; improved uptake of research-led teaching strategies; and finally, students expecting and finding consistency amongst staff.

By the end of 2011 staff reported that they felt like a team, and had heard students referring to staff as "the first year team." Reaching agreement on key issues and the production of tangible resources that have lightened the load for first year teachers have been crucial achievements. This sense of being part of a team has in turn encouraged the building of relationships between staff. Demonstrably greater cohesion across delivery of first year subjects has been the net outcome. From 2012 onwards, with much of the initial challenge of implementation of a new curriculum overcome, meetings have focused more on professional development and increased adoption of a transition pedagogy and embedding this approach sustainably within subjects and across the first year of study. The CoP has also initiated conversations about opportunities and challenges that exist in increasingly utilising online technology as a teaching and learning tool. These have occurred concurrently with the implementation of an institution-wide policy requiring all student assessment to be submitted and marked on online. Discussion of how to meet the challenges of law student mental health and wellbeing has been a topic recurring from time to time, and the CoP has been important in allowing staff to share burdens, air concerns and provide support to each other.

In 2013, at the CoP's initiative, we hosted two separate forums for the entire law school staff with external guests speaking on strategies for supporting student and staff mental health. We addressed member concerns about online teaching and assessment by organising a learning management system 'bootcamp' in a computer lab at which some members were able to share their high quality online practices with less confident members and educational IT staff were able to provide skills training and explanation of online processes. This period might be called the fourth "Active" stage (Wenger 1998).

Meetings of the CoP decreased in frequency during late 2013 and throughout 2014, with the CoP no longer being as active. Wenger describes this as the fifth and final "dispersed" stage, where the CoP "functions more as a repository of knowledge" (Ray 2006, p. 323). In part this dispersal has been due to difficulties in scheduling, and competing responsibilities on us as facilitators. The documents generated by the CoP remain in active use, and to a limited extent have been refined

and updated each year. Ray notes "CoPs, which are basically containers of knowledge, cannot actually die out. What could happen though would be that the relevance of CoPs or the topics at the core of a CoP could face a decline" (Ray 2006, p. 324). This presents a number of difficulties in the context of our CoP: some original core members move more toward the periphery as their teaching allocation moves away from first year subjects; new staff commence teaching in first year subjects, but do not know how to easily access the CoP's existing corporate knowledge; members originally on the periphery of the CoP lack encouragement or incentive to continue to subscribe to jointly agreed processes and documentation, or forget that they exist.

9.5.4   Sustaining?

Reflecting on this movement though the expected the stages of a CoP's life cycle and considering the options for our CoP in future has again highlighted for us the importance of our roles as community leaders and facilitators in "energising the community." Other members of the CoP are generally enthusiastic about their involvement. However, without our active involvement, even those who were original core members have remained largely passive supporters. Renewal of leadership is essential in maintaining sustainability in the longer term, with active identification and mentoring of potential successors a necessary consideration well before the CoP reaches the latter stages in its life cycle. Borzillo et al. (2011, p. 28) note that potential successors "might not necessarily be experts in the CoP's field [but] what makes them effective is their heartfelt caring about the topic and the community." Finding potential successors who are willing to take on an extra commitment in the midst increasing academic workloads is a particular challenge.

9.6   Conclusion, Final Reflections, Implications and Future Plans

Change in higher education has become a constant: yet it is constantly both negotiated and resisted. Even change that is close to the heart of many teachers—change motivated by the intention to improve the learning experience—is complex change. As James (2013, p. 790) has argued, while improving educational experience on the basis of research evidence is likely to align with the values and aspirations of teachers, educationalist goals have also been harnessed to the well-recognised corporatist goals of marketability, efficiency and accountability. This sometimes-uneasy pairing creates new forms of resistance to change as well as representing a complex environment in which to participate in it.

Utilising a CoP model amongst first year law teachers at Flinders University has allowed us to frame creative and collegiate responses to the challenges imposed on as us academics (growing student numbers, increasing workloads, decreasing resources, new regulatory frameworks) as well as those we are keen to embrace, such as creating effective learning environments and implementing transition pedagogy; improving our own teaching practices; and strengthening significant collegial relationships and support. The voluntary, collaboratively owned approach of our CoP has been fundamental to its success.

We argue that a CoP model is one potential strategy for change management in challenging circumstances. We have argued that, in the contemporary context, opportunities for collaborative action are less available than in the past. Yet pedagogical research now indicates more clearly than ever that teachers need to collaborate closely for crucial learning and teaching goals to be achieved. For us, the community of practice represents a collaborative structure within which to address issues of mutual concern, build relationships and raise our collective skill and knowledge levels. To the extent that changes are chosen by staff, the CoP model creates a context in which cooperative action to bring change about can be taken. To the extent that changes are imposed, a CoP can permit staff to collaborate on managing that change.

In the contemporary university environment, understanding that change is necessary, desirable or unavoidable is only part of the challenge. Change does not implement itself, even when it has strong support. The more difficult part of the process is choosing strategies that are likely to be effective given the constraints within which change must be wrought. We would argue that our experience shows that a community of practice model has the capacity to be an effective strategy when it is initiated from within the staff cohort involved in the process of change.

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Chapter 10
Communities of Practice: A Practical Approach to Enhance Student Learning at a South African University

Shalini Dukhan

Abstract Communities of Practice have been established to address concerns at the levels of staff, students and curriculum in the biology department at a South African university. The first-year biology curriculum is shared by two schools: one teaches semester one, and the other semester two. Although staff shared the first-year teaching load they did not communicate about strategies they use to inform student learning and improve academic performance, or discuss the alignment of the curriculum across the schools. Furthermore, South Africa is still dealing with its history of apartheid; this means that some students, because of their backgrounds, have a distinct disadvantage when they aim to excel in their studies. By establishing a 'Community of Practice' amongst staff, lines of communication were created between members of two schools teaching the same course. By sharing issues commonly experienced and by a joint effort the Community of Practice developed a series of workshops aimed at levelling the academic playing field for students entering university. The outcomes were (1) the syllabus was restructured so that material was taught in a more hierarchical fashion across the schools; (2) skills that students lacked throughout their first year were identified and workshops were developed, and the content of weekly practicals revised, so that students were given regular opportunities to develop these skills; and, (3) students' grades improved. This chapter illustrates how, by adopting Lave and Wenger's notion of 'Community of Practice', academic staff take on a pivotal role in bridging the learning divide among first-year students.

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10.1 Introduction

For some time tearoom conversations amongst staff teaching biology at a South African university had included discussion about issues on student engagement and academic performance in the first year biology course. It became obvious to the lecturers that aspects of the undergraduate learning environment needed urgent attention. Concerns that were voiced by staff included:

- student discipline;
- the high fragmentation of lecture terms as a result of the number of lecturers who lectured for short periods of time;
- the need to develop the skills base of first year students,
- the students' lack of background knowledge of topics covered in first year;
- the lack of undergraduate engagement and participation during lectures;
- students' answers to assessments indicating rote-learning and limited understanding;
- complaints from students about an overlap of topics covered in their first year syllabus.

Moreover, the first year biology curriculum at the university is taught by two schools. These schools are physically separated, they occupy different buildings, and have different foci on subject matter taught: whereas one School focuses on whole organisms and the environment, and the other focuses on cell and molecular biology. Although both schools have jointly taught the first year students for over 15 years, there has been no formal platform for communication between the schools about the curricula, assessments, teaching expectations, or issues experienced in the classrooms. Because the schools are housed in two separate buildings not many opportunities for informal communications arose.

Although the university at which this study took place had provided many support programmes and initiatives to improve student performance, there was a need to enrich the learning experiences of undergraduates, thereby forming a stronger network of support. There was also pressure from government to increase student intake and improve pass rates and throughputs at university. This pressure stems from an attempt to redress historic imbalance.

Prior to 1994, during the years of apartheid, the South African government oppressed the majority of the native black populations by crippling their access to quality education (Christie and Collins 1982; Fiske 2004). Black schools were afforded ten times less funding compared with white schools (Christie and Collins 1982); this influenced the quality of resources available to students because it impacted on the ability to employ qualified teachers; access to proper classrooms; books; and technology (Iya et al. 2000; Bharuthram 2012; Christie and Collins 1982; Council on Higher Education report 2013; Fiske and Ladd 2004; Kaburise 2012; Parkinson 2000; Setati et al. 2002). When the democratic government came into power it had the substantial task of improving the quality of education available to the disadvantaged populations (Asmal and James 2001).

Since the collapse of apartheid the South African government has continued to place emphasis on equal access to tertiary education (Akoojee and Nkomo 2007). This is because the quality of education which students experience at rural, private and government schools is still highly disparate (Bharuthram 2012; Council on Higher Education report 2007, 2013; Fiske 2004; Parkinson 2000). Nevertheless, students from all types of schools have the opportunity to enter university. Students from disadvantaged backgrounds are expected to compete against and emerge at similar levels to their 'more advantaged' peers at university. Thus the universities have a pivotal role to play in levelling the academic landscape experienced by students from advantaged and disadvantaged backgrounds. The demand for teaching staff to meet the academic needs of undergraduates is high. The establishment of a platform to engage biology teaching staff was seen as a possible answer to provide an enriched learning environment. Two schools involved in teaching biology at a South African university have attempted to take a holistic approach in bridging learning gaps amongst first year students.

Teaching and learning biology at the university takes place in lectures, tutorials, and practical laboratory sessions. By looking at these aspects of the academic environment, the aim was to gain as much insight into concerns related to teaching and learning of the first year biology cohorts, and then to find means to mitigate the problems identified by teaching staff. The head of one of the schools of biology suggested that by forming a platform for staff to share their concerns and work towards solutions that faced the teaching community, learning could be further improved among undergraduates.

A Community of Practice (CoP) allows for participation of members who share common concerns or interests (Lave and Wenger 1991; Wenger et al. 2002). The collaborative interactions between participants results in learning amongst individuals.

The effect is an increase in the collective knowledge available to the community (Snyder and Wenger 2010); the intentions of the community can be explicit or tacit (Wenger et al. 2011). Within the university context, the platform offered by the establishment of a CoP enables the creation of a supportive environment for engagement on teaching and learning (McDonald 2014). Snyder and Wenger (2010) explain that a CoP comprise of 'practitioners who have the required knowledge, use it, and need it' (p. 109), and it is best when practitioners who are involved in the work steward the generation of knowledge. The value of this type of community comes from the collective intention to move learning forward (Wenger et al. 2011).

Lave and Wenger's theory on situated learning (1991) describes the learning experiences and knowledge available to apprentices who join the community. This theory centres on the social interactions that occur between apprentices and more experienced members; the interactions lead to sharing of information and thus intellectual stimulation and problem-solving of issues that the community experiences. As Lave and Wenger explain, all communities, by their nature, have boundaries. But, collaborative learning and/or work can occur when there is some overlap between the experience and competence that members of the community

hold (Wenger 2010b). At first the experience that the new comer holds assists their engagement with the community, but over time as the new comer interacts with others in the community their competence becomes more reflective and aligned with that of the community (Wenger 2010a). Wenger goes on to explain that the new comer can also advance the competence of the community, because they could bring in a new skill which the community needs to consider.

Lave and Wenger's theory on situated learning (1991) provided the seed for the development of a formalised platform amongst teaching staff in biology at the university. The establishment of this platform was viewed as a way to enable the knowledge and expertise of staff to be shared, and for common concerns and resolutions to problems to be discussed. This was also seen as the ideal stage to form collaborative relations between new and more experienced staff. In our context, the CoP was an intentional one. This type of platform within a university environment is different to conventional institutional meetings because within a CoP there are no matters of control or power (Snyder and Wenger 2010; McDonald 2014).

In 2008 under the direction of the head of school, I was tasked to set up and facilitate a 'CoP', in four first year biology courses. Below, I explain the framework which is used to contextualise the work carried out at our schools of biology. I go on to describe the practicalities, barriers and enablers to setting up communities of practice within our academic environment, and finally provide a review of outcomes of the initiatives that were attempted.

10.2 Framework

The concept of a CoP is not a new one; rudimentarily it describes the process of storytelling that passes from one generation to the next (Wenger et al. 2002). Lave and Wenger coined the term 'community of practice' in a book, 'Situated Learning: Legitimate Peripheral Participation' published in 1991 to describe this phenomenon, and this notion was later expanded by Wenger (1998) in his book 'Communities of Practice' and in other publications noted below.

Lave and Wenger indicate that a CoP comprises people who share a common interest and therefore meet on a regular and ongoing basis. A CoP fulfils three criteria: (1) it has a domain: this refers to the identity of the group which is based on the interest that members share; (2) it is a community: this refers to the members or individuals of the group who share experiences and knowledge with each other during social interactions, these individuals have a vested interest in advancing their learning or level of skill; (3) it has a practice: over time and through their interactions the community establishes a shared practice, and this represents the collective expertise and experiences that are the resources within the community. The collective knowledge or expertise provides the schema for newcomers, or apprentices, to make sense of the culture of the community.

The concept of CoP stems from the use of apprenticeship as a model for learning. This concept has been detailed over time to include definitions of 'boundaries', 'identity' and 'trajectories' (Wenger 2010b). As the newcomers' knowledge and understanding of the community increases through social interactions, they move from being peripheral participants towards becoming full practitioners. Lave and Wenger (1991) use the term 'legitimate peripheral participation' to describe the interaction of newcomers with other members of the community. As they explain, 'legitimate' refers to the sense of belonging within a community, 'peripheral' refers to a position where members are becoming empowered in their knowledge, and in understanding the culture of the community. Based on their social interactions within the community, members at the periphery gain access to the resources that are available in the collective expertise of the community. Situated learning is based on the view that learning occurs through social interactions between members belonging to a CoP.

In this context learning does not occur in a formalised manner, and is not intentional, rather learning (or obtaining skills) occurs as a result of the active social interactions between members of the community. In other words learning and knowledge develops incidental to the social interactions that occur. The apprentice will likely have more transformation in their knowledge than the older member. In this context of CoP there is no individual teacher who addresses a group of learners.

As the members interact with their community there is a change in their knowledge and skill. Meaning is negotiated during the process of learning. Participation lies with negotiating and re-negotiating meaning based on social interaction that occurs within the community (Wenger 2010b). The community has a history, and this is carried in the experiences of the community, i.e. in the stories that are passed on through the community (Wenger 2010a). Learning occurs through practice within a lived world. Therefore learning is a transformation that occurs as a result of the negotiated meaning within the social context. As newcomers interact with old-timers they learn to speak in the language of the community. It is through negotiating meaning in the language of the community that an identity is constructed. Identity refers to how someone views themselves, and how they perceive others view them (Lave and Wenger 1991; Wenger 2010b). As the apprentices' knowledge is transformed over time, and they gain mastery of knowledge and skills that are part of the community, they move towards becoming full practitioners. The idea of there being apprentices and full practitioners means that there are boundaries that exist within a CoP. This is due to different participants having differing levels of competence and experience in the domain (Wenger 2010b).

As individuals move towards becoming full practitioners their identity becomes more closely aligned with the practice and the community (Lave and Wenger 1998). Thus, within this learning environment individuals shape or negotiate their identities as they interact socially with others in the community. This means that the formation of identity is dependant on social interactions, and the shaping of identity has a trajectory (Wenger 2010b). In their interaction with the community participants come to an understanding of the culture of the community, how it relates to the larger world, evolve a competence in engaging with members within the

community, and comes to grips with how the collective resources of the community can be used appropriately (Wenger 2010a, b).

Cox (2005) has pointed out that over time the term 'CoP' has taken on different meanings. A CoP can refer to a conceptual way to analyse the meaning that has emerged from social interactions within different contexts (such as at an institution of learning or in the corporate environment), while in other instances the term 'CoP' has been used to refer to a platform that has been encouraged within an organisation with the aim of sharing knowledge or learning.

Nevertheless Lave and Wenger (1991) explain that a CoP shares understandings about 'what they are doing and what that means in their lives and for their communities' (p. 98). Within the context of the work done at the South African university, teaching staff in biology often engaged informally about their teaching experiences and concerns, but wanted to take this forward by looking into ways to mitigate concerns that they had observed and had faced. This gave rise to the formation of a community which intentionally worked together to improve their own practice and to enrich their students' learning experience.

Since the experienced staff were deeply involved in discussing key issues or concerns that came from the classroom learning environment, the newer staff could thereby gain insight into these issues, and could contribute ideas on problem-solving. Wenger (2010b) explains that while new-comers are negotiating their place within the CoP by determining how they fit in, 'old-timers' are vested in moving the practice forward. Within the context of the biology schools at our university, by enthusiastically engaging in discussions on teaching and learning the more experienced staff implicitly showed the new comers that lecturers are pivotal in enriching the students' university learning experience, and that they should be probing issues related to teaching and learning. Because the majority of teaching staff have a pure science background (no teaching qualification) and their interest usually lies in research, it is important that they demonstrate to newer members the value that they see in their teaching duties. Lave and Wenger (1991) explain that work and learning are intertwined. The formation of our CoP fits into the theory of situated learning as described by Lave and Wenger, because our CoP consists of lecturers who are lecturing within a university environment—i.e. a group of people who are engaged in developing their philosophies of teaching and teaching practices within a contextualised framework. Hence, within our CoP we share experiences from our teaching but also identify problems and debate solutions to issues that are experienced by the community. Within this formalised platform we have undertaken to practice and evaluate the solutions to problems that the teaching community faces in teaching biology at our university. The aim of the community was to provide a stronger framework for first year students, thus enriching their undergraduate learning experience; the focus was to identify ways of increasing pass rates and throughputs, maintaining a high standard of education.

When considering the issues that face the learning environment within the university, the establishment of the CoPs at the biology schools was seen as valuable for a number of reasons. (a) It facilitated the engagement of staff on issues that they felt needed addressing in the current education climate. (b) It enabled staff

to become aware of the links and overlaps across topics in the first year biology courses. (c) It allowed practitioners to determine links and overlaps with the high school (Grade 8–12) biology syllabus. (d) It assisted in finding solutions to the concerns of lecturers, and (e) it provided a platform for the sharing of good teaching practice.

10.3 Practicalities of Setting up a Community for Staff Engagement

The following was considered when setting up the CoP meetings for each of four biology courses taught at the schools in the university from 2008:

- who would be invited to attend, and how they would be approached (attendance at meetings were voluntary, so it was important to gain buy-in from staff)
- the time and venue that would be suitable for meetings
- frequency of meetings
- key issues and challenges that staff had voiced, and threads that came up during everyday conversations regarding teaching and learning in first year
- the correspondence that staff would receive after the meeting regarding the decisions that we had come to with regard to the way forward and initiatives we decided to implement
- ways to gain feedback from the initiatives, and presenting feedback to staff for their discussion.

Two of the four biology courses enable students to gain access into the two schools which teach science courses, and the remaining two courses are provided as a service to the degrees offered by the university's medical school. There are approximately 400 students for two of these courses, and about 200 registrants for the other two courses yearly. The teaching community that was invited to attend the scheduled meetings comprised academic lecture staff, tutors, heads of schools, and course coordinators. There were between 13–18 members of staff invited to each of the meetings. Meetings were initially held once every quarter, but later this was reduced to once a semester because of time limitations of staff. The first meeting was 2 h long, thereafter meetings lasted for 1 h. At the first meeting staff raised their concerns regarding teaching and learning that occurred within our first year courses. Thereafter I sieved out the core issues, tabled this and sent to staff for comment. We thereafter prioritised the issues for discussion at subsequent meetings. We also allocated sessions to review our thoughts on the progress and value of the initiatives which we implemented within our classroom contexts.

Over the course of the first year the four CoPs merged into two groups. This was because of an overlap of lecture staff across the different courses taught. The difference between the two groups that resulted from the merger was that while one group focused on teaching biology to the mainstream courses, the other group taught biology as a service course to the university's medical school.

10.4   The Process–Barriers and Enablers of the CoP

Meetings were attended voluntarily and there was participation of close to 100 % of invited staff at all the meetings: it is believed that this was because the issues discussed were those that staff had faced and voiced within the teaching-learning environment over the years. The head of department attended all meetings, his presence and commitment probably encouraged members of staff to attend as well.

I had set-up and facilitated the meetings that took place since 2008. I was requested to head the formation and administration of the platforms to be set up for staff to engage on issues pertaining to first-year teaching and learning in biology. As the youngest member of staff, and fairly new to the academic work environment, I envisaged that this would be a challenge. Since the issues around which each of the meetings were centred stemmed directly from issues that staff had faced and voiced, however, they were keen to take their concerns forward in a constructive way and within a formal setting. Other countries, particularly universities in Australasia have adopted a CoP discourse in their efforts to provide an environment for sustained engagement between staff for development and support of teaching and learning practices, but we had not yet heard of a CoP set up within a university in South Africa.

I have explained the need for and practicalities of establishing a CoP among staff at the university. Below, I elaborate on the measures that surfaced during discussions among staff to enrich the students' learning experience with the aim of improving their grades.

Aim The underlying idea in establishing the CoP was that this measure would assist in improving student academic performance, and thus increase the pass rates and throughput of the undergraduate degrees offered in the science department at the university. My vision was that the CoP should begin to open lines of communication between all members of biology staff across the two schools that lecture to each of the four first-year biology courses with the aim of improving the teaching practice at first year level.

10.5   A Practical Approach to Assist Students Achieve Better in Their First Year

Three areas in the teaching and learning environment were identified for improvement. (1) Each of the biology courses taught in first year needed vertical alignment of the syllabus across the year, and horizontal alignment of the curriculum with the content taught at school. (2) Lecturers' teaching styles, provision of classroom notes, and sharing of good teaching practice needed improving. (3) Methods for lecturers to keep students engaged during lessons, and approaches to foster self-regulated and independent learning by undergraduates required

attention. Each of these areas will be discussed in turn below. The way in which staff learning was facilitated is highlighted under each section. I end this chapter by indicating the benefits of establishing this platform for staff engagement, and the lessons that were learnt from this experience.

10.5.1 Realignment of the First Year Syllabus

Different policies put into place by government in relation to (1) the approach to teaching and learning at secondary school, and (2) the school syllabus have been adopted, revisited, and revised. This constant revision of the syllabus at secondary school level often leads to a knowledge gap when students enter university because the first-year university curriculum has not taken cognisance of the changes that have been implemented at schools.

In addition, most lecturers teaching first year students were not aware of the changes that had occurred at secondary school level. Therefore, one of the priorities that the CoP identified was to discern gaps and overlaps in the content provided in the first-year syllabus and the secondary school syllabus (vertical alignment). This also provided the opportunity to discuss horizontal alignment of content taught by the two schools in first year. Furthermore, by discussing the alignment of the syllabus for first year students, lecturers were able to identify the reasons for students misconceiving overlaps in the undergraduate syllabus. This informed lecturer practice, as lecturers had later reflected that these conversations had lead to them explicitly relating to students the interconnectedness with other topics that were lectured in the course. This activity also provided the opportunity for new staff to gain insight into content that was discussed during the year, which enabled them to make the link between topics which they taught and those that followed and/or came before their section. By engaging in discussions related to the syllabus irregularities such as gaps and overlap of content were ironed out.

It is vital that the CoP find ways to bridge the gaps caused by first year students entering university with different levels of background knowledge and skills, as well as engage with the different expectations that the students had of their role in regulating their learning. An area of focus probed practices that lecturers could use to engage students during class, and enable them to continue with a deep approach to learning after class.

10.5.2 A Community Approach to Engage Student Learning

Staff who lecture students usually have different degrees of interest in engaging with how students learn. The domain of the community refers to what the community cares about (Snyder and Wenger 2010). 'The challenge of community is that it requires sustained identification and engagement. Negotiating and

renegotiating a reason to learn together, helping each other, following up on ideas, developing shared resources, sustaining a social space for learning—all this requires time and commitment' (Wenger et al. 2011). From the discussions during our CoP meetings it emerged that first year students have no definite idea of their role at university. On the one hand, the experiences of various staff members showed that they perceived that first years saw themselves as passive recipients of knowledge within the classroom, and that the lecturer was 'in charge' of their learning. On the other hand lecturers expected students to self-regulate and take responsibility for their learning. It was therefore important that lecturers make their expectations of students clear from the onset of the academic year. Lecturers related that students realised the need to revise and supplement class notes only half way through their first year. They had not been taught this skill at school, and the university offered little preparation on note-taking and note-making. While some lecturers voiced that they needed to provide 'all' the content that students needed to know for assessments on their class notes, others felt that it was the students responsibility to make their own notes (Dukhan 2014). This particular issue caused animated discussions during one of our CoP sessions. There were many different opinions with concrete reasons for views from the different sides. The discussions on issues such as this provided the chance for generative learning to occur amongst experienced and new staff. Snyder and Wenger (2010) point out that the dissemination of knowledge within a CoP leads to 'informal learning' amongst practitioners. In the case of the university academic environment this informal learning impacts on the level of thought and ultimately the measures that are taken to move learning forward amongst students. Thus methods to engage students surfaced during these vigorous conversations within meetings of our CoP.

Members of the CoP suggested that one way to make the lecturers' expectations explicit to students early in the year would be to provide a checklist of the key concepts that students are required to understand and of the skills that they are required to develop in each topic. The aim of one of our CoP sessions was to develop a comprehensive checklist. At this session lecturers identified skills that they viewed as crucial for the development of biology students (particularly for these students to be 'research-ready' when they reached their postgraduate years). Staff also looked at how these skills could be taught in a contextualised manner, i.e. as part of each of the topics covered in first year. For example, a topic called 'action potentials' provides an appropriate point to teach the skill required for graphing. Some lecturers proposed that the content and/or skills which needed attention could be made clearer to students if the checklist also indicated the relevant sections covered in the textbook for which the skills were required. This initiative would enable students to prepare ahead of class, and/or to add relevant content to their class notes outside contact time. The more experienced teaching staff mostly shared experience of methods they used in the classroom to keep students attentive (such as talking about their research findings relevant to the section being taught), and their attempts to facilitate students to work outside contact time (e.g. only skeletal notes were provided so students had to develop their own notes). This was an

excellent opportunity for new staff to increase their repertoire of techniques for engaging students in deep approaches to learning.

Another initiative that was put in place, based on suggestions made during the meetings of staff, was a series of writing workshops. Staff had often complained that students' writing skills left much to be desired. Therefore, the teaching community discussed how writing workshops could improve the students' reading and comprehension abilities, and thus enhance critical thought. Sessions were held when students were required to read and then investigate the theses, arguments and supporting evidence in journal articles. Since most lecture staff were involved in setting up and evaluating practical laboratory sessions, this was another opportunity to engage students in writing activities. Thus, during the practical sessions students made observations on the experiments which they conducted, and then noted down their thoughts or opinions based on their observations. In this manner, students used writing as a vehicle for thinking, and as a tool to improve their depth of knowledge. It was important to follow up on the success of these activities, and learn whether students were taking these measures seriously. To measure success, test marks were compared over 3 years, i.e. a year before the interventions from the CoP were put into place, the following year when the interventions focused on writing were first implemented, and the year after the implementation of the interventions.

At first glance it seemed that there was no substantial difference in the marks that students achieved over the 3-year period (Table 10.1).

When the students were divided according to English as a first or a second language, however, a pattern emerged (Table 10.2).

There is a possibility that the university changed their selection norms and took in more academically-capable undergraduates in 2010 and 2011 compared with 2009, or that there were changes at school which enabled the second-language learners to develop a higher level of skills which they applied in the tertiary learning environment. It is also probable, however, that the improved grades of the students in 2010 and 2011 were a result of the introduction of the workshops. This is an example of how teaching staff who work together in a community are able to identify problems within the learning environment, and use their views and shared experiences to initiate ways to deepen student learning.

Additional measures were taken by staff to encourage students to understand what it means to be a self-regulated learner. Members of the CoP reasoned that by

Table 10.1 Marks students achieved for tests and examinations pre- and post-intervention

	2009	2010	2011
Test 1	46.5	67	57.5
Test 2	69	47	50.5
Exam 1	44.5	58	54
Exam 2	40	43.5	46.5
Test 3	48	46.5	45.5
Test 4	57	57	38
Exam 3	51	48.5	44.5
Exam 4	48		

Table 10.2 Marks first (E1) and second (E2) language English students achieved for assessments pre- and post-intervention	2009		2010		2011	
	E1	E2	E1	E2	E1	E2
Test 1	52	41	68	66	57	58
Test 2	73	65	50	44	49	52
Exam 1	50	39	60	56	56	52
Exam 2	45	35	48	39	45	48
Test 3	52	44	49	44	47	44
Test 4	62	52	59	55	40	36
Exam 3	59	43	50	47	44	45
Exam 4	59	52	62	53	48	48

administering weekly 'mini' tests, students would be likely to engage with their class work regularly and actively, rather than reading and attempting to comprehend classroom content only at test or examination time. In one of the four biology courses students were allowed to bring in one 'crib' sheet which they had compiled before the test. The idea was that students needed to read and attempt to understand their notes and to listen actively during class. It was believed that they were more likely to participate in class if they knew they could use this material to improve on their marks. When course co-ordinators followed up on this initiative they found that when these marks were used for formative feedback only, students scored lower than when the marks were added onto their summative class records. Although these marks made up only 5 % of the total mark for the year, students were more willing to put in additional effort compared with previous years when the marks were used formatively.

It was also crucial that staff should review the cognitive level of test and examination questions. If students thought they only needed to recall information during assessments they would be more likely to rote learn, but if students realised that they were required to synthesise and provide an analysis of data or provide their own opinions on topics, they would be more likely to engage at a deeper level with the course content. Thus staff within the CoP were shown how to analyse their test questions. Table 10.3 provides a summary that was used to show staff how the cognitive level of test questions influences the grades which students attained. Staff discussed the necessity of providing students with a balanced assessment (in terms of covering the different cognitive levels) so that first year students had a fair chance of passing. It was important that the test included questions at higher cognitive levels as well, so that the assessments discriminated and rewarded the top performers in the class.

Table 10.3 Feedback on the analysis of Semester 1 2008 and 2009 test paper analysis	Test					
		1	2	3	4	
	F					
	C					
	P					
	Total					

The test questions set in each of the tests for one biology course during semester 1 have been provided as an example below. The analysis was conducted in an attempt to define the types and levels of questions students are able to answer and the areas of difficulty in written tests. We were able to determine this by comparing student performance with the construction of tests and the types and levels of questions asked.

There are two dimensions to this analysis (Table 10.3). The first dimension (the second row) has a scale of 1–4; this represents the required thinking levels (cognitive levels) for students:

1 = Recall
2 = Understanding
3 = Analysis
4 = Higher abilities

The second dimension (the first column of Table 10.1) represents the different knowledge dimensions:

F = Factual (facts are required to answer the question)
C = Conceptual (concepts/processes/theories are tested)
P = Procedural (this type of question requires the student do a calculation/interpret a graph or diagram in some manner).

Examples:

F1: Provide a definition for the term monophyletic
C2: Why is phagocytosis more efficient than the intake of solubilised food?
P3: If the bar scale shown at the bottom of the figure represents 0.5um, what is the diameter of the cell?

When looking at the cognitive level of the questions in the tests a pattern emerged between the averages students attained, the pass rates of the tests, and the difficulty of these assessments. While all tests provided questions at the different knowledge dimensions (factual, conceptual and procedural), Tests 1 (Table 10.4) and 2 (Table 10.6) in 2008 and Test 1 in 2009 (Table 10.5) included a spread of questions at the different cognitive levels. Test 2 in 2009 (Table 10.7) had no questions at cognitive level 3 and 4, so this test could be considered 'easier' than the other tests since Test 2 in 2009 only required students to recall and apply a basic understanding of concepts when answering questions. The grades that students achieved and the pass rate for Test 2 in 2009 was noticeably higher than those attained in the remaining tests (Tables 10.8 and 10.9).

Table 10.4 Mark allocation for Test 1 in 2008

Knowledge dimension	Cognitive levels				
	1	2	3	4	
F	6	2	0	0	8
C	19	27	34	7	87
P	0	3	2	0	5
Total	25	32	36	7	100

Tables 10.3, 10.4, 10.5, 10.6, 10.7, 10.8 and 10.9 were presented to the members of the CoP. The aim was to make it clear that the level of testing in first year is related to the grades which students achieve. At a fundamental level it was more important to show that the tests can be used as a mechanism to encourage a deep approach to learning. Students who achieved lower grades because they were tested at higher cognitive levels applied themselves more vigorously to their texts and notes when studying for subsequent assessments (Dukhan 2014). This is partly because these students were the top performers in secondary school, and a drop in their grades in first year at university compelled them to find ways to improve their academic performance. However, if students experienced and/or anticipated that

Table 10.5 Mark allocation for Test 1 in 2009

Knowledge dimension	Cognitive levels				
	1	2	3	4	
F	8	4	0	0	12
C	4	29	31	6	70
P	0	12	6	0	18
Total	12	45	37	6	100

Table 10.6 Mark allocation for Test 2 in 2008

Knowledge dimension	Cognitive levels				
	1	2	3	4	
F	24	2	0	0	26
C	33	9	20	0	62
P	0	12	0	0	12
Total	57	23	20	0	100

Table 10.7 Mark allocation for Test 2 in 2009

Knowledge dimension	Cognitive levels				
	1	2	3	4	
F	45	0	0	0	45
C	15	15	0	0	30
P	25	0	0	0	25
Total	85	15	0	0	100

Table 10.8 Averages of students' grades for tests

	2008	2009
Test 1 (%)	46	44
Test 2 (%)	44	62

Table 10.9 Pass rates for tests

	2008	2009
Test 1 (%)	33	32
Test 2 (%)	36	83

simple recall would enable them to attain a pass in their tests and examinations then they were more likely to rote learn (Dukhan 2014). There are many accounts in literature showing the multitude of factors that can influence student academic performance. These results show that lecturers influence students' approaches to learning. While the 'old-timers' at the school were more experienced with setting assessment questions, the new staff members with less expertise were shown the necessity of setting assessment questions at different cognitive levels. The findings on assessments provided an opportunity for old and new staff to discuss mark allocation for different types of questions. Setting and marking assessments are considered part of the job of an academic employed in a teaching position at a university, yet little thought is given to the expertise that the individual needs to accomplish this task. The CoP provided a wealth of knowledge in this regard, and new comers were able to access this in discussions on assessments. In this way, the CoP at a tertiary institution provided assistance for new comers in an area where they might have had little training or experience.

Many studies (Carrier 1983; Ganske 1981; Howe 1970; Johnson 1924; Laidlaw et al. 1993; Makany et al. 2009; Narjaikaew et al. 2009; Palmatier 1971; Pauk 1978; Schultz and Di Vesta 1972; Titsworth 2001; Weener 1974) have shown that grades are influenced by the quality of notes that students compose. Since students' notes are usually based on the slides that lecturers provide in class (Dukhan 2014), it is important to look at how first year students use the material on the lecture presentations to improve their notes and/or learn for assessments. The biology schools at my university often provide only lecture slides during the classroom lesson, no additional notes are provided. Most first year students come from a secondary school background where teachers provided them with all the learning material which was assessed in tests and examinations (Bharuthram 2012; Isaacs 1994; MacDonald 2000). These students anticipate a similar level of support from their lecturers, so lecturers should be aware of the way in which undergraduates use the lecture slides during and after class. Dukhan (2014) showed that, based on their school experience, some first years thought that if they studied only the material provided on lecture slides they would pass. The schooling experience of other students helped them in their first year at university, so that they were able to review, elaborate and revise the slides to suit their understanding of concepts. Lecturers who are aware of the contrast in the learning experiences of students at school and at university can assist undergraduates to bridge the gap when they start at university.

Some members of the CoP indicated that in their experience the pace at which they lectured could be used to either encourage students to think and write about the material provided during class, or only to listen throughout the lecture. Dukhan (2014) has shown that when undergraduates listen only, and do not take notes or are not given the opportunity to think about the content which is provided, they become passive learners. Some practitioners in the CoP further suggested that they encouraged students to ask questions during class. This approach from the lecturer is important because first year students usually feel intimidated by the large classes; they frequently have questions but rarely find the courage to ask them.

Lecturers can facilitate active learning and student participation in the class
Some lecturers noted that topics (e.g. ecology) enabled them to facilitate debate sessions in class. Students had the opportunity to come together in small groups and discuss/share knowledge, work out their positions/opinions and then present this to the rest of the class. First years are often keen to learn from their peers, and this form of active learning proved popular and enriching for undergraduates.

Most lecturers acknowledged that language poses a barrier to classroom learning. The majority of the South African population receives schooling in an African language but the medium of instruction at university is English (Dukhan 2014). One way to mitigate issues posed by the language barrier is to explain concepts with the aid of visuals. An example which illustrates the value of this technique was used in one of the biology classes. A lecturer was discussing the behaviour of snakes, and used the word 'twitch' to describe the movement of a snake, then showed a short video on the behaviour of the snake. A second language student later related to me that it was only when he had seen the video that he understood what the word 'twitch' meant. In this instance the visual that the lecturer provided clearly enriched the learning experience of the student in the classroom. By making these types of observations and sharing good teaching practices, lecturers become aware of new ways to engage actively with students during class.

Members of the CoP debated another method of gauging student understanding; this method stemmed from a paper written by Etkina (2000) which discusses the 'two-way feedback' method, and looks at feedback from the perspective of the lecturer and the student. This paper proposes that the lecturer should consider the following questions after the lesson:

1. What material did my students think they have learnt in class?
2. What material were the students uncertain about?
3. What questions are they anticipating I will ask them tomorrow based on the material I provided today?

Students are also meant to reflect on and provide answers to a set of questions:

1. What content did you understand from the lecture?
2. What content still seems vague or unclear to you?
3. If you were the lecturer, what questions do you think you should have asked to ascertain the level of understanding in the class?

When the lecturer views responses to the first set of questions in relation to the second set of questions answered by the students then the lecturer should be able to see whether there is alignment between their perception of class understanding and the students' actual understanding. These questions provide the lecturer and the student with the opportunity to gain some insight of expectations. In other words, students can become more aware of the standard expected in tests and examinations. This strategy puts the student in a position to decipher the important concepts learnt in class, and makes them think about how testing will occur. This is a practical approach that can be used to facilitate student learning while at the same

time enabling the lecturer to identify which content the class understands and/or finds problematic.

The paper by Etkina was made available to lecturers, and discussions around the implementation of this method in our first year classes took place. The following set of questions were sent to lecturers prior to the meeting so that they could reflect on their views and discuss these during our meeting:

1. In your lecturing experience, have there been any changes in your first year students' abilities to read, comprehend and write over the years?
2. If there were any issues experienced, have you provided any techniques to guide students to overcome these issues? How did you implement these strategies? In the opinion of the lecturer, how effective were these strategies?
3. Do students usually show an adequate understanding of the background knowledge required for your part of the course?
4. Why is it necessary to make your expectations of background knowledge explicit to the class?
5. Why is it necessary to determine the students' level of understanding regarding your topic?
6. How engaged are students during lectures?
7. How important is student feedback for the lecturer?
8. How important is lecturer feedback to the student?
9. What is your opinion on the level of questions you receive in class? Do you think these questions are reflective of students' comprehension abilities?
10. What is your opinion on the strategy presented within this paper (Etkina 2000)?
11. Can we, in some way, adapt the strategy presented in the paper to suit our first year classes (Etkina 2000)?

Lecturers form a pivotal part in helping students to understand that they should be self-regulated and independent learners. Academic staff can provide scaffolding to facilitate and enable this process. If lecturers are more aware of the effect that their practice has on student learning they can facilitate students to gain a more enriched learning experience.

10.5.3 Alignment of the Teaching Environment and the Learning Experience of First Year Students

Prior to the establishment of the CoP there was no documented approach to guide lecturers in the biology schools at my university for teaching first year classes, on lecturer preparation, or on the level of support that could/should be provided to students. Additionally, lecturing was fragmented: lecturers gave a varying number of lectures to the first year biology classes, had their own lecture styles and methods of presentation, their own notions of the level of support they provided to students, and the expectations that staff had of students differed between lecturers. Because

some lecturers based their lectures on the information from textbooks and others based most of their material on their research, students felt unsure about how to learn, what resources they needed to use to supplement their notes and knowledge, and how much detail they were required to know. When first year lecturers indicated that students could use the textbook to supplement their notes, the material was often spread across a number of chapters, not always present under one cohesive topic. When students enter first year they often struggled to come to grips with a system which requires an independent, self-regulated approach.

An additional complication that students do not take into consideration is that at school one teacher covers a particular subject for the duration of the year, whereas at university each course is often taught by a number of lecturers. It is important that lecturers make their expectations clear to the first year students because different lecturers have different lecturing styles. Moreover, it is vital that lecturers give some thought to how students use lecture material provided when they study after class. If little direction is given by the lecturer, even lectures that students find 'interesting' would be futile if students are not able to engage with and remember their content at a later stage.

The community wished to discuss the introduction of a unified approach to teaching and explicitly establish their expectations of students. By accomplishing this, although students would have different lecturers during the course of the year, they would have had a good indication of what was expected of them, and how they should go about learning during and after class. Finding a common ground that suited the community of teaching staff proved difficult. Eventually the decision was taken that each of the two schools would have a standard approach amongst its own staff. This meant that in semester one students would experience one approach to teaching and expectations of staff from one school, and in semester two the other School would have their own unified approach to conducting their part of the course. The discussions between members of the CoP provided the opportunity for staff to work together to facilitate the students' transition into university.

At the biology schools at my university, students are also taught by teaching assistants (TAs). The TAs interact with first years during the weekly laboratory sessions. The content covered during these sessions is based on content of the lecture sessions. During the laboratory sessions small groups (of approximately 20 students per group) carry out experiments or make observations by referring to steps provided in their laboratory manuals. Each group is assigned one TA, usually a postgraduate student who has completed a biology-related degree. TAs were usually prepared for their duties during a pre-laboratory session. The problem was that the level of support the TAs received from the different lecturers varied: while some lecturers provided pre-labs on the day of the practical, others provided these pre-labs a few days before the practical; while some lecturers provided extensive reading materials and mark memorandums to TAs others provided little if any information in addition to that provided in the practical schedule which students received. To enhance and regulate the level of support students received during laboratory sessions the CoP reviewed the importance of preparing the TAs better for the laboratory sessions. The members of the CoP also said that it is necessary to

ensure that the content which the TA's gave to their groups during the laboratory sessions was correct, so that any misconceptions that the TAs may have had were addressed and that the quality of material which the TAs gave to the students was of a high standard. TAs were tested on the theoretical and practical aspects covered in each lab session in the week prior to the session to determine their extent of understanding of the session. The lecturer involved in the course evaluated the answers and, during a group session, went over any misconceptions or gaps in understanding that TAs experienced. These initiatives were aimed at boosting the TAs content knowledge, skills and confidence in running the practical sessions— for most of the TAs this was their first experience in 'teaching' students or facilitating the learning process of students. Considering that some of our postgraduate students are eventually employed as staff at our university, this provided a good opportunity for them to be inculcated into good teaching practice.

By targeting the different areas associated with learning (i.e. the tutorials, practicals, and classroom lectures), on different fronts (the lecturers, students, and teaching assistants), the CoP set about to improve the quality of teaching and learning experienced by students in first year. One of the key areas where an improvement can be quantified is the students' academic performance: the initiatives at my university showed that there was a decrease in the mark gap between first and second language undergraduates and one factor that attributed to this was the holistic approach resulting from the discussions during our CoP meetings. There could be other factors that contributed to the better marks that students achieved— students registered that year may have been more academically capable. The beneficial results from our community of staff meetings meant that we could continue to strive to augment the learning experience of our students, and to introduce new staff into the requirements of teaching in our institution.

10.6 Usefulness of Establishing a Community of Teaching Staff

Providing a platform for staff to engage on issues that relate to the teaching and learning environment was seen to be valuable because it enriched the quality of academic experience our students received, and it development our teaching staff. These formal, regular meetings set aside time for peer discussions and learning which was aimed at developing good teaching practice. New staff who have little teaching experience were likely to gain the most benefit because few individuals come into the teaching environment in the pure Sciences with this type of experience to keep the class attentive, facilitate learning, set appropriate assessments, which are all part of teaching duties. Apart from this, staff in Science are accustomed to working independently on isolated projects or in their laboratories, therefore deeper engagement on issues on teaching and learning did not really take place. Thus by engaging within a CoP staff could collaboratively and collegially

consider how to better their teaching practice. Being a participant within a CoP formed a valuable part of the expertise that new lecturers could access when they enter the teaching domain. The CoP provided an opportunity for generative learning to occur, and also opened the doors to dialogues among new and experienced staff on teaching practice. These dialogues supported the development of the collective intelligence and thus the expertise available within our community. According to Snyder and Wenger (2010), the practice of the community develops as practitioners converse and share knowledge within a domain. Within the university context, the true value of a CoP is shown when the shared collective knowledge evolves to the application of this learning in the work of the practitioners.

Lessons from our past: Ways to improve on CoP within the tertiary academic environment in the future
As McDonald et al. (2012) noted, individuals of a CoP have different needs and level of skills. In my setting, if staff were provided with the opportunity to complete a self audit then insight could have been gained into the value that they felt they got from being part of the CoP. Although lecturers had discussed issues relating to good teaching practice, a selfevaluation to determine the effectiveness of this platform could have assisted in further developing this CoP. The key questions on value creation that are posed in the book by Wenger et al. (2011) are recognised as a valuable resource that could drive a self-evaluative assessment. This would have assisted in identifying whether lecturers felt more empowered as a result of the discussions that occurred within this platform. I would suggest that a yearly review be done in this regard to help shape the future of the platform. The inclusion of some students (perhaps class representatives) in our meetings could have informed the strategies we chose to develop self-regulation among students, and to gaining their perspective on how our effective our approaches were.

10.7   Conclusion

The three components of a community, i.e. shared practice, the development of a community, and a growing knowledge domain, formed the basis of our interactions. The formation of a CoP at the biology schools at my university facilitated a team-teaching approach amongst lecturers, tutors, and teaching assistants, and this network resulted in a deeper approach to teaching and learning for our courses. Students are mostly unaware of the level of transition that is required when they enter university, but university staff can be insightful and knowledgeable about easing the students' transition. When staff work together to enrich the students' learning experience academic performance, throughput and pass rates can improve. Lecturers have a fundamental role to play in discovering problems that students experience in the learning environment, and then finding ways to mitigate them. The initiatives of staff at my schools can be broadened: staff can also use forums such as CoPs to develop the students' level of skill and content knowledge so that

students are research-ready when they complete their undergraduate degrees. This means that when students are accepted as postgraduates they should have the necessary skills to succeed in their research projects. The dialogues among new and experienced staff can be used to extend good teaching practices within the university setting.

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Chapter 11
A Facilitated Community of Practice: Enabling Student Success in the Blended Learning Environment

Clare Power and Lyn Armstrong

Abstract This chapter explains the implementation, facilitation and experiences of a community of practice; video-based Peer Assisted Study Sessions (vPASS), which utilised recorded lectures and collaborative learning methodologies for at-risk undergraduate students studying Mathematics for Engineers. Students who had previously failed this core subject, were invited to enrol in the vPASS mode of Mathematics for Engineers which provided a facilitated, small group learning environment. They found significant benefits in the experiences of learning together and supporting each other's learning trajectory through the challenging content. We consider vPASS through the lenses of 'mutual engagement, joint enterprise and shared repertoire' which Wenger describes as processes that contribute to communities of practice (Wenger in Social learning systems and communities of practice. Springer and the Open University, Milton Keynes, pp 179–197, 2010b, p. 72). Although this program was based in a particular subject, the principles and approaches which underlie vPASS are transferable to other discipline areas. Transforming the experience of learning from a lecture into a social meaning making activity provides students with life-long learning skills; a graduate attribute of many institutions. It can also enable students to take greater responsibility for their learning as their motivation increases and they develop effective study strategies.

Keywords Community of practice · Peer learning · Blended learning · Video-based supplemental instruction · Students at risk · Online lectures · Mathematics for engineers

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11.1 Introduction

In the context of blended learning becoming a common approach in higher education, we suggest that developing communities of practice among peers is an effective approach for enhancing students' learning. This chapter explains the implementation, facilitation and experiences of such a community of practice; video-based Peer Assisted Study Sessions (vPASS), which utilised recorded lectures and collaborative learning methodologies for at-risk undergraduate students studying Mathematics for Engineers. Students who had previously failed this core subject, were invited to enrol in the vPASS mode of Mathematics for Engineers which provided a facilitated, small group learning environment. They found significant benefits in the experiences of learning together and supporting each other's learning trajectory through the challenging content. Following a discussion about communities of practice, peer learning, we consider vPASS through the lenses of 'mutual engagement, joint enterprise and shared repertoire' which Wenger describes as processes that contribute to communities of practice (Wenger 1998, p.16). Although this program was based in a particular subject, the principles and approaches which underlie vPASS are transferable to other discipline areas.

Many higher education institutions are adopting blended learning as a way of addressing the multiple and diverse demands of students and government (Torrisi-Steele 2011). Blended learning is a contested term that spans a continuum between fully online and face to face learning and its implementation adds another challenge to the student experience (Partridge et al. 2011). This sector-wide move to blended learning also raises a number of pedagogical implications. It is often assumed that the current generation of students at Australian universities can be defined as digital natives (Bennett and Maton 2010) or the Net generation (Brown and Czerniewicz 2010) when studies have shown that such homogenising is not representative of students' aptitude or skills base with online technologies (Kennedy et al. 2010). Although students may confidently engage in some online environments these are often in different contexts to the design and expectations of the university online environment and therefore students have not necessarily developed the meta-skills required for learning in an academic setting.

Pedagogy is widely understood to be central to blended learning design, especially for first year students (Bath and Bourke 2010), and where a course requires students to use technologies as a means of communication and/or learning there is a need to scaffold students' skills (Francis 2012). Yet, despite the range of possible alternatives afforded by new technologies and debate about their pedagogical merit (Gosper et al. 2010), lectures remain a common teaching approach in Higher Education and research suggests that many students find lectures to be important and challenging modes of learning (Wood et al. 2007). However, there is little problematising of how effectively students actually process online lectures (Chaudhury 2011). This is particularly significant in the blended learning domain where modalities such as the flipped classroom are based on students engaging with lecture material prior to participating in applied learning (Bishop and Verleger

2013). This chapter discusses how students can learn from recorded lectures together in communities of practice which might be peer to peer or facilitated, and face-to-face or online.

11.2   Communities of Practice

Since the concept of communities of practice was introduced by Lave and Wenger (1991) within the domain of the social and situated nature of learning it has been embraced by a range of disciplines, particularly organisation, management and human resources (Hughes et al. 2007), and not quite so broadly, by education, international development, healthcare and information technologies (Wenger 2010b). Within these disciplines, the emphases on different aspects of communities of practice vary according to the context (Wenger 2010a; Hildreth and Kimble 2008). Nevertheless, despite an increasing range of interpretations, the relational nature of learning among people with a shared purpose and learning needs (Lave and Wenger 1991) tends to remain. Communities of practice can be conceived of as 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis' (Wenger et al. 2002, p. 4). Indeed, Wenger et al. (2002) suggest that communities of practice have been part of human social systems since the Paleolithic period and they continue to infuse our lives.

Communities of practice is not a descriptor, but a theory of learning that arose as part of the paradigm shift from a focus on the individual learner in the behaviourist model to the social situatedness of learners (Hughes et al. 2007). The process of 'legitimate peripheral participation' was coined to describe learning as becoming a member of a community of practice (Lave 1991). Wenger (1998) later described this terminology as 'unwieldy' (p. 100), although it encapsulated the initial, low risk, peripheral process of joining a community and the importance of being given legitimacy by the community through learning. His subsequent texts (Wenger 1998, 2010a, b; Wenger et al. 2002) focus more on the negotiation of meaning and identity through active participation in communities of practice, and social practice as learning. Throughout his work, Wenger emphasises the organic nature of communities of practice which each produce their own internal dynamics and social relations. He describes four inter-related components of this social theory of learning as meaning: learning as experience, practice: learning as doing, community: learning as belonging and identity: learning as becoming (Wenger 1998, p. 5). The three interrelated processes that create a 'regime of confidence' within communities of practice are described as 'mutual engagement, joint enterprise and shared repertoire' (Wenger 2010b, p. 72). 'Mutual engagement' relates to the ways that through their ongoing interactions communities of practice members create norms and establish collaborative relationships. In this process they develop common understandings and goals that are referred to as 'the joint enterprise'. These are not static but continually revisited and revised. The resources produced

by communities of practice that include 'languages, styles and routines' (Barton and Tusting 2005, p. 2) are described as their shared repertoire. The group dynamic that is built around these processes creates the community of practice (Wenger 2010a, b). Each community of practice therefore, is different from any other as it creates a life of its own according to the multiple elements and dynamics within each group.

Although communities of practice have been embraced particularly in the organisation field, there is a growing body of literature that addresses communities of practice in Higher Education (see for example Bouchamma and Michaud 2011; Hildreth and Kimble 2008; Jakovljevic et al. 2013). Wenger (2010b) points out that the predominant focus on professional development in communities of practice in higher education can serve to effect broader change in the sector. Bos-Ciussi et al. (2007) suggest that learning communities are the student equivalent of communities of practice, which are usually composed of colleagues or professionals (p. 291). One of the main contrasts is that learning communities are generally not organic, but 'an artificial construct created by the teacher' and 'perceived by students as an obligation' (Bos-Ciussi et al. 2007, p. 291). Discussion in the literature seems to affirm that a community of practice can evolve naturally according to a group of people's common interest or it can be specifically created as a way of gaining and sharing knowledge (Fuller 2007). However, a sense of obligation is usually more specific to a student-based learning community than a community of practice. In addressing these differences, Bos-Ciussi et al. (2007) propose that social cohesion promoted through interaction compensates for the sense of obligation that might otherwise stifle the development of the group. The vPASS classes, discussed in the case study below, can be conceived of as learning communities of students who voluntarily joined the program, but within the broader constraints of needing to complete the subject within which vPASS is situated.

11.3 Peer Learning

Research consistently suggests that peer interaction in the learning environment is a significant contributor to student engagement (Arendale 2014; Zepke and Leach 2010). Although it is championed as resource effective, more importantly peer learning is pedagogically valuable (van der Meer and Scott 2008). This chapter is particularly concerned with a variant of the peer learning model of Supplemental Instruction which has been utilised in Higher Education Institutions since 1973 and exemplifies the value of peer-assisted learning (Hurley et al. 2006a, b). Supplemental Instruction originated in an initiative developed by Dr Deanna Martin at the University of Missouri—Kansas City in 1973. Given the task of improving the retention rates of students, Martin devised the Supplemental Instruction program based on the philosophy of peer learning and focusing on study strategies for learning specific course content (Hurley et al. 2006a, b). The effectiveness of the Supplemental Instruction model is underpinned by strong theoretical frameworks such as constructivist learning and critical theories which ensure pedagogically

sound and innovative approaches to learning (Zerger 2008). Supplemental Instruction is based on optimising learning through a social learning context whereby students collaborate to construct knowledge in a facilitated learning environment. With its socially situated perspective on learning, Supplemental Instruction provides subject-based communities of practice (Chilvers 2014; Couchman 2009) which enable students to develop meta-cognitive skills such as 'learning how to learn' (Jacobs et al. 2008). The essence or 'original genetic code' (Couchman 2008, p. 8) which differentiates the program from other peer learning programs is a collaborative learning approach facilitated by trained senior students who have successfully completed the subject. As near peers who share the 'lived experience' of their attendees, the student facilitators model 'how to learn' in a safe and non-threatening interactive learning environment. A crucial component of SI is that it is not remedial, and it targets 'high risk' courses not 'high risk' students' (Hurley and Gilbert 2008; Jacobs et al. 2006). In this sense it is a developmental, program and therefore suitable for the spectrum of students from those anxious about passing to those aspiring to high grades.

Due to its success as a learning methodology, Supplemental Instruction is now offered by hundreds of tertiary institutions in over 29 countries across the world (International Centre for Supplemental Instruction 2015).The nomenclature of the program varies; for example in the United States it is usually referred to as SI, in the United Kingdom the term Peer Assisted Learning (PAL) is preferred and in Australia it is most commonly called PASS (Peer Assisted Study Sessions). Given the case study discussed here occurred in the Australian context, the program will be referred to as PASS for the remainder of this chapter. Substantial research into the effectiveness PASS finds that students who attend PASS tend to attain higher mean grades than their counterparts who do not attend, particularly where they attend regularly (for example Malm et al. 2011; Hurley and Gilbert 2008; Etter et al. 2001). It is difficult to isolate PASS as a sole predictor of student success as there are so many different variables determining student performance. However, studies which control for variables such as student aptitude and the voluntary nature of attendance have found improvement in students' performance amongst those attending the program (Parkinson 2009; Hensen and Shelley 2003). As well as impacting on students' grades, attendance at PASS assists students in learning how to negotiate academic culture and provides a social forum to counter the isolation students can encounter in Higher Education (van der Meer and Scott 2008).

11.3.1 PASS in Engineering and Mathematics

PASS was successfully introduced at the University of Western Sydney in 2007 and has since become an embedded feature of the student experience with strong institutional support. The common criteria for selection of a subject to be supported by PASS are a relatively high failure rate and/or students find it particularly challenging. Mathematics for Engineers is a subject with a consistently high failure

rate exacerbated by a considerable proportion of students entering university without having completed the requisite mathematics in high school. This is not a singular experience as students attending university are increasingly coming from a diverse range of mathematical backgrounds, many of which do not prepare them adequately for the level of mathematics they are undertaking at University level (Dalby et al. 2013; Henderson and Broadbridge 2007; Larson 2006). The removal of prerequisites, by some universities, for courses such as engineering and the perceived lack of scaling for more challenging subjects in the university entrance score can be seen as contributing factors in the decline in the number of students studying mathematics above the elementary level in the final years at school (Barrington and Brown 2014). Not only are their skill sets short of the requirements, but many of these students have not developed the skills necessary for the level of independent study expected of them at university (Rylands and Coady 2009). The consequences for students who do not have the necessary skills to achieve in mathematical subjects in their degree include 'disillusionment, failure, withdrawal and loss of self-esteem' (Pell and Croft 2008, p. 167).

PASS has been shown to be effective in assisting students in both mathematics and engineering (Malm et al. 2011; Cheng and Walters 2009; Kieran and O'Neill 2009; Mahdi 2006). Studies have shown that PASS can enhance Engineering students' learning experiences by helping them to engage with the content and in the process build learning communities (Power and Dunphy 2010; Lin and Woolston 2008; Murray 2006). Given the challenges that students face in Mathematics and Engineering subjects, and it being a prerequisite to other units and hence completion of the degree, Mathematics for Engineers was among the suite of subjects that piloted PASS when the program began at UWS. It was extended the following semester to Mathematics for Engineers 2 and since that time PASS has continued to run each semester in both subjects. However, having observed PASS attendance increase incrementally in a number and diversity of units, we were perplexed by the persistently, relatively low take-up among Engineering students. We observed that despite a high percentage of students failing the unit more than once, other supplementary support such as mathematics workshops run by Student Learning staff also experienced erratic attendance. We addressed a range of variables such as timetabling and promotion but numbers remained consistently low.

11.4   Video-Based Supplemental Instruction: vPASS

When one of the authors attended the 2010 International Supplemental Conference in the USA, she was particularly taken by Dr Deanna Martin's presentation on Video-based Supplemental Instruction (VSI). This is a specific form of Supplemental instruction designed by Dr Robert Blanc for students at risk of failure due to not having the pre-requisite knowledge necessary to succeed in their course of study (Martin and Blanc 1994). Martin explained that research had consistently found that students who enrolled in the VSI mode of study scored higher on

persistence and performance and re-enrolment, despite evidence that they are quite disadvantaged in terms of previous academic performance and with respect to most demographic variables (Hurley et al. 2006a, b). Following 15 years of implementing VSI at universities, colleges, high schools, grade schools, neighbourhoods, hospitals, community organisations, Martin and Blanc intended to conduct a meta-analysis of the VSI. Martin encouraged practitioners at the conference to contribute to the meta-analysis and offered to support the establishment of new VSI programs. As well as being buoyed that a pilot at her university could be supported by participating in this research project, the author was inspired by the social justice orientation of VSI and its non-remedial approach. Students are admitted by institutions to courses without prerequisite knowledge, and VSI provides a means whereby, instead of seeing the students as the problem, the institutions take some responsibility for supporting these students. The broader social justice aspect of VSI is that Martin and Blanc have established a non-profit organisation called Worldwide Education committed to facilitating the 'educational programs that allow people in a multitude of settings to empower, enrich and educate one another in a collaborative learning environment with a trained facilitator' (Martin and Blanc 2010, p. 1).

Video-based Supplemental Instruction (henceforth referred to as vPASS), which draws on the same principles of PASS, is a social learning system based on facilitated collaboration between students. Three distinguishing features of vPASS are that: students attend the vPASS mode of the subject they are studying, whereas PASS is supplemental to class; vPASS utilises recorded subject lectures as the primary source of content and there is significant emphasis on pre and post learning (Wilcox and Jacobs 2010). Additionally, the class sizes are small in order to enable the establishment of a dynamic learning community which can encourage students to take greater responsibility for their learning (Hurley et al. 2006b). Consequently, vPASS creates an environment where students can process lecture material in an in-depth and reflective manner (Armstrong et al. 2011; Hurley and Gilbert 2008).

11.4.1   Implementing vPASS

On returning from the conference, the author approached staff from the Mathematics and Student Learning faculties to gauge their interest in piloting vPASS in Mathematics for Engineers. This content dense subject covers a diverse range of topics and seemed very appropriate for vPASS as many students experience this subject as difficult. Reasons for this include lacking the assumed level of mathematics, with approximately one third of students coming from a non-calculus background, and low confidence or poor attitudes towards mathematics and or study in general. Students who are underprepared for this subject in terms of their mathematics background generally struggle to process the lecture material sufficiently to be able to move through the content at the pace expected in the regular mode of Mathematics for Engineers. This is despite the subject lecturer, who is very

committed to student learning, recording her lectures and placing them on the subject's online Blackboard site, as well as developing a raft of resources to support students in learning the subject content. These practices, which pre-dated the now standard practice of recording lectures, meant that many of the resources necessary for vPASS were already developed. The evidence base for vPASS, and the seemingly intractable problem of decreasing the failure rate in this subject for students who had been accepted into the University without sufficient background in mathematics, was sufficient to generate enthusiasm and initiate a working party to examine the feasibility of a pilot. Once a strong proposal was developed under the joint auspices of the PASS program and the Mathematics faculty, the program eventually received institutional support in the form of funding to run a pilot program.

The funding enabled two academic staff members to attend a customised vPASS training run by Drs Blanc and Martin in the USA. The staff members were the senior academic who led the working party and the staff member who would facilitate the vPASS group. This staff member was a Mathematics Support Lecturer in the Student Learning Unit whose role included designing and running bridging programs and workshops for engineering students. She also has long term experience with the PASS program. Subsequent to the customised training, the working party made some adaptations to the vPASS model to suit the UWS context. A vPASS research project, which obtained ethics approval, was concurrently designed to include both qualitative and quantitative data collection methods. As well as comparing assessment grades and final grades between students studying in the vPASS mode of the subject and students studying the unit in the regular mode, both groups were surveyed at the beginning and end of the semester and vPASS students were invited to attend mid-semester and end of semester focus groups. Selected data from this research is presented in this chapter.

The PASS coordinator oversaw the pilot project with the support of the working party. It was determined that students who had previously failed the subject once or twice would be invited to enrol in the vPASS mode of the subject. In order to establish the credibility of the program from the outset, a formal application and interview process was instigated. This was preceded by an information session to explain the learning modality as well as the expectations regarding the commitment required to enrol in the program. The opportunity was framed as a privilege and there were obvious incentives in terms of a small class size and a supportive learning environment providing an opportunity to succeed in a subject they had previously failed thus restricting their progression. These are not typical processes in the formation of communities of practice, although using Wenger's terminology, students were made aware of the clear inbound and outbound trajectories in this particular community of practice (Wenger 2010a). The criteria for joining were clear, and the time-span of the community was determined by the length of the semester. Bitterman suggests that 'the termination of formal coursework' creates a 'formally bounded' community of practice that threatens the ongoing or spontaneous nature of communities of practice (2008, p. 317). However, in a discussion about boundaries within communities of practice, Wenger (2010a) suggests that

given their nature, boundaries are implicit and need not necessarily have 'negative connotations' (p. 125), particularly where the potentiality at their edges informs practice.

11.5   Developing a Community of Practice

Students who had failed the subject Mathematics for Engineers 1 once or twice previously were sent a letter that invited them to '*participate in an effective and innovative form of learning being piloted in Maths for Engineers 1*'. Sections of the letter are included below as a way of describing the explicit information that students were given, as well as being a device for explaining the program to readers of this chapter. In the letter, students were informed that: '*the content of Mathematics for Engineers 1 (ME1) will be delivered using a student-centred learning approach called vPASS (video-based PASS) which is a highly structured approach to learning that will help you master the content in ME1 as you develop and refine your mathematical and critical thinking skills*'. The letter went on to explain why they had been given this opportunity: '*This is a supported approach to learning which enables students who have failed the subject one or more times to address any issues that have hampered their success. Due to smaller class sizes of no more than 15 students and an approach to learning that ensures understanding concepts before moving to new topics, students will be able to approach the subject's assessments with confidence*'.

The letter then described how vPASS would work: *vPASS is a form of collaborative learning that utilises the technology of lectures online. In vPASS, Lyn Armstrong, the SLU maths lecturer will use the recorded Maths for Engineers 1 lectures as a tool to guide you through the content. The lectures can be stopped at any time by Lyn or students for clarification, practice and discussion. When you begin a new topic you would have the opportunity to check all your background knowledge. For example, before doing the topic Inverse Functions we'd review your trigonometry skills and then, if you needed to improve your understanding we would provide the opportunity to practice these before doing the actual topic. Then, when we are actually going through the Inverse Functions lectures, these can be stopped at any time by any student to do extra practice, or to repeat certain sections or to do activities that support your understanding of the concept. The main idea is that you have the opportunity to learn as you go through the lecture. This means that the concepts are being learnt in a concrete, face-to-face and supported situation. It also provides the opportunity to create your own study notes as you progress through the material. This means revising for exams is much less stressful and more effective as you will already know the material*'.

It was anticipated that students might baulk at participating in a program that required an extra 4 h on campus. Engineering students have one of the highest face-to-face attendance requirements among the different disciplines and do not tend to spend sufficient independent study hours out of class (Ambikairajah et al.

2006). Therefore the purpose of the extra hours was clarified in the letter and at the information session: '*vPASS will require 8 face-to-face hours per week which will be divided into four 2-h sessions. You will not be required to attend lectures or tutorials in the regular Mathematics for Engineers 1 classes as vPASS will cover the same content. While 8 h may sound a lot, remember that you have 4 h of lectures and tutorials scheduled each week. Participation in this program will require a further 4 h of contact time. The extra 4 h are needed so that you are able to process and understand the subject content with immediate help available. Given that you are expected to spend 10 h per week studying on average, the 8 h on campus can be thought of as valuable structured 'study time'. You would be required to make a formal commitment to attending all vPASS sessions*'.

The diagram in Fig. 11.1 below illustrates the Mathematics for Engineers 1 cohort and positions the vPASS students with other students repeating the subject. The delivery of the material is the only distinguishing factor among the entire cohort as all students in the subject are evaluated in the same way.

Fortunately a sufficient number of students enrolled in vPASS to make the program viable. The first vPASS pilot group had 12 students enrolled for the semester: eleven males and one female, which is only slightly more proportionally weighted towards males than in the general Engineering student population. Seven
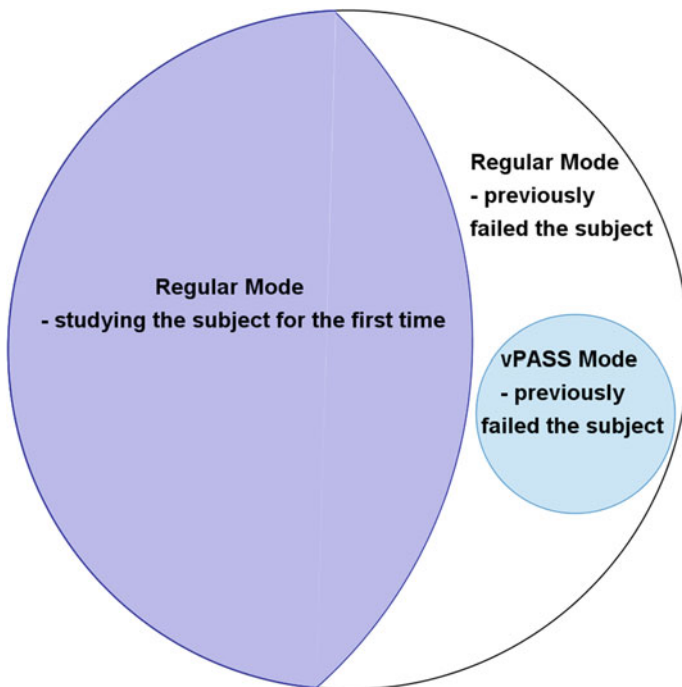
Fig. 11.1 Shows all students enrolled in Mathematics for Engineers 1; the mode of delivery was either regular or using vPASS

of the students were the first in their family to attend University and of these; five came from non-English speaking backgrounds. Half of the students had entered University via entry scores close to the minimum entry level, seven students had failed the subject twice and five students had failed it once. A number of the students had also failed other subjects and ten of the twelve students were classified as 'at risk'. Subsequent iterations of the program had similar demographics.

The development of the vPASS community of practice can be understood through considering the processes of 'mutual engagement, joint enterprise and shared repertoire' (Wenger 2010b, p. 72). Considering these processes as stages in the formation of a community of practice illuminates the temporal aspects of social learning systems. 'Mutual engagement' is established in the orientation stages of a community of practice, which enables relationships to be built and strengthened as they deepen their understanding of their 'joint enterprise' and in the process develop the 'shared repertoire' of their particular community of practice.

11.5.1 Mutual Engagement

Once classes began the roles of the two main staff members, who authored this chapter, were clearly differentiated. As will be discussed below, the role of the vPASS facilitator became focussed on developing a learning community among the students and working through the content of the subject with them. The PASS coordinator oversaw the administrative aspects of the program and ensured that the vPASS students were treated in the same way as all other students registered in the mathematics subject with respect to all assessment items. She also monitored students' attendance and followed up with students who were not meeting the minimum attendance requirements to remain in vPASS. The approach was not punitive, but one of support and respect for the complexity of the students' lives. The PASS coordinator would meet with students to ascertain the issues they were dealing with; where they chose to disclose them, and to help the student with problem solving. These meetings provided opportunities for staff to understand the impact on students' lives of their commitments outside university and to learn that many of the barriers to their learning related to family responsibilities, health issues and working long hours. We negotiated strategies with students including setting up study buddy partnerships. The PASS Coordinator also conducted mid-semester interviews with each student to check their progress, and their degree of comfort with and commitment to the program. At the beginning of the semester, all vPASS students were asked to sign a Memorandum of Understanding that detailed both their and the vPASS facilitator's responsibilities. This was designed to encourage students to understand their roles as members of the learning community and the responsibilities this entailed and the document provided a formal reinforcement of staff concerns and expectation.

11.5.2   vPASS Facilitator as Broker

Although the vPASS facilitator is an academic member of staff, as per the guidelines of vPASS, she was not responsible for assessing the students in any way and authority for the subject rested with the subject coordinator. Her role can be understood as a 'broker between communities' (Wenger 2010, p. 128) as she brought practices from several different communities to the vPASS group. She conveyed ways of learning from her knowledge as a student learning advisor and trained vPASS facilitator and could deconstruct the subject content due to her extensive prior experience with the subject. Consequently, the vPASS facilitator was well equipped to create collaborative learning activities. The forms these activities took were dependent on the specific content area but included formulating questions and problem solving. Such activities can be understood as 'boundary objects' (Wenger 2010) whereby modelling how to unpack the subject discourses and developing artefacts, such as templates for approaches to mathematical problems, gave members of the vPASS group tools for their shared learning processes. The vPASS facilitator's role within the community of practice then, was to enable meaning-making through creating the possibilities for both participation and reification (Wenger 1998) so that physical and conceptual artefacts interplayed with the active engagement of the vPASS participants.

Communities of practice facilitators can help learning groups recognise how 'each member and event contributes to shared values, that the culture is inclusive, and that goals, process are explicit' (Bitterman 2008, p. 326). These are the same processes undertaken by the vPASS facilitator to encourage 'mutual engagement' in the group and to begin to build a culture of trust. Each of the vPASS students experienced some form of vulnerability in entering the vPASS group. The role of the vPASS facilitator then was not just to facilitate learning content but to enliven the students as a group so that they understood their complementarity and how their collaboration would be mutually beneficial. An essential part of the facilitator's role approach is a shift from the didactic form of knowledge transmission to continually modelling learning as experience and practice. Hansman (2008) argues that communities of practice 'are limited by what they already know as they decide what they wish to explore' (p. 305). We suggest that the role of the vPASS facilitator is to help students move beyond what they know and their habits of learning that have limited their fields of exploration.

11.5.3   The vPASS Cycle

vPASS sessions are comprised of the four stages of preview, process, review and polish. These stages are internally organic and dynamic depending on both the past and present experiences of the students and the content. Engagement with practice (Wenger 2010) is one of the defining features of communities of practice and this

unfolds in unpredictable and unanticipated ways. For example, the facilitator could not rely on the experiences of the first vPASS class when planning her second iteration of the program because the dynamics that occurred in relation to learning activities, content and social relations were unique to each group. Nevertheless, as semester progressed, students in each iteration of vPASS began to see that their different strengths could coalesce to form a sum greater than its parts. Where one student was not able to grasp a concept, other students in the group came to realise that in articulating their explanations to the student they were refining and perhaps recalibrating their own understanding. Rather than perceiving a member of the group as lacking, they saw opportunities for developing a deeper and applied shared understanding. For example, Student H commented: '*studying in a group is good because each student knows more or less about each topic*'. This type of awareness was subtly brought to the fore by the vPASS facilitator through questioning techniques, the types of activities she devised and the configurations of smaller groups she organised students into. By encouraging them to work with different students, rather than forming small cliques, a stronger sense of identity as part of the group forged the experience of learning as belonging (Wenger 1998).

Rather than being a linear process, recursive looping occurs within the vPASS cycle of stages. Previewing involves preparation for the lecture in terms of vocabulary and content; processing the lecture occurs though either the students or facilitator stopping the video at any point for clarification and attempting practice questions in pairs or small groups; review means revising the content through practical examples; and polish entails ensuring a deep understanding of the concepts has been acquired and are consistently revised throughout the semester (Hurley and Gilbert 2008). The overarching principle of vPASS is that students work in small groups when learning the subject content, and that the process of learning is as significant as the content. This means that the learning processes are explicit, named and reflected on through discussion. Student C commented that through participation in vPASS they felt much more confident to ask questions, and found the process of participation and ability to stop the lecture enhanced their learning process: '*I liked that you could ask any question and no harsh comments were said even if it was a 'stupid' question. Also that it is very interactive and everyone participates and that we can pause the lecture to go back and understand what is happening*'.

11.5.4   Preview

The vPASS facilitator fostered the collaboration of participants in actively tackling together the high volume of demanding content in this subject. In the preview stage, students were guided through activities to prepare them for the content covered in the lecture. Student I compared this process to their experience in the regular class: '*every time we'd start a new topic she'd (the vPASS facilitator) always make sure we knew the prerequisites. Like in the regular class, the lecturer would just jump*

into the lecture, I suppose that's alright but, you know, if you don't understand something you just fall behind and then you keep falling behind'. This stage also provided an opportunity to correct misconceptions and actively learn and reinforce the assumed principles. This was sometimes achieved through revision as student E commented: '*if we don't understand something she'd go back to things you would learn in high school. Just to give you the basics and then kind of build on that*'. The most common approach was to ask students to look over a prepared worksheet before working in pairs or small groups to complete the activities. In previous attempts at the subject, students reported that when trying tutorial questions at home they spent considerable time just deciding how to start. Student D observed: '*we used to go home and spend hours trying to figure out what it was about … it would take an hour or two at home what you've achieved here in a few minutes*. The preview stage also reinforced the social nature of learning mathematics, as student F noted: '*I have learnt a lot more in vPASS than in the lectures because of more interaction.*'

11.5.5   Process

Following a preview of the lecture content, the group was then guided through the lecture by watching it in small segments which often correlated with particular preview exercises. For example, a 2 h lecture usually took more than 4 h to cover in vPASS mode. The recorded lectures were projected onto a screen in the classroom and students could either indicate whenever they wanted the lecture paused or pause it themselves. Engaging in this process helped students to realise that they are not alone in finding the pace of the lecture challenging as expressed by student B: '*vPASS made me realise that I wasn't the only student who couldn't keep up with the speed of the lectures*'. The facilitator also pre-determined places to pause the recordings to check for student understanding or so students could attempt questions presented in the lecture. This involved considerable discussion where students described their solutions and workings before viewing the solution presented in the lecture. When asked about the types of learning activities they found helpful during vPASS students frequently commented on the benefits of pausing the lecture, timely practice of questions, and group work. For example student A reflected: '*stopping the lecture, discussing, then doing the questions relevant to what was just explained in the lecture … this definitely contributes to the ease of learning and greater understanding*'. Due to the extensive time spent with the other vPASS participants, the students were able to feel comfortable and confident in class enabling them to ask questions and receive help from other students. As student A explained: '*I enjoyed the discussion, understanding, the ease of asking questions, learning and the best it gave me is confidence*'.

The early stages of development of communities of practice take some time as members negotiate their identity with the group. For example, students rarely paused the lecture themselves in the first week and a half of vPASS, instead relying

on the facilitator. Students were loquacious when working in small groups or three or four, or could speak to the larger group when conversation was social, but exposing themselves mathematically was a much harder undertaking. As a means of fostering engagement we trialled a system where each student was given coloured squares of paper so that they could indicate to the facilitator when they wanted her to stop the lecture, or elaborate on an example. The colours replicated traffic light systems so that red meant stop the lecture, orange that clarification was required, and green that they understood the concept. This was designed to allay some of the anxiety that students seemed to feel about speaking up in the group. The use of the colours was sufficient to begin to break the ice, and introduce some humour and enable students to speak comfortably about the content with the larger group.

The following text from the focus group transcript conveys the initial experience of several students with pausing the lecture. The focus group facilitator, referred to as 'Questioner' was a member of staff from the Student Learning Unit who was not directly involved with vPASS.

Questioner: *How was it, the way you worked with the online lecture?*
Student B: *Yeah that's a big advantage.*
Student G: *That's really good. Being able to stop that.*
Student B: *Because you can pause, and stop at a question, because once you do a question you get a little more understanding.*
Student D: *It's heaps, heaps better.*
Questioner: *And so did you all feel able to say "Can we stop now"?*
Student B: *Oh yeah definitely.*
Student G: *Yeah.*
Questioner: *And did you feel able from the beginning or did it take a while to get used to it?*
Student F: *It took about a week or two.*
Student B: *If it took anything it would have been a week or something before we felt comfortable.*
Student D: *Well she drilled it into us, like every day she would keep telling us to pause it and encourage us to do it.*
Student B: *And if she sees someone's facial expression change she'll pause it.*
Student F: *She'll catch you out before you can even ask.*
Student G: *The group work was good, being able to ask each other.*
Questioner: *Can you explain what you mean by group work.*
Student G: *Well, say when we pause the tape, the lecture, we'd do a few tute questions and we'd be encouraged to ask people around us, so we'd work together.*
Student D: *She would only answer questions generally if no-one else knew how to teach them.*
Student B: *Yep, then she'd write it on the board and get us all, you know, sort of take turns in going up there and having a go at it.*

11.5.6 A Joint Enterprise

Lea (2005) cautions that if the complexities inherent within communities of practice are not recognised then patterns of exclusion or marginalisation can be reinforced. The experience of a novice on the margins who through participation in the community becomes expert can instead become an entrenched state of marginalisation where students do not gain confidence or develop ways of accessing academic practice and discourse. This can occur in student learning communities where there is not sufficient scaffolding or explicit learning opportunities and the focus is on individual proficiency. vPASS is designed to address these issues so that scaffolding is implicit in each learning activity and as students develop their sense of a 'joint enterprise' they are cognisant of each other's needs as can be seen in student A's comment: '*we all want to pass it, all help each other*' and student F's remark: '*we got to meet new people … and we learn better in groups*'. This was also exemplified in students being able to turn what could have been a problem when some students frequently arrived late to class. Instead, they were able to see the positive aspects of the facilitator recapping for the late arrivals: *when the late people come in and Lynn recaps on what we've done the people that weren't late still ask questions and she encourages us to teach them so that we really have to make sure that we know what we're talking about, so it's a win / win' (Student J).*

Throughout vPASS, students were renegotiating their identities as successful learners and the extra time allocated to this subject meant that there was also time for students to get to know each other more fully, as 'whole people' (Wenger 1998). Student H commented: '*bonding with the other students … that's really good. I will say that another good thing is that there's no-one really slacking off … Some of the tutorial people [regular mode] just sit in the corner and just talk or whatever the whole class. But [in vPASS] everyone was paying attention and doing the work. I've never really seen anyone slack off unless they're really tired but they're not being destructive.*' The 'joint enterprise' was also experienced through understanding the purpose of studying mathematics in their engineering course. Fuller and Jorgenson (2004) found that in order for students to be effectively engaged in learning, they need to understand the relevance of the mathematics they are studying to their engineering studies; however, in practice, this is not always made explicit. Once learning is purposeful there can be major leaps in understanding and the social practice of learning enhances this capacity. Additionally, the practice of learning how to learn in vPASS is transferrable to other domains of learning so that the vPASS participants also became identity brokers among their peers in other subjects. For example, students stated that they would take many of the skills and strategies they had been taught and modelled, such as the practice of making summary notes each week and studying together, into future subjects. Student G expressed this pithily: '*use the power of groups, group study*!'

11.5.7 Shared Repertoire

Review

The review stage began when students attempted questions during pauses in the lecture. During this time students were encouraged to co-create summary pages on flip charts, which were then placed on the walls, and used as a basis for their own weekly summary notes which students reported to be a helpful learning activity. Further individual review also occurred when students were given questions to complete for homework. The idea that mathematics could be enjoyable affected students' attitudes towards reviewing their work: '*when you understand maths it becomes fun to work with, and therefore more motivation to keep on track, studying at home etc*' (student E). vPASS also enabled students to approach the subject from a more empowered and collegial place: '*it helped me to determine my weak and strong points and strategies and working with others, induced understanding'(student I).* Spending time in revision gave students a sense of study practices they may previously have valued: '*It's a lot of time to learn the topics better and revision is good*' (student B).

Polish

The polish phase of reviewing and consolidation usually occurred when the overall topic was completed and the group were preparing for a test or completing a summary of the topic. When the group prepared for class tests, the summary notes for each topic were used and modified to answer questions that could be expected in the assessment activity. Artefacts for the revision sessions came from sample class tests provided by the lecturer, tutorial questions and questions students sourced themselves. Often students brought in the class tests from their previous study of the subject. The final revision at the end of the semester involved bringing together each of the topic summaries to make links and assist in determining how to answer questions likely to appear in the final examination. Strategies for completing the examination were also discussed at this time. Hansman suggests that the 'power' in communities of practice lies in their self organisation, self determination of agendas, self directed and meaningful learning, and consultative leadership (2008, p. 300). As the vPASS sessions progressed and students felt more comfortable with the learning processes, they became more involved in determining the internal dynamics of their sessions. The agenda for the session would be co-constructed with the facilitator, and students would negotiate the amount of time they would spend on each stage. Student J explained: '*Oh yeah we always get in each other's ear. We'd get together and work on the board with each other and you know we sort of ran the class ourselves I suppose*'. Ultimately, the semi-structured nature of vPASS did not seem to detract from these elements, but actually created a boundary within which the vPASS participants could safely explore the edges of their competence (Wenger 2010a).

Tacit Knowledge

Learning from lectures is an aspect of university culture that is rarely discussed explicitly with students, and in content heavy areas such as mathematics the capacity to learn from this mode can be essential to success. The concept of a lecture as a passive experience is changing with interactive opportunities such as clickers incorporated more frequently, as well as the multiplicity of presentation options augmented by technology (Heaslip et al. 2014). Rather than being conceived of as a process of transmission of knowledge, a lecture can be understood as a complex learning situation which demands command of a number of skills and processes by both the lecturer and students (Chaudhury 2011). In a mathematics lecture for example, Wood et al. point out the multiple modes of representation which require a range of complex skills to navigate. They suggest that the lecturer needs to serve as a mediator between these modes as they move between 'oral language, written language, mathematical notations, visual diagrams' (2007, p. 912). Where such mediation does not occur, there seems to be an assumption that students should be adept at learning this way. One of the features of communities of practice is sharing such tacit knowledge which Wenger et al. (2002) suggest occurs as part of the process of participation. In fact they claim that communities of practice are in the 'best position to codify knowledge because they can combine its tacit and explicit aspects' (2002, p. 9). This was certainly a feature of vPASS where the assumed knowledge of learning from lectures was modelled, experienced and repeated consistently so that students were apprenticed into the skillset required for successful completion of Mathematics for Engineers 1 and subsequent mathematics subjects. One of the students who had failed the subject twice previously, found the processes they learnt in vPASS to be revelatory in terms of learning how to approach mathematical problems: '*Look at differentiation now, I find it really easy and before I used to just look at it and just have no idea where to start at all. She [vPASS facilitator] also teaches how to process a question a lot more, like first look for the techniques* ' (student C).

Relationships are core to communities of practice (Hildreth and Kimble 2008) and the benefits of this are evident in the following comments. Student D reported '*Everyone's got a lot more happier attitude. It's not like* 'Oh classes' and student A added '*We love vPASS*'. It is highly unlikely that this degree of enthusiasm would have been experienced if these students had enrolled in Mathematics for Engineers in the regular mode where the larger tutorials do not provide the same opportunity to form learning communities. Student E explained: '*it is really helpful to constantly get together with the same people, on the same track; the more time together, the more beneficial the revision*'. In this way, ongoing participation in a community of practice can be understood as 'the negotiation of identities' (Wenger 2010a, p. 133) whereby learning is more than 'acquiring skills and information; it is becoming a certain person—a knower in a context where what it means to know is negotiated with respect to the regime of competence of a community' (Wenger

2010b, p. 181). Students came to understand themselves as having agency in their learning process. For example, student H explained: '*it boosts your confidence after going through vPASS. Like before I was just really unsure about certain things and I'm like, who do I ask … but now I'm like, oh okay, I can do that now*'. Student E also expressed a new sense of confidence: '*I'm very confident I will pass, I know all the content and understand it …I have done well this semester; [my] marks have practically doubled and I now have more confidence in my abilities*'. Wenger refers to this as a 'process of realignment between socially defined competence and personal experience' so that 'each moment of learning is a claim to competence' (2010b, p. 188).

Moreover, students felt more capable as learners through the social relations they developed: '*Working in groups helped me a lot in sharing ideas and making my problems easier (student G)*' and student A affirmed this experience: '*working together, meant we were able to see common issues in questions amongst students*'. As such, their ongoing identity formation as students who could succeed in this subject were part of enabling an outbound trajectory (Wenger 2010a), so that they could progress and complete their degree. In a number of cases the students' trajectories took them to other courses after they renegotiated their identities and realised through the experience of vPASS that Engineering was not the most appropriate degree for them. This was perceived to be a successful outcome as much as students passing the subject, because these students had found new 'possible trajectories' (Wenger 2010a, p. 135) that they had not considered before joining vPASS. Students also formed new friendships which can be an important factor in student progression (James et al. 2010) and established the pattern of studying together: *I'm pretty sure a lot of us will probably stay together for study group next semester (student E)*.

11.5.8   Final Results

This chapter focuses on the qualitative experiences of vPASS participants in a transformative learning community; however the final results of students are also indicators of their success. The graph in Fig. 11.2 conveys a quantitative comparison of the vPASS participant's previous final results and their results from the vPASS class, for one iteration of the program. The average final result for the vPASS class was 49.8 out of 100 (n = 12), with nine of the twelve students receiving a passing grade, with one of these a credit level. This result means 75 % of the vPASS class passed and the average mark for the class increased by 65 % from the previous average mark of 30.3 (out of 100). These results compare favourably with those of the regular class where the average mark was 46.1 out of 100 (n = 319) with 37 % of the class passing. Of the regular class, 15 % of students enrolled did not sit the final exam while in comparison all vPASS students
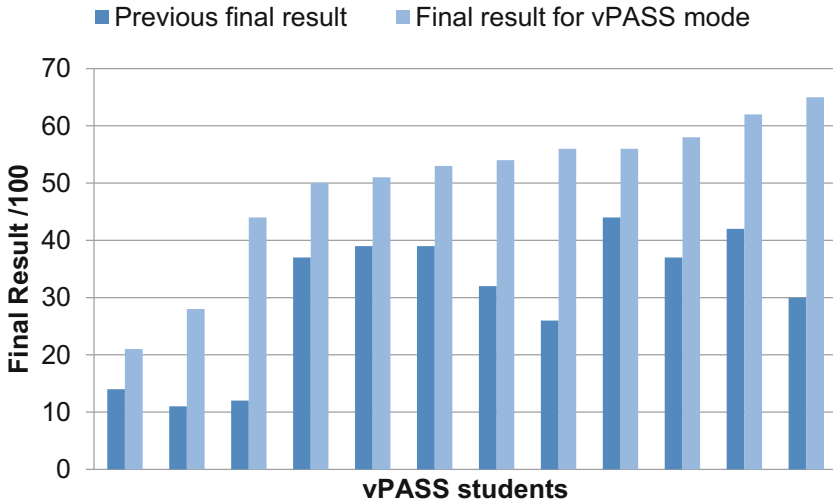
Fig. 11.2 vPASS students' (Class 1) final results, comparison of previous failed result with result for the vPASS mode

completed the subject. As all vPASS students had previously failed the subject a comparison was made with the final results of students who studied in the regular mode and who had also previously failed the subject. The comparison of those repeating the subject showed that 13 % (n = 54) of the regular mode students passed the subject in contrast to 75 % of the vPASS class.

Communities of practice are embedded in the social. Transforming the experience of learning from a lecture into a social meaning making activity, provides students with life-long learning skills and is resonant with an epistemological approach that recognises the social nature of learning. vPASS participant comments from end of semester evaluations indicate the benefits they found in being able to actively engage in learning from the lectures and from each other in this format. They reported increased confidence and positive attitudes towards learning, and mathematics in particular, improved study habits and learning strategies and the formation of new friendships and patterns of studying together. Student I summarised his transition from peripheral participation within the group to a strong, legitimated sense of belonging that he had not anticipated: 'When I heard about vPass I didn't know what it was about … I didn't know what to expect but now that I've experienced it you know, I'd say, like, it's really good. So whenever I talk to people who are doing Maths 1 now, I do tell them it's really good and it's really helping out. I'm actually quite upset to leave it. I don't want to leave'.

vPASS ran for three semesters in Mathematics for Engineers 1 before it was deemed to be too resource intensive to continue funding. Nevertheless, one of the successful outcomes of the vPASS project was the institutional recognition of the need to have a preliminary subject in the Mathematics for Engineers sequence.

Although this had already developed as a voluntary pathway students generally chose not to take this option as an elective. However, Preliminary Mathematics for Engineers has now been included in the Bachelor of Engineering program and students are required to complete this subject if they do not pass the 'Are you ready for Mathematics for Engineers 1' test.

11.6   Conclusion

Given the observable benefits that students gain from the four vPASS stages of preview, process, review and polish we suggest that it is worth considering ways of adapting this learning modality to the blended learning environment. It seems to be highly compatible with blended learning principles with its basis in good pedagogy and a mix of face-to-face learning and the utilisation of online learning materials. We suggest that the lecture segment of a subject where it is provided online can be watched by students who form learning communities for this purpose. Although not all students require a more facilitated approach to covering the lecture content there are many for whom such scaffolding in a group setting could be extremely beneficial (Buckridge and Guest 2007). For instance, a blended learning model, such as a flipped classroom, requires students to watch and process content heavy lectures before meeting face-to-face to work on examples. In this situation, there will, undoubtedly, be some students able to follow the lecture individually but others, especially those without prerequisite knowledge or with low entry levels, would benefit by being members of a group who collaboratively tackle the content. Additionally, the flipped classroom model anticipates that students will have actually watched the lecture as well as having substantial comprehension of the lecture based content before they come to class (Bishop and Verleger 2013). By setting up peer-based communities of practice where students engage actively with the learning materials they will be better prepared to participate in and benefit from the formal face-to-face learning situation. Such groups could be led by a senior student who has previously studied the subject, or students could be trained to rotate the facilitation of their group work. Of course there are logistical and resource issues in such an approach but with engagement and retention being strong drivers of Higher Education, a cost benefit analysis may well show that it is worthwhile investing in such a project.

This idea can be explored further with the example of a flipped classroom scenario in a mathematics subject. While the ideal situation is that online material is presented in small scaffolded, and possibly interactive, segments, this is not always feasible given the high content of mathematics to be delivered before timetabled face-to-face sessions. In such subjects each lecture usually contains a large amount of new material. When the material builds on previous weeks' content those who do not grasp the material early find it almost impossible to cope with the later stages of a lecture, let alone a weekly sequence of lectures. The advantage of the flipped classroom model is that the face-to-face sessions provide opportunity for students to

practice and apply the theory to applications. However, if students do not grasp the theory their misunderstandings can become part of their construction of the content. By processing the online material as a group, students have the opportunity, and the motivation to (a) collaboratively preview and ensure they have the necessary prior understanding before tackling new content, (b) pause the lecture and practice examples using each other as resources and (c) review through dialogue and further application of the content. As such, students would then be better equipped in the face to face dimension of the flipped classroom where they can seek targeted assistance with concepts they may be grappling with.

Communities of practice are embedded in the social. Wenger maintains that 'through active and dynamic negotiation of meaning, practice is something that is produced over time by those who engage in it' (2010b, p. 2). Transforming the experience of learning from a lecture into a social meaning making activity provides students with life-long learning skills; a graduate attribute of many institutions. It can also enable students to take greater responsibility for their learning as their motivation increases and they develop effective study strategies. As Blended Learning seems to be the way of the future, utilising modalities that scaffold the learning experiences of students is vital to their success. Peer learning is demonstrably an effective approach to facilitating active and deep learning for students. The application of vPASS principles to learning from lectures, particularly in content heavy subjects is one approach that may enhance understanding and reinforce the pedagogical benefits of Blended Learning.

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Chapter 12
A Community of Practice for Blended Science and Engineering Learning and Teaching at UniSA

Deb Moulton, Paul Corcoran, Patrick James and Pramila Rathore

Abstract This chapter outlines a pilot project to encourage Blending and Flipping of classes at UniSA by the implementation of a formal Community of Practice (CoP) of scholars and peers, both academic and professional staff, in Science and Engineering. The project staff worked with academic staff to assist teachers to use online resources and active learning strategies to engage students and promote deep learning and problem solving, whilst making greater use of all facets of learning technology. The CoP helped support, share and develop this knowledge among members.

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12.1   Introduction

Over the last 3 years, in conjunction with Open Universities Australia (OUA), the University of South Australia's (UniSA) Division of Information Technology, Engineering and Environment (ITEE), has developed over more than 25 online Engineering Associate Degree units (courses) for external study. This has allowed the production of a comprehensive array of online learning resources (Jackson et al. 2013), plus a sophisticated introduction to the training and delivery of these for UniSA staff (James et al. 2011). The online resources have consisted principally of recorded lectures and videoclips, electronic readings, asynchronous forums and the use of virtual classrooms using Adobe Connect (James et al. 2011). 4000 student unit enrolments had occurred by the end of January 2014. More than to maximize these resources, the UniSA's School of Natural and Built Environments (NBE), within the ITEE, aimed to blend the online OUA materials into the face-to-face courses under the Blending Engineering/Environmental Learning and Teaching (BELT) project.

A Community of Practice (CoP) that involved a number of staff from within NBE's Engineering and Environmental/Geospatial disciplines, was created as an integral element of the BELT project to support the development of identified staff. These staff members were assigned coloured 'Belts' (Engineering became 'Brown Belts' and the Environmental/Geospatial Sciences were deemed 'Green Belts'), both with the obvious aspirations to Master Black Belt status! Nine Civil Engineering courses and eight Environmental/Geospatial Sciences courses were targeted to blend the resources and teaching approaches from the online courses with the on-campus practices and to begin a Degree review of curriculum and pedagogy. The environmental science courses did not have access to the same rich online content as the engineering courses did, except for some of the overlapping courses that occurred in both programs, but the staff were in the same location and keen to be involved. Whilst the OUA units had virtually the same content to their equivalent on-campus courses, there was, until the setting up of the CoP in 2014, little impact on the on-campus teaching strategies encouraged or facilitated by these online developments.

This chapter details the journey undertaken by the staff involved in this CoP and begins with the background to the CoP, reasons for the choice of this structure as a peer-to-peer professional development strategy for learning approaches with a focus on blended and flipped learning, then progresses onto detailing the CoP, a case study unit (course) lessons learnt and concludes with a brief discussion and future directions.

12.2   Context

The availability of new learning technologies and mobile devices has meant that the allure of 'traditional' content driven lectures, typically using Powerpoint slides, has become much less attractive and relevant to students, as confirmed in both their

anecdotal comments, course feedback and falling attendance witnessed over a Study Period. The UniSA standard timetable recommends two consecutive hour-long lecture sessions with a 10 min break and these tend to be didactic, content rich (heavy) and teacher-centered, with minimal student interaction or feedback. As a response, the ITEE began researching into and application of, alternative class interaction techniques to increase attendance, while meeting the learning needs of the twenty-first century engineering graduate since "International and Australian research identifies" (sic) graduate engineer competency deficiencies as "practical engineering, engineering business competencies, communication skills, self-management and appropriate attitude, problem solving and teamwork" (Male et al. 2010).

The belief that change is beneficial and needed to keep organizations effective (Child 1972; Hannan and Freeman 1977; Meyer et al. 1990, cited in Boal 2015, p. 8–21), is based upon the assumption that there must be a 'fit' between the organization and its environment (Summer et al. 1990), cited the work/study balance of students, the needs of the profession (see previous comment) the level of engagement students have/don't have in their classes and the current pedagogy, which are all impacting on student attendance in higher education institutions.

From the UniSA's Strategic Plan, '*Horizon 2020*' (UniSA 2010), a 5 year (2013–2018) Strategic Action Plan '*Crossing the Horizon 2013–2018*' (UniSA 2014a) was developed. This document details a commitment by the university to 7 Action Sets. Action Set 1 is, 'Enhanced educational offerings and an outstanding student experience' and a key element within this Action Set, is to implement blended and on-line learning (http://liquidlearning.com.au/llg08/Featured-Events/blended-learning-conference-2015.html) and flipped learning (Pardo and Mirriahi 2014 (U/Syd/and UNSW; Reidsema et al. 2014 University of Queensland), in face-to-face courses. Like most higher education institutions, UniSA needs to be competitive and this Action Set is consistent with the finding that Castle and McGuire (2010 p. 36, cited in Meyer et al. 2014) found that these strategies that have the,' potential to provide flexible access to content and instruction at any time, from any place and cost-effectiveness for institutions of higher education'.

When the program of online OUA unit (course) materials development concluded and the mainstream teaching of the OUA units (courses) continued and grew, (more than 4000 individual student unit enrolments had occurred by January 2014), UniSA looked for opportunities to operationalize this '*Crossing the Horizon 2013–2018*' commitment and the ITEE Division and School of NBE, made the decision to embed blended and flipped learning teaching strategies and resources into a number of on-campus deliveries of the aforementioned online Engineering and Geospatial and Environmental Science courses.

While the term 'blended' encompasses a broad continuum, it basically includes an integration of face-to-face and online instructional content, which at UniSA, were mainly derived from the OUA courses and utilizes information communication technologies. Simpson (2008) is keen to point out that blended learning is not just about using technology because it is available, nor should it be positioned as an

'additive approach'. Rather, by changing traditional face-to-face teaching practices through joining them with those of online instruction, the student learning experience is transformed. 'Flipping' the lecture, by having students read/view resources prior to attending a lecture and then using the learning time for more hands on exploration, discussion or application of this information, is neither a new concept nor practice. It has gained momentum recently as an effective and relevant strategy to assist contemporary tertiary students in their learning outcomes and is, in fact, part of a 'blended learning' approach (Brame 2014) where the teacher is there to serve as facilitator (Jensen 1998), thereby also transforming the teachers' teaching approach and experience.

The Dean of Teaching in the Division of Information Technology, Engineering and Environment (ITEE), hired a Teaching and Learning Consultant (LTC) within the professional stream, who was 'embedded' within the NBE to assist in shifting educational practice and to work alongside the existing Professor of Teaching and Learning Initiatives (PTLI), who had managed the 3 year project to develop the online courses and resources for the OUA mentioned above. Together they worked with selected NBE staff on their teaching strategies in face-to-face classes and blending the resources and teaching approaches from the online courses with those on-campus practices. The program of work was called the Blending Engineering/ Environmental Learning and Teaching (BELT) and began in 2014.

12.3 What Shaped the Belt CoP?

Figure 12.1 "Elements Framing our CoP", was developed by the author, Deb Moulton and illustrates the key ideas which framed the UniSA CoP. The overarching premise that we learn from each other (Bates 2001; Wenger 2006) is supported by the theories relating to change and educational change, learning and leadership. The elements interact with and on each other are further expanded in the following section, as is the addition of 'technology' to the working of this CoP. In Fig. 12.1, the arrows indicate that each of these factors interacted with and on each other.

12.3.1 Communities of Practice: CoPs

Following the newly appointed TLC's attendance at a workshop on Communities of Practice at Adelaide University, in December 2013, facilitated by an expert practitioner from the University of Southern Queensland and subsequent research by the TLC (Brown and Duguid 1991; Cambridge et al. 2005; Hodkinson and Hodkinson 2004; Lave and Wenger 1991; Wenger 1998, 2006) the Community of Practice (CoP) model was chosen to support and work with the lecturers in the BELT project, as the University itself was an organization and hence a social

Fig. 12.1 Elements framing our CoP
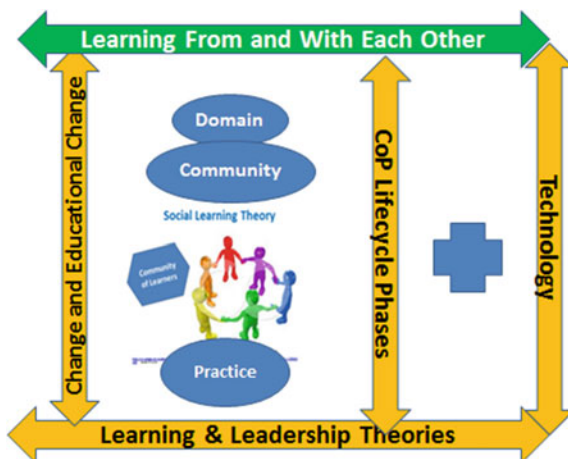
learning system (Boal 2015, p. 5–21). The concept of a CoP is based on the premise that we learn from each other (Bates 2001; Wenger 2006), but where they differ from a community of interest or a geographical community, is that the group shares a common practice, albeit with participation varying in strength among participants (Bates 2001).

Tony Bates (2001) explains that CoPs don't follow a particular structure, formal design, mode or theory of learning, In fact, their structure can accommodate itself to meet the needs of different groups because CoP groups will have different needs and different foci. However, Wenger (2000) identified three crucial characteristics of a CoP—a *domain*, or common interest holding together and connecting the community, the *community* itself, which is bound by shared activities and interest around this domain and *practice*, with participants being practitioners of the domain and sharing their knowledge, experiences and growth, and thereby learning with and from each other. Cambridge et al. (2005, p. 1) explain that CoPs provide a new model for connecting people in the spirit of learning and collaborative knowledge development and they connect people, provide a shared context for people to communication and tell their stories, enable dialogue between people who come together to explore new ideas and possibilities, simulate learning because they are a learning vehicle, capture and diffuse the existing knowledge to help people solve problems and share good practice, help people organize and generate new knowledge.

CoPs are a form of peer-to-peer professional development but have added significance in the education sector, since learning is not only the means to an end, but is in fact, the end itself (Wenger 2006). The BELT project aimed to support and enhance the learning of both participating lecturers and their students.

The design of the CoP was influenced by the following strategies.

Educational Change Models:

Fullan's (2007) 3 phase model of educational change—*initiation, implementation and institutionalization*;

McDermott's (2002) communities' lifecycle phases model (as cited in Cambridge et al. 2005)—*inquire, design, prototype, launch, grow and sustain,* and

Factors Needed for Successful Change—*pressure for change, clear shared vision, capacity for change, actionable first steps, model the way, opportunities to reinforce and solidify it* and *evaluation strategies embedded to assist improvement.* These are the TLC's key principles for change.

Learning Theories

In bringing an education perspective to the School of NBE, it was important to shift the focus from 'what' to teach, to 'how' to teach, which in turn is influenced by how we 'learn'. Therefore, the work the TLC and the PTLI did with the academic staff on their course and pedagogic change, was grounded upon the findings of neuroscience in learning and teaching. The learning theories of constructivism, and collaborative learning, with their emphasis on enquiry and activity contributing to understanding either individually or in a group, and leading to personalised learning, also underpinned both the approach to teaching and learning the learning experts were encouraging the BELT academics to adopt in their courses and pedagogy. These theories also provided the basis for the operation of the BELT CoP as a community of learners. In addition the experiential and reflective model of the adult learning process advocated by Atherton (2013) informed the operation of the BELT CoP. The capacity to reflect on action and to engage in a process of continuous learning, is one of the defining characteristics of professional practice (Schon 1983).

12.3.2 Neuroscience: Learning and Teaching

The recent fields of neuroscience, cognitive science and psychology have provided insights into how the brain works which educationalists have used to inform their practice (Jensen 1998; Hendel-Giller et al. 2010). These learning principles and strategies provide educators with the knowledge and skills to engage and motivate students and assist in their learning and retention. The BELT project considered the impact of environmental factors (room/learning spaces), the "social brain," emotions, and how the brain organizes information, as factors that assist learning for both the academic staff and their students.

12.3.3 Constructivism

A constructivist learning theory places the learner as an active agent in the construction of their own learning/knowledge, through synthesizing the new ideas or concepts and checking them against their current and past understandings, beliefs, and attitudes (Pass 2004; SACSA 2001). Learning is not linear, you do not move

from 'input' to 'output', rather, learning involves learners recalling past or similar information, checking the new information against this, contesting it, affirming it and possibly changing both into new information. This is similar to cognitivism where the learner also uses these mental processes to change their schema (Cooper 1993). Constructivists see learning is seen as an active, contextualized process of constructing knowledge by re-organising, reformulating and reflecting, rather than acquiring it (Pass 2004) so therefore students need learning activities that ask them to apply the theory/concepts/knowledge and that encourage problem solving, exploration, the use of higher order thinking skills, as well as structures/ opportunities to develop reflection/awareness of their own learning/progress (Atherton 2013). These were the elements the lecturers were encouraged to use in their teaching and they were the approaches used for the lecturers and staff in the BELT CoP.

12.3.4 Collaborative Learning Theory

Vygotsky's (1978) belief about the inherent social nature of learning and the role of teacher was one source of research that informed cooperative and collaborative learning theories and has been enacted within this learning community. Collaborative learning refers to methodologies and learning environments where students attempt to learn something together, drawing on each other's resources and skills to solve problems, form study groups, undertake group projects or create a product of their learning. Learners are not social islands, and this theory binds well with a constructivist approach to teaching, as students are more likely to engage in constructing their own understanding in a supportive social environment. This learning theory is compatible with the 5-Stage Model of E-Learning (Salmon 2000) which used a Community of Inquiry approach to online learning proposed by Garrison (2003). Salmon's model (2000) was used by the UniSA OUA Course Developers to design and develop the websites and online materials for the online Engineering Associate Degree units/courses which the BELT lecturers accessed where available.

BELT academics were encouraged to provide opportunities for their students to work collaboratively, with the aim of enhancing their learning and leading to a deeper understanding of the content. Learning situations and activities/assessment that are relevant, realistic and authentic, and allow students to communicate their questions, intuitions, reasons, explanations, judgments and give a sense of the 'real world', are valued by students and assist their learning. They also build technical skills (knowledge, practical skills) and soft skills (communication skills, decision making skills, group skills), that Male et al. (2010) identified as deficiencies of graduate engineers cited earlier. Furthermore, Newberry et al. (2011) found that engineering graduates needed complex skills and attributes because they 'increasingly study, communicate, travel, and work across national and cultural boundaries'.

Leadership

The leadership style of the TLC, who facilitated the CoP, was a synthesis of situational leadership (Hershey 1985) and the Hub and Rim leadership model (Argyris and Schön 1978).

Hershey's leadership theory (1985) posits that the leader adapts their leadership style to the maturity level of the participants. This way the leadership style will focus on a continuum of task-relationship. This can change for different elements of the task or in this case, different participants in the BELT Project and the two different elements of it, which will be discussed later in this chapter.

The conduct of the CoP meetings followed Argyris and Schön's model (1978) and is briefly discussed later.

Technological Change

The world is different due to the accessibility and availability of information through the World Wide Web and the growth and development in technology, mobile device environments, and social media (Evans and Cook 2014). Students of today 'live' in this world, so naturally, this information environment needs a pedagogy that is responsive to these changes, as traditional approaches are not able to cope, nor meet the needs of today's students (Thomas and Brown 2011, cited in O'Connell 2014, p. 201). These new technologies and social media platforms are creating a new culture of learning (Thomas and Brown op. cit) where information is no longer only given to us. Rather, the new technologies are creating an active and participatory learning environment which is being reshaped by the participation of students and lecturers within these information spaces, both content and physical spaces such as the lecture room. They are also influencing the wider learning environment, one that needs to include a set of new professional competencies for lecturers, and a review of current curriculum with the inclusion of higher order thinking skills delivered via new pedagogy. O'Connell's (2014) conclusion reflects the rationale of the work being undertaken in the School of Natural and Built Environments (NBE) being implemented at the ground level via this CoP:

> Learning in a digital age requires practitioners who understand education imperatives in local and global settings, and who can demonstrate an agile response to novel technologies that may catalyze learning. Both technical and pedagogical innovation should be hallmarks of the best learning environments we can create, and which incorporate a wide variety of pedagogical approaches, learning tools, methods and practices to support students' diverse learning modes (O'Connell 2014, p. 209).

12.4   The Blended Engineering/Environmental Learning and Teaching (Belt) CoP 2014

12.4.1   The BELT CoP Community

The 2014 BELT COP consisted of the eleven course lecturers identified to work with the education experts, Study Period 2 (SP2) consisted of four males and one

female; Study Period 5 (SP5) consisted of three females and two males). The lecturers were from a variety of disciplines within the two broad programs of Civil Engineering and Geospatial Sciences and Environment. They were chosen by the Associate Head of the School of NBE at its Mawson Lakes Campus where the engineering and geospatial/environmental science disciplines were based and also these courses were identified as those to be revised and incorporate blended and flipped learning approaches. This work was a strategy to extend the successful curriculum revision work begun in 2012 in which two education consultants worked in a first Year Civil Engineering course with the lecturer, who was also the Civil Engineering Program Director. The revised course aimed to provide a more experiential and project-based course, using group work and flipping the learning time by posting videos and readings online and using face-to-face time for guest seminars and team project planning. The Program Director in the Geospatial and Environment courses was keen to pursue these approaches and the first year courses in his program were chosen for inclusion in the BELT project. In addition, he used the opportunity to use the online resources developed for his 2nd Year course for OUA delivery, in a blended and flipped approach for his face-to-face course.

In SP5 three full time staff and two sessional staff who were new to teaching, joined the BELT Project, were offered support and assistance and were invited to join the BELT CoP. None took up the invitation, the two new staff worked on another campus so attendance at the BELT CoP meetings was difficult and the three full-time staff had other reasons which are listed later in this chapter.

The 2014 BELT Civil Engineering courses included those involving sustainability and the environment, geoscience, geospatial science and surveying, mechanics, design and structural engineering, water engineering and the engineering professions, while the Environmental/Geospatial Science courses included ecology, biodiversity and the environment, geoscience and mapping/ geospatial sciences. The Academics teaching these courses varied in ages from early 30s to late 50s and had differing exposures to technological use/ confidence in the classroom, and teaching or developing online courses for the OUA as part of the previous project work. In addition to those identified academics, the Associate Head of the NBE Mawson Lakes Campus, the PTLI, the Online Course Developers, the two education consultants who continued to work with the Civil Engineering second course and any other interested staff members, made up the BELT CoP, which was facilitated by the TLC.

12.4.2 The BELT CoP Domain

The purpose of the BELT CoP was to support the academics in blending their face-to-face courses with online materials, to incorporate technology and to begin to flip their learning time so that class (lecture) time could be used for a more active and inquiry–based approach, driven by key questions with collaborative interaction between student, technologies and online resources. These initial foci were

identified by the School of NBE in response to the University's change agenda, *Horizon 2020*'. However, the *domain* extended after the 2nd BELT CoP meeting where the participants identified additional foci to learn about and implement, thus demonstrating a feature of the BELT CoP that participants identify what they want to learn about and with each other.

12.4.3   The BELT CoP Practice

To steer the operation we adopted a Plan-Do-Check-Act model of operation to support the four purposes of successful and sustainable communities of practice (Cambridge et al. 2005) *Develop relationships, Learn and develop practice, Carry out tasks and projects, Create new knowledge* as shown in Fig. 12.2. This model was developed by Deming (1986) and was a precursor to the Total Quality Management movement.

There were two operational elements of the 2014 BELT CoP—the one-on-one development work with the TLC and PTLI for those lecturers/courses identified to revise their pedagogy/approach by implementing blended/flipped learning and activity-based and interactive learning approaches (*domain*), the second was the CoP meetings where the '*community*' shared their progress in implementing this new '*practice*' (Wenger 2000).

12.4.4   CoP Development Work

From lecture and tutorial observations and discussions with the Associate Head the School of NBE, traditionally this inquiry-based exploratory learning, or student-centered learning, has been the approach used in tutorials, workshops, laboratory practicals or field excursions, rather than in 'lectures'. The PTLI, the TLC, Assistant Professor and the Program Directors of both the BELT programs of

Fig. 12.2 BELT Plan-Do-Check-Act Model
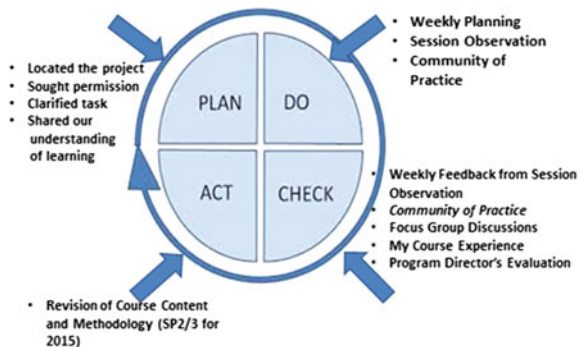
study, recognized the value of this learning approach, and so the PTLI and the TLC engaged in a strategic process to encourage the BELT lecturers to radically revise their class interaction in their 2 h learning sessions (the term 'lectures' was deliberately not used) through the blending and flipping of their course materials and teaching activities, in two main ways.

Firstly, academics working with the PTLI and the TLC were encouraged to *PLAN* their sessions around the core knowledge or skills they wanted their students to gain that week and to then frame that around a question or questions to help the students explore the learning as part of their own knowledge creation. This planning occurred in weekly meetings with the education experts (*DO*) and also included the selection of pre-session materials, many of which are now enhanced by the inclusion of multi-media and other learning technology resources from the academics' on-line courses or other sources when there is no OUA course equivalent. Students were then expected to read/view/listen to these materials in their own time prior to the session as part of the flipping strategy, as they provided the key content and concepts to be covered in the session.

Secondly, by introducing collaborative learning activities during the learning session, more class time was spent on applying the concepts students had learned from the pre-session resources, which were briefly revisited in the session in an enquiry format, thereby blending the activities in the face-to-face session with online resources.

The PLTI and the TLC observed the learning sessions, took notes, provided feedback to the lecturer (*DO*) which was used for the subsequent planning session where these observations and the lecturer's reflections were discussed, (*CHECK*) and led to the application of the learning points/changes in the next teaching session (*ACT & PLAN*). The outcomes of this work were then shared with other members at the CoP meetings.

12.4.5   CoP Meetings

The TLC facilitated the 2014 CoP *prototype* (McDonald 2014) and operated from a Rim model of leadership (Argyris and Schön 1978) where the 'values and vision' are central, and the 'leader' is one of the group members/learners circling this center. The BELT CoP values (rim) were collegiality, trust and 'stretch' (Black and Boal 1996, cited in Boal 2015) an openness to share practice and a willingness to be part of collaborative professional learning. Lecturers taking time to join together to learn from and with each other (*DO & CHECK*), was not a common practice at the University and the group wanted to maximize their learning by discussing their practice and exploring new ideas in the BELT CoP, since, 'Dialogue aids in surfacing one's own and other's thoughts and assumptions and helps create new ideas and initiate collective action' (Boal 2015, p. 10–21).

The hub, or BELT vision was one of more effective, relevant and contemporary teaching and learning practice for our students and professional growth for our

lecturers in the *domain*. While the TLC facilitated the meetings and discussions, various members of the CoP 'lead' the input on new techniques, teaching and learning strategies and resources.

Each COP meeting was structured (*PLAN*) to allow social interaction and relationship building, while also providing an opportunity to build *domain* knowledge on the different types of blending, flipping and technology were being incorporated into their peer's teaching, the student reactions, discussion of their practice/progress by participants and subsequent problem analysis (*DO, CHECK & ACT*). Professional development occurred via these presentations and discussions, as well as through direct presentations made by various members on new technology or strategies they had been using (*DO*). Academics agreed to attend at least one lecture of each other's sessions where possible, to appreciate different delivery styles, and witness students' participation or reaction (*DO*). The BELT CoP therefore implemented the four purposes of sustainable communities of practice (Cambridge et al. 2005)—*Develop relationships, Learn and develop practice, Carry out tasks and projects, Create new knowledge,* while also using the Plan-Do-Check-Act model (Deming 1986).

Three meetings were held in 2014, two in SP 2 and only one in SP 5 due to conflicts in participants' schedules. To minimise time and maximise staff attendance since staff were based across 2 campus locations, after the first meeting, subsequent CoP meetings were scheduled to follow on from the NBE School Board Management meetings where all NBE staff were present and run for 1–1.5 h. Refreshments were provided and minutes taken and distributed.

At the first meeting the group members introduced themselves and their course. In order to have a *shared vision,* the draft paper (Appendix) outlining the purpose and structure of the CoP was distributed for comment and amendments. The final paper was then passed through the Associate Head for ratification and approval to the School Executive.

The initial challenge was to come to a shared understanding of what the term 'blended and flipped learning' actually meant and was the '*actionable first step*' in the change process. There is much confusion around this term (Russell 2014) and the TLC looked for information and then presented it to the first CoP meeting to open up a discussion and work towards creating a shared and agreed upon, definition. This supports the premise of Taylor and Newton (2013, cited in Russell 2014) that this is gained through people interacting to gain a common understanding. They also caution that it can take time—perhaps longer than 3 years.

While blended learning has been defined in many different ways which can be confusing (Russell 2014), the BELT CoP agreed to use the definition proposed by Meyer et al. (2014, p. 90) who say, "at its simplest, blended learning is the integration of classroom face-to-face learning experiences with online learning experiences". The BELT CoP then had a '*clear shared vision*' which also acknowledged the following continuum by Mason and Rennie (2006, p. 14), along which blended learning can be implemented as cited in Cabero et al. (2010, p. 150 cited in Meyer et al. 2014) and further cited in Meyer et al. (2014, p. 90).

At the second meeting, updates on their *practice* were shared, and the focus for their 2014 work was identified. The *community* identified areas to explore together- (*domain*) 'teaching' and 'assessment of group work' (and mapping group. work across the courses), 'helping the students understand the new approaches to teaching and learning', which will shape the future work in relation to blending and flipping.

In SP5, five different academics were invited to join the BELT CoP as either a Green or Brown BELT academics. Their participation will be discussed later in this chapter. At the third BELT CoP meeting in July, established members shared updates on their individual practice/progress and professional sharing and learning occurred. The Online Learning Developers, who had developed the online courses from the school of NBE's traditional courses and were now members of the CoP, demonstrated new 'technology tools' and sites which some members took up e.g. Padlet. The CoP gave academics and the Online Course Developers a chance to meet each other and this enabled the lecturer to having someone to talk with regarding the new ideas' uses/problems and identify strategies post-meeting and at the time of use. This proved a valuable factor in the growth of learning and pedagogy of the BELT lecturers.

Changes in practice were wrought through the support from the PTLI and the TLC who worked intensively with selected staff, planning learning sessions, undertaking observations and encouraging reflection, through the academics' session observation of each other and the professional development provided at both BELT CoP meetings by the Online Course Developers. Changes made, issues and strategies were discussed with other CoP members at the BELT CoP meetings and at informal meetings among members over coffee/lunch. They included improvement in PowerPoint slides and 'lecture' slide series via reduced amount of text, enlarged font and the addition of visual data, the use of student/peer-discussion during the lecture on information presented to foster students processing of the content, increased use of technological learning tools and increased confidence in asking questions of the lecturer. Examples of changed practice in lecture sessions presented by the other BELT CoP academics included:

- Using Poll Everywhere for student feedback in 'Geoscience and Engineering Structures'; and 'Mechanics of Materials'. This encouraged active engagement and reflection in order to assist students to 'construct' their own meaning.
- 'Environment: A Human Perspective' student debates, human graphs as a value exercise on sustainability, surveys and 'World Café' as a strategy for exploring ideas and values in Environmental studies. Activities such as these enacted social learning theory and constructivist learning theory ideas.
- 'Structural Engineering'-group problem solving and physical demonstrations using analog materials. These strategies were chosen to support both social learning and constructivist learning ideas.

- 'Landform Fundamentals'—use of web resources and Google Earth/360 degree visualizations/virtual field trips in Geoscience; student graphs (geological time), animations, Poll Everywhere, and the Smartboard for annotating images, maps and videos. The range of learning activities in this course enacted brain-based learning with a variety, inquiry, novelty and use of colour. Through these activities/resources, students became actively involved and built their own understanding, thus supporting constructivist learning approaches.
- Use of document cameras, group problem solving, Poll Everywhere, wood, metal, plastic demonstrations and the Smartboard for mathematical solutions in 'Mechanics of Materials'. Similarly, these strategies enacted the above learning theories.
- 'Biodiversity' students doing wetlands and flora walks on the University campus, encouraged inquiry and constructivist learning by applying ideas in the lecture theatre, to the field.
- The use of web resources—print, visual, 3D in several of these courses enacted brain-based learning theories which recognize the importance of layout and the power of colour, size and presentation in capturing students' attention, the first step in learning (Fig. 12.3).

Environment: A Human Perspective learning activities

| Collating Group Survey (1) | Collating Group Survey (2) | World Café (3) |

| Other CoP Courses/Activities Biodiversity Students | BELT CoP members teaching each other Poll Everywhere |
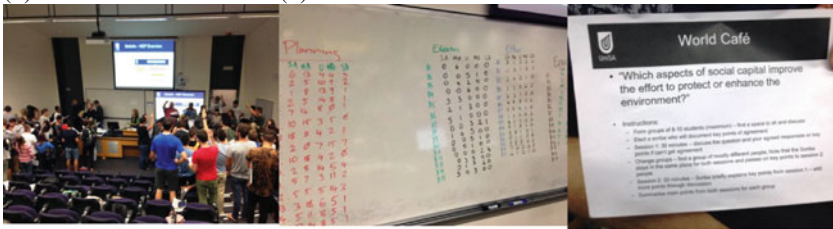
Fig. 12.3 BELT students and staff in action © Moulton (2016)

12.5   Belt Case Study: Geospatial Science for Engineers (GSE) Course

GSE focuses on the use of mapping and GIS usage within Civil Engineering and is a 2nd year course with a cohort of approximately 60 students, held in a fixed seating and tiered lecture theatre for 2×50 min 'lecture' sessions per week for 13 weeks. An OUA unit had been developed for this course during 2012 and so a variety of online resources were available for use, including voice-over PowerPoint recording for all lecture content, weekly quizzes, an electronic bibliography, extensive freely available web-based resources and online practical exercises and problems.

As a member of the 2014 BELT CoP, the lecturer met with the education experts each week to discuss and plan (*PLAN*) the new approaches to the learning sessions. The academic, who was also the Program Director for the Geospatial and Environmental Science program of study, was keen to engender a sense of enthusiasm, engagement and commitment by students to the studies in each learning session. The PTLI and the TLC developed a 'planning chart' for the lecturer to use which supported an inquiry-based approach to teaching and which built on the students reading of, and listening to, the pre-session material. Paramount in that chart was the overall aim for the session (e.g. Session 1—To make the student 'love maps'), the key questions to be covered (What is a GPS? What is GIS? and how can these be used in engineering?) to enable the key concepts (Course, Maps and GIS) to be reinforced during the session through the activities and content (Table 12.1).

A principal theme running throughout this course was a staged task to engage the students individually and in groups in a collaborative learning activity, to measure, analyze and ultimately MAKE a precise, digital 3D map of the lecture room/which was a small fix-seated tiered and generally unattractive tutorial room. A blend of learning technologies was therefore deliberately used in each learning session e.g. Poll Everywhere software was used to pose questions and allow immediate anonymous replies from students e.g. 'Where can maps be used within your own discipline? student submission of images (via Instagram), video and Google/Google Earth. This engaged students' attention and the active approach assisted them to construct their understanding of the topic and move it from working memory to long-term memory. Other 'teaching devices' included headset microphones and multiple microphones for use in the classes which enabled the

Table 12.1 GEOE 1080—week 4 geospatial information science (UniSA 2014b)

Learning session:	4a (March 31–April 4; 2014)
Overall objective:	To explore methods for gathering map data via ground methods
Key questions:	Where can map data be found?
Support questions:	How can map data be acquired?
	What methods can be used to measure map data?
	How accurate do maps have to be?

lecturer to move from the lectern and to enable students to actively contribute to the session. Butchers paper, felt pens, blue-tack, post-it notes were provided for student group use when undertaking the collaborative and interactive learning activities, such as map making and measuring the lecture theatre. Specific sessions used various items to implement an active/interactive learning activities and included string which students used to be 'grid references', chocolate for rewards for participation, correct answers and pasted under seats to 'select' the participants for modelled activities, floor satellite maps so that students could 'stand' on the place and interact with it, inflatable models which helped students transfer an abstract concept into a concrete one, thereby building understanding, protractors, measuring tapes, surveying equipment and coloured cards which students used to 'be' contour maps. The use of music and the element of surprise in terms of seating/choice of participants all contributed to a very 'different' learning experience for the students and the activities and technological devices were consistent with the brain-based learning approaches discussed previously.

The PTLI and the TLC then attended the classes to assist, team-teach, help with equipment, record, evaluate (*DO*) and then provided feedback for consideration, discussion and future planning (*CHECK, ACT & PLAN*).

Phases of the BELT CoP

Like any organisation, group or project, communities have lifecycles, are dynamic and are subject to the TLC's 'Factors Needed for Successful Change' In addition, they are influenced by the purpose and goals of the community in which it is operates and its members' characteristics and needs.

Given this, it can be seen that 2014 was clearly the phase of '*initiation*' (Fullan 2007). The BELT project was located within the School of NBE's Action Plan 2013–2015, as the Teaching and Learning Goal, 'Design and deliver curriculum that is relevant and of high quality and that provides excellent outcomes for our graduates'. The concept of the CoP was considered as a strategy to address the University '*pressure for change*' through its directions paper, '*Horizon 2020*.' The TLC made an '*inquiry*' into what structure would best support the academics in their change in practice, while incorporating the above beliefs about learning and reflection.

In determining the CoP's *capacity for change*, a crucial factor in determining success in any change initiative, the TLC drew on 3 dynamic academics who were exploring either different pedagogies or the use of technological devices or online resources as possible 'champions', the support of the Associate Professor and the expertise of the PTLI and the Online Course Developers. The TLCt then developed a '*design*' for the BELT CoP, a draft paper which was revised at the first CoP meeting and then approved by the Associate Head of the NBE School, with the '*prototype*' CoP launched in March 2014 (McDermott 2002). '*Implementation*' (Fullan 2007) and '*growth*' (McDermott 2002), began.

What Have We Learned?

A CoP is 'dynamic and involves learning on the part of everyone' (Wenger 2006) and in relation to the BELT project the CoP included lecturers, Administrators,

Online Course Developers, education experts and the students. To determine the impact of the new approaches to teaching and the impact of the CoP on participating members, we gathered informal data from the CoP members and their students. This evaluation also provided information for the University to consider re structures, the focus of their vision and future deployment of staff.

12.5.1 BELT CoP Members

The 2014 SP 2 Brown and Green BELT academics who worked closely with the PLTI and the TLC have enthusiastically accepted their flipped and blended practices. They identified that the CoP provided a supportive forum where they could share and discuss teaching approaches and enabled them to collect feedback from peers, the PLTI and the TLC, on what worked well and what didn't. Both the academics who worked closely with the education experts and the other members of the CoP, indicated that having an opportunity to observe the teaching approaches and performances of others, gain new techniques and ideas by sharing experiences and appreciating the encouragement to include more interactive activities in class, were all deemed valuable outcomes of the CoP. Furthermore, the CoP was viewed as a useful mechanism to raise ideas and begin planning for strategic decisions to be made about teaching goals and how the curriculum supports these, not just within one subject but across an entire year level or degree with a view to providing a consistent approach across the student degree cohort. This made will make it easier in the future to introduce new ideas and approaches, knowing that the students will be more comfortable, confident and familiar with them.

However, the dual approach of the School Administration identifying personnel for inclusion in the program, while then leaving it up to them to decide if they wanted to be involved, worked for those keen to progress, keep up with new trends, confident to explore technology and new devices and build their careers. For those in later phases of their careers, well established with their practice, this was not the case, as evidenced by SP 5 with three academics, identified because of the position of their course within the overall degree program. These staff members were established academic lecturers, who, while frustrated with declining numbers in their lectures over the SP, were happy with their current materials and approaches to teaching and had neither the time, nor the inclination to re-develop them or learn to use the new technologies and had important personal issues. Two were nearing the end of their careers and there were health issues in their families, and so chose not to be actively engaged. One did not wish to be involved and the two beginning academics were located on another campus.

This 'bottom up' data is very important in helping the development and subsequent '*institutionalization*' (Fullan 2007) of the BELT CoP. Neuroscience (Hendel-Giller et al. 2010) has informed us that a positive emotional reaction to learning will enhance that learning, whereas, a negative emotional reaction has the opposite effect and leads to a downshift in the person, the raising of mental barriers

and a reduction in the ability to take on new information. It is important to acknowledge that take up of a new initiative occurs along a continuum depending upon the lecturers' comfort/confidence with the approach and technology and the nature of the course being taught, as Bates (2001) noted.

All this information was used to assist the planning for BELT-affected courses in the second semester of 2014 and the revision of first semester 2014 courses for 2015 delivery.

Students

The participating BELT academics and lecturers who worked with the PTLI and the TLC, reviewed the student from the online My Course Experience and compared it to previous years. In addition, a series of Focus Group Discussions was set up to gather more qualitative data and allow 'student voice', an area the university is keen to develop further as part of its 'Horizon 2020' vision. Five of the SP 2 courses involved in the BELT project, had a selection of students participate in these open discussions, centered around the following 5 questions. A summation of the FGDs is presented under each.

1. What helped you learn the content/skills in this course?
   Practicals and tutorials with hands-on application of theory were highly valued by the students. When this 'interactive' approach was brought into the lecture theatre, students enjoyed the activities citing it broke up the lecture, and helped them better understand the concepts being taught, though some students didn't like leaving their seats too often! Field trips were likewise valued because it was applying content/theory in a real context. Lecturers and tutors who were passionate about their course and who were approachable, encouraged the students to learn.
2. How did this course's methodology differ to other courses you have taken and what are your comments on the methodology?
   Students found the learning activities cited above assisted their learning and noted their methodology was very different to 'traditional' lectures. However, there seemed to be a discrepancy with first and second year students. Where students had more support/content materials on the course websites (2nd year) they felt more 'comfortable' to spend time doing these. First years were still struggling with the worry of exams and how much content was needed. The task of aligning assessment tasks with new pedagogy is one that needs to be addressed in the future.
3. What materials did you read/view/listen to from the course Learnonline site before/after you came to the lecture?
   Students valued the recorded lecture summaries—visual and spoken—from past years and the OUA courses as back up for content and felt comfortable to spend time engaging in more active/group learning activities in the lecture session. They came to realize that the application of the theory/key ideas was more useful than simply being presented with them via a PowerPoint slide, but wanted the slide as backup for study and exam prep purposes.

4. What are your comments on the assessment tasks?

Assessment tasks that were congruent with course outlines and learning sessions, that were clearly presented with support materials and accompanying rubrics, were valued by students, as this enabled them to focus immediately on the task. Students liked weekly online quizzes by which they could self-monitor their progress, understanding and learning.

5. What suggestions (other than mentioned above), do you have to improve this course?

In one of the 1st Year courses which was very interactive, students requested a better balance between activity and theory. More quizzes, better laid out course web-pages and video recordings of the sessions, not just the current audio recordings, were also mentioned for improving the course.

12.5.2 University

The BELT CoP has been a forum to raise and discuss the issues that arise from implementing new pedagogy incorporating active and interactive learning with each other, technology and mobile devices. It was one pathway to inform the Administration re the IT infrastructure barriers to implementing this change in 'practice', such as convenient charging outlets for these mobile devices during the learning session, the need for capital refurbishment such as flexible working/teaching space, movable workplace furniture, the provision of document cameras, and very importantly, improvement in IT services such as the availability and sustained working of smart boards. These were identified by the students and CoP members as needed to support this new approach to learning in higher educational institutions, and were also identified by the Educause Study of Undergraduate Students and Information Technology (2013) and Russell (2014, p. 211) at the University of Western Sydney. These were issues that were challenging to the implementation of blended and flipped learning. They also proved challenges to the development of the CoP because they impacted directly on the 'domain' of the CoP.

In addition, the time to revise/tweak current courses, learn new technologies and approaches, could be identified within the academics Performance Management focus for the year. These strategies could lessen or minimise the difficulties the UniSA staff faced and mirrors those found by Benson et al. (2011, p. 143, cited in Meyer et al. 2014, p. 89) who identified, 'insufficient support, lack of time and resources for course development, risks associated with availability of technology and the necessity of acquiring new teaching and technology skills, as problems when developing learning modules.' The biggest challenge of implementing the CoP was 'time', time to meet as a group spread across two campuses. The strategy of meeting after the combined School Board Meeting, assisted this but members often felt 'meeting-ed out'.

Any significant change agenda needs support from the 'top', the School/Division/ University Administration. The guiding document, the UniSA's 'Horizon 2020' and

subsequent documents, '*Crossing the Horizon 2013–2018*' and '*The Digital Learning Strategy*', as well as key documents from *Engineering Australia* re proficiencies and skills that graduates need, were driving forces and fed the '*pressure for change*' and the '*initiation*' and '*implementation*' phases (Fullan 2007) of the CoP in 2014. The '*vision*' of the Teaching and Learning Director in the Division of Information Technology, Engineering and Environment (ITEE) to place an educator as a coach/mentor WITHIN the School of NBE, and the Head of that school who wanted a curriculum review of the School's degree programs to integrate the on-line resources developed through the recent Open University Of Australia (OUA), with the NBE's face-to-face courses, were also needed and examples of top-down Administrative elements and elements that contributed to the positive outcomes of the CoP. Finally, the selection of three 'champions', two of whom were Program Directors of the programs chosen for the initial implementation of blended and flipped learning and accompanying changes to courses and lecturers' pedagogy, which proved essential 'elements in the success of the BELT CoP, were top-down' strategies because they had the '*capacity for change*' as they helped to '*model the way*'. Coming from within the School, was a positive strategy to '*grow*' (McDermott 2002) the new '*practice*' within the CoP and in turn, across the School.

The majority of the (SP2 and SP5) 2014 BELT academics have enthusiastically accepted their flipped and blended practices, however, the importance of being open to 'bottom up' elements influencing a change agenda must be acknowledged and were taken into consideration by the TLC as facilitator of the CoP and will be taken into consideration in the planning for the 2015 BELT CoP.

Academic life can be isolating and the 2014 BELT CoP members came together as a group of academics across different disciplines, united by a focus on teaching and learning within a research orientated university world. Transparency and support from university and school management have enabled trust to be established. Members have visited each other's sessions which has resulted in learning new teaching strategies and subsequent professional discussions, both within and outside of CoP meetings. Resources, stories and ways of addressing recurring problems have also been shared. These were all *opportunities to reinforce and solidify*' the changes in '*practice*' in the '*domain*' by the '*community*' and as a result, a culture of collegiate openness and professional discussion on teaching and learning, based on the learning theories informing the BELT project, as opposed to 'content delivery', has been established.

Where to from Here?

'Learning occurs whenever an organization achieves what it intended or when a mismatch between intentions and outcomes are identified and corrected' (Boal 2015, p. 11–21). The above 'lessons' from the 2014 BELT CoP could have stayed as single-loop lessons learnt (Senge 1990), where issues are detected and corrected without questioning or altering the premises, values or visions of the system. Instead, the BELT CoP has adopted a double-loop learning approach by using the above 'learning' to re-look at the premise of blended or flipped learning as a key direction to assist engagement and retention of students.

Through the various attempts at '*implementation*' of blending and flipping their face-to-face courses and the use of new technologies and e-resources by those staff working with the education experts and those working with the other education consultants, then sharing their progress with the CoP during the meetings and the discussion around this, participants in the 2014 CoP now believe the focus should be on **active/interactive, collaborative and experiential learning**, and that blending, flipping and using these electronic devices and resources, are simply tools/strategies to assist student engagement, interactivity and thus, learning.

The provision of a structured professional development program on these more active/interactive, collaborative and experiential approaches to learning, with participants identified as part of a whole of Curriculum Program revision task, follow up one-on-one support provided by the BELT CoP 'champions', education experts and the Academic Developers, could be considered in the future. Further support in using and integrating e-resources such as e-learning books, simulation and educational games, quizzes and various uses of mobile devices, into their courses and pedagogy with a view to placing more of these recourses and traditional content online, would thereby free the learning time for more active, and interactive collaborative learning activities with students.

The data from the student My Course Evaluations and informal discussions has also been a part of discussions at faculty level and has informed the establishment of a whole of Program/degree mapping across courses in both the participating discipline areas of Civil Engineering and Geospatial Science and Environment. The Program Directors of the two participating programs of study, Civil Engineering and Geospatial and Environmental Sciences, were 2014 CoP members and two of the 'champions' mentioned previously. They are now each working with their faculty colleagues to map the courses within their programs in terms of student collaboration and group work, which was identified by the CoP as an area to research and is a good entrée into discussions on collaborative practice, academic literacies and assessment tasks—again, a spring board for discussions on change. The Teaching and Learning Consultant, is involved with the mapping of both programs, as a support and provider of resources/ideas. This mapping is enabling the School of NBE to develop a sequential developmental path of learning that identifies degree strengths in order to provide an integrated program of study that meets the needs of '*Horizon 2020*'. The information will be shared in the 2015 CoP meetings and is also a strategy to help '*institutionalise*' (Fullan 2007) and hopefully move to '*sustaining*' (McDermott 2002) the learning from the BELT CoP and the concept of a CoP within the School of NBE.

An unexpected consequence has been the flow on of this mapping into the School of NBE's Construction and Project Management (CPM) Discipline and Program in 2015. Participants in this discipline area may join the CoP or, a new CoP for that group may be established, thus affirming the earlier statement that different groups may have different needs. Either way, the learning about blended

pedagogy, technology tools and e-learning resources that emerged from the 2014 CoP, will be shared with this group, as will the CPM information and journey be shared with the 2015 BELT CoP.

This first year of *initiation* and *implementation* of our BELT CoP will be extended to include other staff in 2015–2016 with the adjustments on both professional focus and technical and beyond, will occur. The 2014 cohort will also be invited to join if they so wish. The identification of the 2015 cohort has yet to be finalized.

12.6 Conclusions, Final Reflections, Implications and Future Plans

As stated previously, both technical and pedagogical innovation should be hallmarks of the best learning environments we can create and incorporate a wide variety of pedagogical approaches, learning tools, methods and practices to support students' diverse learning modes (O'Connell 2014, p. 209). When combined with the advances in learning cognition which are generating theories of constructivist and interactive learning, student learning seems to improve when instructors adapt their teaching to the space by "intentionally incorporating more active, student-centered teaching techniques" (Walker et al. 2011, cited in Evans and Cook 2014, p. 713).

The BELT CoP was '*initiated*' (Fullan 2007) to support lecturers within the Civil Engineering and Geospatial and Environmental Science programs move to a more blended approach in their face-to-face teaching and learning, thereby meeting student learning needs, while being an operational strategy for "Enhanced educational offerings and an outstanding student experience". This chapter has provided evidence that the 2014 BELT CoP has '*implemented*' (Fullan 2007) the four purposes that successful and sustainable communities of practice provide (Cambridge et al. 2005) *Develop relationships, Learn and develop practice, Carry out tasks and projects, Create new knowledge,* through the Plan-Do-Check-Act model (Deming 1986).

Castle and McGuire (2010, cited in Meyer et al. 2014), have identified the need for their teachers to have more training in how to use technology in their teaching practices. This will be explored with the BELT CoP 2015 as we further our implementation of these pedagogical changes and move towards '*institutionalization*' and eventually, '*sustainability*' (Fullan 2007; McDermott 2002). The concept of '*sustainability*' of a pedagogical change is one to be explored in the future, given the dynamic nature of technological change and the need to provide a responsive education for students and so in 2015 '*evaluation strategies embedded to assist improvement*' will be developed and implemented.

However, a key finding from this work has been that the new pedagogy associated with blending, flipping classes and implementing a more active and enquiry approach to learning and the use of educational learning spaces to do this, has positively influenced the learning behaviours and attitudes of the academics and from the session observations conducted by the PTLI and the TLC, the students, thus supporting the findings of other studies (Beichner 2014, cited in Evans and Cook 2014, p. 713).

Blended learning has the potential to improve the effectiveness of teaching and learning but the BELT CoP may be the 'tipping point' to 'flip' the focus to use blending and flipping as strategies to achieve the more active and enquiry-based approach to teaching and learning and provide rewards as 'Black Belts' for the lecturers!

Appendix: BELT Community of Practice (CoP)

The term "Community of Practice (CoPs was coined by Etienne Wenger and Jean Lave and have been applied to various areas, including education. This CoP will take up Etienne Wenger's view of social learning which views learning as a part of who we are as humans and as a social phenomenon because we enjoy coming together to engage in collective learning.

CoPs are comprised of people coming together (**Community**) to explore an area of interest (**Domain**) and share their practice (**Share practice**) in terms of research into the area and its application. They are:

"Learning with, rather than learning from"

"Teacher as Expert…→ Learner Focus"

"*Groups of people who share a concern or passion for something they do and collectively learn how to do it better as they interact regularly*"

"COPs create a social fabric for learning—to share practice and build capacity, use each other as sounding boards and build on each other's ideas"

COPs provide a context for members to engage in sustained conversations around teaching and learning, situated in the focus of an area of study. They start with a dialogue about what each person wants to do about their work—they then identify areas to explore together—helping each other makes the job more exciting. When you chose what you want to focus your energy and time on and what will give you satisfaction, there is more chance of achieving some outcomes.

Social Learning Theory

Community of Learners

Groups of people — Clip Art, accessed 15/1/16)

UniSA's Community of Learners: Basis for our CoP

What is the BELT CoP Focus?

- Our focus is to Flip/Blend our on-campus classes to engage our students more, increase retention in class and enhance their leaning
- We will use:
    - Online resources
    - Different approaches to using our learning time

        Inquiry-based Collaborative learning Experiential learning

    - Technology

How will it operate?

- Individual members identify what they want to achieve/flip/blend
    - Work with and Pat and Deb to look at how they can flip/blend their learning sessions
- Share their work/experiences with other members of the CoP
    - Keep a reflective log to document their experiences
    - Participate in CoP meetings where we share our experiences and learn from each other and celebrate our learning
    - Document/reflect our journey—do a presentation/report t ASCELITE

Journal (Possible sentence stems)
Name: Course: Week …….
What did I flip/blend this week?

What worked and why?

What didn't and why?

What would I do differently?

How do I feel?

What questions do I have?

What support do I need

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Chapter 13
Sustainability Focused CoP: Enabling Transformative Education

Theresa Ashford, Clare Archer-Lean, Graham Ashford, Jane Taylor, Noni Keys, Dana Thomsen, Lisa Ryan and Claudia Baldwin

Abstract This chapter describes the Sustainability Focused Community of Practice (SFCoP) at the University of the Sunshine Coast, Australia. The SFCoP is a diverse group of academics committed to teaching and assessing a complex and contested concept. The SFCoP emerged in response to an institutional requirement that graduates from all programs needed to demonstrate the graduate attribute of sustainability focused. A single convener used course outlines to identify the community of academics that taught and assessed sustainability and invited them to join the SFCoP. The intention of formally creating a SFCoP was to negotiate the boundaries of the domain, consolidate the body of knowledge that was disaggregated across the university, and to enlarge the set of best practice materials for common use. In addition to outlining the origins of the CoP, this chapter provides practitioner accounts of the role that the SFCoP played in enhancing the incorporation of sustainability content in the fields of English literature, environmental economics, public health, sustainability and planning. The different academic voices highlight how individuals drew benefit from this alternative social learning space. Common elements included a reduced sense of isolation, an expanded understanding of the domain, and the enlargement and fortification of a permissible space in which to explore how to best teach a difficult concept.

Keywords Sustainability · Education · Graduate attributes · Permissible spaces · Learning and teaching

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13.1 Introduction

Communities of practice (CoP) are complex social learning phenomena that develop through different impetuses and serve a variety of purposes, some closely aligned with larger institutional goals and others more peripheral. Early work by anthropologist Jean Lave and social learning theorist Etienne Wenger named and framed this informal practice and gave a picture of collaborative and situated learning that occurs outside formal classrooms and training environments (Lave and Wenger 1991). This chapter describes how the fundamental elements of a CoP first outlined by Lave and Wenger were enacted in an institutional space enabling the emergence, growth and maintenance of an interdisciplinary group of academics with a common interest in sustainability learning, teaching, research and advocacy. These collected stories, representing the disciplines of English literature, environmental economics, public health, sustainability, and planning elaborate on a style of social learning that afforded new ways of thinking, assembled individuals in new multi-disciplinary configurations, and led to innovation.

13.2 SFCoP Structures: Domain, Community and Practice

The central elements commonly associated with Communities of Practice (CoP) include: a set of common interests/issues/knowledge areas across which explorations occur and activities, outcomes or projects are mapped (*domain*); collaborative and professional, yet often informal relationship between members who are assembled in the domain (*community*); and an atlas of definitions, activities, ideas and theoretical landscapes that is codified and communicated between members and with others (*practice*) (Wenger et al. 2002a).

Our SFCoP is nested within a larger community of interest around the topic of sustainability; however, at the core, membership in this CoP is demarcated by the focus on learning and teaching applications and research at USC. We have found these three elements combine to create an 'ideal knowledge structure' (Wenger et al. 2002a) where learning and practice around teaching sustainability has grown.

Our SFCoP created a permissible space for innovating around 'Sustainably Focused', a newly defined graduate attribute at USC. The term 'permissible' may seem an unusual choice, but it is used to capture a way of being in which sites of multidisciplinary community learning—idea sharing and storytelling—act to prompt and give permission to break traditional academic silos and to explore new interdisciplinary learning and teaching opportunities. This participation enabled new configurations and expanded practice. All members of the USC SFCoP were predisposed to and already practicing some form of sustainability pedagogy. The USC SFCoP meetings, workshops and idea sharing enabled and validated these isolated practitioners' actions and allowed for further development. Permissible

spaces in this context relate to the notion of learners and learning that is unbarred, creative and self-supporting through the lived experience of sharing sustainability pedagogical narratives.

13.3 Origins of the Sustainability Focused Community of Practice

13.3.1 Emergence of the Domain

The SFCoP relates to a specific institutional strategic goal and a specific graduate attribute—Sustainability Focused (SF). The origins of the SFCoP are multifaceted as many actors including academics, administrators and governing boards were working towards advancing sustainability in operational and educational spaces throughout the university's sphere of influence. Sustainability has been a key priority for USC since the establishment of the Sustainability Research Centre and a major and minor curriculum offering in 2007. Later in 2009, the enactment of the *Sustainability Governing Policy* pushed the expectations of sustainability teaching and research across the institution as a whole. This policy document established the role of sustainability through the core activities of research, teaching and engagement. As a result, the Sustainability major and minor took on increased importance. In addition, the need for a new graduate attribute—Sustainability Focussed (SF)— was identified.

In 2010, the University established SF as a required graduate attribute that all programs had to ensure students could demonstrate. The challenge of how all current and new programs and courses addressed this *curriculum* focus was both complex and complicated. The specific undertaking for academics involved in curriculum delivery was to "produce graduates who are able to contribute to a knowledge economy and sustainable futures" (USC Sustainability Governing Policy 2009). As this policy applied equally across programs in the Arts, Science, Business or Applied Health Fields, the institutional level definition and framing of this concept needed to be high level, inclusive, and meaningful to all disciplines. To accommodate this disciplinary diversity, the graduate attribute was defined broadly to encapsulate the thinking and considerations around the interconnectedness between and within economic, social and environmental systems:

> …It requires the comparison of alternative actions against social, economic and ecological objectives with the goal of achieving a balance that would provide for the needs of both current and future generations. Achieving sustainable outcomes necessitates a process of iterative analysis and decision making, often in the face of considerable uncertainty and with limited information. It is value-based and is informed by ethical frameworks whether they are explicit or implied. (USC, curriculum support materials 2011)

From this broad definition of SF the institution moved to produce more specific guides for academics at course level. These were not mandated but included

examples of how students could demonstrate their learning such as: considering and comparing actions and outcomes; problem solving; and analysing decisions within ethical and value based frameworks. These documents along with academics' pre-existing notions of SF framed the domain for this community of practice. The course level learning outcomes (Table 13.1) were designed to illustrate a clear sense of increasing standards and complexity to ensure graduates have the capacity to think critically, innovatively and to create and justify solutions. The table below outlines the sample student learning outcomes for SF for a bachelor degree program (Australian Qualification Framework 7) and was provided to aid discussions around the SFCoP domain.

Table 13.1 Standards for measuring proficiency in "Sustainability focused"

Introductory AQF 7	Is familiar with the terms used in describing sustainability in their field of study
	Understands the basic objectives of sustainability in their field of study and can recognise obvious interactions, contradictions and imbalances between economic, social and environmental outcomes
	Links discipline knowledge/practice to ecological, social and economic issues
	Demonstrates an understanding of the greater context of the discipline and how the discipline connects to one or all of the three realms: social, environmental and economic
Developing AQF 7	Has the ability to frame discipline specific issues in the context of sustainable development
	Has the ability to use established methods to evaluate how alternative actions contribute to or impede explicit sustainability objectives
	Recognises some of the differences between how sustainability is viewed in different fields of study and in different cultural contexts
	Considers the impact of the specific medium of communication and how social, cultural, economic, environmental values are implicit in its construction
Graduate AQF7	Collaborates across disciplines to revise and expand methods against which sustainability will be measured
	Identifies and describes barriers to sustainable practice in a discipline
	Recognises the contested nature of sustainable development definitions and interpretations
	Develops solutions based on adaptive principles that anticipate and overcome barriers to the introduction of sustainable practices, considering all associated ecological, social and economic factors
	Identifies path dependent decision points and ensures that future sustainable outcomes will not be impeded by current decisions
	Makes sophisticated linkages between discipline and wider sociocultural and environmental contexts

The table is included in its entirety here because it was used by academics as a litmus test to help them determine whether their assessment items were potentially related to the SF graduate attribute. Academics could then either opt in (adapting assessment tasks) or opt out (determining that sustainability would not be a key alignment for that particular assessment). This quite basic 'dialogue opening' table assisted in the identification of those people that might be interested in joining the SFCoP

13.3.2   Uncovering the Community

The curriculum spaces that developed and assessed SF content were revealed through an institution-wide *natural mapping process* where all course coordinators at USC considered the broad descriptions of the six new graduate attributes (SF was just one of them) and then identified which attributes were related to the learning outcomes in their courses using guides such as Table one above. After all courses were aligned with the new graduate attributes framework a clear picture arose regarding the limited spaces in which SF was taught and assessed. In total, 26 % of all courses at USC were aligned with SF, which appears substantial. However, when course outlines were reviewed at a more granular level we found that only 8 % of all course learning outcomes were SF, and very often these learning outcome alignments were peripheral and not the focus of the summative assignment tasks. Many courses addressed sustainability but typically in a limited way that often did not include assessing student competencies regarding complex problem solving or inter-disciplinary thinking. It was in response to this apparent deficit, that the academic developer invited all course coordinators across the university who indicated that they taught and assessed SF to join a discussion to establish if a community of practice structure could be used to discuss how to expand and improve teaching SF.

The first meeting of the SFCoP was held on September 27, 2013 in the Sustainability Research Centre on campus. In total, 19 academics attended this first gathering and 17 more indicated that they were interested but unable to attend. The gathering had a number of objectives including giving space for academics from different disciplines to introduce themselves and talk about their work with SF content, teaching and research. The meeting clarified the *domain* and *practice* of the group and a sense of *community* emerged. Some of the first activities included: the Sustainability Research Centre (SRC) sharing their OLT project plans on a CoP for Transformative Climate Change Education; creating a platform to share resources and establishing a guest lecture list in specialist areas. There was a pervasive enthusiasm to share methods of communicating the concepts in different contexts and assessing student learning outcomes. The attendance list testified to the diversity of curriculum interest in the *domain* of this attribute and the culture of collaboration and (co)learning was significant.

13.3.3   Solidifying the Practice

Consistent with the implementation of the SF graduate attribute, academics from the SRC commenced a project to develop a Regional Community of Practice for Transformative Climate Change Education supported by a Commonwealth grant (Office of Learning and Teaching 2013). The grant brought knowledge and experience from the University of Tasmania which had developed a community of

practice across four universities in three states (see Pharo et al. 2014). These experiences informed USC's effort to develop a strategy that would build long-term connections across faculties and between educational organisations on the Sunshine Coast. To this end, OLT grant resources were used to support a project facilitator and workshops to bring sustainability educators from other regional universities and TAFE, students and regional employers of sustainability graduates together. Sustainability/climate change teaching offerings across the region were identified. This information was complemented by a survey of industry practitioners and USC staff (academic and non-academic) to draw out understandings of the sustainability domain and employers' expectations of sustainability graduates. The workshops provided an excellent opportunity to share learning around the USC SF graduate attribute and talk about some of the SFCoP academics who were working in this area. Ultimately, the workshops acted as a platform to inform and promote the unique characteristics of USC's sustainability teaching program, in particular and the university wide curricular focus on sustainability through the SF graduate attribute.

The results of the OLT extension grant included a regional Sustainability Community of Practice for Educators (SCOPE) group. SCOPE was embraced by the sustainability industry on the Sunshine Coast whose participation in interviews and workshops provided opportunities for academic staff and students to reflect and consider their personal and professional impact on the future generations. Products created as a result of this project included a newsletter, short videos on key sustainability concepts to be used in classrooms and the knowledge of the success and richness of working in multidisciplinary teams. Workshops also identified specific areas for improvement in the communication and coordination of sustainability objectives across corporate and academic departments.

The relationship of SCOPE and the SFCoP is close and mutually informing but clearly differentiated by SFCoP's truncated domain (only focusing on learning and teaching issues with the USC SF graduate attribute), smaller community—only USC academics, and a more focused and localised practice. The energy and resources harnessed from SCOPE facilitated the development of instructional videos and online content that became available to the SFCoP as part of a common toolkit for practitioners.

13.4 Multi-disciplinary Voices of the SFCoP

This section shares six short narratives by USC academics who have been a part of the SFCoP since its inception. These stories demonstrate the diversity of perspectives and experiences that can occur within a community of practice. They also illustrate how the domain of Sustainability Focused became a permissible site for (co)curricular and pedagogical innovations in learning and teaching practice. Formerly the domain was fragmented and confined within discipline boundaries.

Research (Tilbury et al. 2005) indicates that ad hoc approaches to embedding a sustainability focus into the university curriculum often lead to disjointed, unconnected and short-term effects that are sidelined from the strategic directions of the institution. At the same time committed sustainability educators (and advocates in other university sectors) often report feelings of isolation and frustration at their inability to effect broader, more long-lived changes within their institutions (Hammond and Churchman 2008). Such a sense of isolation can endanger their continued pursuit of this area of interest. The following voices from academics who are part of the SFCoP clearly indicate that building connections between isolated academics across the university provides much needed motivation and social support. This leads to more strategic systemic sustainability innovations.

These narratives reflect the range of our community's practice, from broad program level interests to individual course level activities in the fields of English literature, environmental economics, public health, sustainability and planning.

13.4.1 English Literature: Expanding Eco-Criticism Through Permission to Explore New Curricular Landscapes

Clare Archer-Lean

My entry into the evolving Community of Practice began in early 2013 when I met Theresa Ashford (then curriculum consultant assessing the embedding of graduate attributes in courses across the two faculties). Theresa was particularly focused on the presence or lack thereof of sustainability literacy embedded in the pedagogical goals for graduates in diverse disciplines. My own research in critical animal studies and eco-criticism placed questions of cultural and ecological sustainability centre-field. I was continually researching eco-critical readings of literary works and also exploring the social change involved in story telling (such as book clubs). But I had not made questions of environmental, non-human animals, and sustainability central to my teaching. This is not unusual in English literature. There are a few graduate programmes in the US that feature devoted eco-critical courses (such as Boston University, University of Minnesota, University of Wisconsin, University of Michigan, and the University of Idaho). The University of Oregon now has an undergraduate course in the area. In the UK, the University of Bath Spa has a Writing and Environment research centre and teaches eco-critical courses. The explicit teaching of sustainability issues in English literature (eco-criticism) is even rarer in the Australian context. Theresa's critical questioning prompted my own critical reflection on teaching sustainability in English literature curriculum. In April 2013 I developed a short honours course: The Human and the Land in eco-criticism. I taught it in second semester 2013.

13.4.1.1 Practice Enabled by Community

Half way through teaching this course, I attended an early meeting of the emerging SFCoP. We became very quickly a *community* as described by Wenger et al. (2002a), open to collaborative yet informal action. The stories of other educators validated my decision to integrate a core eco-critical unit into the honours programme in English. And yet, the community enabled more than simply a validation of actions already taken. I felt that our shared stories were *figures* of co-shaping change in the way Donna Haraway describes in her book When Species Meet (2007). The cross-disciplinary focus of the discussions (hearing innovations such as gardening in nutrition studies or founding learning in economics, education or heath in sustainability) permitted me to extend my thoughts on how I was teaching the honours course. I was most excited to learn about the devoted sustainability courses and programmes I had not previously been aware of. As I result, I reflected that I had been teaching the honours course through a debates approach, exposing students to detractors and advocates of the eco-critical approach and assessing students' critical and researched arguments on their own literary readings through this lens. I was treating sustainability as unusual and not normative. I had been involved and invested in the expression of graduate attributes and began to appreciate them as clearly articulated guide to practice, an atlas of definitions and ideas. While my approach met with the graduate attribute aim of 'recognising how sustainability is viewed and contested in different fields of study' it was not facilitating a full appreciation of the 'sophisticated linkages between discipline and environmental contexts'. The SFCoP provided me with an authorising context; a community to treat sustainability questions as entirely necessary and chance to use the practice atlas of the graduate attributes to change curriculum accordingly. I adapted the course to a thematic tropes approach. Now students explore the six tropes of eco-critical literature identified by Garrard: pastoral, wilderness, apocalyptic, animals, dwelling and gaia (Garrard 2012). All these narrative forms evoke, foster or challenge readers to notions of human sustainability and the shift in approach allowed students more complex and sophisticated critical arguments on the meaning and significance of fiction.

In February 2014 I attended the *Transformative Climate Change and Sustainability Teaching and Learning Workshop,* part of USC Sustainability OLT CoP's developing activity. One of the discussions was on what we assess and how. I returned from the workshop with renewed enthusiasm for the necessity for sustainability-focus within my own pedagogy. Our goal of articulating the actual wording in the graduate attributes of sustainability constructed a clear domain to enable agreed on and innovative practices. Supported by a community and equipped with clear definitions and an atlas of practices I critically reflected on assessment, reconsidering why I had limited eco-critical considerations to advanced level honours coursework. I revised all undergraduate courses within USC's English major to ensure students were given the option to construct critical

arguments on the significance of fictional texts' representation of non-human animals, nature and place beyond setting and developed the teaching content to facilitate development of thinking on sustainability and culture. I taught these developments throughout 2014 and students responded enthusiastically. I also now have an additional required course in the English major devoted to ways of Reading Indigenous and Torres Strait Islander Literature, developed in consultation with Indigenous academic experts and community members. The marked changes in curriculum, upon reflection, construe a domain: a project of mapped change. While this is not pervasive in the larger university community it is intensive and marked within the USC SFCoP and enabled by practice and community.

13.4.1.2 Beyond the Precision of Domain: The Unexpected Results of Community and Practice

I continue to teach the honours course. In addition to (and likely because of) the course work option, I have now supervised five honours students to complete specifically eco-critical dissertations. All but one received high-level first class honours. One continued in an eco-critical APA funded PhD research at University of Queensland. Another joined community aid abroad development work. One works for an environmental advocacy group interstate. The other two are studying or have studied to become teachers and I am certain they will take their sustainability graduate outcomes into their future interactions with high school students. I also now have two HDR students conducting specifically eco-critical work. These unanticipated successes occur outside the community of the SFCoP, but they substantiate the ways in which SFCoP can enable innovative personal practises.

   The experience of sharing stories of curriculum development and of ideas for tangibly bringing SF gave me permission to move my eco-critical research into an increasingly embedded aspect of my pedagogical practice. I found such activities do construct 'figures' of change, as Haraway (2007) would put it. And they also enact clear community (Wenger et al. 2002b). By this it is meant the SFCoP meetings assisted in permitting and enabling clearly defined practices. The outcomes extend beyond precise domains of mapped and intended projects. There are positive unintended acts of co-shaping, such as the localised movement to a sustainability research in USC's English Literature area through a focused honours and HDR contingent in English Literature. Even though the changes in my pedagogical practice were enacted in my own discipline in isolation, their driving force were the support from and reflections of my community in the SFCoP. We all implicitly co-shaped each other. There are also moments where community members actively and explicitly shape each other's pedagogy and embarked on mapped and intended projects of collaborative sustainability assessment: these are truly inspiring.

13.4.2 Environmental Economics: Harnessing Cross Curricular Spaces for Learning

Graham Ashford

Overview

One of the activities facilitated by the SFCoP was the Product Packaging Roundtable Project, a collaborative assessment task involving students from ENS300 Environmental and Resource Economics and DES213 Packaging Design. The initiative was designed to provide an opportunity for students to engage in learning activities that cut across course and faculty boundaries. The aim of the project was to develop student awareness of outside factors that influence strategy and decision-making within their own disciplines through an activity that mirrored what might occur in a government-industry policy design and consultation process. A collaboration of this nature had not previously been attempted between courses within a similar program, let alone across faculties with students pursuing very different career pathways. Notwithstanding the challenges involved, the experience was enriching for both the course coordinators and the students involved as elaborated in this example of the role that the SFCoP played in fostering an environment where innovation and risk taking were encouraged.

A Practitioner/Advocate in an Academic Setting: Feelings of Isolation and Uncertainty

My practical explorations of the concept of sustainability, particularly its economic dimensions, predated my academic career. Prior to becoming a university lecturer I spent a decade managing international research projects around poverty alleviation, trade, resource management, environmental reporting and climate change for a large institution with a mandate to promote sustainable development. The experience of working with governments, communities and industry groups, often in very impoverished countries, gave me an appreciation of the complexity of the issues involved. Although many of the fundamental precepts of sustainable development were shared, the pathways and priorities to those ends were often not. Consequently, for some groups the terms retained their aspirational nature, whereas other groups felt the terms had been co-opted to imply a goal of sustained growth and continuous economic expansion.

The contested nature of the term sustainability was confirmed when I began teaching environmental economics courses to university students, many of whom perceived economics to be the source of the problem and therefore antithetical to the goal of sustainability. As an economist this suspicion was not new to me, but as a lecturer I wondered whether putting forward such a lofty goal for the future of humanity and requiring students to critically evaluate the dominant economic paradigm transgressed some unspoken boundary between objectivity to advocacy. Besides feeling generally isolated operating within a school of science that revolved around labs and beakers, I was unsure whether I was teaching in what would be considered a permissible space, despite receiving excellent student feedback.

Therefore, when the University established an institutional priority that all programs needed to produce graduates that were SF, I was both relieved and encouraged. The definition of "sustainability focused" and the criteria by which it could be assessed were both nuanced and expansive and I felt that my practice fell comfortably within the boundaries. The recognition of the importance of path dependencies, cross-cultural realities, governance and institutional arrangements, capacity building, irreversible consequences, and long-term planning horizons were particularly relevant to how I taught environmental economics.

A Community for Innovation and Risk Taking

The first formal meeting of the SFCoP established that the group of academics that taught and assessed sustainability was large and diverse and came from all of the major discipline areas. It was exciting and validating to feel part of a community of academics with a common purpose and an interest in sharing ideas and learning from each other. It was clear that when we measured ourselves against our own graduate attribute standards we performed at an advanced level. For instance, as individuals we had the ability to frame discipline specific issues in the context of sustainable development and as a group we had the ability to collaborate across disciples to revise and expand methods against which sustainability could be measured. We knew our domain well. Nonetheless, in the absence of a similar community of practice at the level of students, I wondered how we could fully achieve our goals such as introducing a multidisciplinary perspective into our teaching. Encouraged by the feeling of mutual support at the meeting, I expressed my longstanding interest in developing a collaborative learning task that brought together students from entirely different disciplines. The outcome was the *Product Packaging Roundtable* a collaboration between ENS300 Environmental and Resource Economics and DES213 Packaging Design.

It is worth noting explicitly the role that the community of practice played in facilitating this outcome. First, it brought together the subset of academics who might be responsive to the idea. Second, it fostered a desire to innovate that led my colleagues Irene Visser and Phyllis Araneo to see an opportunity and enthusiastically take up the challenge of attempting something that had never been tried before; despite the risk that it might result in negative student feedback. Third, it added legitimacy to the initiative; which subsequently led to the support of the Executive Dean of the Faculty of Science and the University's curriculum support staff.

The Product Packaging Roundtable

The intention of the *Product Packaging Roundtable* was to provide an authentic problem based learning activity for students that modelled real government policy development and stakeholder engagement processes. For environmental economics students, the primary learning objectives included (1) how to undertake a rapid multi-criteria assessment of the environmental impacts of different packaging materials through the cycle of production, consumption and recovery; (2) how to design an integrated set of policies (incentives, disincentives, regulations and standards, and awareness campaigns) to achieve a policy objective, in this case

improving environmental outcomes related to product packaging; and (3) how to consult with stakeholders and incorporate their concerns in a policy review and revision process. For Design students studying packaging, the learning objectives included: (1) developing a greater understanding of how government regulation could influence packing design, in particular the choice and volume of material used; and (2) how to communicate the specific roles that particular materials played in the function or aesthetic of product packaging and to advocate for reasonable amendments to the policies in the interests of their clients. The task was summative for economics students (15 % of their total grade) and formative for design students.

Environmental Economics students self-organised into their own consulting company groups and received a very official looking cover letter and terms of reference for the task from the "Minister for the Environment". Each group of consultants (economics students) had their own group space set up on Blackboard where they could share materials and discuss the task. Each group member was also allocated an area of expertise and was given time to meet with members of other groups with the same expertise—the jigsaw method. The lecturers facilitated discussion and planning with each group during tutorials. Economics students worked for 3 weeks during tutorials before submitting their draft findings and policy framework to the design students for feedback using a set of questions developed by the lecturers. Differences in the timing of the classes required that communication occurred electronically. The economics students revised their findings and policy proposals and presented them to a panel which included the Minister for the Environment and his advisors: me, Irene and Phyllis respectively.

The feedback from students was largely positive with many students indicating that they like the "real world" feeling of the task as well as the collaboration within and between groups. Students indicated that the cross-course element added "a bit of magic" to the whole task. It was something unusual for students and it meant that they had to submit their work into something of a black box. The fact that the interactions came from such different perspectives made the task seem like it was part of something bigger than their own course and gave them a sense of what they might encounter in their careers.

The collaboration was not without its challenges. The task required a significant amount of planning between the lecturers to overcome the barriers associated with merging very different learning outcomes and activities. The comment "this is so hard" came up regularly in the planning and execution but was met with the response "that is why we never do these things" and a renewed determination to overcome the obstacles. In many ways neither the lecturers nor the students were sure what to expect. Students were aware that it was the first time that the activity was being run and that some aspects of it were being developed "on the fly" which made the task appear disorganised at times. There were wide differences in the quality of the feedback that economics students received on their proposed policies. Although the task was intentionally given a small weight for economics students due to its untested nature, some students felt that at the time the task should have been a higher percentage of their overall grade given the time and effort involved.

Notwithstanding its challenges, the authentic simulation based nature of the task proved to be a very engaging and often entertaining way to both teach and learn and has been revised and retained as a part of both courses. The task achieved its objective of introducing multidisciplinary perspectives consistent with sustainability-focused practices. The lessons learned during the collaboration were shared with the Community of Practice and the wider academic community through a seminar at the University's teaching practice week. The project was also nominated for a University Advancing Quality Teaching Award for engaging students in rich and transformative tasks that substantially improve their learning experiences. The Sustainability Focused Community of Practice deserves much of the credit for facilitating these outcomes.

13.4.3 Public Health: Refining the Domain and Practice at the Program Level

Jane Taylor

My discipline is public health, which is about protecting and creating resources to support the health and wellbeing of the population now and into the future. It involves research, and the development, implementation and evaluation of policies and programs that contribute to sustainable health and wellbeing outcomes for people (Baum 2008). Sustainability therefore is a key aspect of public health curricula, a focus explicitly enabled across USC public health programs via the Sustainability-focused Graduate Attribute.

Over 2013 I led the public health curriculum renewal process to embed the new USC GA's into public health program curricula. The public health academic team in partnership with the Graduate Attributes Academic Developer (Theresa Ashford) undertook this work. Programs renewed included the Master of Health Promotion, Bachelor of Environmental Health Science and Bachelor of Health Promotion. In the first instance the curriculum renewal process required the academic team to consider how each GA might be interpreted, represented, taught and assessed within these programs.

With respect to the SF GA, the public health team first engaged in conversation that explored what sustainability meant from their discipline perspective, i.e. sustainability as an important public health outcome and the need to engage in sustainable public health practices. This conversation served to identify convergences and divergences in interpretations of sustainability within the team. It also facilitated consideration of how sustainability had been represented and addressed in USC public health programs to date, and how moving forward it might be augmented through the curriculum renewal outputs. Curriculum renewal outputs were then generated and included explicit SF program and course level learning

outcomes, and assessment tasks and criteria that augmented these learning outcomes. For example, the Master of Health Promotion sustainability-focused program learning outcomes are for graduates to be able to: *Argue persuasively for the value and importance of healthy and sustainable futures* which is outcome focused; and *advocate for greater investment in health promotion infrastructure and resources across multiple sectors* which is practice focused. At a broader level explicating the SF GA in this program renewal practice brought forward and raised the profile of sustainability within public health programs. It also enabled the explicit rather than implicit integration of sustainability focused content and processes into the curriculum. Finally it provided evidence that public health program graduate s are equipped for sustainability aspects of public health practice.

My first engagement with other USC academics interested in sustainability was very near the completion of this curriculum renewal activity at the on-campus sustainability forum in September 2013. I mostly recall the buzz and energy in the room—similar to arriving home to see family or meeting up with old friends after time away. I remember thinking that there were all these other people doing great work in this space and that I had not noticed—which I now attribute to ignorance and in part to institutional siloing. I got excited by the potential collaborative cross disciplinary opportunities that became apparent in the facilitated small group conversation I participated in, which included some co-authors of this chapter, and whom I had not previously met. I recognised that the curriculum renewal work I had been leading at the time to better explicate the SF GA at a programmatic level was part of a much larger movement at USC. This knowledge served to validate the programmatic work that I felt at the time was charting new territory. I could also see that the greater dialogue with likeminded academics and researchers provided a source of learning and support for unknown next steps in this journey. The subsequent establishment of the SFCoP, which brought USC colleagues together, has provided an avenue for me to make more connections, explore sustainability curriculum ideas, practices and resources. I participate as often as I can in the SFCoP. I most appreciate the sense of connection to a community of learning, the opportunity to learn from others about sustainability, and the resource sharing that the SFCoP facilitates.

13.4.4 Sustainability Education I: Finding Trans-Disciplinary Learning in the Disciplinary Setting

Noni Keys and Dana Thomsen
Being part of a community of practice at the regional (i.e. SCOPE) and organisational (i.e. SFCoP) scales has had a very constructive influence on our teaching and learning in the Sustainability Program at USC and has heightened our awareness of future potential collaborations and outcomes. Thus far, these experiences and

relationships have provided a stimulus for the creation of online teaching materials and the development of new, sustainability courses, including an applied capstone course (SUS310) where students can work on project areas identified by industry representatives and researchers. In a system sense, the larger multi-institutional Sustainability CoP (SCOPE) that we developed through an Australian Government, Office for Learning and Teaching Grant functioned as a boundary organization and facilitated the convening, collaborating, translating and mediating of interpretations and applications of sustainability by regional practitioners back to the SFCoP (Cash et al. 2006). Within USC, both SCOPE and SFCoP have made visible the agents of change in other components of this organisation system; making collaboration across courses and disciplines possible and creating permissible spaces and places to (co)develop our practice. There are exciting opportunities for these novel collaborations across disciplines to act as models for other educators and for scaling up efforts across the organisation and the region more broadly. At the level of personal sustainability, belonging to a group with the shared objective of enhancing sustainability learning has also counteracted feelings of isolation and futility from 'battling' for change within the institutional setting. Thus, we have found that belonging to SCOPE and SFCoP has afforded:

Stimulus—for the development of novel teaching materials with broad appeal and the development of new, outcomes-focused sustainability courses with project areas identified by industry representatives & researchers.
Invisible made visible—in a system sense, being part of communities of practice made visible the agents of change in other components of the organisation, and also extended this visibility to other agents in the region and the institution of education for sustainability more broadly. Awareness of the others' existence makes collaboration across courses, disciplines and organisations possible.
Strategic niches of change—through enhanced communication across disciplines regarding sustainability pedagogies and support networks for scaling up efforts beyond collaboration between courses to the wider institution.
Community and personal sustainability—In addition to sharing ideas about course content and learning activities, belonging to a group with a common objective of enhancing sustainability learning counteracts feelings of isolation and raises awareness of a much greater range of possibilities.

13.4.5 Sustainability Education II: Finding Trans-Disciplinary Learning in the Disciplinary Setting

Lisa Ryan
Unlike other members of our SFCoP, who are challenged in finding ways to integrate and incorporate the SF domain into their pedagogical practice, my discipline *is*

sustainability. I teach the Foundations course of a four course Minor and an eight course Major in sustainability, which can be incorporated into many of the degree programs offered USC. So while I don't have to search for how I can incorporate the domain of relevant sustainability content into my discipline, I do have to work to ensure students can see the value being sustainability-focused can bring to their 'home' discipline. This requires me to focus less on teaching content and more on teaching students. It also necessitates incursions into other disciplines to ensure that SF is not an additional add-on but is a specific perspective that can contribute meaningfully to the partner discipline. The story I want to tell here is how the CoP has impacted on both the curriculum design of my course—SUS101—and my own pedagogical practice.

Theresa Ashford, an Academic Developer from CSALT, facilitates our SFCoP and this offers a measure of institutional support and resourcing. The SFCoP provides a space to discuss how the graduate attribute of SF is being incorporated into our disciplines and make plans for how we can integrate SF more seamlessly into our work. Prior to the SFCoP, academic staff remained isolated from the broader institutional GA work. As is typical in many higher education institutions there are informal disciplinary and departmental silos in operation that have the unintended effect of restricting collaboration and relationships between different work areas. So while many academics were supportive of the adoption of a SF graduate attribute we had little input into the mechanisms around that initiative. The SFCoP created new spaces to (co)develop ideas and practice around this domain.

Working in a CoP with CSALT has had several significant on-ground outcomes for my own pedagogical practice. It provided a clear statement on the institutional importance of the SF domain, and it also relieved the pressure experienced by existing sustainability educators of supporting and energising a myriad of other peripheral piecemeal sustainability initiatives. The SFCoP in effect rescued sustainability from the margins of the teaching space where it was seen as mainly the domain of sustainability educators and relocated it squarely within the institution's key educational priorities.

Freed from the margins, and freed from other ad hoc sustainability initiatives, the SFCoP provided the permissive space to focus on developing my own pedagogical *practice* through professional conversations within a supportive environment. To give an example, in our SFCoP there has been considerable dialogue around the development of a campus garden called "Moving Feast" proposed and developed by the Nutrition academic staff and students. The discussions evolved into considering how this garden might form a resource and a space for learning in other courses. This semester, my students, will have the opportunity to utilise the garden both as a tutorial resource where Nutrition students will peer tutor my students on the need and role of gardens in addressing food security in local contexts, and secondly as a real-life and relevant stimulus for their first assessment task: a poster on an environmental issue (possible topics could be food security, obesity, industrial agricultural systems etc.). Posters produced by students on the causes and consequences of unsustainable food-related practices may in turn be utilised by the "Moving Feast" student group as interpretive signage furthering the work of

Nutrition students in promoting healthy eating options within the university and local community. In this way through the SFCoP, the garden is becoming sutured into the culture and fabric of the university. Although these plans are yet to be realised fully, I look forward to working with my SFCoP Nutrition colleagues to build upon this initiative.

Another key area I have been able to develop through the SFCoP participation is a sensitivity to and knowledge of other discipline areas and their framing, knowledge and understanding of SF topics and issues. This exposure to other disciplinary perspectives allows me to see to some extent through my students' eyes. Through conversations with Health, Creative Industries and Business academics, about the current sustainability issues and challenges of these fields, I am better able to find points of convergence with sustainability for my students from these different fields. Often these points are obscure and not immediately obvious. Last year one of my students enrolled in a Bachelor of Creative Industries wrote her Task 2 assessment (a magazine article outlining the sustainability implications of a work or leisure-related practice), on the misogynistic and violent culture of gaming as exposed in the recent 'gamergate' scandal. Without the SFCoP to keep me informed of current trends in other disciplines, I may not have been able to negotiate such cutting edge relevant topics with my students, and valuable opportunities to engage students would have been lost.

The SFCoP has for me become an important teaching resource, both as a source of ideas and inspiration about what SF means in other disciplines as well as providing a sense of community with a shared interest in pursuing projects and ideas that can contribute to an institutional focus on sustainability.

13.4.6 Planning: Participating on the Sidelines—Productive Peripheral Participation

Claudia Baldwin

My work and participation in the SFCoP is best classified as 'legitimate peripheral' due to my tendency to over-commit. I try to attend as many of the gatherings as possible as I strongly share this domain and practice with the body of academics that collaborate in this area. My key program of interest is the Bachelor of Regional and Urban Planning, which aims to 'contribute to responsible and sustainable development'. Unlike some other disciplines, which might stretch their usual boundaries to interpret or apply sustainability in their courses, planning is all about sustainability, incorporating fundamentals such as triple bottom line sustainability and intergenerational equity in developing liveable and just communities for the future. These values are aptly encapsulated by the Planning Institute of Australia's description of planning as:

developing strategies and designing the communities in which we live, work and play. Balancing the built and natural environment, community needs, cultural significance, and economic sustainability, planners aim to improve our quality of life and create vibrant communities.'…Planners are 'gaining increasing recognition as communities place greater emphasis on 'liveability', environmental sustainability, the design and feel of places and public space. People and decision-makers are also increasingly interested in managing urban growth effectively in order to build a nation worth inheriting for future generations (PIA 2015).

When I first developed the fourth year course in Advanced Planning Practice, I struggled with how to structure it in a coherent way to cover the diverse range of topics needed for a capstone course. Initially attempting to deliver on the university's strategic direction of regional sustainability, I wove the topics around a triple bottom line sustainability theme that was unconvincingly related to our overall planning program. The introduction of the sustainability focused GA legitimised my attempt, allowed me to map, embed and normalise this way of thinking into the program. The positive reinforcement of the Academic Developer encouraged me to further develop and finesse the theme of this particular course curriculum.

I find it exciting and fascinating to see how others in the SFCoP interpret sustainability in their courses, and it helps me to negotiate the multi-disciplinary nature of this field, however my participation is secondary to my focus on engaging with planning practitioners external to the university. Having worked for government and in consulting prior to academia, I am familiar with the trade-offs that often occur when trying to achieve a sustainable outcome. I want students to appreciate and be inspired by the challenge and not be discouraged or overwhelmed by it. So I incorporate experiential learning in my teaching to expose students to real world issues and how to foster exploration and evaluation of possible solutions. As a result, a key feature of the course is to invite, at different times, six practitioners to give guest lectures to my students, about their work, its challenges, and their own journey to becoming a professional planner. The rationale is to introduce students to the bumpy reality of planning issues, with all its technical, interpersonal/social, political and ethical complexities. An additional aim is to have students start to identify as professionals with an ongoing need for lifelong learning which most of the guest lecturers demonstrate through their further study and as professional institute members. This requires that I engage with our professional guests ahead of time to discuss how sustainability can be a core message. Through reflecting and negotiating about ways of engaging the students in interpreting and achieving sustainability, we mutually build on the curriculum I had envisaged. Likewise guests are exposed to and re-evaluate a different way of framing their issues. As an example, I initially presented aspects of policy development simplistically around social, environmental and economic sustainability themes in separate lessons. Social policy looked at affordable housing in one lesson; environmental policy referred to acid sulphate soil constraints on land use in another; and economic was about efficient land development, each with a different speaker. With the guest lecturers and other colleagues, the course evolved to take a more integrated approach to each, better reflecting the interconnectedness between economic, social

and environmental systems, the essence of sustainability. For example, long-term costs of environmentally sustainable neighbourhood and house design features (north-facing lots, natural light and ventilation, solar power and rainwater tanks) contribute to longer term housing affordability, thus illustrating the social, economic and environmental nexus. The precautionary principle and inter-generational equity emerged from discussions on the rationale for constraining development in inappropriate or poorly understood locations such as low-lying coastal areas, reinforced by examples from a guest planner.

So for me, the informal social learning and collaborative relationships developed in the SFCoP as well as the professional connections nurtured outside the university have provided a broader community of practice which has validated sustainability as an absolutely critical domain, for me, my colleagues, and students. In the process, it has advanced the sophistication of my teaching. The opportunities to lightly participate, to manage my own learning, participation and commitments within the USC and broader community has enabled and supported my integration of sustainability into practice, rather than as just an ideology.

13.5 Closing Reflections—A Conveners' Voice

Theresa Ashford

In the process of writing this chapter, I reflect that I had a strong ethical commitment to the notion of the SFCoP as an organic, self-determining social learning structure and the production of this chapter would be part of the CoP practice rather than a product in and of itself. This chapter is a testament to all of our members both peripheral and fully participating, as it is their voices, interactions and engagement that have changed who we are. I have been cautious in the convener role not to overstep but to support and become part of the community. My initial goal in bringing academics together was in response to my realization of the siloed and marginal place of explicit SF learning and teaching within the university. My role as an academic developer gave me the birds' eye view to see the fractured spaces of SF across the university and a mandate to invite these academics to gather and discuss this curriculum imperative. However, my role has evolved to become a co-participant while at the same time supporting this community through planning and communicating our bi-annual meetings as well as supporting the smaller sub groups that gather regarding specific SF academic issues and initiatives. I see the real SFCoP emerged through the prolonged engagement of academics, the continued projects and ideas that are supported by the SFCoP and the continued energy and excitement when we get together. Through collaboration and the formation of the CoP we have been able to find areas amenable to multi-disciplinary practice. Many of the comments in the above practitioner reflections indicate this. The quotes below articulate some of the most overt benefits of participation in the SFCoP:

Connecting with and subsequent participation to date in the SFCoP highlighted the need to link with academics in other programs and from other disciplines that also valued sustainability. I recognised that I needed to and could learn from others about how sustainability-focused graduate attributes are being realised in other programs. I also identified potential collaborative opportunities to enhance my own sustainability-focused learning and practice that in turn influenced the learning experiences I create for public health students. Participation in the SFCoP has provided this learning and collaborative space. Dr Jane Taylor Public Health

This quote clearly highlights the benefits of collaborative participation in a CoP structure and the transformative experience this 'collective, relational and social process' (Omidvar and Kislov 2013) can elicit.

In my experience the CoP was absolutely vital: it validated my existing activities and gave me inspiration and critical reflection to action meaningful change. This CoP was both informal and collaborative in the implicit co-shaping sense. Dr Clare Archer-Lean

The common threads evidenced by these quotations concern safe collaboration leading to validation of existing practice and transformative inspiration for new practice. This chapter also evidences the heterogeneous lived experiences of the SFCoP as each member draws out something different for their own practice. Permissible spaces in this context relate to the notion of learners and learning that is unbarred, creative and self-supporting through the lived experience of sharing sustainability pedagogical narratives. This ensures both that pedagogical development is not happening in isolation but also that SF is beginning to be institutionally normalised.

Different forms of participation in the SFCoP clearly emerged in our collective reflection in writing this chapter. For example, as the literature (Lave and Wenger 1991) suggests there can be legitimate peripheral participation in a CoP that has quite different benefits to that of more core or ongoing membership. This can be seen in the contrasting the experiences of the academic in English Literature from that of the academic in Planning. The former receiving more specific benefits in terms of transformation, curriculum expansion and spaces of permissiveness while the latter, developed an increased depth in sophistication of SF and a cross-disciplinary interest rather than a transformation in practice. In this case, the peripheral participation may be in part due to the fact that, like other academics in the SFCoP, their fields were already steeped in SF. Yet all benefitted from the social learning and mutual support that is integral to a community of practice.

This benefit and mutual support also impacted my practice as an academic developer, which is inherently a difficult and contested space in the tertiary landscape. My practice is entirely learning and teaching focussed and much of the work concerns "engaging academics in thinking about their teaching with the aim of improving student learning" (Barrow and Grant 2012, p. 466). This is often a challenging space and one that must be negotiated with care, openness to learn and evidenced based practice. The fact that I was aware of the spaces of innovation in the individual disciplines was due to my one-on-one work with these academics. The bringing together of these academics into the space of a CoP allowed for the decentring of my practice, and to draw on the power of the groups interest. I was

initially nervous about some of the potential tensions that might occur including the extent I may have to intervene, encourage or drive the participatory processes in the operation of the CoP. I felt that there may be attendant risks in reducing group capacity and agency, thereby making the CoP dependent on a single driver. This has not been the case and I can genuinely say that these SFCoP meetings are something I look forward to as they have a warm, collegial and inspiring learning centred atmosphere.

As echoed in the other chapters of this book, Communities of Practice are exciting spaces for social learning and collaboration. The fact that there can be multiple ways for CoPs to form, operate and prosper is a testament to the robustness of the theoretical construct. We have found the successful role of the SFCoP in supporting the operationalisation of complex educational objectives all relate back to the strength of the key elements within the community of practice: Domain, Community, and Practice (Wenger et al. 2002a). In summary, the theoretical construct of CoP has been realized in USC's SFCoP in the following ways.

Firstly, the domain was demarcated through the development of USC's SF graduate attribute. The Sustainability Governing Policy and various curriculum tools such as Table 13.1, facilitated the explicit rather than implicit integration of sustainability concepts into courses. An OLT project assisted the further emergence of the domain, through providing workshops and activities across the university on climate change and the consideration of regional employers' needs and expectations of sustainability graduates.

These various activities highlighted the need for a community to redress siloing and to capture and exploit exemplary work being done in SF pedagogy. Our SFCoP brought together disciplinary practitioners with sustainability related expertise and interest. This community has been successful in supporting academic staff most visibly associated with SF in courses and programs and has opened up their meetings to members from facilities management, the Buranga Centre, and other community engagement units at the university.

The practice of the SFCoP has included the development of sustainability related course materials and expanded the capacity to produce them. Multidisciplinary perspectives have become more common in courses with interesting cross course learning and assessment practices sponsored. Pedagogical models and cross disciplinary (co)learning and collaboration are now becoming more common. The practices have, in effect, enabled systemic and pedagogical approaches to the embedding of SF at different levels: institution, program, course, and assessment.

This work is continuing and new and interesting projects are in development. In terms of my own goals as academic developer to redress (a) siloing and separation and (b) a marginal place of explicit SF within curriculum across the university, this chapter is testimony to the success of the former much more than the latter. That being said, the USC SFCoP has a critical mass. Its membership is growing and its activities and outputs cycle through periods of intensity and dormancy depending on the workloads of the participants and the need to collaborate to advance specific external projects or university initiatives. A significant number of practical resources have been developed for common use. An important outcome has been an

expansion and fortification of the permissible space within which practitioners perceive that they can work owing to the vitality of their collaborative inquiry and the critical mass of their community.

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Part III
Student Focused Communities of Practice

Chapter 14 "A doctoral Community of Practice: A spatial entity across social media" by Davis et al. describes a CoP developed by multinational group of doctoral students as they develop outside the bounds of their formal learning community and considers the differing impacts of their landscapes of practice, of bounded place and open space.

Chapter 15 "A Student-Staff Community of Practice within an Inter-University Final-Year Project" by Bennett and Male presents a CoP comprised of students and supervisors in the field of engineering education.

Chapter 16 "Learning Value and Identity Formation: Social Learning and the Graduate Studies Experience" by Culver and Bertram describes two cases that explored the implementation and assessment of CoP in higher education settings that both employed a value creation framework.

Chapter 17 "Equity Buddies: Building communities of practice to support the transition and retention of students through their first year at university" by Zammit et al. discusses the peer mentoring program *Equity Buddies Support Network* developed at the University of Western Sydney, School of Education as a community of practice designed to support the transition and retention of first-year students.

Chapter 18 "The practice of being a student: CoPs and graduate student success" by deChambeau presents the results of a research into graduate student success using a CoP model.

Chapter 19 "The Lifecycle of a Student-led Community of Practice in Higher Education" by Knaus and Callcott profiles a higher education CoP that has developed as a result of student initiatives with the aim of assisting students in their transition to university and developing a sense of identity and belonging.

Chapter 14
A Doctoral Community of Practice: A Spatial Entity Across Social Media

Jane Davis, Debbie Prescott, Barry Avery and Hans Oberg

Abstract This chapter is situated in the context of the growing desire by educators to support learning through the facilitation of communities of practice. The original conceptualisation of communities of practice is revisited, with a focus on its ethereal rather than located features. In so doing, the chapter takes a journey away from the notion of *space* as being located and considers instead a more ethereal, chaotic entity. We suggest that the spatial realm is one in which communities of practice thrive, through the development of processes, practices and inter-relationships. The chapter follows a multinational group of doctoral students as they develop a community of practice outside the bounds of their formal learning community and considers the differing impacts of their landscapes of practice, of bounded place and open space. The chapter closes by considering the value of spatial communities of practice, the nature and potential impact of facilitation, and the implications of the cultivation of such communities within higher education.

Keywords Communities of practice · Space · Learning communities

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14.1   Conceptualising Spatial Communities of Practice

The term 'communities of practice' initially came to the fore through the work of Lave and Wenger (1991) on situated learning. The expression embraced conceptualisations of identification, motivation, the interlinkage of meaning and action, shared histories and collaborative artefacts. This understanding has iteratively grown and developed, and more recently Jakovljevic et al. (2013), in seeking to provide a theoretical framework for communities of practice, propose three key features: a shared domain of interest, development of relationships through social interaction and activity, and co-existence of members as practitioners. Jakovljevic et al. (p. 1107) write:

> The movement toward including communities of practice as a dominant component in various educational systems has gained momentum since the 1990s (e.g. Wenger 1998; Fox 2000; Wenger et al. 2002). Communities of practice have constantly posed challenges to higher education institutions (HEIs), in particular those engaged in open distance learning.

Such consideration of a need for facilitation and/or implementation of communities of practice in higher education might suggest that with-out a formalised 'place', approach or framework, and without the support of institutional learning architectures, such entities would not materialise. This chapter suggests that communities of practice are spatial in nature and are prone to exist without the visibility or formality that might earn them recognition. Indeed, in 1998 Wenger wrote:

> Communities of practice are an integral part of our daily lives. They are so informal and so pervasive that they rarely come into explicit focus … we also have a fairly good idea who belongs to our communities of practice and why, even though membership is rarely made explicit on a roster or a checklist of qualifying criteria' (Wenger 1998, p.7)

We are seeking to establish the conceptualisation of virtually mediated communities of practice as spatial products of interrelations between entities and identities, situated in an environment that is formed through continuous engagement in processes. Indeed we will put the emphasis on space as a process-based concept rather than a physical, temporal construct, thus supporting both the original definition by Lave and Wenger (1991) and that of Jakovljevic et al. (2013). Our emphasis on a spatial rather than a physical conceptualisation of communities of practice sets out to support the suggestion that the often ethereal nature of communities of practice, from the perspective of managers in higher education, does not detract from the situated learning that takes place. However, we acknowledge that wider understandings of the nature of 'space' itself do vary from the geographical to the philosophical, and thus it is important to present the ways in which we have explored and embraced the nature of 'space' as it relates to the wider context of learning and to higher education in particular.

14.2   Conceptualisations of Space and Place

Having struggled with the apparent coexistence of 'space' and 'place' and their co-location in academic literature on the student learning experience, it was refreshing to engage with presentations of a more ethereal and differentiated notion of 'space' (Massey 2005; Deleuze and Guattari 1987; Bayne 2004). Massey (2005, p.25) asserts that space is the "product of interrelations … [a] sphere of the possibility of the existence of multiplicity in the sense of contemporaneous plurality … the sphere in which distinct trajectories coexist … as always under construction … never finished, never closed". She takes the notion of space away from being physical, structured, temporal or located, seeing space instead as a fluid continuum, a process based entity, and an unorthodox mixture of relationships, processes, journeys, and voices. She posits:

> What if space is the sphere not of a discrete multiplicity of inert things, even one which is thoroughly interrelated? What if, instead, it presents us with a heterogeneity of practices and processes? Then it will be not an already-connected whole but an ongoing product of interconnections and not. Then it will always be unfinished and open. This arena of space is not firm ground on which to stand. In no way is it a surface. (Massey 2005, p. 201)

Massey develops her understanding of space as being a continuum—in-tangible and ever moving. The concept is complex and yet this presentation of space as an ongoing journey, rather than as a recollection of stopping off points, has a degree of resonance with considerations of Deleuze and Guattari (1987) as they consider 'smooth' and 'striated' space. They liken smooth space to the production of felt, which they suggest can be made in any direction and has no defined structure. The 'wandering' nature of smooth or open space is further emphasized by their reference to it as 'nomadic space'. On the other hand, they compare striated space with woven material, made using warp and weft and systematically put together. Massumi writes, in the foreword to A Thousand Plateaus:

> The space of nomad thought is qualitatively different from State space. Air against earth. State space is striated, or gridded. Movement in it is confined as by gravity to a horizontal plane, and limited by the order of that plane to preset paths between fixed and identifiable points. Nomad space is smooth, or open-ended. One can rise up at any point and move to any other …as opposed to the logos of entrenching oneself in a closed space (hold the fort). (Massumi 1987 p. xiii)

These qualifications of 'space' as being variably described as ethereal and heterogeneous (Massey), as smooth, or striated (Deleuze and Guattari 1987) may initially appear to add to the complexity of ideas about space. They do however provide the opportunity to consider hybrid versions of each entity and allow us to consider the very nature of experienced space across a range of situations. We can thus start to extend our vocabulary as we consider space within the context of the student experience of higher education and the way in which this contrasts with materially located 'place'.

14.3   Considering 'Space' and the Student Experience of Higher Education

Much of the literature on learning spaces relates to the physical environment in which students undertake their studies, being a key issue for institutions as they hone their learning architectures (and physical environments) to strategically enhance the student experience. However the rapid growth and adoption of virtual learning environments and pedagogical engagement with mobile technologies has ensured the prevalence of research into digital literacy and digital pedagogy, and a variation in the nature of academic association with space and place.

For example, Gourlay and Oliver (2014), in presenting the accounts of participants' learning activity, do not specifically clarify their own differentiation between space and place. Whilst this does not detract from the research they are undertaking, it does provide a useful example of the varied ways in which 'space' is conceptualized. Gourlay and Oliver (p. 145) write of their work, "this analysis shows that learners' practices are shaped in important ways by the social and material environments in which they are enacted, and that learners are engaged in an ongoing, improvisatory process of both adapting to the environments in which they work, whilst also adapting these environments". The sociomaterial positionality adopted by the authors seems to preclude their consideration of the ethereal and insists upon their inclusion of descriptors of devices, places and environments as being part of the personalization of space/place. Fenwick (2010) says of sociomateriality, "It challenges the centering of human processes in learning (often conceived as consciousness, intention, meaning, intersubjectivity and social relations) derived from perspectives associated with phenomenology and social constructivism, and foregrounds the material". Indeed, Gourlay and Oliver (2014) consider Latour's perspectives on the importance of sociomateriality—consideration of the importance of material objects as "nonhuman actors". They write, "This allows us to see digital literacies as emergent though networks of human and nonhuman actors and constituent of 'context', spaces and places" (p. 148).

Thus Gourlay and Oliver talk about the personalised development of what would appear to be hybrid, place-associated semi striated space. Their participants describe the way in which they individually and independently develop their own processes, networks and environments to suit the needs of learning associated with that presented in striated space. The participants provide a representation of their learning space/place outside that provided by the university and in so doing put bounds around their experience. It becomes a map of their activity, bounded by time. This suggestion of boundedness conflicts with the notion of space not being physical, structured, temporal or located as Massey (2005) proposes. Yet the virtual interconnections available to participants as they describe their physical location suggest an extension beyond pure 'place', a narrative that tells of the ways in which their experience engages with the striated spatial opportunities associated with institutional requirements.

Whilst this is not foregrounded by Gourlay and Oliver, the participants of their study may well engage with the multiplicity of processes and interrelationships of ethereal or smooth space. However the authors are keen to point out that students were not "free of spaces; instead they were better able to create study spaces, to engineer the conditions they needed to study" (p. 151)—in reality a focus on location and resource curation associated with geographically located 'place'.

In contrast, Bayne (2004) directly addresses issues of smooth (nomadic) and striated space as they impact on digital pedagogies within higher education. She clarifies her understanding of smooth and striated space (p. 303), "Where smooth space is informal and amorphous, striated space is formal and structured. Striated space is associated with arboreal, hierarchical thought, which Deleuze & Guattari oppose to rhizomatic thought—non-hierarchical, underground, multiply-connected".

Bayne is not content to merely present these understandings of 'space' but helpfully suggests that the two are unlikely to be discrete or separate. She sets out her view that striation may attempt to tame smooth space for the learning purpose whilst metaphorical bulges of smooth space may leak out from space that is striated. Indeed Bayne's presentation of striated space sits well with the notion of virtual place, the embodiment of the virtual learning environment (VLE).

> Within the context of learning and teaching in cyberspace, perhaps the most significant confrontation between the two spaces is taking place at the locus of the virtual learning environment, where the smooth spaces of the web are resisted in favour of a striation which meshes closely with the university as a striated institution…Few doubts can exist in relation to that element of the web which consists of the virtual learning environment …it is a space of pure striation. (Bayne 2004, p. 311)

For Massey (2005) the degree of striation inherent to any institutional learning environment, its sense of location (albeit virtual), boundedness and relative linearity would surely come closer to her understanding of 'place' than of 'space'. Bayne likens the virtual learning environment to "a city on the steppe, a 'safe' space of enclosure or containment" (p. 312), the VLE being ostensibly located in the potentially smoother Internet and yet ever connected to the university management systems and overseen through implementation of the organizational learning architectures.

We would suggest that the very safety of the environment detracts from the learning potential. Indeed, Massey (pp. 207–208) writes:

> When space is understood as (closed/stable) representation … you never lose your way, are never surprised by an encounter with something unexpected … We do not feel the disruptions of space, the coming upon difference. On the road map you won't drive off the edge of your known world. In space as I would want to imagine it, you just might.

Massey thus highlights the greater possibilities inherent to unbounded spatial interaction, a theme that Bayne relates to web-based interaction. Bayne considers the balance between the open conceptualisation of the Internet and the striation that occurs as a result of web architecture and of the organizational features of web based groups or applications. However, whilst recognising the striating elements associated with engagement in structured virtual environments, Bayne proposes:

> There are elements in the way we use and conceive of the web, which construct it as smooth space. This smoothness consists in its openness, its instability and tendency to metamorphosis, its resistance to regulation, its governing logic of access rather than possession, the unknowability inherent to its vastness, its un-mapability, and the tendency to engage with it as a space of surfaces, to skim and glide over it, for our reading of it to be a question of our movement over its spaces with the sense that, wherever we choose to pause, arrival at a final destination is always postponed. (Bayne 2004, p. 306)

It is at this point that Massey's emphasis on heterogeneous processes and interrelationships should be brought to the fore. For if students wish to escape the formality of virtual place, the striated situation of the online classroom or VLE, it is their approach to their spatial learning experience that will serve to reduce the impact of inherent web-based striation. The riskier experience of ethereal space requires a less constrained approach. Massey writes:

> In spatial configurations, otherwise unconnected narratives may be brought into contact, or previously connected ones may be wrenched apart. There is always an element of 'chaos'. This is the chance of space; the accidental neighbour is one figure for it. Space as the closed system of the essential section presupposes (guarantees) the singular universal. But in this other spatiality different temporalities and different voices must work out means of accommodation. The chance of space must be responded to (Massey 2005, p. 208).

14.4   Communities of Practice as a Spatial Entity

Hutchinson et al. (2015, p. 2) write, "in some circles it has become … commonplace for university educators to talk in terms of creating communities of practice for their students, or of bringing them into an academic community of practice." In many instances, the institutional requirements upon the tutor require careful facilitation of the community such that students are afforded a safe and educationally appropriate learning environment. Indeed the central artefact of such a community may well be an institutional VLE, or formal virtual place.

Where such facilitation takes place, the community of practice may share two broad goals: firstly to support the attainment of programme learning outcomes and secondly to engage students in learning through vocational or professional practice and its associated artefacts. The very act of facilitation tends towards a closed or, at least, more carefully monitored community and thus the tendency towards a more striated space for developing engagement with practice. It is important to consider what impact this monitoring may have on learning within the community—for the development of competence and knowledgeability. Roth and Lee (2006) suggest that the Community of Practice model sidelined Piagetian and constructivist paradigms by the idea that "knowing and knowledgeability are better thought of as cultural practices that are exhibited by practitioners belonging to various communities" (p. 27).

Kubiak et al. (2015) bring to the fore the social issues facing those brokering knowledgeability through facilitation of boundary experiences. They comment:

Communities of Practice are often focused on their own processes, aims and regime of competence. This means that those working at the boundaries and attempting to draw attention to matters elsewhere in the landscape may be seen as lacking legitimacy. Whilst brokers perceived as 'one of us' are more likely to win the trust of the community of practice, those seen as 'outsiders' may be seen as clumsy, rude or intrusive… a broker may need to remain at the edge of the community of practice, a liminal insider-outsider constantly faced with the challenge of how to make the practice of one community of practice relevant to another. (Kubiak et al. 2015, p. 82)

However, it is the difference in the nature of competence and knowledgeability that can be more troublesome. Wenger-Trayner and Wenger-Trayner (2015) consider 'competence' to be 'the dimension of knowing negotiated and defined within a single community of practice' (p. 13), and thus competence is not impacted by any bounding of an institutionally facilitated community. However, they see 'knowledgeability' as more of a 'dynamic interplay between competence and experience' (p. 15) and thus pertaining to more complex heterogeneous interrelations across each participant's landscape of practice. The development of knowledgeability infers the development of identity, the recognition of interplay between roles, entities and processes, and requires situation in more open space. This becomes a more challenging prospect for educationalists.

The potentially chaotic engagement with dynamic influences from across the wider landscape of practice of each community member, and the impact of interrelationships within the community in this context, require a reduction in striation of the space of existence. This is particularly the case since each landscape of practice may be, in itself, an ethereal entity.

We propose that such engagement worked to support a group of doctoral students as they came together and engaged in a dislocated (Edwards and Usher 2000) learning process beyond the bounds of their formal learning environment in a spatial community of practice.

14.5 A Doctoral Community of Practice

We, the authors, undertook a small-scale case study in which we examined the perceptions of a group of doctoral students as they engaged with their common theme of technology enhanced learning, and their understandings of what it was to be a doctoral student/candidate. The case study presents the journey of the students within a spatial community, considering particularly the enhancement of relationships and role identities of internationally situated members of the group from temporally and experientially diverse spatial locations, and their ongoing experience as doctoral candidates. We believe that a doctoral community of practice did indeed develop through a spatial experience of shared motivation, histories, biographical artefacts and the increased confidence to undertake new learning experiences through social media as each student brought their own expertise to the fore.

Twelve students on a newly validated distance learning doctoral programme were invited to contribute to the study, through the provision of feedback on their experience in the form of free text and within virtual focus groups. The small number of students formed a specific, unique and bounded example of a real situation; conditions that Cohen et al. (2007) describe as being appropriate for presenting as a case study. Cohen et al. suggest that case studies have a narrow focus and are descriptive and detailed. Put simply, a case study facilitates the process of describing, understanding and explaining the data in a particular situation with the potential capacity for understanding the complexity of the situation (Tellis 1997). Indeed, as Stake (1995) explains, a case study is a decision about what is to be studied rather than a methodological choice and does not therefore require a prescribed method of data collection but instead uses methods that seem appropriate and practical (Bassey 1999).

All the participants in this study were students enrolled on a virtually mediated distance-learning programme, provided by a university in the United Kingdom. The first 2 years of the doctoral course focused on the completion of five taught modules underpinned by the facilitation and ongoing development of a learning community. The five modules were conducted almost entirely online using asynchronous methods of communication and interaction to support community engagement. Following 2 years of sustained work within the virtual learning environment, students undertook the confirmation process and graduated to the role of doctoral candidates.

The Learning Community model can be traced back to living-learning communities and college innovations in America (Smith 2001), whilst its roots in the UK suggest an evolution out of the therapeutic group movement (Pedler 1981). Despite many initial failures, many of the innovations developed during these programmes entered mainstream practice, such as student-centred learning, active learning and interdisciplinary relevant curricula (Clow 2012; Smith 2001). The underlying peer based relationships liberate traditional notions of teacher–student that focus on teaching to one of facilitating learning (Zhang et al. 2010). In an idealised learning community, the participants collaborate and co-operate as they progress on an individualised learning path through an area of resources delineated by a facilitator, towards their own goals. Successful communities have a shared history and a developing culture, with an environment that supports norms, beliefs and practices that enhance interdependence and reciprocity (Schwier 2001). Practical implementations in educational environments typically offer a more restricted version, where participants have some degree of control over their own path, within a more tightly controlled place and resource set, like Pedler's equifinality model (1981). This allows for alignment of the learning goals for the group with institutional practices, which can then be assessed and accredited.

Forest (1997) suggests that, "for a learning moment to be possible, each individual must be presented with the right mix of teacher, learner preparation, environment and chance" (p. 182). Placing the networked learning philosophy at the core of a distance-learning course necessitates the construction of a learning community, which in itself can be difficult. With new distance learning courses,

these complexities are compounded by only having an initial cohort where the rites, rituals, customs and practices are negotiated in place, akin to "designing the plane whilst flying it". Two technologies provided initial discussion spaces, a more formal (LMS) based environment recreating the classroom/tutorial situation and a social network for more casual dialogues that can provide the oneness that is key to creating a shared feeling of belonging (Kowch and Schwier 1997). Creating a shared space means letting the students influence the way in which that environment should be developed and used (McConnell 2006). McConnell (2006 p. 10) writes:

> The view of learning that each of us holds, whether it is a tacit view or a well-thought-out and articulated view, determines how we approach the design of any learning and teaching event. … and the context in which we work, can define what is important to us and what is not.

The doctoral programme was clearly underpinned by an explicitly stated learning community philosophy and staff/student engagement took place in this context. The members of the budding community did not meet in person until 3 months into the course when they came together at a compulsory 3-day residential but had taken part in introductory online formally mediated social activities that helped to prepare them for this important stage in the development of the community. The residential activity clarified the learning community philosophy. Participants in our case study indicated that the event helped to cement budding relationships that had started within the learning environment but also opened opportunities for developing associations in less formal surroundings. Participant 1 reported, "The way that the course was set up originally by the course team had an effect. The residential event and [face to face] meeting was influential in establishing a group cohesion". The learning community was a closed environment, bounded and safe; a structured place that would support the direction of travel expressed within the programme specification.

Even at that early stage in the programme, participants reported that there were conversations where students and staff considered the extent to which the learning community might be or might become a community of practice. The facilitated nature of the learning community and its firm location within the departmental formal virtual learning environment (VLE) were two factors that some participants felt did not reflect Wenger's (1998) original water-cooler moments, since even the online social area for the programme was facilitated, albeit discreetly, by the programme team. One participant told of a "feeling of being watched by the university" (Participant 4). Whilst the initial stages of cohort membership could, indeed, have been described as an apprenticeship, the facilitated nature of the environment seemed to reduce the capability of members to change their roles within that community. Lave and Wenger (1991) described how new members of the community would use simple tasks and peripheral activities in basic roles to become aware of the customs, practices and tasks in the community. They proposed that as members reflexively observed and then emulated the activity of the experts, they would gradually take on more complex task and roles and become more influential

to the functioning of the community. The nature of a validated programme and the existence of the virtual learning place within the constraints of both the systems architecture and the pedagogical philosophies of the department and the wider organisation, restricted roles of responsibility appropriately to tutors and facilitators, thus constraining the forward movement of individuals within the community.

Some scholars in virtual learning environments (Clarke 1998; Daniel et al. 2002; Schwier 2001), indicate that members of learning communities need to first establish a sense of trust amongst themselves via social communication before they can work collaboratively toward shared goals. Initially participants explored the learning place, acknowledging but not forcefully questioning the contradiction of a peer-based community where some members are gatekeepers. Papers and discussion topics on community growth, the nature of identity and roles in a community brought the nature of control and the (required) structures into focus. Participants told how the community bonding that occurred during the residential was then carried forward into the social network, where memes, jokes and experiences were regularly referenced.

The hidden complexities of the formal places and need for informal 'student' space, open and unbounded by institutional expectation, arose over time. Participants told of the way in which members started to test boundaries as the community developed, questioning the notions of privacy and ownership of the virtual learning environment and the moderated social area, "they [staff] built the coffee shop in the middle of the classroom" (Participant 2). Such activity can be regarded as a natural part of the lifecycle of a community, which as it approaches maturity may mutate as members attempt to "assert their will on the makeup of the community" (Schwier 2007), self-regulation also being a feature of developing communities of practice (Wenger 1998). Participants also explained how the group requested the establishment of private (student only) areas, without a great deal of clarity over what the purpose of this would be. When this idea was rejected (which the participants, many of whom work in education, could understand), members of the group started to engage freely as a community outside the University's control "we all went to the [virtual] pub" (Participant 2).

Interaction outside the VLE was not seen as a problem by the programme team. Participants told of two ways in which they found themselves engaging outside the formal learning environment. Firstly, students on the programme were encouraged to work in smaller learning sets in order to complete formative tasks. These tasks would be set to meet learning outcomes of the module and would feed back into the forums within the VLE. This extra-VLE engagement was entirely appropriate to the philosophy of the learning community. However, participants told how students would also find themselves enjoying social interaction, either unrelated to the course or, at least, unrelated to the learning objectives of the course. In order to facilitate this independent activity, the students used a range of social media. Whilst this might not have been totally unexpected by the programme team, the independence of the students and their implicit separation from the requirements of the learning community may have posed challenges for the team.

Participants in the case study explained how they were required to work together, often in small groups, on different assignments. To complete these projects they sought out different options for synchronous methods of communicating; indeed some considered that synchronous communication was essential in order to be successful with the task. One of the students had already investigated using Google Wave (which began as invitation only software) and introduced the software to the rest of the cohort. Google Wave allowed students to work together on the same document whilst having the option for synchronous chat. Other students tried alternative approaches using video conferencing programmes such as Adobe Connect or Elluminate. These programmes allowed the students to work together on documents at the same time as using real-time audio or video to communicate. However, it was often the case that the software trialled was available only from one student's home institution and therefore required organisation from the home student to start and manage the meeting. As other options for videoconferencing were discovered these were also tried but none were found to be satisfactory because of either the cost of the software, the difficulty of the interface and usage, or they did not have the required functionality. Some participants described how they saw software and social media, used in this context, as tools, needed to help the students to perform course related tasks.

One of the most successful pieces of software trialled was Skype. This was used as both an audio and a video conferencing tool. This software was found to be an effective means of communication for the majority of participants and the group continued to use it regularly throughout the duration of the entire course, and beyond. Consequently, and in addition to ad hoc synchronous chats, a regular meeting day and time was established which worked for many of the students and "Skype on Sundays" (SoS) was established. "We started using Facebook and Skype more frequently in an informal way every weekend… over time without the tutors involvement" (Participant 3). Participants describe how SoS was used to discuss the academic content of the course, share different and often new options for using the social media, and keep up with the lives of fellow students outside of their doctoral studies. SoS became a regular meeting, and those who were able and/or interested joined the group in this semi-striated space. Some members of the group commented that they found the fluctuations in the nature or topic of conversations quite challenging. The meeting of peers, albeit located in time and medium, could be chaotic and would wander away from programme related matters, coming closer to Wenger's water cooler metaphor. Again participants reported discussions as to the nature of their community. Now that the group was interacting in an unregulated manner, though with common aims, were they starting to participate in a community of practice? They couldn't decide.

From early weeks, the students within the dis-located community had asked themselves to what extent their inter-relationships existed in the context of membership of a community of practice. Certainly the community already exhibited two of the three attributes highlighted by Jakovljevic et al. (2013); the members shared two key domains of interest, they were all practitioners in related subject fields and in their development of doctoral competence and knowledgeability as researchers.

Participants told how they connected socially outside the bounds of the VLE or designated social area for the programme. They described how, during the residential, students tended to share their contact details in order to connect outside of the communication methods organised by the teaching team. Some of the students were already using social networking tools to connect with friends although Facebook was not as popular at the time of the first residential as it is at the time of writing. Nevertheless, participants reported that their interaction through Facebook was perceived to provide a relaxed, unmoderated network that provided extra insight into the lives of fellow students outside of the course. As a result, some students began using Facebook for the first time. Thus social communication outside of the formal learning environment provided by the teaching team had begun. This need for the ongoing development of social presence (Ferreday and Hodgson 2008), the important element of socialisation (Koole 2010) and the development of trust (Putnam 2000) were vital to establish a real sense of belonging within the learning community. Their social inter-relationships were developing and grew though focused and dispersed interactions and activities, thus meeting the third attribute suggested by Jakovljevic et al. (2013).

Participants in the case study explained how the boundaries between social interaction and community learning started to blur. All students on the programme had personal or professional interest in learning technologies, despite their professional backgrounds being quite diverse. This diversity of life experience and the variation in contextual understandings seemed to add to and expand discussions and experimentation rather than engendering barriers. Each member of the community existed within their own unique landscapes of practice (Wenger-Trayner et al. 2015) and brought their experience and practices to share with the doctoral community. Within the doctoral community of practice, the counterbalance between commonality of interest and diversity of working roles served to facilitate the accessibility of the wider landscapes of practice that influenced participation within the group. The willingness and ability of each member of the community to bring in differing professional perspectives, competences helped to balance out those symmetries of power and knowledge (Dillenbourg 1999) experienced within the formal learning community. Within the ethereal space accessed through the community, the notion of difference was perceived as potential for learning; dis-location, chaos and ethereality, though potentially troubling supported openness.

Participants in the case study reported that there was not an organised or facilitated establishment of boundary crossings; more a permeability enabled by the spatial and pleasantly chaotic nature of the community. Participant 5 reported:

> I can't remember the exact history of how the Facebook and SoS got started, but I imagine that it would come down to a couple of key connectors - i.e. people who filled very strong roles of connecting others. Others had to respond, so they had different roles, and the fact that a separate channel did not start is significant in itself - there was an ecosystem of people with different roles.

We were told how different members of the group would introduce, as boundary objects, tools that worked well within their own professional or learning context. For example, some of the students began using and experimenting with Twitter, RSS feeds, Academia.edu and Google scholar and supported others in the group in first experiences with the media. As a result of this experimentation, case study participants explained how they were able to identify information that could be useful to the rest of the group such as blogs, web resources, reports and journal papers. This sharing was potentially relevant to the professional activity of each student and/or to the learning activity on the doctoral programme. Each member brought expertise to the community and became the expert for a while; a situation embraced with enthusiasm by the community membership.

The community was starting to build a repertoire of histories and artefacts (Wenger 1998). Participants told of the ways in which group members then explored the most effective way to share comments and notes on these resources, something that was perceived to be difficult at that time. A number of referencing tools (For example, Mendalay, Zotero, Endnote, Papers) were investigated to evaluate their effectiveness and their potential for improving communication and collaboration. Similarly there was an impetus to find ways to share ideas and mind mapping tools were explored. This drive to share ideas in real time led to the practice of writing collaboratively in real time and the students began to use tools such as Google Docs, which allowed real time document creation and editing by a number of people at the same time.

The participants discussed how the desire to learn and to share experiences and expectations extended to the development of participants' role identities (Stryker 2008) as doctoral students and then as doctoral candidates. Whilst, to some extent, this was supported through the formal support of tutors and supervisors, the struggle with individual notions of what the roles entailed and individual capacities to fulfil each role became a topic that was often more easily exposed and considered during informal interactions. The inter-relationships between members of the community and the perceptions each contributed through their own professional associations provided a rich soup of similarities and difference.

Whilst students on a programme may be expected to share the same formal goal of attaining the learning outcomes and thus the award, in reality student expectations are likely to be impacted by the conceptualisation that each has of that level of learning and of their role as a student, and then as a confirmed doctoral candidate, in that context (Davis 2015). Formal structures within induction and associated activities, as provided by programme teams, provide feedback against which a student may revisit their self-constructed student identity standard (Burke and Stets 2009). However, it is the ongoing exposure to the negotiations of belonging and association inherent to engagement in a community of practice, and diminishing requirements for enhanced performativity (Goffman 1959), that are most likely to affect a perceptual change. The participants told how the students therefore needed to find a space where they could negotiate their own sense of belonging and could share perceptions of their student role identity (Stryker 2008). They needed to negotiate meanings of studenthood and doctoral candidacy through the

development and subsequent engagement with cohort-based language, in-jokes and through the drinking of virtual coffee. Such space needed to be safe without being striated. This dis-located space enabled the reduction of implicit perceptions of the power dynamics associated with participation in the formal learning place (Ferreday and Hodgson 2008), and in removing pressure supported enjoyment, experimentation and the development of bonds of friendship, trust and/or strong ties. Such strong ties would surely prove invaluable as students moved into the potentially more isolating role of doctoral candidature, with the associated change of role identity. Although identification and the socially situated self development of participants' identity standards as doctoral candidates was of particular importance, engagement with difference and subsequent renegotiations of meaning remained an essential element of existence within the community of practice as individuals introduced their other roles into the community.

The acceptability of difference also came across in the way that the community eschewed the expectations inherent to the striated space of their formal learning environment and accepted wider variations in levels of participation and commitment to the community. Fenton-O'Creevy et al. (2015, p. 44) present the notion of a matrix of four quadrants of belonging, with "marginal participants" and more highly engaged "apprentices" who they describe as being inside the Community of Practice and, in contrast, casual "tourists" and the longer staying "sojourners" who are passing through.

This suggests that membership of a community of practice may be situated or transient, depending on the extent to which the individual shares the goals of the wider community and the degree to which they are prepared to engage in identification.

> We highlight two crucial distinctions. First, does the participant imagine themselves on a trajectory which lies within the community of practice or on one which is passing through with an endpoint outside it? Second, to what extent do they really engage with the practices of the community; is participation low or high? (Fenton-O'Creevy et al. 2015, p. 44)

Participants in our study reported the sense of freedom of working within a diverse community outside the learning environment and out of the reach of *authority*. The formal offerings of the doctoral programme were moderated and thus were perceived to be restrictive and managed, as would be the expectation within an institutionally provided learning environment. Within the formal community, all students were expected to make contributions, whether linked to particular learning activities, formative assessment or to summative activity. Members of the dis-located spatial community engaged differently with their peers, with entities and with situational processes. Some members appeared to take on a full sense of belonging to the group, with others visiting community activity occasionally, or frequently, as their needs required. The issue of expectation was associated more with the motivations and direction of travel of each member of the community. For example, Participant 5 wrote:

Since I'm a big fan of lurking I think it might be good to mention that even if members didn't always join in the social media (Ning, SoS, various groups) they still may have benefitted from knowing that they could if they wanted. People suggest that the boundaries of communities online extend well past the "official" membership and can exist even in the absence of active participation or contribution.

Where members evidenced strong goal-orientation, with a primary interest in completing their study, behaviours were more akin to a 'sojourner' (Fenton-O'Creevy et al. 2015). Those with a more intrinsic interest in learning technologies and being driven by curiosity and an interest in innovation tended to align with the high participation and embedded characteristics of the 'apprentice'. Other members of the group participated considerably less, and whilst maintaining contact with community activity, were either engaged very peripherally or took on the role of 'tourist' (Fenton-O'Creevy et al. 2015).

Members of the group reported considering whether the social media they were using at a given point was impacting upon levels of participation. For example, participants told of members of the community for whom Twitter could assist in a search for information and others who preferred to develop a social presence through the development of a Twitter based personal learning network, engaging with social media as visitors or residents (White and Le Cornu 2011). Whilst this caused no contention, it extended the negotiation of identity and difference within the group and added to the entities and processes infiltrating the open space of the group. Engagement with synchronous technology did, however, prove problematic, regardless of the acceptability of Skype for group communication. Whilst the majority of the group were based in Europe, some members were in completely different time zones; similarly, although some members had excellent access to broadband Internet, others found local regulations, bandwidth or transmission speeds restrictive. For others, synchronicity was not necessarily a panacea. Participant 5 clarified:

One point I came across defending marginal participation is that it can provide scalability and sustainability. If for example all remaining members of the group were active on SoS every time, it might be fun initially but it might also be unsatisfactory, since there would be too many people talking and trying to maintain a connection.

Participant 2 reflected:

There is awareness that not all of our cohort take part [in Skype discussions]. Regular attendees feel that their behaviour is not exclusive – however, the nature of ongoing dialogue inevitably means that matters, issues, jokes and collaborative projects that develop as artefacts through the discussion are not as accessible to those who do not join us.

And yet the value of returning to the located *Skype on Sunday* proved to be binding for core members of the group.

What appeared to emerge from group discussion was that the group was not situated or located in or through any one medium. The community used media as tools and artefacts, as suited their needs and directions at the time; social media at once enhanced and made troublesome inter-relationships and yet the very range and

diversity of the adoption of social media added to the complexity and dis-location that supported the spatial nature of the community.

The sometimes-chaotic nature of inter-relationships in the spatial community impacted variously on membership. Participants described how the community changed as it became more established and as members became more focused on their own doctoral theses. Participant 5 wrote:

> For me I think the physical distance was an issue in my reduced participation, particularly as we started on Part 2 of the course and were working more on our own. This provided less opportunity for formal reasons to link, and perhaps increased the responsibility for people to connect for social reasons … I can imagine that for other people this might have actually increased the desire to communicate and connect, rather than diminish it. The needs fulfilled by the various media obviously include social and informational needs, as well as the reciprocal motivations I mentioned earlier, but there are other possible reasons for participation as well – a desire for self-expression, an opportunity to clarify one's own opinions by talking, and so on, and the term "social" itself is not monolithic, but covers a range of smaller motivations.

The time for curiosities and innovations seemed to be at a premium; the focus was reportedly more firmly upon completion of the research activity and associated report. Participants explained that, whilst the emotional cohesion of the group was maintained, the motivations had changed, challenging the sense of mutuality. The group was held together by the strength of ties formed in the earlier years of spatial engagement and the social and pedagogic value each assigned to the continua of relationships within the group.

14.6   Reflections and Implications

It is important to consider the value of the more ethereal, spatial communities of practice in the wider context of higher education and consider the way in which higher education practitioners can conceptually engage with such entities without destabilising the interrelationships and processes at their core.

Exploration of this doctoral case study provides but one example of the way in which organic and ethereal spatial communities of practice support students as they engage in practice-based, academic and professional journeys that impact on their understandings of self and others. It was perceivably the case that the learning community philosophy of the programme team underpinned the strong cohesion of the student group as they ventured into a spatial community experience, and yet the community of practice was reportedly a separate and dis-located entity. It is useful to consider ways in which the unintended benefits of this spatial engagement might be harnessed without the inherent constraints of striation.

Wenger's proposition of communities of practice (1998) presents not formal structures but interrelated dualities that emphasis the importance of participation, of practice and reflexivity, and of identification and differentiation. His emphasis is on the social changes that result from engagement with processes and burgeoning

interrelationships through the development of informal organic networks. The concept of communities of practice is considered to be the product of shared enterprise amongst groups of individuals who engage spontaneously in shared passions or interests (Tarmizi et al. 2006). This understanding of communities of practice is innately chaotic and unbounded in nature, and yet with increasing recognition of the potential such communities offer, so organisations have moved to consider how communities of practice might be facilitated or encouraged as part of continued professional development. Coto and Dirckinck-Holmfeld (2008, p. 56) take up that challenge for their teacher education programmes. They write:

> Although a community cannot grow by command, the conditions for its growth may be cultivated (Wenger et al. 2002) …We know that designing a learning community does not guarantee that a community of practice will arise, however our goal is to develop this community in ways that can foster the emergence of a community of practice.

These words are wisely chosen. Wenger et al. (2002) develop the theme of cultivating communities of practice, using the analogy of wild flowers and planted seeds. Wenger et al. (2002, p. 37) write, "They will develop on their own and many will flourish, whether or not the organisation recognises them". In so saying, Wenger et al. propose that organisations should focus on creating the right conditions for the development of communities of practice, rather than considering forms of facilitation that might confer moderation and striation. They present the development of knowledgeability within the community of practice as being process based, rather than regulated, with a suggestion that learning in this context is potentially unchannelled or even rhizomatic in nature. Wenger et al. also suggest that any leadership within the community might be organic rather than appointed, more of a contextual social shepherding than a management role.

There is a tension between creating conditions and creating boundaries. If the gardening metaphors are extended, the provision of a seeded hanging basket cannot compare with an area of the garden seeded with meadow flowers and left to flourish —weeds, wildflowers and seeded stock alike. One is far more closely bounded and regulated than the other; one is constrained by its container whilst the other enjoys the impact of unplanned influences. Indeed, more recently Wenger-Trayner and Wenger-Trayner (2015) have presented the concept of "systems conveners" (pp. 99–102)—"people who forge new learning partnerships in complex landscapes … strategic networkers who build connections", a prospect that could be considered akin to pollination and cross-fertilisation, if situated in the gardening metaphor. However, Wenger-Trayner and Wenger-Trayner proceed to put forward the view that the emphasis should be upon the systemic activity of conveners that makes their roles relevant to organisational hierarchy and thus presents a need for inter-action with organisational decision makers, propositions that do not sit comfortably with the notion of informal and organic, spatially situated communities of practice. Researchers in higher education might fruitfully take up this conflict between systemic striation and the fertile activity of spatial interrelationships.

Stiles (2007) discusses the conflicts between the organisational striation, the boundaries and controls of universities, and the spatial initiation of student

processes and practices beyond the boundaries of the formal learning architecture. He predicts "increasingly, student initiated processes will be done on the web using their choice of tool and services" (p. 35). He sees the interconnection of these student processes to organizational systems as being a considerable challenge. Stiles suggests a path that will support the activity of student communities that cannot be monitored by the programmes teams and that yet enables and encourages the development of student processes and interrelationships and interactions with the implicit approval of the institution; a strategic reduction in striation without associated risk. Stiles (2007, p. 34) proposes:

> Verbs like *control*, *manage*, *facilitate*, *enable*, and *recognize/accept* apply to the degree of control an organization might wish to take, and typically processes are initiated/owned at the institutional, departmental, tutor and learner levels. By considering these aspects, organizations can review policy to ensure that it reflects the real needs of both the learner and institution without hampering the flexibility and responsiveness required.

Thus, by recognising and/or accepting student engagement in a less striated form of engagement, programme teams can more comfortably and readily engage with the inter-relationships between the activities in the striated place [VLE] and the smoother if chaotic spatial community of practice. Cronin (2014, p. 6) considers engagement in "open learning practices". She proposes that staff and students alike should develop within the context of more open educational practices, suggesting that courses can be developed as, "open learning communities that are not confined to one classroom or one online space. The classroom walls may be 'thinned' progressively, so that students and educators operate as part of a defined learning community but also as nodes in broad networks". This notion is akin to Bayne's (2004) contemplation of the coexistence of smooth and striated space, with gaps in the boundaries of the striated VLE encouraging foraging activities in smooth space.

Thus, our reflections from this study suggest that the increasing permeability of the boundaries of virtual learning communities provides an opportunity to embrace the chaotic uncertainties and benefits of communities of practice situated in ethereal smooth space whilst engaging with the learning outcomes and architectures of formalised higher education.

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Chapter 15
A Student-Staff Community of Practice Within an Inter-University Final-Year Project

Dawn Bennett and Sally A. Male

Abstract In Australia, final year Bachelor of Engineering students complete an engineering research project. A small number of students (often between four and ten at any one university) elect topics in the field of engineering education. Relative to research in technical engineering, the insulated status of engineering education research can leave these students feeling isolated from other final year engineering students and faculty members. In 2013, we saw an opportunity to engage final year students and academics from two universities in a project to enhance industry engagement in engineering education. We established a research group of nine students and supervisors across the two universities. Each week the group met on campus and joined peers at the other university via a free Internet telephony service. Drawing on the reflections of community members, this chapter reports on the learning community that emerged within this project and the features that supported it. Critical to the community's success were the regular meetings, the shared knowledge domain of engineering education, the commitment, diversity and quality of team-members, and engagement with the wider faculty and engineering education communities. Students and supervisors learned from and with each other and generated knowledge about the topic, collaboration, disciplines, research and themselves.

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15.1 Introduction

Students in Bachelor of Engineering programs across Australia complete final year research projects. These projects vary greatly in their topics, nature, supervision and assessment, but most projects are individual even if several contribute to one larger project. Lawson et al. (2014) and Mann et al. (2011) have reported case studies of engineering education research groups involving engineering academics, and Crede and Borrego (2012) have investigated learning in engineering research groups with graduate students. The study reported here is the first ever study of a final year engineering student project group.

Crede and Borrego's ethnographic study in the US included observations, interviews and a survey with responses from over 800 graduate (Masters and PhD) students at four institutions. The majority of the students reported weekly group meetings and student meetings with faculty advisers. The authors found that although the learning was similar across the research groups, the mechanisms of learning varied by group size. Students' comfort at speaking during group meetings, for example, decreased in relation to increase in the size of group membership. Similarly, student–student interactions were most frequent in groups with over 20 students. The larger groups employed student peer learning; only when students could not address an issue did a senior student take it to a faculty member. Of interest, students in these groups formed hierarchies in which senior students took on responsibilities such as mentoring. The same hierarchy was also seen in formal group meetings, where faculty advisors dominated the conversation and only senior students spoke; the advisor style was business-like and advisors did not know the details of their students' projects. In contrast with this was a research group of only two students, in which Crede and Borrego found student–faculty interactions to be frequent and student–student interactions to be infrequent both within and outside of meetings. As a result, students were highly dependent on support from, and their relationship with, their advisors. Advisors in this case were directly involved in the development of research skills and projects.

Crede and Borrego observed that one group, which comprised of 12 students and three diverse and experienced faculty advisors, possessed features of both the large and smallest groups. Within this mid-sized group, students had the benefit of support from other students and frequent support from faculty advisors. They also had access to a diversity of expertise and the time availability of three different advisors. Unlike the large groups, all students spoke in the group meetings; indeed, communication was different from either the small or large groups in that senior students presented work and junior students asked questions of their advisers. The advisors knew their students' projects and encouraged them to participate as full members of the group.

We draw on this case, alongside the very low numbers of engineering education-focussed students at individual institutions, to reinforce the need for an inter-university, community approach to final year engineering education projects. Based on participation in the Australasian Association for Engineering Education

conferences since the early 2000s, we estimate that many universities have no final year research projects in engineering education. At the universities where there exist suitable supervisors, projects, and interested students, we know anecdotally that it is also common to have fewer than four final year students working in engineering education. Consequently, and in line with Crede and Borrego's observations of group size, these students and their supervisors can feel isolated among the hundreds of other final year project students and supervisors at their university.

In addition to feelings of isolation, students and supervisors undertaking projects in engineering education can find that the credibility of their research is doubted within their faculties. Mann et al. (2011, pp. 237–238) experienced this situation with three research groups established to support engagement in engineering education research among engineering academics:

> We encountered the misconception that scholarship of teaching and learning (SoTL) is a "soft" research option requiring little effort or rigour, characterised by an assumption that SoTL involves simply describing one's practice with no requirement to engage with relevant literature, learning theories, critical reflection, research methods. … The integrity and rigour of engineering education was questioned and to some extent is still.

The culture of engineering faculties, and indeed engineering organisations, is known to prioritise the status of technical activities above those more closely related to caring for people (Florman 1997; Godfrey 2003; Hacker 1981; Male et al. 2009). This is an entrenched value system and is unlikely to change quickly. In consequence, the fears of students and supervisors in relation to the low status of the field of engineering education research are well founded.

Best practice guidelines on the supervision of final year engineering projects seek to comply with the Australian Qualification Framework (AQF) level 8 outcomes (Commonwealth of Australia 2013), and the AQF recommends meeting with final year students concurrently so that students can learn from and be motivated by each other (Martin et al. 2014). This aim, together with the benefits of a mid-sized group as illustrated by Crede and Borrego (2012), prompted us to establish an inter-institutional supervision initiative. In this respect we were fortunate that the concurrent national project was focused on the important topic of industry engagement in engineering education. This shared knowledge domain was ideal for investigation by engineering students.

As this chapter will demonstrate, what emerged was a successful community of practice, specifically a learning community (Wenger 1998), within which students and supervisors co-developed their identities and expertise.

15.2 Context

15.2.1 The Overarching Project

In September 2012, the second of us began work on a national project led by the Australian Council of Engineering Deans and funded by the Australian Government Department of Industry through the *Workplace Innovation Program*. Part of that project was to develop and test guidelines for Australian formative engineering degrees, focussing on best practice for effective industry engagement that exposed students to engineering practice (Male and King 2014a, b). The project involved 12 partner universities and six peak industry bodies.

Having previously enjoyed supervising final year engineering projects in the field of engineering education, and finding that the national project's timing allowed for such projects to be completed within the research period, we debated the opportunity for final year projects to contribute to the overarching project. The topic of effective industry engagement was considered an ideal shared knowledge domain for student-led research because the students would be able to develop their research projects whilst learning about industry and engineering practice. Additionally, students' contributions as researchers were expected to provide the national project with different and important stakeholder standpoints from those brought by the academic researchers.

We discussed the feasibility of offering such final year projects. Establishing an inter-university group that might mitigate the issues raised in the introduction of our article felt ambitious, yet we recognised its potential importance for current and future students. As well as the "perfect storm" of knowledge domain and timing, the national project already featured inter-university collaboration. In particular, the presence of two partner universities in the same Australian State (Western Australia) raised the potential for a blended community of final year engineering students and supervisors that would be more in line with the dynamics of Crede and Borrego's (2012) mid-sized groups. We anticipated that the potentially small group would permit intimate interaction together with the critical mass required to sustain the group (Wenger et al. 2002). Furthermore, we believed that engaging multiple universities would increase both the student populations that might be studied by student researchers and the diversity of industry engagement that could be studied, thereby increasing the breadth and potential impact of their findings.

15.2.2 The Community Members

The learning community was formed of six final year engineering students and three supervisors. Four of the students (three studying electrical and electronic engineering and one studying mechanical engineering with a major in oil and gas) and one supervisor (with a background in electrical engineering and engineering

education) were located at a research intensive university in the Australian Group of Eight universities. Two students (studying chemical engineering) and two supervisors (one with a background in literature and chemical engineering and the other with a background in higher education and identity research) were located at a university in the Australian Technology Network of universities.

The three supervisors (all women) had significant supervision and research experience. Three students were international and three domestic (Australian). Two were women. One student had several years of engineering-related experience. Another student had extensive experience working part-time in an engineering company while studying. Four of the students worked part-time for at least part of their membership of the research group.

15.2.3   The Students' Projects

Three students investigated the professional development of undergraduate engineering students exposed to engineering practice through a unit (elsewhere called a paper or course) that engaged engineers from industry. These units included work-related learning (Knight and Yorke 2004) with features such as industry-based guest lectures, industry-based demonstrators and tutors, and problem-based learning. Another student investigated students' professional development through Co-operative Education for Enterprise Development (CEED) projects in which students worked on a research project for an industry partner. One student at each university investigated students' professional development through engineering-related employment, of which 12 weeks was required for the completion of the bachelor of engineering degree.

Although the final year projects were major components of the students' degree programs, equivalent to one quarter of the final year load, students undertook the projects concurrently with coursework. This is traditional in Australian engineering programs despite the final semester coursework being extremely demanding. All four students at one of the universities reported studying long hours and gaining little sleep over many consecutive nights. This raised the additional issue of wellbeing and the potential benefits of working within a community setting.

15.2.4   The Institutional and Broader Environment

Group members belonged to multiple, interrelated communities of practice. These featured both automatic and developed intersections through members' enrolment or work at four schools across the two universities and 12 national project partners. Members engaged with students and staff in engineering schools, with members of other universities and in industry, and with the Australasian engineering education community as outlined below.

The student from mechanical engineering met with a supervisor in his engineering discipline in addition to his supervisor in the research group. This student also attended the meetings of mechanical engineering students led by his supervisor. The student whose research concerned the CEED projects liaised with the university's CEED director. The electrical engineering student who studied students' development within a specific unit of study liaised with that unit's coordinator. The student who studied professional development through employment experience liaised with faculty staff who managed the program.

Once ethics approval had been obtained, students engaged peers and academic staff as research participants. All students interviewed and/or surveyed current or past students during their research projects. Students also engaged with peers and faculty members through research presentations, which were compulsory at the research intensive university. Students attended one-another's presentations, even though students did not normally attend presentations outside their own engineering discipline. The supervisor in electrical and electronic engineering enlisted two mechanical engineering academics who had the engineering education experience to examine the presentations and theses of the electrical engineering students.

Beyond the two universities, the students and engineering supervisors engaged with the overarching national project. Two students and the two engineering-based supervisors participated in an industry-education workshop that formed part of that project. Abstracts from the students' theses were appended to the final project report.

At a national and international level, one student and all three supervisors engaged with the Australasian engineering education community. The Australasian Association for Engineering Education (AAEE) is a vibrant body of university engineering educators. AAEE holds an annual conference attended by over 200 delegates. With the assistance of the supervisors, one student wrote and presented a refereed conference paper at the 2013 conference. She also helped the two engineering supervisors facilitate a workshop on enhancing industry engagement in engineering degrees. Later, two students and the three supervisors presented on the experiences of the learning community at a multi-discipline teaching and learning conference held in the same state.

15.2.5   Life Cycle and Practices of the Learning Community

The three supervisors had known each other peripherally for at least a year and two of the students had held volunteer executive positions in the campus-based group of a professional society. Otherwise, participants did not know each other prior to the meetings that led to a mutual decision to engage in this project.

The community met weekly from the start of semester. Despite being in the same city, travel and timetables prohibited face-to-face meetings. As a result, the weekly meetings were held synchronously at each university with the members connected via Skype™. Each student also met weekly with his or her principal supervisor.

A community learning management system (LMS) was hosted by one university and gave access to all members of the group. This was complemented by frequent email correspondence. Weekly meeting agendas were posted on the LMS, and weekly meetings addressed research topics including research design, literature review, data collection methods, analysis, seminars and reporting.

Early in the year, supervisors posted to this site literature about education research, potential theoretical frameworks, engineering practice, and background literature on the topic of engineering education and students' exposure to engineering practice. Throughout the project, supervisors and students contributed additional resources including a guide on writing a thesis and topical reports. During the group meetings, students discussed their readings and were invited to identify new terms and ideas for discussion. Engineering education research was a new field for the students, and we discovered that supervisors had a different understanding of many research terms and approaches.

One week, the grouped heard a presentation from an engineer who was undertaking a PhD on communication among disparately located engineering teams. The students also presented aspects of their work and they received feedback on their research design. These presentations were filmed and they were posted on the LMS for review and feedback.

Early in the semester, students at the research intensive university were assessed on their literature review. These students had read heavily and their learning and queries had formed part of the group conversations. It was not until a student at the other university reported feeling overwhelmed that we realised the different emphasis placed on the literature review by the two universities. Growing awareness of the different approaches to final year projects led us to learn more about the processes, requirements and expectations of both institutions, and to reflect in turn on our own practices.

Students utilised group meetings to conduct mock interviews and receive immediate feedback from group members. Students also posted their draft questionnaires, along with questions for reviewers, on the LMS. Supervisors and students all helped to test and review questionnaires and interview questions.

Once students began their data analysis, some provided de-identified qualitative and quantitative data for supervisors and students to analyse before group discussion. Students also brought their quantitative analyses for discussion. These activities enabled the students to encounter multiple projects and approaches, and the involvement of supervisors enabled reliability to be established.

Students at the research intensive university were required to present a seminar within their school. Seminars were assessed as part of the course, and students rehearsed their presentations in a group meeting with one supervisor from the other university connected online. Students attended each others' seminars. This was enlightening for both students and supervisors, who were unaware that these were different across schools. The students and supervisors observed that in mechanical engineering, for example, the tone of the seminars was friendly and encouraging; seminars were held during the evening, attended by family and friends, and questions were constructive. In electrical, electronic and computer engineering,

seminars were held during the day. The audience consisted of students within the school and some academic staff members. The academics cross-examined each student following his or her presentation, to the point that students observing this questioning reported at the following group meeting their concern for the students who had faced the harshest interrogation and criticism. We realised that some of the questioning came from academic staff members with little or no knowledge of engineering education and/or mixed- or qualitative research approaches. Alongside this we realised the need to attend each seminar and to continue our advocacy of engineering education as a legitimate and valued topic for final year research.

Once students neared the completion of their thesis or final report, they began to rely less on the synchronous group meetings in favour of more asynchronous contact such as individual meetings and email correspondence. We expect that this is in part due to the different completion dates of the cohort, and that a common completion date would have extended the group's synchronous activities.

15.3   Research Questions

Once established, we studied the experiences and impacts of the group to evidence its efficacy and to help others and ourselves with future developments. As such, this study addressed the following questions:

1. What did the learning community achieve for its members?
2. How did the community achieve this?
3. What recommendations can be made for educators establishing inter-university research groups?

15.4   Theoretical Framework and Methodology

Communities of practice "cross organisational boundaries" (Lesser and Everest 2001, p. 38) by drawing together people interested in a common domain of knowledge rather than working towards a pre-defined organisational goal. Our students were undertaking individual projects across two institutions and multiple engineering disciplines, but with our common focus (domain) of industry engagement in engineering education we hoped that a community of practice (CoP) approach would prompt members to work together and find solutions in partnership. By involving ourselves as community members we structured the project in such a way that we would avoid the traditional supervisor-student hierarchy (Lesser and Storck 2001; Smith 2003, 2009); we hoped that knowledge sharing between all members would enhance knowledge sharing and performance.

To understand and enhance our development as facilitators we drew on McDonald and Palani's (2011) description of a facilitator in the higher education environment: as someone who:

> enables the CoP to create its own identified space to develop and maintain a focus on member priorities and activities, while still operating within the priorities of the institutional umbrella. … is located within the practice area of CoP membership as s/he needs to understand the motivations and priorities of members to effectively engage them in social learning around their practice.

In this sense we embarked on a self-study of practice using structured reflections to unpack a relational view of the learning and of ourselves (Lave and Wenger 1991).

We were also mindful that we were forming a community with adult learners likely to be exploring new ways of being, particularly as their projects involved investigations of their intended profession and aspects of their degree programs. For this reason we drew on the theoretical framework of possible selves (Markus and Nurius 1986), which links motivation to perceptions of appealing and achievable possible future selves and to the avoidance of possible future selves perceived as disconcerting. The possible selves framework enabled us to view students' CoP participation in relation to their emerging identities as graduates and as engineers, and to consider participation from the added perspectives of ownership, need, sense of place and value (Manto 2003). The future-oriented alignment of Possible Selves enabled us to position imagination within our community framework through the facilities of orientation, reflection and exploration (Wenger 1998).

Drawing on these frameworks, the six students and three supervisors completed structured reflections on their hopes and fears, learning and development in the group, and features that were critical to these. The reflections were completed at the start of the projects, at the end of first semester (which was when two of the students completed their projects), and 12–18 months after graduation.

15.5 Method

15.5.1 Commencement

Students were invited to participate by way of an email call for interest among final-year engineering students at the two universities; six students agreed to participate. Students understood that they could withdraw from the study at any time and retain their participation in the learning community. The first two of three questionnaires were emailed to the students and supervisors by the first author, who was not an official supervisor for any of the students and was located outside the engineering faculties. The third questionnaire was completed 12 months after the final students had graduated (between 12 and 18 months after graduation for all six students), and on this occasion student contact was made by supervisor/s who had

remained in contact. A researcher outside the project received and de-identified responses.

In presenting the findings we use pseudonyms for the students. These do not necessarily reflect the gender or cultural background of the participants because students' responses were anonymous. Supervisors' responses were shared with and between us directly; however, names were removed from our reflections before analysis. To avoid confusion with the student voices, supervisors are named S1, S2 and S3.

The supervisors responded to the following questions at the start of the project:

1. Why did you choose to be involved in this cross-institutional project?
2. What are your expectations about this experience?
3. What, if any, fears do you have about the project?
4. How would you describe the kind of learning that might happen in this project?
5. What makes honours [final year] projects work well?
6. What contextual (environment) factors make life easier or harder when doing this kind of work?
7. What kinds of assessment/documentation/activities might help us to share these experiences and learning with others at our universities and elsewhere?

15.5.2 Mid-Year

Two students completed their projects at the end of first semester, and at this point all students and supervisors were invited to complete a second questionnaire. The second supervisor questionnaire probed initial themes that had emerged from responses to the first. Questions probed: (1) what others and we had learned; (2) initial expectations and fears, and whether these were realised; and (3) challenges, factors for success, and recommendations. To extend the individual narratives that emerged from the first questionnaire, the second was customised for each supervisor by embedding the supervisor's early reflections into the questions. A third-party researcher undertook this process for the team.

The student mid-year questionnaire addressed the following questions:

Identity and perceptions

1. In terms of identity, how has your research experience affected how you define yourself?

   - What is the principal thing you have learned?

2. What is the most significant way in which you have changed as a result of your project experience?

   - Why is this factor the most significant?

3. What has been the most challenging aspect of your project?

   - Why was this the most challenging aspect?

4. In your experience, what has been the most significant feature (helpful or difficult) of being in the collaborative research group, and why?

   Future careers

5. What role did this project play in achieving/progressing towards your goals?
6. What fears, if any, do you hold for your career immediately after graduation?

   Future recommendations

7. Based on your project experience, what changes if any would you recommend to exposing engineering students to engineering practice? Please be specific, and remember that your responses are anonymous.
8. What changes if any would you recommend to the management of the engineering education research group for final year students? Please be specific, and remember that your responses are anonymous.

15.5.3   One Year Later

A year after the final year projects were finished, students (now graduates) and supervisors completed a final reflection in order to gain broader perspectives and understand the longer-term impact of group membership. The questions (below) were similar for the supervisors and the students. All three supervisors and four of the six graduates responded to the questions.

1. What if any impact did membership of the learning community have on you personally?
2. What was most valuable in terms of:

   - your development as an academic (for the supervisors)/engineer (for the students)?
   - your work and life since being part of the learning community?

3. From your point of view, what were the critical factors that made the learning community a success?
4. What if anything did you learn from working collaboratively?

15.5.4   Analysis

Our analysis employed analytic induction at each phase of the study. Whilst this approach was originally seen as a search for universals, we utilised it as a means

to enhance data by examining similarities and differences that might help develop new concepts and ideas (Ragin 1994). *Therefore, all initial themes were derived from the data and interrogated in light of other participants' responses and previous phases to determine essential characteristics.* For the final phase, the second author initially used NVivo10™ to manage the thematic coding. Next, the first author, who had been co-supervisor to all six students and came from outside of engineering, manually undertook pattern analysis based on the initial analysis. These codings were then compared to generate the final themes.

15.5.5   Findings

Our exploration of the earlier data revealed that both students and supervisors extended their knowledge of research approaches and languages, theoretical frameworks, identities, relationships and teamwork skills. As researchers and supervisors, we also learned from the students' research data, which related to student exposure to engineering practice during undergraduate study. We found that the enhancement of learning and supervision among the supervisors resulted from peer support and interaction. These findings were presented and discussed in a short conference paper (Bennett et al. 2013).

15.6   Benefits of the Group as a Learning Community

15.6.1   Sense of Community and Relationships of Identification

The most powerful theme to emerge from the data related to the sense of community and the community's role in overcoming challenges. All three modes of identification (Wenger 2010) were evident as students sought to acquire regimes of competence by *engaging* with others, *imagining* and locating themselves as educational researchers and as engineers, and *aligning* themselves within multiple broad contexts from the perspectives of student, researcher and graduate professional.

   Students relished their engagement with "more than one individual with expertise in the field" (James) and with peers whose "diverse backgrounds and knowledge" (Su) broadened their sense of the world. Not surprisingly, however, students' first engagement with educational research brought practical challenges in relation to skills, language and research approaches as they moved "from scientific research style (something I am used to) to an educational research style" (Wei). In line with our earlier concerns about student wellbeing in the face of heavy workloads, we observed that as students developed their competence they gave and

received peer support at both the emotional and theoretical levels. They shared explicit and implicit knowledge (Shreeve 2007) through productive conversations, and they began to debate aspects of practice and education as these arose in their own and others' projects. We also observed, in the students and ourselves, that we were comfortable in asking questions or "exposing [our] ignorance" (Wenger et al. 2002, p. 28) with the new languages and techniques we encountered across the projects.

Students reported that they "didn't feel isolated or alone" (Su) even though S1 noted that they were "nervous at first". Engagement enabled students to voice their ideas "and as a result build confidence in the research and direction to undertake" (Meera). This enhanced students' confidence in the efficacy of their work and their ability to complete it. The strong linkages between their research and industry also helped students to imagine the profession of engineering and orient themselves within it, extending their networks as a result:

> Completing your final year thesis always seemed like a huge task that all students had to go through to complete your engineering degree. Every year you'd see the senior students go through it and dread the time when the moment would finally come. Working in a learning community definitely helped the process seem less overwhelming. I actually enjoyed my final year and the dreaded thesis experience. Through this experience, I have made valuable engineering contacts and expanded my professional network. (Su)

As expected, students encountered challenges relating to their work within the often-marginalised field of engineering education, which can exist at the periphery of schools in which technical engineering research is more understood and, often, more highly valued. This had concerned us and we had put in place safeguards such as careful selection of examiners and behind-the-scenes work with collaborating colleagues. What we had not anticipated was the impact of community on ourselves. As we carried our own identities across the boundaries of discipline and institution we found new imagination in the team environment, which S1 noted, "made me actually feel that I belong to an engineering education community". S1 noted the results of the project on her own thinking of possible selves, being:

> … open to propose and supervise final year projects in [the] engineering education area, collaborate across disciplines and universities, and have more confidence that engineering education research in Australia can be valued and be a pathway towards a rewarding career.

15.6.2 Motivation

In line with Lesser and Storck's (2001) observation, students reported increased levels of motivation as a result of being able to monitor their progress in relation to peers: "seeing what fellow students in the group are doing with their own projects inspires and motivates me" (Lee). The common knowledge domain of engineering identity was an obvious factor in that "collaboration was productive, as solutions to problems encountered were generally available" (James). In this sense, knowledge

sharing related to attitudes and behaviours that maximised the achievement of individual or common goals. However, the community also evidenced forms of peer and distributed leadership (Jones et al. 2012) that linked individual goals with those of others in the group.

We witnessed a form of transformational leadership (Bass 1998) as student members of the community modelled and promoted inspirational motivation (in the setting and achievement of goals and demonstrations of self-efficacy); idealised influence (modelling desirable behaviours and actions); intellectual stimulation (shared problem solving); and individualised consideration (awareness of peers' needs and their research foci). This led less-confident students to reorient their learning in line with multi-scale learning and objectives. In his mid-year reflection, for example, Lee noted that he had now made the link between his responsibilities in the research and his future engineering practice:

> Knowing that my performance would have an impact on the quality of the overall product pushed me to deliver my best in a timely manner. This has helped enhance my sense of responsibility towards myself and others, which is what engineering should be all about.

The multiple perspectives and approaches voiced by participants suggest that motivation also stemmed from the sense of belonging to a community of practice that created a rich learning experience (Grabinger and Dunlap 1995). In its simplest terms, this was voiced as students "getting ideas from other students on how they are performing the research" (S1). Supervisor S1 acknowledged these benefits with the comment that she learned other research "languages" from working with colleagues in different disciplines. For Supervisor S2 these multiple viewpoints were problematic to begin with, but the benefits soon became clear: "[the community setting] at first adds complication and time, but the resources, findings, and publications have been richer than I would have achieved by myself". Students wrote of the learning that occurred beyond their own individual projects. This was learning that was "nonetheless valuable to discuss" (Meera) and was taken away for future use.

15.6.3 Teamwork

Despite the fact that students undertook individual research projects, within the community they shared experiences, questions, and tasks such as commenting on or piloting one another's draft research instruments and writing. This interaction led to multiple comments about the teamwork that would not have arisen within the more traditional one-to-one supervision environment. Su recognized the benefits of working within a group environment with the comment that "tasks can be less overwhelming when working together in a team". For Lee, the importance of teamwork skills was a new realization:

> My understanding of teamwork has developed, and so did my appreciation of the importance of having the tools and skills necessary to make teamwork work. … [Work] done by the group, although small, makes a huge difference in the final product.

For Meera, the collaborative nature of the community came as a complete surprise:

> Before meeting the group for the first time, I expected that I would feel a sense of competition with the other students, and be motivated to achieve because of that competitiveness. This expectation was not exactly met; the way we tended to collaborate did not foster much competitiveness in me. Rather, I was naturally keen to share new findings, hear about others' developments, and ask for advice on how to tackle coming hurdles. I was motivated, but not through competition as I imagined.

15.6.3.1 Rethinking Traditional Power Relationships

As educators we found ourselves rethinking traditional power relationships as we worked collaboratively with the students: "the community broke down barriers between staff and students—barriers that need not exist" (Supervisor S3). Group members interacted as peers, sharing cake to celebrate a birthday, congratulating one of the students on her engagement, and consoling another member at a time of loss. Home-baked goodies became quite a feature at one of the universities. The collaborative working environment was far more attuned to the team-based work that students were likely to encounter as graduates (Trevelyan 2011). Students noticed the differences and enjoyed learning about "the personality/attitude of the research supervisors" (Lee). In this sense we found that we had produced a knowledge-building learning community (Collins 1995) that featured collaborative learning among both students and supervisors.

15.6.3.2 Blended Community of Practice

The project featured a blended community of practice that engaged members through both synchronous face-to-face weekly sessions (held at both universities with Skype to connect the two groups) and the learning management system of one institution, for which access was granted to all students and supervisors. Students and supervisors reflected on the importance of these weekly meetings, which Su described as "knowledge sharing sessions" and S2 noted as being "critical to the community's success". The blended nature of the CoP meant that students also engaged online and they appear to have seen this as part of their community, described by James as the "LMS online group", which was "a great way to share knowledge and update current events". In addition, students were in regular email contact with supervisors from both institutions, asking questions about all aspects of their research work including the development and trial of their research instruments.

15.6.3.3 Transformative Learning

The students' projects were arguably examples of "backyard research" (Cresswell 2007) with many of the common associated strengths and limitations. Two of the students researched the experiences of undergraduate engineering students within units they had previously completed, and engineering-related employment was a compulsory component of all of the students' programs. A strength of this approach was the student researchers' convenient access to participants, their ability to build rapport and gain the trust of student participants, and the sharing of resources for developing the practice (Cambridge et al. 2005). A potential limitation of backyard research is the researcher's inability to recognise elements of culture within which he or she researcher is embedded. Based on students' reflections, we found that in this group they were motivated, demonstrated leadership, and experienced a sense of trust (McDonald et al. 2008) and community.

The diversity of the group's members and the engagement with people beyond the group somewhat mitigated this limitation. An additional benefit was that the direct relevance of the research to students' lived experiences, which resulted in transformative learning or what Denzin (1989, p. 70) has called illuminative epiphanies: "interactional moments and experiences which leave marks on people's lives". Supervisor S3, who mentioned changing her practises, voiced this:

> Learning from my colleagues was very useful—we develop our own ways of working, and working in a community breaks some of those moulds. (S3)

Similarly, in observing the standard and organization of the students' research work, S1's learning included the realization that "not all the students have to be high achievers to actually be inspired and achieve success".

> Through membership of the community, Lee came to know uni staff that are concerned with engineering education improvement and what effects some curriculum components have on student identities". [This] made me look differently at what I studied, what am studying and what I might be studying in the future.

By the end of semester, this interaction had enabled Lee to create an objective and somewhat critical view of engineering education within the context of engineering practice: "The way I see the degree has changed". In line with other educational researchers (cf. Male 2012), Lee noted the limitations of his engineering studies: "before this project, I felt like the focus on aspects other than the obvious conceptual understanding was not strongly present. One year later as a graduate engineer he reported that the ability to see things from multiple perspectives had been transformative: "[I learned that] once you learn others' perspectives, you never see things the same way again".

Lee and Su drew on the theoretical framework of possible selves (Markus and Nurius 1986) in their research projects. This led to group discussions about identity and possible futures, and both students noted that the experience continued to drive their thinking about their salient (personal and professional) identities:

> Reading about identity theories made me think more about my own identity. I now have more insight into what identity type I might fall under. I have always considered the issue of identity and my perception of myself as common sense, but definitely after being involved in this project I can see how life-changing thinking about own identity can be. (Su)

> The theory of possible selves, my research theoretical framework, opened, and is still opening, new horizons for me in thinking about who I am, what I want to be and what I fear being. (Lee)

Wei and James also expressed this broader understanding. Wei's research led to what he described as an "enhanced awareness of engineering practice". Because of this he had re-evaluated his own progress:

> I recognise what competencies are required to be a successful engineer; thus I am able to admit weaknesses in my competencies and look for ways to change this. Being aware and developing these competencies I'm hoping will help me achieve this goal.

Wei began to see engineering practice in a different light:

> This project has assisted my understanding in the competencies required to be considered a competent engineer in the engineering community. I now understand how important it is to be chartered and recognised as competent.

As he began to think beyond his student experience and take on the multi-scale perspective of engineering practice, Wei adopted a voice of authority with which to express his views on broader issues impacting engineering students:

> I have become more knowledgeable in regards to the university's expectations/processes. As a student, I am genuinely more concerned about the changes and the impact of the changes on student learning.

The group's interactive behaviour most resembled that observed by Crede and Borrego in the middle-sized groups, in that both student–advisor and student–student interactions were frequent. There was no hierarchy between the students and they had access to three diverse supervisors who were all familiar with their projects. We concur with Trede and McEwen's (2012, p. 29) contention that "students need to critically observe practice, participate in professional roles through workplace learning, practise critically, think for themselves, question and engage in dialogue so that they can claim control of their professional journey". The community of practice in which we engaged with the students enabled them to engage in their own such learning, but it also extended this through their critical participation in the learning of multiple others.

15.6.4   Reflections a Year Later

A year later, community members reflected on the critical factors that made the learning community a success and commented on what learning, if anything, they had transferred to their (future) work. This final section interrogates these reflections.

The supervisors recalled the frequency of community meetings with "a non-hierarchical structure such that everyone contributed and learned from one another" (S3). They also revealed that communicating with the other half of the community on Skype did not create a barrier to full participation. Meera, however, noted that interaction "face-to-face was so much richer, fuller, more natural and more effective than any alternative—email, Skype, etc".

Meera noted the benefits of a working with a diverse group of people, finding that being with "other people with a similar project but [with] different backgrounds and personal situations helped me to gain a wider perspective on my own academic, research, resource, and time-management challenges".

The community setting had obvious benefits for the students' research; however, this is not to de-emphasize the social and community benefits of the community, which were felt by both supervisors and students. As Supervisor S3 explained, "I enjoyed the simple process of meeting with colleagues and students. I enjoyed celebrating a birthday, comforting a loss, drinking coffee together". This sentiment aligns with Wenger et al. (2002, p. 5) that the satisfaction derived from the social interaction between community members is a significant aspect of community membership:

> However they accumulate knowledge, they become informally bound by the value that they find in learning together. This value is not merely instrumental for their work. It also accrues in the personal satisfaction of knowing colleagues who understand each other's perspectives and of belonging to an interesting group of people.

Indeed, for Meera, "When members were missing from meetings, much value was lost".

15.6.4.1 Transfer into Practice

The aspect most commonly mentioned was the simple act of spending time with members of the community: "their open minds to new ideas, their engagement and commitment … the sense of humour … [I have realized that] working with somebody from a completely different background can only add enormous value to the learning experience" (S1). In the intervening period, S1 had established similar research groups with other colleagues and she also rethought her supervision to include more opportunities for multiple students to meet together. It was the "enthusiasm, commitment and an open mind" of participants that drove this resolve.

S3 also rethought her work with graduate students and began to meet with them both individually and as a research group. She initiated a new collaboration with colleagues outside her discipline, and she maintained the informal feel by meeting with them at a coffee shop away from their universities. S3 reported that the CoP had had a lasting impact on her practice as a supervisor:

> Thinking of supervision as a learning community has changed the way I go about supervision – it makes far less sense to me that supervision occurs on a one-to-one basis; whilst there are times students need individual time, they learn a huge amount from meeting

together. I suspect they are also more likely to meet deadlines because of the "loss of face" if they don't.

A lasting strength of the community of practice has been the relationship between the three supervisors, all of whom commented that this was a stronger and easier relationship than those they had with colleagues known for far longer. In this regard the most common theme related to a relationship of trust generated from forthright and supportive discussions (McDermott 2000), as shown below:

> Our scholarly working relationship is also such that we can ask each other for advice and help when needed, and without concern that a question is silly. (S3)

> It gave me a strong relationship with the other two supervisors and confidence in my research and leadership ability. (S2)

> I developed a level of trust not often encountered within HE [higher education]. By trust, I don't mean honesty; rather it's a working relationship that is safe and untroubled because I know these colleagues far better than others I have worked with for years! It has established a long-term working relationship. (S3)

The level of trust established between the supervisors was apparent in the admission of S1 that through the community she

> … had the opportunity to share ideas, learn from others (including the students) and learn about supervision, which for me has been one of the most challenging tasks.

Graduates wrote less about the transfer into practice, which is logical given that they were still negotiating the first 12 months of their professional practice. Looking back from a possible selves perspective, two graduates noted benefits to their professional life in line with McDermott's (2000, p. 2) topics of "the practical aspects of a particular practice, everyday problems, new tools, developments in the field, and things that do and do not work". Su noted that she had "learned the value of regular scheduled meetings and face to face contact where possible—I apply this to my work". Lee, who during the project had made the link between his self-management and the capacities needed for his future engineering practice, saw the findings of his final-year research on engineering practice come to life when he began work. As a result of his research he was highly aware of, and hopefully more prepared for, some of the practices within engineering:

> The research being about engineering … became very obvious since day 1 at work when things I personally learned and things participants mentioned on my surveys started to show in real engineers' workdays.

At the time of offering the final year projects, we were concerned that the students who undertook the projects could feel isolated among engineering students who were taking traditional technical projects, and further that the rigour of the research in engineering education might not be appreciated by their peers and engineering academics. We established the inter-university research group to enrich the students' experience. Since completing their studies, their learning in the group has transferred into practice. Furthermore, supervisors enjoyed a sense of community and their learning has influenced their research and teamwork.

15.7   Limitations and Transferability

Whilst the research study reported here was conducted at two institutions and across two different final-year programs with very different requirements, the transferability of our findings depends on context. To give an example, one of Harrison et al.'s (2012) findings was that their funding for face-to-face meetings was essential because in South Africa, where their study was undertaken, electronic meetings were unreliable. This contrasts with our experience of relatively reliable Internet access, even when one or more of us joined a meeting from another region or country. Additionally, although the two universities in our study were in the same city, it was convenient for the physical meetings to be held at each university, connected to peers via Skype™. This highlights the importance of considering the context of a study when assessing transferability. Acknowledging differences in technology, we believe that the group would have worked with less regular face-to-face sessions and also with a blended approach involving digital and face-to-face interaction. We also believe that whilst the low student numbers and poor esteem of engineering education lent itself to this project, the approach would be effective across other disciplines and in other locations.

15.8   Recommendations

The findings of this study, drawn from the reflections of students and supervisors at the start of the project, mid-year and again 1 year after completion, lead us to commend an inter-institution research group as a valuable means of supporting final year students and their supervisors. Such a collaborative approach is unusual, and yet through our research group we developed a learning community in which students and supervisors supported and extended one another's understanding. Students and supervisors learned about research, teamwork and self. Critical factors in the community's success included experienced supervisors with diverse but relevant backgrounds; weekly, open and non-hierarchical group meetings conducted physically and connected electronically; a shared platform (in our case a learning management system) on which students could share and review their work and thinking; support from deans or heads of school, and from other engineering education researchers; a meaningful common knowledge domain; and important shared research problem.

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Chapter 16
Learning Value and Identity Formation: Social Learning and the Graduate Studies Experience

Diane M. Culver and Rachael Bertram

Abstract Students and early career academics in higher education face many challenges, including working in isolation, feeling like an imposter, and, for students, having difficulty completing their degree. Researchers and theorists have suggested that the social learning theory supports the process of becoming (developing new or stronger identities), and assisting individuals as they navigate their path towards gaining competency and confidence in their practice. The concept of a community of practice is a social learning approach that has been argued to nurture the learning needs and identity formation of the members, and has the potential to address some of the issues faced by students and early career academics in higher education. This chapter shares the accounts and findings from two cases that explored the implementation and assessment of communities of practice in higher education settings. Both studies employed a value creation framework, which is intended to promote and assess value creation within communities and networks. The cases differ substantially and the results showcase how the framework can be useful in various ways in settings with diverse parameters. This chapter critically reflects upon certain concepts of the theory as they relate to the graduate and postdoctoral studies experience and provides practical recommendations for those who wish to establish communities of practice within higher education settings.

Keywords Communities of practice · Higher education · Value creation framework

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16.1 Introduction

For Wenger (1998), identity issues are integral to social learning theory (SLT), and learning "is an experience of identity. It is not just an accumulation of skills and information but a process of becoming—to become a certain person, or, conversely, to avoid becoming a certain person" (p. 215). As individuals participate in social learning spaces (e.g., networks and communities), they develop competence and confidence in their practice. Engagement in the joint enterprise of social learning spaces and the negotiation of meaning as related to local practices and broader aspects of the practice landscape result in degrees of accountability, shared repertoires, and identities commensurate with such participation.

In this chapter we will first explore the implementation of a CoP initiated and facilitated by professors in the same research group to help their graduate students 'become' academics, while simultaneously increasing the effectiveness of the professors as researchers and supervisors. Reference will be made to a case study conducted with a specific group (Bertram et al. 2014). Recent work by Wenger-Trayner et al. (2015) addresses the scaling up of SLT beyond local practices to whole landscapes of practice. With this, follows the issue of social learning leadership and its role in building learning capability across the landscape. A number of different disciplines have been suggested for social learning leaders. While this work is still nascent, in this chapter we will examine some of these roles within a graduate studies community of practice (CoP). We will also discuss some other graduate studies CoPs that are direct offshoots of the main one discussed, and the application of the Value Creation Framework (Wenger et al. 2011) within one of these.

16.2 Context

The context for the main social learning space discussed in this chapter, Case 1, is the University of Ottawa, which is a large public university in Canada's capital city, Ottawa, Ontario. Over the last decade and a half, this university has been moving towards becoming a major research university. In recent years it has been ranked in the top 10 of Canada's top 50 research universities (RE$EARCH Infosource Inc. 2014). In an era of cost cutting, faculties are being pressured to produce more (e.g. to graduate students in a timely manner, to get more research grants, to have more publications in high impact factor journals, and to provide a better student learning experience) with less. We will use this setting as the backdrop for an examination of how the application of SLT, and in particular the concept of a CoP, can positively contribute to the experiences of graduate students and their professor supervisors.

The research group to which we refer situates itself within the social sciences and humanities, in the domain of sport pedagogy and psychology, in the School of Human Kinetics, of the Faculty of Health Sciences. The Coach Development

Research Group (CDRG) focusses on teaching and learning in sport, related specifically to coach development. For over 15 years, our group has taken a social learning approach to research, by ensuring that we meet bi-weekly as a group to co-create knowledge by discussing our research, supporting each other in the academic venture, reading scholarly works, and exploring other elements of academic practice such as reviewing manuscripts (writing by others and by members of our group), and preparing presentations for conferences. Various sub-groups meet bi-weekly to discuss more specific research issues. We, the authors of this chapter, are one of the professors and a senior doctoral candidate. Two other social learning spaces engaged in by some members of the CDRG will be described below, one very briefly and one more thoroughly (Case 2).

16.3   Conceptual Framework

This section will examine some of what the literature has to say about the graduate studies experience and SLT in relation to this. As well we will introduce the Value Creation Framework.

16.3.1   What We Know About the Graduate Student Experience

As noted by Baker and Pifer (2011), we need to know about the experiences of doctoral students as they develop an identity as academics and understand academic practice. Given that students often flounder as they transition through the middle stage of their doctoral studies, a time when they move from the structure of coursework to the self-directed work that is required to complete their studies, Baker and Pifer examined the role of relationships in this transitional period. They concluded, "learning and identity development are interconnected social processes, occurring simultaneously and informing each other" (p. 15). Also, their data supported the idea that it was in the students' interactions with others, including professors, colleagues, and others, where sense-making led to efficacy and identity formation. They recommended that future research further investigate graduate students' developmental networks and how these influence learning and identity development.

Jairam and Kahl (2012) looked at the role of social support in the successful conclusion of a Ph.D. degree. They noted that social isolation, which "refers to the absence of meaningful social connections" (p. 312), is an issue linked to attrition in doctoral studies. One of their suggestions for future Ph.D. students was that they align themselves with a "small group of academic friends" (p. 311). Fenge (2012) studied the role of group supervision in the enhancement of the doctoral journey.

Fenge suggested that in a learning space, supported by peers and supervisors, graduate students' identities are transformed:

> [Students] are socialised into becoming a doctoral student, becoming a researcher and becoming part of a peer learning community of practice. Doctoral student identity is therefore developed in part through their individual supervisory relationship, but also through a connection with the wider learning environment, which includes networks of peers and the facilitated group supervision sessions. (p. 404)

Thus Fenge, in line with Wenger (1998), has suggested that doctoral students can develop an identity as a member of an academic CoP.

16.3.2   What We Know About the Graduate Student Experience in the Humanities and Social Sciences

Research has shown that "more time is often needed to undertake the research required for a thesis in the humanities and social sciences" (Kyvik and Olsen 2013, p. 6). Fenge (2012) also supported this statement, speculating that graduate students in these areas are often left to work alone while those in the sciences usually carry out their research in a laboratory where other students and professors are conducting research akin to theirs. Indeed various configurations of group contexts have been suggested by Mullen (2009) and Mullen et al. (2010) as enabling learning spaces in which graduate students can examine their understandings of theory and academic practice. These last authors suggest that co-mentoring or collaborative mentoring, where mentors and mentees (advisors and graduate students) teach each other, "promotes reciprocal learning, power sharing, turn taking, co-leading, dialogue, constructive feedback, and authenticity in learning" (Mullen et al. 2010, p. 182). As such, interdependence is a philosophy that is seen as productive. Such interdependence might counteract the above-mentioned isolation, and it might help develop expertise. Interdependence has been viewed as a characteristic of experts. Writing about sport coaches, Trudel and Gilbert (2013) referenced Steven Covey when they suggested that coaches, when progressing from beginner to competent to expert will, as learners, move from dependent to independent to interdependent. According to Covey, "if I am intellectually interdependent, I realize that I need the best thinking of other people to join with my own" (Covey 2004, p. 51).

16.3.3   What We Know About Being a Member of a Community of Practice

Research suggests that participation in communities of practice can be valuable. For example, effects of CoP participation on teachers include being more student-centred

(Dunne et al. 2000), experiencing a change in their identity (Cuddapah and Clayton 2011), and enhancing their teaching practices (Bolam et al. 2005). Within healthcare, CoP members felt reduced job stress (Herdrich and Lindsay 2006) and accelerated learning (Chandler and Fry 2009). And, in the field of business, CoP members increased their competency (Dupouët and Yildizoglu 2006) and engaged in knowledge sharing (Ardichvili et al. 2003). In our domain, sport coach development, it has been shown that membership in communities and networks has a very important impact on coaches' learning and becoming (e.g. Bertram and Gilbert 2011; Culver and Trudel 2006; Duarte and Culver 2014; Occhino et al. 2013; Taylor et al. in press).

16.3.4 The Value Creation Framework

In an effort to provide a foundation to those researchers and practitioners interested in the value afforded through participation in social learning spaces such as communities and networks, Wenger et al. (2011) developed a conceptual framework for promoting and assessing the learning value created in these spaces (the Value Creation Framework; hereafter VCF). Networks and communities are considered to be different aspects on the continuum of social learning spaces. Hereafter, we will use the term 'communities' for both aspects.

The VCF consists of five cycles: (a) immediate value, (b) potential value, (c) applied value, (d) realised value, and (e) reframing value. Community interactions and activities can provide group members with *immediate* value, such as meeting new people or having a nagging question answered. Some value has the *potential* to be recognised in the future when, for example, a community member encounters a similar situation to one that a fellow member recounted. Different types of potential value include relationships and connections, personal assets, resources, collective intangible assets, and the transformed ability to learn. *Applied* value is recognisable when members implement changes or innovations in their approaches, practices, or actions. Such changed practices do not automatically result in performance improvements; thus *realised* value can be the result of reflecting on how the application of knowledge capital (applied value) affects the achievement of goals and improvement of performance. Finally, when social learning results in the adjustment of learning objectives and the redefining of success, *reframing* value is created for the individual and/or the collective.[1]

The VCF aims "to provide a framework for an evaluation process that can integrate heterogeneous sources and types of data to create a compelling picture of how communities and networks create value for their members, for hosting

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[1]A new version of the VCF is in development. It includes two more cycles: Enabling and Strategic. Also reframing value is now being renamed transformational value.

organisations, and for sponsors" (Wenger et al. 2011, p. 8). For each cycle, the VCF guide includes key questions and examples of aspirations, conditions, indicators, and data. For instance, for applied value, a key question for aspirations might be: "Who should apply the learning of community?"; for the conditions: "What would make it difficult to apply the learning?"; an indicator might be: "What are the indicators that would suggest that application is happening?"; and finally for data: "What kind of data should be collected to asses these indicators?" (Wenger-Trayner and Wenger-Trayner 2014a, p. 3). Also included in the framework are templates that community members can use to reflect upon and elaborate their experiences of participation in their community. The concept is that these templates might assist in drawing the link between community activities and learning.

Grounded in Wenger and colleagues' work relating to learning as an experience of identity and learning value in communities and networks, and given what we know about the graduate student experience and the potential outcomes of participating in communities of practice, we will now share some critical reflections on our experience with creating and sustaining a graduate studies CoP. We will also share some practical strategies and recommendations for those who would like to promote and assess the value created in such communities. For this, we will draw on two cases that used the VCF. The two cases differ significantly, both in terms of how the VCF was applied and how the data is presented. Given that there are very few publications that report on the use of the VCF, it is important that we document how it was utilised, in quite different ways in these two cases.

The first of these cases used the VCF to analyse the data gathered through a focus group and semi-structured individual interviews with 17 members of a graduate studies CoP (Bertram et al. 2014).[2] Briefly, regarding the procedure, several of the senior students in the CoP approached the group members to see if they would be interested in participating in a case study to explore the value of participating in the CoP. Following this, a focus group was held to get the members' initial perceptions of their experiences participating in the CoP. The individual interviews were then conducted to probe each member's experience.

The second case reports on the learning value, as reported in completed VCF personal value narrative templates, by a group of graduate students and professors in Brazil. These academics are part of a budding CoP who attended a 4-day workshop about sport coach development. Brief reference will also be made to other social learning endeavours engaged in by members of our graduate studies group.

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[2]The reporting of Case 1 has borrowed heavily from an article published in the journal *Transformational Dialogues* (Bertram et al. 2014). Readers are directed to this paper for details about the methods and the CoP.

16.4   Our Social Learning Spaces: The CDRG CoP

16.4.1   Leadership Role

The senior faculty member in our group initiated our CoP, the CDRG, when he was the only professor working in our domain. As the first author was a student of this professor, she participated in the CoP meetings throughout her graduate studies. Several years after completing her doctorate, she was employed as an assistant professor, joining her ex-supervisor as a colleague. Since then the leadership has been shared by the professors in the group, but as the graduate students work their way through their programmes, through a process of legitimate peripheral participation (Lave and Wenger 1991), they take on more and more of a central role within the CoP.

As mentioned in the introduction, Wenger-Trayner and Wenger-Trayner continue to develop SLT. There is recognition that a profession's body of knowledge is not represented in a single CoP, but instead in "a '*landscape of practice*' consisting of a complex system of communities and networks of practice and the boundaries between them" (Wenger-Trayner and Wenger-Trayner 2015, p. 13). This view allows for the building of learning capability across an organisation or profession. Boundaries, while often places of tension, can also be learning assets. Leadership roles in a landscape perspective can be operationalised at different levels of scale; that is on the level of the individual, the activity, the social learning space, and the landscape. The leaders in the CDRG show evidence of practicing a number of the important disciplines associated with social learning leadership. One such discipline proposed by Wenger-Trayner and Wenger-Trayner (2014b) is continuity. On an individual level, the leaders stuck with the CoP, each year regenerating it by following through with the learning activities (i.e. the meetings and such), sharing the learning history with the participants in the social learning space (e.g. having new members read the publications of the group members), and keeping alive the history of the initiative within the landscape (participating in relevant conferences). Another discipline is scaling. The CDRG demonstrates this as some members (professors and senior students) broker across different social learning spaces, repeat learning activities in different areas of the landscape, and in so doing, expand the space to involve more participants (see below for reference to offshoot CoPs).

16.4.2   The CoP Life Cycle

The rhythm of the CDRG CoP mirrors the academic year, with a break in the whole group activities during the summer months. However, informal interactions continue to occur as the CDRG members engage in their academic practices. Each fall, as the university year starts anew, there is a natural rollover of members; new students join our group as they begin their studies. As the students near the end of

their degrees, they tend to concentrate on their writing and do not always continue to participate fully in the group meetings. Participation in these meetings is not mandatory, since the professors continue to meet their supervisees individually. Most students do participate fully, some partially, while a few remain very much on the periphery of the CoP. The decision regarding a student's level of participation might depend upon outside of university commitments (e.g. work, family), or, very occasionally, research interests that differ significantly from the rest of the group.

16.4.3 Group Activities and Processes

The CDRG's raison d'être was to support each other in our research endeavours. As alluded to above, we met bi-weekly as a large group, which, at the time of the study (Bertram et al. 2014) was made up of three professors (1 male full professor and 2 female associate professors[3]) and 14 of their graduate students including 6 doctoral students, 4 master's students, and 4 recently graduated master's students (6 male and 8 female). During these meetings members gave updates on their research projects and sought feedback on these. In these instances, for most stages of the research process, the group served as a critical friend. Thus the CoP members helped co-create knowledge that would be reified in research proposals, theses, and articles. Our university does not allow students to have any contact with professors during the month when they are writing their comprehensive exams. However, the doctoral students in our CoP almost always used their fellow student CoP members to review their exam papers, something that the professors encouraged. We would discuss other articles and chapters related to our research. We also shared manuscripts that had been sent by academic journal editors to one of the CoP members for review, gathering input about these from the group members. Each fall we would discuss and plan for the scientific conferences that were of interest in our domain, sharing information regarding abstract submission, and conference locations and dates. Discussions ensued in which the group members made decisions on within group collaborations for conference presentations, potential publications, and grant applications. Finally, the group served as an important support for new members as they navigated their way into the world of higher education, helping them learn 'who knows what and where to go for help' on any number of issues and procedures.

Given that one of the principle learning theories we use in our research is SLT, it is perhaps not surprising that some members of the group have engaged in or initiated other social learning spaces. For instance, as a result of a publication about CoPs in sport (Culver and Trudel 2008), a doctoral student from a university in the western United States contacted the first author. Subsequently, with one of the

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[3]Academic ranks in most Canadian universities, for tenure track positions are: Assistant professor, Associate professor (is combined with tenure at our university), and Full professor.

doctoral students in the CDRG, we initiated an online CoP. This group, involving two professors and their respective doctoral students who are both using SLT in their research, meets about 4 times a year to discuss our research and further our understanding of the application of SLT.

With our interest in learning, and social learning in particular, the CDRG CoP aimed to be a supportive yet challenging space, where members could develop themselves as academics. While the professors were the principle leaders (supporting their students being part of their work), the senior students became champions for and leaders in the community. Through their participation they nurtured the learning space and made the transition to graduate school a smoother one for the new students.

16.4.4   Research Output and Power

The CDRG has established itself as one of the leading centres for coach development research; it is recognised nationally and internationally. Although growing, the domain of sport coach development is not widespread in university circles, and there are only a small number of centres where more than one researcher is working. The CDRG CoP described in Case 1 (Bertram et al. 2014) was very productive. For example, some 20 articles and about 12 chapters were published by members of the group during the 2 years of the case study, four of the Ph.D. students have since graduated, and three of these are in tenure-track positions at universities in three different Canadian provinces. Additionally, the two professors who were assistant professors both successfully acquired tenure and were promoted to associate professors.

Regardless of the desire to create a supportive and inclusive space for all, there were, because of the nature of the supervisory relationship, issues of power. Some of the graduate students in this study shared that they had at times, particularly at the start of their studies when they were still adjusting to the heavy workload, felt pressure to attend the meetings and to be prepared, even though attendance was not obligatory. However, as the members moved toward the centre of the community, value was experienced. Chad (1st year M.A.) stated:

> I felt a little bit of pressure from my supervisor at first to participate in the meetings. I looked at them like, 'Do I really have to go to this? This is just more reading. This is not beneficial to my learning at all.' But later, once I was able to attend more, I found that it actually was beneficial to my learning. I could throw out ideas and bounce them off other people who are at the same level or a little higher than me. Then they can provide me with feedback. Plus, I can listen to other people's ideas. Now I try my hardest to go to as many as possible. I don't feel pressure anymore; I just see the benefit in going. I realise it's not required; it's there to help us.

The international reputation of the CDRG has led to graduate students and professors from overseas coming to work in our lab. Recently, we had a young Brazilian lecturer spend 6 months with us. As a member of the CDRG he improved

his mastery of the English language, collaborated with other CDRG CoP members on conference presentations and publications, and worked on his dissertation which he has since successfully defended. Through his participation in the CDRG this researcher was exposed, for the first time, to SLT. He subsequently returned to Brazil and set up a social learning space involving other researchers at Brazilian institutions of higher education (HE) working in the domain of sport coach development, a bourgeoning research area in Brazil. One of the important learning activities that this Brazilian researcher instigated was the visit of this chapter's first author (see below regarding Case 2).

16.5   Assessing, Evaluating and Articulating the Impact and Outcomes: Value Creation Stories

To address the purpose of this chapter, the authors have drawn upon two cases that have been conducted within the past 3 years; both explored the value created through participating in CoPs in HE settings. Although both studies produced a wide range of findings, the following section will present findings specifically related to learning value and identity formation.

16.5.1   Case 1: The U of O Coach Development Research Group

In Case 1 (Bertram et al. 2014), the researchers conducted a deductive thematic analysis (Braun and Clarke 2006). Themes were determined using Wenger et al. (2011) VCF. However, to fully address the purpose of this chapter, the authors re-analysed the data, using the data analysis software N*Vivo software (QRS 2012), to ensure that value stories related to learning value and identity formation were able to surface. The findings of Case 1 are first presented thematically, based on the major themes that emerged related to learning value and identity formation. Subsequently, for a different perspective of value creation, we provide an example of a collective value narrative using one of the VCF templates (see Table 1).

16.5.1.1   Identity

The students' and faculty members' participation in the CoP had an important influence on their identity formation. Students were able to see themselves taking on new identities and gaining competencies related to becoming an academic, researcher, mentor, or consultant. All the participants discussed how being a

member of the CoP influenced their identity. For some, participating in the CoP helped them see themselves as academics. Danielle (1st year M.A.) stated:

> What I mainly get out of the group is being a grad student, especially having been out of the university setting for a while. [The group] helps me better understand my role as a grad student and what is expected of me.

Another student discussed how he felt uncomfortable moving from an undergraduate student member to a graduate student member in the group. However, after becoming more familiar with the members and the content, he was able to fit into that role and become a contributing member.

> When I first joined, I wasn't able to follow the pace of the group, but I was just an undergrad at that time. Then when I started my masters, I was still a small fish dropped into a shark tank. That was too much for me at the beginning. But I just kept the pace, and kept going. After a while I became comfortable with everyone and with the materials we were studying, and started to see myself as part of the research group. (Landon, 1st year M.A.).

Specifically, the students became more comfortable with the idea of being a researcher, and began seeing themselves as contributing to the field. William (M.A. graduate) said, "I think one of the underlying goals of [the group] is to become a sound researcher. It has really helped me understand what being a researcher means, and to become comfortable with fitting into that role."

Five of the students in Case 1 indicated that being a member of the CoP gave them the opportunity to become a mentor to the newer students. As they became experienced members of the group, they developed confidence in their ability to mentor the newer members of the CoP.

> I feel now that I'm not so much the one asking a lot of the questions like I used to be. I think I am now the one who is more receptive to questions, and am taking a different role in the learning process. Other students come to me for advice and input, so I think I have become somewhat of a mentor in our research group. (Peter, 3rd year Ph.D.).

Although, she was only a second year Ph.D. student at the time of the study, Brenda also felt she was beginning to develop as a mentor:

> In the subgroup meetings, I think I have started to help others gain a better understanding of some of the material we cover. I have become more familiar with the literature, so when the master's students have questions, sometimes [my supervisor] will give me a chance to answer them. Because of that I have had some of the master's students approach me outside of the group with additional questions or to ask for advice about various things.

Five of the students discussed these changes in identity in terms of seeing themselves differently. They mentioned that they developed more awareness of themselves and the setting in which they study and work. Deborah (2nd year Ph.D.) stated, "being a part of the group just broadens your understanding of other people, as well as your understanding of yourself, I think. It helps you develop an awareness of yourself and how you are situated within the group and within the field." William started seeing himself as a researcher in the academic settings, as well as in work settings (being a fitness trainer):

I have been conducting my own little research study on each of my clients at my job, which I have realised is what you have to do to achieve success in my line of work. So I guess I have become a researcher in my work as well.

Seven students in Case 1 mentioned that when they saw other students or faculty members achieving their goals, they realised that those achievements were something that they themselves might accomplish. They appreciated that they could become something and achieve something because others in the group had already done it. For example, at the time of the study, one fourth-year Ph.D. (Cameron) student had been hired as a full-time professor at the university. This allowed other students to apprehend that they also could pursue similar goals and achieve them. Danielle said:

I think it's really important to speak with others in the group and hear that they've had similar frustrations, or even to see that they've accomplished something that I might want to do in the future. Then it feels like, 'okay, I can do that too.'

Brenda also discussed how seeing others achieve their goals helped her realise that she could achieve her own goals.

Being surrounded by people who are well established is really intimidating. Initially, it seems overwhelming to think of all the time and energy they put into publish so much and become professors. But, when you actually see the process they go through and how they accomplished those things, it doesn't seem so difficult. It seems more doable. So then, I feel like I could accomplish those things too if I put in the effort.

Here Cameron's comment about how participating in the CoP had influenced him mirrors the comments of the other students in the CoP: "Participating in this group has made me a better researcher, a better student, and an overall better thinker."

16.5.1.2 Collective Intangible Assets (Reputational Capital)

The students and faculty members highlighted the benefits involved with being a member of the CDRG. They gained a sense of community and belonging, and some even felt special for being included in the group. In addition, members felt a sense of pride and recognition when they attended conferences or spoke with peers from other universities. Peter described how he felt when he was a newer member of the CDRG:

I remember feeling really blessed when I started here. I remember feeling like, 'Man, I have this huge support group that understands me because they've all been through this process, and they are here to genuinely support my development.' I think that was such a reassuring and comforting feeling that allowed me to be more myself when I first got here. I felt really special because I quickly realized how special this group was. I started thinking, 'Well, if this group is so special and everybody involved is so special, then there must be something in me *that* is special as well.'

This statement aligned with the feelings of the other students in the CDRG. William said that one of the best aspects of the group was that he felt a bond with the other members in the group; he did not feel alone when he encountered obstacles throughout his degree. "You see your peers' projects, the challenges they face, and you don't feel alone; you don't feel like you're the only one going crazy as you're trying to complete your degree."

For all the CDRG members, being a part of the group meant that they were contributing to the productivity of the group as a whole, which they felt led to the recognition of the group by others in the academic community. Danielle stated:

> If I produce good work, people will see it and think, 'there's the coach research group… they're doing really interesting things'. We all strive to produce high quality work, which we can then all build upon. I think that's why the work being produced from this group seems to be respected and recognised.

Lisa (M.A. graduate) discussed how the productivity of the group influenced her interactions and the connections she developed while attending conferences:

> Because we are such a big and productive group, I was able to meet a lot of people… probably more than students who attend conferences alone or in smaller groups. Because of the group, I was able to create better connections with other academics.

16.5.1.3   Learning

All of the students and faculty members in Case 1 discussed how their involvement in the CoP had influenced their learning. They were able to read, critique, and discuss the literature, which resulted in learning about the topics at hand.

> Being in a position where I am able to go to a group meeting, talk about certain ideas, and question some of the [material] we are reading, really allows me to go much deeper in my learning than just reading the book by myself and then putting it on the shelf. I've obtained a level of comprehension of [the material] that's much deeper because of the group. (Cameron).

Deborah also discussed how participating in the CoP had an impact on her learning:

> I think the group is very beneficial to Master's and Ph.D. students… you get to hear other people's perspectives, and you can balance that against or incorporate that into what you think. It helps you have a much better understanding of whatever you are reading. Most of my learning in the past has always been very individual. So I've found it really interesting and really beneficial to have this group, to see how much more you can actually learn from that one chapter or article when you have other people's opinion. Then you can re-think it and you can reflect on it, and then you have a much deeper, better understanding of it.

Furthermore, the process of sharing ideas and reflecting upon their understanding and beliefs played a key role in pushing the participants' learning: "As I share information, I reflect on what I'm saying. It helps me re-process those ideas, and sometimes after I've shared a comment, I go back and reflect on what I said.

That helps me continue to learn also" (Cameron). Brenda also discussed how speaking about the literature furthered her learning:

> When we are in the meetings, we have a chance to talk about what we read and our understanding of it. That helps me a lot. When I am speaking about an article or chapter, I have to situate what I read, then reproduce that knowledge in a way that other people can understand it. That, for me, is really helpful.

In addition, because one of the topics discussed by the CoP was the phenomenon of learning, students and faculty were able to better understand how they could become lifelong learners. Peter stated:

> The group provided me with an opportunity to learn about learning.… I now view myself as being a *learner*, whereas before I was a person who was trying to learn, or a person that learning would happen to. Now I view myself as more active—*I need to learn*.

The professors in the CoP also felt that their learning was influenced by their participation. They were able to immerse themselves in the literature and discuss the material more deeply than they might have otherwise done, leading to new insights and perspectives from the other members:

> In the meetings we have the important feat to learn more. It's what you put in—you can learn a lot. At the same time, you can compare what you understand from the articles to how other people see it. There's more than one reality when looking at a paper. This is very important. We are creating knowledge together. (Thomas, full professor).

16.5.1.4   Identity Across Boundaries (Transformative Learning)

All the students of the CDRG felt that they gained knowledge and developed skills that would help them in their future endeavours. They felt that they would be able to apply their knowledge to future situations and settings, as well as to utilise skills they developed through their participation in the CDRG. Peter discussed how his learning will impact his future relationships: "I've taken a lot of my learning to help support my relationships with people, whether that's my relationship with friends or family members. My ability to learn in different situations has increased". For Deborah, participating in the CDRG meetings influenced the importance she placed on learning in social situations:

> I think that [the group] has made me much more aware of how we learn, and that we don't just learn from reading a textbook or from some big guru in the field. We learn in many different ways, and that everything is an opportunity to learn. You can learn or exchange information in all sorts of situations. I mean, I can learn from a conversation I have with someone on the bus ride home. Everybody has something to offer. We can always be learning if we just stay open to it.

Chad discussed how learning within the group transformed how he views and reflects upon experiences in his coaching:

> I think the group is great for my learning as a student and a person. Now when I coach, instead of just jumping to conclusions about why a player makes a certain decision, I take time to view it as an opportunity [to learn] and better understand the situation and that player. I've changed from being someone who's easy to judge and make assumptions to someone who's going to step back and think about things first, then make a decision. I think that helps a lot in my coaching.

Participating in the CDRG activities also helped students develop skills that they could use and build upon in their future work, whether in academia or not. William mentioned how his writing skills had improved:

> Receiving so much feedback on my writing from other people in the group was so important. It really helped me a lot. Then that translates into writing for cover letters and other things. Writing a good product, something I'm proud of, it's still the same. You want to get your ideas across, sound good, in the best possible way in the least amount of space. So I was able to refine those skills, I have been using them in my work, and I will definitely use them in the future.

Peter also discussed how he would use the skills he developed through his experience as a CDRG member in his work as a sport performance consultant:

> Following each group meeting, I always try to bring bits of the information from our discussions into my consulting work on the weekend or during my next Skype call with an athlete. I will try to integrate the theory into practice. Learning is one thing, but applying it is something completely different.

This thematic analysis of Case 1 is one way to provide readers with a view of how participation in the CDRG CoP created value for the participants. Another portrayal could be the collective value narrative that is proposed in the VCF (see Table 16.1). This table is populated with quotations from different members of the CoP, taken from the focus group and interviews. As such it is collective because it brings together the different individual's overall experiences of participating in the CoP.

16.5.2 Case 2—The Brazilian Coach Education Group

The second case findings reported below represent some of the data collected from the participants in the Brazilian coach education group, subsequent to the week of workshops led by the first author. The workshops were attended by nine academics, members of the social learning space initiated by the Brazilian professor who had visited our lab in Canada and was a member of the CDRG for 6 months.

The Personal Value Narrative template from the VCF (Wenger et al. 2011, p. 44) asks each participant the following four questions:

1. How participation is changing me as a professional (e.g., skills, attitude, identity, self-confidence, how you feel, etc.)
2. How participation is affecting my social connections (e.g., number, quality, frequency, emotions, etc.)

Table 16.1 CDRG collective value narrative

Name: Coach and Athlete Development Research Group	How participation is changing **me as a professional** (e.g., skills, attitude, identity, self-confidence, how you feel, etc.)	How participation is affecting **my social connections** (e.g., number, quality, frequency, emotions, etc.)	How participation is helping **my professional practice** (e.g., ideas, insights, material, procedures, etc.)	How participation is changing **my ability to influence** my world as a professional (voice, contribution, status, recognition, etc.)
Reasons for participation (e.g., challenges, aspirations, professional development goals, meeting people, etc.) ±	Landon (1st year M.A.): We all have moments when we feel discouraged and not motivated, stuff like that, and just the support of our peers who know what it is to go through those phases is really encouraging and helps us going through all of this Peter (3rd year PhD): I felt really special because I quickly realized how special this group was, and I started thinking, "well, if this group is so special and everybody is involved is so special, there must be something in me that I guess would also be special." So it made me feel more comfortable and made me feel more like, wow, I must fit in	Cameron (4th year Ph.D.): A lot of people in our group came from outside Ottawa, even from outside Canada. It appears that this group has been sort of a support structure to not only adapt to academia, but just to adapt to Ottawa and everything else. In terms of adjusting to the academic climate, the group encourages us to interact with each other more frequently, and to discuss more deeply the things that are meaningful to us	Brenda (1st year Ph.D.): Participating in the group forces me to read and be a little bit more critical in my reflections. We break down the readings and get more in depth with them. I wouldn't do that on my own. So it helps me develop my ideas and the way I approach reading	Danielle (1st year M. A.): It's a pretty good collection of bright, motivated, friendly, fun people, so that makes it better…I guess feeling accountable kind of drives your motivation a lot because, and not accountable in a bad way, like I don't feel like I'm going to get punished, I just feel like I'll let other people down. Or it's more that I want to live up to everybody else in the group and be valuable to the group
Activities, outputs, events, networking (e.g., lesson material, discussion, visits, etc.) ±	Peter: I think the research meetings at first played a big role in my understanding of learning the norms of the group. That became really key. I became very active in trying to suck up as much information as possible	Lisa (M.A. graduate): So I got to meet a lot of people at conferences because we were such a good and big group, because we were in the U of O coaching group, I got to meet probably many more people than the students that go to conferences only with their supervisors, stick with their supervisor all weekend Brenda: And then also the	Lisa: The group really helped to be more critical because we were always challenging each other and writing down questions David (1st year M.A.): As a thesis student, we need to publish if we want to go forward and do a Ph. D. Having the opportunity to read manuscripts, see the review process, and hear what feedback the authors receive—this is amazing Chad (1st year M.A.): when we talk about the	Cindy (1st year M. A.): Terry and I are doing the 2 presentations, so I'm starting to get my name out there too, and that's a huge advantage, and it'll be good for whenever I start publishing … And I would never have been included, my research would have never been included for the Brazilian conference if I had not gone to the meetings

Table 16.1 (continued)

Name: Coach and Athlete Development Research Group	How participation is changing **me as a professional** (e.g., skills, attitude, identity, self-confidence, how you feel, etc.)	How participation is affecting **my social connections** (e.g., number, quality, frequency, emotions, etc.)	How participation is helping **my professional practice** (e.g., ideas, insights, material, procedures, etc.)	How participation is changing **my ability to influence** my world as a professional (voice, contribution, status, recognition, etc.)
		relationships that we develop with other groups members helps me a lot. Like Peter would say, we talk a lot in our group, in the lab here, emailing other people outside of it—just the connections that we make within it help me a lot too because I feel like if I do have a question I can go to somebody and ask that question, because we build a relationship within the group	readings in our small groups, and I talk about the way I read it, and then perhaps Brenda talks about the way she read it, it really opens up my eyes to see that we're supporting each other, and everybody has a different interpretation; but it's nice to hear the way people see things differently and that we're all in it together because we all have the same objective, and that's to finish our thesis and learn more about coach learning	
Value to me (e.g., being a better professional, handling difficult situations, Improving organizational performance, etc.) ±	Danielle: Like reading BC's paper, right of the bat, that was like our second meeting or something, and I was like, 'Oh, this is what the final product looks like' and I remember saying, 'Wow, this is daunting, but exciting at the same time' because maybe I want to do a PhD, and look, people do it, people can accomplish it and here's the tangible output	Cameron: So I think that it's very helpful, and it prevents a lot of the more junior students from making mistakes or procrastinating. It really allows them to focus on the task and make sure they complete their studies in time	Cameron: When you're going to submit a paper for publication, the paper has already gone through a lot of reviews and you've gotten feedback, so you're going to be more confident that the paper has a good chance of getting accepted… For students who wish to become professors, to understand what you need to do to put yourself in a position to be competitive in that market. There are things you don't learn in class. Your supervisor might share things with you, but when you get perspectives from senior students who have already gone through that, it prepares you. If you're a first year master's and you already	Danielle: If I'm able to produce something really well, you know a conference; other people will see that and be like, "oh look, there's the University of Ottawa. Oh there's that coach research group, they're doing really interesting things." So I think it's things like that… In academia it does feel like the work happening in this group seems to be respected and recognized

Table 16.1 (continued)

Name: Coach and Athlete Development Research Group	How participation is changing **me as a professional** (e.g., skills, attitude, identity, self-confidence, how you feel, etc.)	How participation is affecting **my social connections** (e.g., number, quality, frequency, emotions, etc.)	How participation is helping **my professional practice** (e.g., ideas, insights, material, procedures, etc.)	How participation is changing **my ability to influence** my world as a professional (voice, contribution, status, recognition, etc.)
			know what you need to do to become a professor, well then you're way ahead of everyone else	
	Cameron: There are a lot of students who will go to their first conference and they won't have practiced their presentation at all in front of anyone; they don't even know how the presentation should be structured! Imagine going in and actually presenting and the insecurity that person must have, you know…. However, the first year master's students coming into our group will get a lot of feedback on their presentations. They will also get feedback on the way to present themselves, how to talk. So once you go to the conference, you feel much more confident because you've been involved in this group	Cindy: So participating that way is helpful towards our academic learning. With our more informal interactions, with our laughing, and getting along, that's not necessarily beneficial to what we're learning, but I think participating in it is beneficial just towards our general well being	Peter: When I'm within the group, my productivity increases drastically. If I need an answer to a question, instead of having to send an email, I can literally turn my chair around and ask a lab-mate or go down the hall and ask a prof in our group	Wendy (Professor): We came and we went through that in depth, chapter by chapter, and I would argue, for me that's the only way I would have really, REALLY, understood. I think that's how you become an expert, and I think Cathy (4th year PhD) is an expert

± Indicates that you can provide positive/negative experience

3. How participation is helping my professional practice (e.g., ideas, insights, material, procedures, etc.)
4. How participation is changing my ability to influence my world as a professional (voice, contribution, status, recognition, etc.)

Responses to each question are collected in terms of three dimensions:

a. Reasons for participation (e.g., challenges, aspirations, professional development goals, meeting people, etc.) ±
b. Activities, outputs, events, networking (e.g., lesson material, discussion, visits, etc.) ±

c. Value to me (e.g., being a better professional, handling difficult situations, improving organizational performance, etc.) ±.

In the week following the workshops, each member of the group was provided with a Portuguese translation of the Personal Value Narrative from the VCF.

This tool was designed to guide participants in social learning spaces when it comes to telling their story. The instructions also state that not all participants will be able to fill out every cell, which is fine. The columns refer to different areas of a participant's professional life, while the rows help participants tease out the trajectory of their experiences of participation (Wenger et al. 2011). These forms were returned within the following few weeks. They were entered into N*Vivo software (QRS 2012) and analysed by a Portuguese speaking doctoral student and member of our CDRG, whose research is using a SLT framework. Table 16.2 is a summary of the collective analysis of the template forms. For each value cycle, the number of units coded and the number of participants from which those units were coded is presented. Furthermore, qualitative extracts are provided for the different value cycles, as expressed by the members of this group.

Table 16.2 Brazilian coach education research workshops: value created

Cycle	Units coded	Participants as source	Quotation
Immediate	48	9	Different perspectives (13 quotes by 8 participants)
			"I was able to understand the rationale of doing research from different points of view" (Carina, Ph.D. student)
Potential	84	9	Theoretical knowledge (21 quotes by 9 participants)
			"Allowed me to understand how CoPs are organized and how research on that topic is structured" (Samuel, Ph.D. student and professor)
			Self-confidence and self-validation (10 quotes by 6 participants)
			"I was able to share some challenges I'm facing with the group; the group valued my ideas which made me feel confident" (Vinicius, Master's student)
			Reflexive (15 quotes by 7 participants)
			"The participation in the workshop has led me to reflect on my teaching practice and revise aspects of my academic life" (Marcial Cotes, professor)
Applied	27	8	Tangible resources (12 quotations by 7 participants)
			"The facilitator and other participants shared different materials (articles and PowerPoint presentations)" (Larissa, professor)[a]
			Social Learning Group (12 quotations by 7 participants)
			"I truly believe that the academic collaboration, the professional and personal relationships of the people in this group has strengthened during the course" (Larissa, professor)

(continued)

Table 16.2 (continued)

Cycle	Units coded	Participants as source	Quotation
Realized	0	0	[b]
Reframing	6	3	Change the way I teach (5 quotations by 3 participants)
			"I can stimulate my students to focus on reflection instead of memorization… Know I have a different understanding of the coach development process. This new view of learning might influence both my students and my own doctoral studies" (Alex, Ph.D. student, professor)

[a]While tangible materials are considered by Wenger et al. (2011) as potential value, because the population at the workshops were graduate students, professors and researchers, having access to materials such as articles, books, and authors changed their cognitive structure and arguably influenced the way they conduct their work in a very pragmatic way

[b]No quote on the documents; however these workshops brought researchers from four Brazilian universities (UFSC-SC, UFG-GO, Unicamp-SP, Urcamp-RS) meeting. They had not previously collaborated. The group has since submitted five abstracts to the major international coaching conference. They are also writing a review of the coach development literature of the in Brazil

16.6   Critical Reflections

This section will examine the use of the VCF for analysing the learning value and effect on identity formation in graduate studies CoPs, and reflect on the use of the framework to assess the value of participating in such social learning spaces.

The purpose of this chapter was to explore how participating in a graduate studies CoP impacts students and faculty members learning value and identity formation. The findings revealed that both the students and faculty members gained a wide range of value related to learning and their evolving identities. The participants were able to engage in a wide variety of activities with the intention of learning and developing competencies. For example, the students and faculty members read scholarly works related to learning theories and coach development, engaged in critical discussions, witnessed other members experience challenges and triumphs, collaborated and co-created knowledge, and were able to ask questions and listen to other members' perspectives. These activities impacted the CoP members in two important ways: (a) they experienced an exceptional amount of learning which they could use immediately or apply in future endeavours, and (b) they noticed changes in their identities; they realized that they were becoming more competent academics, developing new aspects of their identities, and taking on different roles. Given what we know about the graduate student experience in the social studies, the findings support the idea that social learning spaces such as these can expedite the process of becoming an academic, assist in the completion of research projects, and the attainment of graduate degrees and promotion for assistant and associate professors.

The participants in these two cases found that engaging in a CoP was very important for their individual learning, as well as to the collective learning of the group. For the Brazilian group, the underlying constructivist approach of SLT was transformative for at least one participant who noted that this view of learning would change his teaching, as he would, going forward, attempt to move students beyond memorisation to a deeper, more reflective type of learning. The students and faculty members both discussed how their participation allowed them to engage in a number of activities that were not typically available to them outside of the CoP. These activities included, but were not limited to engaging in critical readings and discussions, reviewing unpublished manuscripts, collaborating on various research projects, receiving critical feedback from peers and faculty members, and practicing academic presentations. One phenomenon that was key to CoP members' learning, was the opportunity to hear other people's perspectives during group discussions. This played an important role in encouraging the participants to engage in reflection and critical thinking about a number of different topics and ideas. Wenger (2015) stated that, "it is difficult for communities of practice to be deeply reflective unless they engage with the perspectives of other practices. Combining multiple voices can produce a two-way critical stance through a mutual process of critique and engagement in reflection" (p. 19). A characteristic of each of the cases included in this chapter is that the CoPs included students and faculty members who have diverse backgrounds and areas of study and practice. For example, at the time of these studies, the faculty members were conducting inquiries together and separately in a wide variety of settings regarding different areas of study. The student members were working on their thesis studies in various fields of study (e.g. bioneurofeedback, coach learning and development, youth sport, physical education curriculum, and parasport). They were also engaged in different areas of practical work (e.g. coaching, university teaching, consulting, fitness training). Membership of the CDRG for example is also ever changing, and has included students and faculty from different parts of Canada, the United States, Brazil, France, and China. In addition, some of the participants were in contact with practitioners and researchers from other fields of study, and frequently introduced new ideas and discussion topics into the group. Thus, the CoPs ability to combine multiple voices from various practices contributed to the participants' learning by encouraging discussion and reflection on a variety of topics.

Three modes of identification are proposed to help us build our identities within a landscape of practice: engagement, imagination, and alignment. For Case 1, engagement in the practice of the CDRG, "doing things, working on issues, talking, using and producing artefacts, debating and reflecting together" (Wenger-Trayner and Wenger-Trayner 2015, p. 20), helped the graduate students (and even the novice professors) learn about the competence of the community. As the students travelled through the landscape of HE they built an image of just what that landscape looks like, and some were even able to imagine themselves one day becoming a professor. Others, who may have set out to be an academic, might have experienced dis-identification and left academia for another context. Finally alignment with the context was experienced as students learned, for example, the ins and outs of the

thesis process and how to conduct qualitative research using an epistemology congruent with that of their supervisors.

Fenton-O'Creevy et al. (2015) examined the trajectories of participation of university students in a practice-based programme. As these students were coming from one work practice and enrolling in a university programme in order to change to another work practice, they were peripheral participants in the academic CoP. If the students engaged only minimally in the academic CoP, their identity hardly altering through the experience, the authors labelled them 'tourists'. If however, they participated at a deeper level 'engaging with the meaning of local practices in ways which have implications for their own identity' (p. 44) but without being fully engaged, the term 'sojourners' was suggested as a suitable label. One of the masters' students in Case 1 was an ice hockey coach who aspired to coach at the professional level. He came to do his master's in order to investigate the learning pathways of professional coaches with backgrounds similar to his. He continued to coach during his full time graduate studies. We would argue that under different circumstances his trajectory might have been very much that of a tourist, but that participation in the CDRG pushed his participation to a higher level, and that he might more appropriately be described as a sojourner. Having completed his M.A. he went on to coach professionally, and continues to aim for the highest levels of coaching.

Through utilising Wenger et al.'s (2011) VCF in two cases and discussing its applicability and effectiveness within our research group, we have found the VCF to be both useful and practical. Not only did the VCF support our attempt to assess the value created through participating in CoPs by mapping certain outcomes onto various community activities, but it also facilitated the promotion of value creation by encouraging participants to reflect on their experiences in the CoPs and to formulate value creation stories relevant to their learning and identity formation. In addition, the VCF provided a means for reflecting on the value that was collectively produced and realised (i.e. the CoP's learning history, the CoP's vision and goals, or the status, recognition, and identity of the CoP).

16.7 Practical Recommendations

Based on the literature (e.g. Bertram et al. 2014; Culver and Trudel 2008; Culver et al. 2009) and recent experiences we will make some recommendations for those wishing to promote social learning as part of the graduate studies experience. We recommend that researchers and practitioners implementing CoPs consider the following points, as well as the key elements that Wenger et al. (2002) have highlighted as important characteristics of CoPs.

First, researchers and practitioners should consider using the VCF for promoting and assessing value creation within CoPs. The VCF was used during the analysis of Case 1 and 2. However, in Case 2 the personal value template provided in the VCF was used during data collection. We found this helpful for connecting learning to CoP activities. The VCF includes a number of additional elements (e.g. value

creation templates, key indicators, examples of questions and data), which could be useful in future inquiries for mapping value creation in CoPs. Indeed, we foresee the VCF being used as a planning tool for those wishing to set up social spaces. Therefore, researchers and practitioners should attempt to utilise these tools, and further explore their use in practical settings.

Second, leaders should include students and faculty members with diverse backgrounds, experiences, and areas of study or work. In our experience, involving members with different areas of study and from different countries or regions in Canada has exposed CoP members to different perspectives, attitudes, and ideas; resulting in a challenging, yet supportive environment. Diversity in students' backgrounds was one of many factors that led to collaboration on a number of projects, to which the students brought ideas, perspectives, initiatives, and best practices from their native area.

Third, in order to decrease the possibility of issues related to power (i.e. inter-actions between students and faculty), we found it helpful to place power and authority in the hands of student members. Wenger (1998) noted that issues related to power and authority do in fact exist, and may hinder the effectiveness of the CoP. As Bertram et al. (2014) highlighted, "it is important to note that in addition to value reported by group members, several participants discussed internal and external pressures to attend meetings and achieve learning outcomes." Although a few students mentioned initially feeling pressure to participate, we found that encouraging students to share power and authority in the CoP greatly decreased the issues that arose due to power. Wenger-Trayner and Wenger-Trayner (2014b) propose a number of different leadership roles to encourage distributed leadership. Professors might ask students to lead some of the learning activities in the CoP (e.g. facilitate group discussions, mentor other student members, broker discussions with outside groups and organisations, etc.). To lessen the impact of power related issues, we encouraged students to suggest topics for discussion and recommend readings that were relevant to their individual thesis projects, but are also linked with the intentions of the CoP. Students and early career academics should also be included in the process of mapping out future directions for the CoP.

16.8   Conclusion

Our final reflections touch on Ph.D. completion rates. Partial data (from 8 of Canada's 15 most research intensive universities) show that completion rates and time to complete for the degree of Ph.D. vary considerably (Charbonneau 2013). For those completing in 9 years, students in the Health Sciences topped the com-pletion rate at 78.3 %; on the other end of the spectrum, only 55.8 % of the students in the Humanities completed within the same time period. Considering such statistics, it behoves the HE community to look for ways to increase the completion rates in the Humanities and Social Sciences (2001 statistics put the Social Sciences rate at 65.1 %). In our admittedly limited experience, over the last 10 years, only

one graduate student in our CDRG has not completed her degree, and all have completed in noticeably less time than the mean mentioned in the above statistics (for our group 2 years is standard for an M.A. and 5 years for a Ph.D.).

We strongly support the statement of Brew et al. (2011) that one cannot over-stress "the importance of a local supportive environment" (p. 64) when it comes to graduate studies. We believe that a community of practice whose members are cross-generational (i.e., professors, senior graduate and novice students) can be one such supportive structure able to provide, as also recommended by the above authors, "a continuum of developmental opportunities appropriate to academics at different stages" (p. 64).

Buoyed by the evidence here within from the two cases, we believe that the creation of healthy social learning spaces for graduate students and early career academics in the Humanities and Social Sciences is well worth the time and effort. SLT is very much a theory in evolution. The theory's principal author, Etienne Wenger-Trayner, talks about theory building, which he describes as "creating a vocabulary that allows you to tell certain stories about the world" (Wenger 2013). In order to contribute to the discussions that create and use that vocabulary, we hope that this chapter will encourage others in HE to engage in similar learning spaces, and to further pursue research with such groups.

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Chapter 17
*Equity Buddie*s: Building Communities of Practice to Support the Transition and Retention of Students Through Their First Year at University

Katina Zammit, Margaret Vickers, Evelyn Hibbert and Clare Power

Abstract While in the past, students entering universities tended to come from privileged backgrounds, the expansion of opportunities to enter higher education over the past two decades has led to the inclusion of increasing proportions of students from diverse socio-cultural backgrounds. Students from culturally and linguistically diverse backgrounds or who are first in family to attend university often require additional support as they transition into university to build their academic and institutional knowledge. Peer mentoring programs are one initiative introduced in universities to support the transition and retention of first year students, including those from culturally and linguistically diverse backgrounds or first in family. This chapter discusses the peer mentoring program *Equity Buddies Support Network* developed at the University of Western Sydney, School of Education as a community of practice designed to support the transition and retention of first year students. It begins with a brief description of the *Equity Buddies Support Network*, followed by a discussion of how its design incorporated the features of a community of practice. It presents both the formal and informal learning that took place within the *Equity Buddies* communities of practice finishing with a reflection on *Equity Buddies* as a community of practice. It also makes connections between the practices of this networked community and the development of students' cultural capital, in particular institutional capital.

Keywords Peer support networks · Community of practice · Higher education · Cultural capital

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17.1 Introduction

While in the past, students entering universities tended to come from privileged backgrounds, the expansion of opportunities to enter higher education over the past two decades has led to the inclusion of increasing proportions of students from diverse socio-cultural backgrounds. In 2009, following the Bradley Review of Australian higher education (Bradley et al. 2008), the Australian government proposed a target under which 20 % of university students were to come from lower socio-economic status (LSES) backgrounds. Since then there has been a further substantial increase in the proportion of LSES students entering Australian universities, many of whom are first in their families (FiF) to go to university (Dow 2013; Koshy 2014). At the same time and overlapping with this category, the proportion of students with refugee or with non-English speaking backgrounds (NESB) has also increased (Australian Government 2014; Koshy 2014).

These students are as varied and diverse as any other cohort; they often have particular needs that may be different from those of other first-year students (Earnest et al. 2010; Hannah 1999, 2000; Morrice 2007, 2009; Silburn and Arnest 2010). In the Greater Western Sydney region, 30 % of the population come from countries where English was not their first language (id. The Population Experts 2015), unemployment is 6.7 % (in comparison to 5.6 % across Australia), and the SEIFA index of disadvantage in 2011 was 972 (compared to 1011 for Greater Sydney) (Australian Bureau of Statistics 2011). At the University of Western Sydney (UWS), 24 % of students come from LSES backgrounds and 64 % are FiF to go to university (UWS 2013).

According to James et al. (2010) the monitoring of student subgroups who are 'at risk' of attrition or poor academic progress is a huge challenge for Australian universities, but it is essential, given the current targets for expansion and equity. Students from refugee backgrounds (SRBs) are likely to be overlooked for targeted support because universities have not yet begun to recognize them as a subgroup. As with refugee students entering high school, those entering universities may be exposed to prejudice and discrimination based on pervasive misconceptions about their social and cultural backgrounds (Brown 2004; Marshall; 2010). Studies indicate that Middle Eastern and African students tend to experience higher overall discrimination than international students from other regions (Hanassab 2006). In addition, SRBs experience a lack of support from the beginning, feel a need for assistance in completing their university studies (Earnest et al. 2010), and feel that their teachers have limited knowledge about their lives and the pathways they have followed (Bond et al. 2007). They also find that the teaching and learning styles of universities are quite different to those of high school or to other education institutions they have attended (Earnest et al. 2010; Hannah 2000; Yang 2010).

When entering university, students are entering a new learning culture where they have major responsibilities for their own engagement and academic progress (James et al. 2010; Nieto and Booth 2010) and are involved in a more critical and reflexive style of learning (Earnest et al. 2010; Joyce et al. 2010). There are also

new styles of assessment, which include the teacher not reminding students about assessments and expecting them to be self-disciplined and self-motivated (Earnest et al. 2010), and involve academic writing and/or a higher level of oral communication (Earnest et al. 2010; Yang 2010). Students from refugee or culturally diverse backgrounds or FiF may lack familiarity with the tacit rules, norms, expectations and traditions associated with the systems in universities (Morrice 2007) which can lead to a decrease in retention in these groups of students.

Peer mentoring programs have been provided in higher education to support the transition and retention of first year students for a number of years. These programs most often connect more senior students (mentors) with the new students (mentees) in a group situation, with one mentor and a group of mentees, on a voluntary basis (Freeman and Kelton 2004; O'Brien et al. 2012). Another form of peer mentoring increasingly popular in Australian universities is Peer Assisted Study Sessions (PASS). In PASS, academic support for students is provided by a previous highly successful student in subjects with an historically high failure rate (University of Western Sydney 2015). Peer Mentoring programs vary in the amount of time students receive support: from the first part of the semester (up to 6 weeks) (Freeman and Kelton 2004; O'Brien et al. 2012) to the majority of the semester (Couchman 2009). Mentors are paid for their time with either an honorarium (O'Brien et al. 2012) or at an hourly rate. The retention of mentees in the programs has been an issue for these volunteer mentoring programs (O'Brien et al. 2012).

The community of practice this chapter describes is known as the *Equity Buddies Support Network* (herewith *Equity Buddies*). *Equity Buddies* forms the basis of a subject delivered by the School of Education for undergraduate students studying primarily the Bachelor of Arts (Pathway to Teaching) degrees. Students elect to take the subject as part of their coursework, which can also count towards the completion of an Education Studies Major. *Equity Buddies* is a for-credit cross-year peer-mentoring program initially designed to address the needs of refugee background students entering the University of Western Sydney (UWS). It was expanded almost immediately to ensure that all first year students needing additional help as they transitioned into university could be provided with support from second and third year students also enrolled in the subject. At the same time, its initial goal remained important so that all first year students who had completed part of their schooling overseas were specifically invited to enroll. While *Equity Buddies* began as a subject students could elect to take, its contribution has now been recognized by UWS, so that it is being scaled up and will be made available as a subject across the university over the coming years.

The chapter will begin with a brief description of *Equity Buddies*, followed by a discussion of how the design of *Equity Buddies* incorporated the features of a community of practice (Lave and Wenger 1991; Wenger 1998; Hildreth and Kimble 2008), and how the practices of this networked community built students' cultural capital, in particular institutional capital. It will present the formal and informal learning that took place within the *Equity Buddies* communities of practice finishing with a reflection on *Equity Buddies* as a community of practice.

17.2   The Equity Buddies Support Network

Equity Buddies is a for-credit subject structured as a peer-mentoring program in which second and third year students provide mentoring for first year students. The mentoring activities and the tutorials that support these activities count towards completion of their undergraduate degree. Both mentors and mentees enroll in a specially designed unit of study that serves the purposes of the *Equity Buddies* program. The theoretical foundation for the subject was provided by Wenger and Lave's concept of community of practice (Lave and Wenger 1991; Wenger et al. 2002; Wenger 1998). Within the subject, students are asked to study the concepts of communities of practice and mentoring, enact these in their mentoring relationships and reflect on them. In their reflections, students have, for example, described the program as one which blends individual and collective learning into shared practice, and as a program that creates chains of learning linking academic staff and students in a higher education community. The other theoretical frame informing the development of the *Equity Buddies* program was Bourdieu's concept of cultural capital (Bourdieu 1986). Cultural capital exists in three forms: 'in the embodied state, i.e., in the form of long-lasting dispositions of the mind and body (habitus); in the objectified state, in the form of cultural goods (pictures, books, dictionaries, instruments, machines, etc.)…; and in the institutionalized state' (Bourdieu 1986, p. 242). Cultural capital, as Bourdieu notes, can be acquired without any deliberate action on the part of the person. In particular, he notes the place of institutional capital for improving a person's cultural capital because it is outside an individual's embodied state (habitus) and sanctioned by a recognized institution. Students from a refugee background, culturally and linguistically diverse background or FiF may not have acquired the necessary dispositions or the institutional capital to succeed in higher education.

Vickers and Zammit's (2014) goal in constructing the *Equity Buddies* program was to reframe the social relations of the university classroom so as to promote the interaction and participation of students with each other, contributing to their mutual understanding of each other and of the university context (Curry 2008; Bernstein 1971, 1990). The forms of cultural capital students need to acquire at the beginning of their university careers include acquiring subject matter knowledge and understanding the academic expectations held for them, possessing the linguistic skills needed for proper scholarly reading and writing and developing the range of IT skills needed to navigate the online delivery of lectures, assessments, and assignment submission. Institutional capital includes the understanding of the university's rules and regulations that all contribute to the management of student life in the university context (Curry 2008). An additional and important aspect of cultural knowledge is the implicit or tacit knowledge students need to acquire in order to succeed at the university (Curry 2008), which includes control over academic literacy. This information relates to understanding informal institutional conventions, and its acquisition is dependent on peer contacts, particularly with older students who have had more experience within the university. It is the

understanding and acquisition of these multiple forms of capital that enable students to successfully navigate the university environment on the way to obtaining a degree.

The practice that the *Equity Buddies* learning community explores and develops together is learning itself, from the perspective of being a successful student at university. The specific functions of community and practice include becoming mindful of how learning occurs, learning how to learn from and together with others, and becoming a reflective learning practitioner. The *Equity Buddies* learning community entails four different networked community formations. First, every mentor has a face-to-face relationship with a first-year mentee, on a weekly basis. Second, mentors and mentees attend tutorials where they learn about the practice of mentoring, the nature and practice of socially supported learning, examine equity issues and intercultural relationships, and come to understand the formal academic, institutional, and hidden or informal aspects of university learning. Third, all mentors and mentees are required to participate in small weekly debriefing groups run by student facilitators who have already completed The *Equity Buddies* program. Many of these facilitators were refugee background students (McCarthy et al. 2014). Finally, the student facilitators meet on a weekly basis with the academic coordinator in order to discuss any issues that may be arising within the program.

The data used for this chapter were gathered from consecutive student cohorts over a two-year period. They were drawn from several sources including (a) the weekly logbooks and the two structured reflections that comprised the assignment load for the subject, (b) interviews with randomly selected mentors and mentees, and (c) an end of semester survey administered to all students, designed to measure the perceptions and experiences of both mentors and mentees. The survey used a 5-point Lickert scale and open-ended questions about students' experiences. The quantitative data were analysed using SPSS. The students' reflections and interviews were analyzed applying codes drawn from the data in an iterative process (Strauss and Corbin 1998). Themes from the data were then developed as concepts representing the students' experiences. Ethics approval was obtained and students gave permission for the use of their reflections, interviews and survey data. Reflections and interviews were de-identified before analysis and student names were not included in the survey response forms. Pseudonyms have been used in the chapter to preserve participant anonymity.

17.3 Constructing Equity Buddies as a Community of Practice

'Communities of Practice' is a contested concept with many different interpretations. Conceived by Wenger (1998) as a 'social theory of learning' that bridges individual and group learning, it has been taken up by many in different fields, and across a multitude of contexts (Hughes et al. 2007). Hildreth and Kimble (2008)

take a helpful approach in looking at the characteristics of a community of practice. Rather than seeking a specific definition, they suggest that 'Communities of Practice' is an umbrella term for groups that generally share most of the following features:

- grow informally based on a need;
- share common ground;
- have voluntary memberships;
- share a common purpose or goal;
- are fluid and tend to evolve over time, and
- are driven by internal motivation.

They further propose that relationships are '…key to developing the trust and identity that define the CoP…' (2008, p. xii). A Community of Practice (CoP) usually originates somewhat organically, as participants recognize a commonality of interest and identify shared purposes. Knowledge and resource sharing and problem solving are also features that seem to be common to CoP's (Caldwell 2008). As the ensuing discussion indicates, *Equity Buddies* is a program that reflects and incorporates these characteristics.

17.3.1 Equity Buddies Originated Organically, with Growth Based on Need

In 2010, a small group of refugee background students approached Margaret Vickers, an academic in the School of Education who was known across the University for her contribution to refugee-education programs. These students wanted to initiate a support network that would respond to their needs. They were new arrivals in Australia; most of them had lived for some years in refugee camps. Their schooling had been both intermittent and interrupted, and it was in defiance of all the odds stacked against them that they had gained admission to a university.

They talked about the need for friends, for connections with students whose backgrounds and experiences were similar to their own. They wanted a community of **buddies.** At the same time, they were seeking help with their studies. A common experience was that in tutorials or other settings, they did not know what responses were appropriate, or how to interpret what was being asked of them. The students recognized the need to acquire the cultural capital associated with the university institution, which would enhance their success. Longer-term Australian residents seemed to just *know,* but this taken-for-granted knowledge was never discussed or explained in formal learning environments such as lectures and tutorials. This kind of knowledge is tacit and informal, yet students who have no access to it can be seriously disadvantaged. Emerging from this conversation was a focus on *equity,* on the right of all students to gain support as they tackle the formal curriculum, as well as support in accessing what Curry (2008) calls the tacit or hidden curriculum of the

university. Following these discussions, two academics (Margaret Vickers and Katina Zammit) made application to the Australian Government Office of Learning and Teaching (OLT) and in 2011, gained a grant that led to the development of the *Equity Buddies* program.

17.3.2 Participants in Equity Buddies Recognise a Commonality of Interest and Share Common Ground

In 2012, the *Equity Buddies* program emerged in the form of a for-credit unit of study for mentors and mentees, supported by academic staff, and also supported through the employment of student facilitators who convened the weekly debriefing groups. Thus, four categories of participants were involved: academic staff, facilitators, mentors and mentees. With the OLT grant in place, a research ethics application was completed. Surveys and interviews with students and facilitators now became a regular part of the program. In addition, students recorded their interactions, thoughts, and responses to readings in weekly logbooks. Through their logbook records, they provided the academic staff with a diary of the activities they had completed. Material from these logbooks formed an important part of the research data.

Mentees and mentors alike appreciated the opportunity to form supportive friendships, which provided both a social connection for first year students and access to academic and institutional knowledge. As one first year student commented, '…It helps with the small things that people are afraid to ask help for…' (Hiba). Another student noted, 'The mentoring sessions became a relationship and not just a task what (sic) I have to complete for this unit…because it was a relationship where empathy can be felt…' (Jacqueline). Mentors became a source of support when their mentees felt like dropping out of university. They gave emotional support and helped their mentees work through options to solve problems. As part of the mentor training in tutorials, mentors were provided with guidelines from the student counseling service about how to deal with sensitive issues. In addition, mentors and mentees were involved in analyzing scenarios and undertaking role-plays to assist them to identify boundaries and recognize when to recommend other support networks at the university. Some mentors also introduced their mentees to their own friends and to other social groups on campus.

The acquisition of knowledge in *Equity Buddies* was relational; that is, the mentors often found that the information or assistance they gave their mentees encouraged the improvement of their own work in similar areas. Mentors indicated for example, that in helping their mentees with time management or writing, their own skills in these areas also improved. While mentees improved their academic performance through the coaching of the mentors, the mentors felt an 'increase in self-confidence in my own abilities to help others' (Hamza, 3rd year mentor).

As student enrolments increase, Australian universities have responded by shifting the focus towards online learning, leading to the adoption of diverse formats of technology-based knowledge transmission and online support services. Although the UWS does provide online resources designed to assist students, exactly where these resources are and how to access them seems to be opaque to many students. Most students who were enrolled in *Equity Buddies* were quite unaware of many of the online support services available to them. Mentors reported having to guide their mentees through the online learning sites for their units and teaching them how to navigate the online environment. The academic developers of *Equity Buddies* sought to encourage relationships between mentees and mentors and within debriefing groups in order to compensate for the reduction in face-to-face student support services and make some of the 'invisible' supports visible.

17.3.3   Equity Buddies Is an Open Subject, so Membership Is Voluntary

Since the *Equity Buddies* program is a subject students can elect to take at UWS, students from a wide range of discipline-specific courses enroll in it. It currently functions as a for-credit cross-level student mentoring program delivered by the UWS School of Education, but is open to students across all schools within the university. As a result, *Equity Buddies* does not attempt to provide mentoring for first year students related to the specific disciplines they are studying. Rather the focus is on generic academic abilities such as the ability to use and follow conventions of scholarly writing including essay structure, vocabulary, referencing, understanding the learning guides and knowing how to complete assessments.

Since *Equity Buddies* is a for-credit unit, students enrolling as mentors were motivated to participate and did not need to be paid for their services. First year mentees could either enroll or volunteer: that is, some first-year students chose to join the *Equity Buddies* community and gain support but did not want to enroll for credit. Students who volunteered to be mentees often gained enough support for some of them to become independent towards the end of the semester, discontinuing their contact with their mentor.

17.3.4   Equity Buddies Participants Share a Common Purpose or Goal, Driven by Internal Motivation

When students enroll in a university, they are entering a new learning culture where they have major responsibilities for their own engagement and academic progress (James et al. 2010; Nieto and Booth 2010). The *Equity Buddies* program is deliberately inclusive, offering a wide range of supports to all newcomers to the

university. All students who participated in *Equity Buddies* interacted with and learned from people whose cultural backgrounds were different to their own. Students were conscious that in the unit 'it was important to understand each other and build an environment where everyone is welcomed and treated equally regardless of their race or colour of skin' (Nhi). Interacting with students from different cultures encouraged students to question the stereotypes they had about people of different religions. One student affirmed that 'being a part of the 'community,' *Equity Buddies* has given me the opportunity to work with people that I possibly would never have made contact with' (Colin).

Most of the mentees had major concerns around mastering the academic demands of university life. Mentors were encouraged to help first year students acquire the institutional knowledge they needed to deal with:

- university rules and regulations;
- accessing university resources such as the library and the counselling service and use them effectively;
- mastering online information systems related to blended learning delivery;
- plagiarism management through Turnitin;
- the submission of assignments; and
- academic literacy development and support systems.

17.3.5 *Equity Buddies Is a Fluid Program Evolving Over Time*

Equity Buddies is delivered as an elective unit by the UWS School of Education, as part of the pathways to teaching sub-major/major in the Master of Teaching program. Although most of the students enrolled in the program are in teacher preparation programs leading to primary or secondary teaching qualifications, students majoring in Psychology and others completing humanities majors in the Bachelor of Arts program also participate. It is a fluid program that has evolved, and continues to evolve, over time.

The structure of *Equity Buddies* consists of a series of mutually reinforcing parts, each of which contributes to the operation of the other parts. Like all such arrangements, the functioning of each piece supports the operations of the other pieces; a chain of connection is created and it is the overall success of these interrelationships that account for the strength of the program.

The first iteration of *Equity Buddies* was in the first semester of 2012, when 50s and third year students committed themselves to one-to-one mentoring of 46 first year students who had enrolled as volunteers. A second iteration was conducted in the second semester of 2012: this mainly catered for first-year students who had been given failing grades in their first semester. In 2013, a third iteration was conducted and this time the unit enrolled both the first-year students (as mentees) and 2nd and 3rd year students (as mentors), with a total enrolment of 152 students.

The model implemented in this third iteration was found to be the most successful. It provides the basis for the ongoing implementation of *Equity Buddies* at UWS and its expansion to other campuses across UWS into the future.

Equity Buddies is a fluid program. In general, mentors meet with their mentees for 2–3 h each week, engaging in mutually negotiated activities that are sometimes social and sometimes academic. However, no two mentor-mentee relationships are exactly the same. This is also true for debriefing groups and tutorials. While similar content, such as mentoring, academic literacy, counseling services, is covered in presentations delivered by academic staff, debriefing groups are reactive to students' needs. They provide an avenue for students to discuss the weekly readings as well as solving problems and discussing strategies. As already noted, students keep weekly logbooks which means they are engaged in a consistent process of recording what is going on and reflecting on it. This provides a basis for codifying their own understandings of what is involved in doing well and how they can benefit from the university experience.

17.4   What Was Achieved: Informal and Formal Learning in a CoP

As we reviewed the student logbooks, we were not surprised to find that for most students, the first-year experience was challenging. Evidence from logbooks and interviews indicated, however, that students enrolled in *Equity Buddies* gained confidence in being a university student, a sense of belonging to the wider university community, and that they learned how to learn both individually and together with others. Most students also reported becoming better at scholarly writing and more confident as they approached their academic assessments. As the majority of participating students in 2012–2013 were preparing to become teachers, the communal learning experiences central to *Equity Buddies* provided them with insights into how people learn. Students were therefore able to apply this understanding to their future teaching career and also developed their concept of themselves as learning facilitators.

> It has showed me a different perspective on teaching, as I was always the one to do the work for the student. By allowing the student to not only look over it again but to fix it they show that they can be dependent on themselves. (Clare, 3rd year mentor)

> I believe I have been able to communicate with Mary in a way that helped her understand how and where she needs to improve her writing, without making her feel like she is not writing well. (Nina, 2nd year mentor)

17.4.1 *Gaining Confidence in Being a University Student*

Acquiring an understanding of the informal and unwritten rules of university life is critical for success. Yet it is only through direct relationships with other students that these understandings can be achieved. *Equity Buddies* mentors explained how many of the first-year students felt overwhelmed by the amount of information they were confronted with when they started at university. This is compounded by not knowing who to ask for help. First year students were afraid to ask fellow students because they thought they were disturbing them, or that other students 'simply do not want to help'. Lack of confidence in English can also inhibit a new student's ability to ask for help. As the comments below indicate, by sharing with others, especially their mentors, mentees learned that their experience was not unique, and this helped to decrease their sense of being isolated.

> By having the social connection, the transition into university life does become a lot easier (Jasmin, 1st year mentee)

> It (*Equity Buddies*) gave me the ability to build a strong foundation for my future at uni, assisting me with knowledge and skills to be able to interpret and deal with future pressures. (Kim, 1st year mentee)

> (*Equity Buddies*) eradicate[s] those negative aspects which face 1st year students going to uni. (Sara, 3rd year mentor)

Many dimensions of university life were problematic for first year mentees. Mentors reported that their mentees often lacked the confidence to approach lecturers and tutors for advice and feedback. A common problem among first years is the difficulty of asking questions or speaking out in tutorials. As Zeinab (1st year mentee) commented 'Confidence in asking for assistance is significant in the university experience'. Mentors were able to encourage their mentees to email and/or talk to their tutors and advised them on appropriate ways to approach academic staff. When the mentees did this, not only did they receive valuable advice or feedback, their confidence also increased. This also gave them more confidence to ask questions and to seek out information in the future. This improved the mentees' feeling of wellbeing at university as they now knew 'who to ask and who to trust' to gain valuable information. In one case, a mentor modeled approaching a librarian for help for her mentee. As the librarian responded positively, this also enabled the mentee to have confidence in asking librarians and other staff for help.

> I was no longer scared or shy to ask for help. (Hiba, 1st year mentee)

> Having a mentor not only helped me with the assessment but also enhanced my self-esteem and self-confidence. (Amina, 1st year mentee)

17.4.2 Learning How to Use University Resources

Many mentees were unsure what resources such as counseling were available for them and how to access these resources. Some did not know how to use the library, accessing library resources, and what resources were available in the library or on its website. Others had difficulty navigating and understanding the vUWS (e-learning) site, did not know how to take on-line quizzes, access online lectures, submit assignments or check their work using Turnitin. Some mature age students returning to study also had difficulty using computers. In these cases mentors worked side by side with their mentees to take them through the steps.

> We then worked on tips on how to use the library website and how to find books on the shelves. We practiced typing the names of books I needed and finding them in the library. I was also taught how to view journals online from a university computer and how to access them at home using my UWS library card log in. This has made it easier for me to do my assignments as I am now able to use a variety of journals and books that I was not previously aware of. (Yousif, 1st year mentee)

> I was able to share my journey with someone who was easy to approach, showed a genuine interest in my wellbeing and wanted me to enjoy my university experience as much as I could. (Nina, 1st year mentee)

While mentees improved their academic performance through the coaching of the mentors, the mentors felt an increase in self-confidence in their own abilities to help others.

17.4.3 Belonging to the Wider University Community: Forming a Learning Community

With the creation of a community of practice among its participants *Equity Buddies* enabled everyone involved to experience what a true university community could be like. For the individual mentors and mentees their participation enabled them to feel like true participants and members of the university. They came to value the friendships and social possibilities that were possible because of the sense of community that *Equity Buddies* established.

> I feel enlightened and satisfied with the whole process and would not change it for the world. I wish for communities to always be as helping and understanding as ours has been. (Hanna, 1st year mentee)

There was a strong reflective ethos built into the course with oral debriefing in groups and written reflection exercises. Some mentors also sought feedback from their mentees on the effectiveness of their help, demonstrating a respect for what mentees had to give to mentors.

> it was important to understand each other and build an environment where everyone is welcomed and treated equally regardless of their race or colour of skin. (Nhi, 2nd year mentor)

Mentors also became a source of support when their mentees felt like dropping out of university.

> if it was not for your (her mentor's) motivation, help and support I would not have continued at university as you became a friend and helped me through all the hard times I have faced over the weeks. (Sarah, 1st year mentee)

Through their participation in *Equity Buddies* many students seemed to discover for the first time that if you use relationships as a resource you can solve problems, do better work, and feel more confident. In his reflective essay, one student mentor (Evan) wrote '…This gave me a completely different idea about what the university experience can be. It's not just about results.' Others made similar comments. The majority of students were surprised that 'community building' and 'networking' could be so powerful.

The debriefing groups worked very well with students. Participants described these groups as having a 'supportive group atmosphere' and being 'a form of community' that provided information and support for the mentors. All mentors strongly valued their debriefing groups, noting that they and their mentees valued discussing readings and questions together. Students also indicated that they met with each other outside of tutorial and debriefing group times.

> The highlight of the program was the debriefing group meetings. Here we talked with our peers and encouraged one another along the way. … It allowed me to engage with people in a practical yet social environment in fields that I would not normally meet. Quickly, a common ground was established, which enabled us to look far beyond the obvious differences. I see these meetings as having the greater effect on my development over the course because of the amount of time, effort, commitment and consistency that was evident. Even when someone was unable to get to a tutorial they still managed to get together for the weekly debriefing. (Mary, 3rd year mentor)

Interactions within *Equity Buddies* provided opportunities for students to build partnerships with people, even with people they would not normally associate with when on campus. Jasmin (1st year mentee) observed that the *Equity Buddies* programme stopped the 'negative feeling and emotions of first year students' and that by doing this 'brings many positive emotions and feelings, at the end of the day you want to feel a part of something'. Libo (1st year mentee) noted 'It (the tutorial group) was interesting because we are all from different ethnic backgrounds, sharing our stories and being able to relate to one another'.

17.4.4 Learning How to Learn Both Individually and Together with Others

Acquiring informal knowledge (cultural capital) about how the university runs and how to succeed as a student occurs over time, and is usually the product of students passing on such knowledge to other students. Some of this informal knowledge could be described as tacit knowledge. Students shared with each other tips that

they have gleaned, and cannot share with academic staff. For example, students who have completed particular courses will work out exactly how much work they really must do if they are under pressure (for example, due to family circumstances) and need to settle on a mere pass. They can advise other students on which readings they "need" to do, and which readings could be skipped.

> Overall this subject has really broadened my understanding on the values of being a part of a group … It taught me that learning with communities is really fun, supportive, non-threatening environment. (James, 1st year mentee)

Through the development of the mentor-mentee relationship and the connections made with others during debriefing groups, students learnt from and supported each other.

> I have developed a personal understanding of networking and sharing knowledge, each individual I have encountered has their own strong points and weaknesses, but as a community network, our knowledge is endless. Where one person has struggled or been unsure academically others can use their strengths and knowledge to help a group and encourage strengthening each individual person within a group. (Hamza, 3rd year mentor)

> But people actually told me … to be friends with someone and that way you can work together and like you know, I read her work and she reads my work and we can get a reflection off each other. (Zeinab, 1st year mentee)

Time management became a noted topic of discussion among the mentors and their mentees and it was quickly identified as being very important. In some instances, the facilitators provided the mentors with specific information related to this topic. Students who were also mothers and wives shared information with each other about childcare, or about ways of protecting their own time by working in the library at night. One mentor (Ashleigh) noted, 'Professionally, I have improved as when I constructed a timetable for her I also completed one for myself, helping her with constructing essays refined my understanding allowing it to be instilled within me'.

Participation in debriefing groups provided further support for both mentors and mentees, because of the interaction with students in the same year and discussions led by the group's facilitator. Having a common focus and facing the same problems meant they learnt to value and rely on each other for insight, as well as learning together through their readings and experience.

> Working with partners in the debriefing groups has been a great experience … it has allowed us all to discuss any issues that any of us may be having with our students or even with our lives in general. It is good to have somebody else that you can bounce things off if you are not sure yourself what need to be done or what is expected of you. (Nadia, 3rd year mentor)

> By meeting in debriefing groups to discuss the problems facing our first year student, I learnt to cooperate and work as a team to solve problems and discuss ideas to enhance my understanding of the topic. This debriefing group was a very helpful way of helping me learn in a more relaxed environment from the classroom. Through meeting and networking every week with my debriefing group members I have also developed a better relationship with my classmates, which makes the class more enjoyable. (Manny, 2nd year mentor)

Mentors developed in their ability to communicate one-on-one and with a group. They learnt to make conversation and develop trust, rapport and relationships with people they previously did not know. Some mentors learnt through this process that there is value in working with others and it can result in individual improvement.

> This experience has made me more responsible and has taught me how to find the meaning and value of each person in a group and as an individual (Christian, 2nd year mentor)

However, at times and for some students, the flexibility and dynamic nature of the content and delivery of the subject and the *Equity Buddies* program was challenging. The emphasis on student agency in learning was very different to the mentors' experiences in previous subjects.

17.4.5 *Becoming Better at Scholarly Writing*

Many of the mentees were concerned about mastering the academic demands of university life. An end-of-semester survey of mentors and mentees conducted in 2013 indicated that a substantial majority of the first-year students surveyed felt that they needed help with academic writing and the mentors' responses almost exactly matched those of the mentees. Writing assignments proved to be a significant problem for first year mentees. Many mentors provided intensive support in guiding the improvement in the writing capabilities of their mentees.

> I asked my student to email me a piece of her work so that I could analyse her literacy level. I analyzed the work… (then) went through my analysis of my student's work with her and helped her to be able to analyse her work herself. I read through her assignments and checked her sentence and paragraph structure. I edited her punctuation and grammar, and provided her with useful feedback. Gave her some tips, such as reading her work aloud, so that way she can see if it all makes sense. (Karin, 3rd year mentor)

> My coach showed me how to break up an entire essay form the individual paragraphs down to sentences. I was then shown how to use this for future essays and guided on how to break down essay questions into parts. (Yousif, 1st year mentee)

Working together on academic literacy tasks as part of tutorials, as well as discuss readings with another person and having someone else look over an assignment, assisted mentors as well as the mentees. Assisting their mentee to develop their proofreading helped the mentors to develop their own proofreading skills. Mentors also helped their mentees understand what it meant to write objectively and not to be subjective in their arguments.

> By doing this little exercise it has helped her to read through her work carefully when proof reading it. She actually never proofread before, so this was a first for her. She learnt how important proof reading is, to all assessments. By gradually picking out more errors every time we meet, I have seen her bring a copy of an assessment a couple of days before the due date with all markings and errors that she has fixed up. (Saima, 3rd year mentor)

Referencing also acts as a source of considerable mystery for many students. First-year students consistently lose marks because of poor referencing; most have never learned it in high school. Being able to include in-text citations and employ the specific style reference for their academic field of study demonstrates to students' knowledge and capabilities as an Australian scholar. It is a component of institutional capital that students need to acquire. In the *Equity Buddies* program, tutorial time was allocated to referencing; it was discussed in the debriefing groups, and mentors were asked to work with their mentees, making sure that they understood what was involved. In many cases it was necessary for mentors to sit with their mentees and go step by step through issues around referencing.

> I was shown how to work through each reference one step at a time. One of the main problems I had with referencing was that I was missing a lot of information from them. As a result, the reference was not correct and lacked detail. My coach suggested that as soon as I used a reference I should be writing down all the information, so that when it came time to construct a "reference list" all the information would already be in front of me. (Yousif, 1st year mentee)

Mentors found they had to help their mentees construct an argument, stay on topic, develop good flow in the argument and use evidence. They found that first-year students were unsure about how to write in different academic genres, such as essays and reports. They were also unclear about what the university standard of writing entailed. Mentors introduced their mentees to the assignment guidelines and marking criteria, and showed them how to use these to improve their writing approach. One mentor helped her mentee by taking her through the process of planning and drafting an essay.

> … [this] led me into the drafting process where I elaborated on the ideas I created from the brainstorm period. This drafting process alone was a very effective strategy for me as I had all the steps in front of me a potential. This helped me decrease my anxiety and stress levels immensely. (Hani, 1st year mentee)

Mentees found receiving feedback on their drafts to be extremely helpful. It also enabled them to more effectively engage in discourse and ask questions and enhance their drafts.

> She advised me that if I have a draft where I have noted down the ideas on how to write the essay and the information needed for it then it will much more simple to write the actual thing. I have adapted to this approach and I have to admit it is very useful as it is a method and it reduces the stress when writing the actual essay. (Bilek, 1st year mentee)

First year students indicated that most of them were not at all confident that they understood what their assignments meant and what they were expected to produce. Mentors generally felt that the problem was not with having ideas but with first-year students not knowing how to express them clearly and coherently when writing academically.

In helping mentees, some mentors analyzed their own literacy level and learned about their own writing and reading skills. Some mentors learned that they needed to pay more attention to punctuation, spelling, grammar, sentence and paragraph

structure. They learned the importance of drafting and re-drafting, as well as proofreading their assignments. Similar to other studies (Couchman 2009; Terion 2012), *Equity Buddies* mentors testified that they had improved their own grammar and writing skills, learned how to proof read, reference and manage their own time better through having to do this with or for their mentees. One mentor mentioned how receiving the positive feedback about the improvement in the mentee's results reinforced her own use of proof reading. They learned that attending workshops on writing could also be useful and that 'doing the weekly readings also helps you get the best out of a subject' (James, 3rd year mentor). The debriefing group facilitators also affirmed that the mentors' skills improved through having to help their mentees.

17.4.6 Becoming More Confident as They Approach Academic Assessments

Understanding the essay question was a major challenge for mentees, as well as thinking critically about the issues. Nancy, a first-year mentee commented 'Like I can write about it but I don't understand the question. What is the question asking me? I don't know—what does it mean critically evaluate?' She then explained how, through the process of working with her mentor, she learned how to approach her assessments:

> We went through the outlines of each assignment by analysing the requirements and guidelines. We discussed what the question is and how to approach it, we evaluated the importance of how to write the essay my referring to the marking criteria by aiming to obtain a high distinction and we then examined how to relate the answer to the chosen readings. (Nancy, 1st year mentee)

Another mentor also described the process she worked through with her mentee:

> Through my assistance, we were able to deconstruct a practice essay question, to find the key words, and I guided her through the structure and the type of writing required in an essay. This 3 h lesson was both a relief for us both as she was finally confident with her understanding of an essay structure. (Zeinab, 3rd year mentor)

Mentors were also particularly helpful when mentees were overwhelmed when something they were required to complete was outside their previous experience. Mentors were able to help by providing a structured approach and practical and emotional support, as demonstrated in the following example.

> The first part of her assignment also required her to present her writing task to her tutorial class, with the assistance of two power point slides. Considering she hasn't presented in front of a group of students, previously, she seemed overwhelmed at the idea of having to do so. [I told her that] that it isn't as bad as it seems, and told her to practice in front me, in which I provided feedback, such as increase eye contact, don't look down too much at your papers, don't read/talk too fast and try not to move around a lot…. A few days later, I received a phone call from my very excited first-year claiming she had received 7.5/10 for her presentation, and thanked me. This, in turn made me feel nearly as happy as her,

because she had also stated 'I couldn't have done it without you'. Hence, allowing me to appreciate my role as a mentor, as well as a friend. (Karin, 3rd year mentor)

As in the case above, there is some evidence that the mentoring process not only provided emotional and social support but also resulted in improved grades. To summarize the research on the *Equity Buddies* program, it would appear that through participation in this program, first-year students gained confidence about being a university student, learned how to use university resources, improved their scholarly writing skills and learned how to interpret the expectations associated with particular forms of assessment. They developed their cultural capital, specifically their institutional capital, through their experiences in *Equity Buddies*. More importantly, they begin to experience the university as a community, and through their participation in this community of practice, learned how to learn together with others.

17.5 Reflections on *Equity Buddies* as a Community of Practice

In constructing the *Equity Buddies* program, the goal of the original design team was to reframe the social relations of the university classroom so as to promote the interaction and participation of students with each other, contributing to their mutual understanding of each other and of the university context. The challenges encountered in trying to implement a more socially-oriented and experiential approach to student learning within the confines of conventional, individualistic, higher education structures were evident. Many students have become accustomed to enrolling in units that are almost entirely presented online, where they can remain off campus and focus on their part-time employment. In contrast, *Equity Buddies* required a substantial commitment to face-to-face student meetings on campus. Many students also appreciated the benefits of this more socially-oriented learning model.

The *Equity Buddies* program created an intentional collective learning process. The results suggest that it seemed to work well because the focus of the group work was the process of learning together and facilitating others' learning, rather than on generating individual products to be competitively judged through conventional grading. The mentoring groups had a common, real-life problem that they had to solve together. There was universal affirmation by mentors that the debriefing groups and other community activities were invaluable to their learning and the success of the mentoring.

Harris and Shelswell (2005) discuss the challenge of communities of practice operating to reinforce existing attitudes and learning strategies rather than creating new ways of thinking and acting (p. 173). To some extent, in common with other transitional academic support programs, such as PASS, *Equity Buddies* functions to induct students into the academic community. Yet it is clear from the findings that

an important if not central feature of *Equity Buddies* is that it functions to help students develop strategies to manage their own engagement with the established academic world. It further develops their cultural and institutional capital that they can draw upon in future semesters to successfully complete subjects and their course. However, as with peer support programs in other Australian universities, it was difficult to retain mentees who wanted peer support but could not enroll in the subject that gave them credit for taking part in the *Equity Buddies* program. The volunteer mentees discontinued their involvement because they needed commit to extra hours above their study load and work commitments. In addition, promoting the subject to prospective first year students requires a large amount of time, the use of a variety of methods and the support of undergraduate academic advisors in suggesting students enroll in the subject.

Although there is substantial academic input in terms of the emphasis in the *Equity Buddies* curriculum on acquiring literacy skills and generic scholarly knowledge, what actually occurs in the most salient face-to-face meetings of the community—the mentoring pairs and debriefing groups—is controlled by the students themselves. In fact, there is only informal accountability for the content and conduct of these meetings. This means that the multiple student communities in *Equity Buddies*—the distinct mentor-mentee pairs and debriefing groups—are free to generate practices and understandings that most benefit the members. These communities consist of mentors and mentees, mostly from first to second year in experience, as well as 3rd year students who facilitated the de-briefing groups. In these communities the distance between the centre and periphery is not major as those at the centre—the facilitators—are still negotiating their understanding of themselves as students as they engage with new entrants to the community. The *Equity Buddies* program relies on both a communities of practice approach and on adult education theories. Both place central emphasis on the agency of the learners and the relationships between them. This can, at times, make academics and students feel uncomfortable due to the lack of set activities, imposed academic control and formal specific accountability for how time is spent.

It is also clear from the account given of the outcomes of the research into *Equity Buddies* that many students in the program came to understand that learning could occur through discovery that occurs in the context of collaboration. The freedom in this community of practice to explore what it means *to the participants* to be a university student, means that this can be defined in ways which are meaningful to the students rather than according to conventional definitions and expectations of academic study. While university lecturers have specific expectations of student attitudes and behaviour, students may be juggling many different commitments and what they can give to, and expect of, university study may not be congruent with lecturers' perceptions. Discussing these with peers can help to legitimize and create acceptable conceptions of who they are and what they are doing in relation to the various contexts to which they relate.

It is important to stress the centrality of student led debriefing groups if the *Equity Buddies* approach is to be adopted elsewhere. Mentors and mentees met in separate debriefing groups over 7 weeks of the semester (beginning after week

three and not in intra-semester break) with a facilitator. In the debriefing groups, mentors could discuss issues, discuss strategies and engage with readings with other mentors led by a trained student facilitator. Mentees also had the same opportunities. Debriefing groups provided a venue for another community of practice to develop with opportunities for reflection, discussion of any issues students had with their mentor or mentee, clarification of mentoring process and the *Equity Buddies* program, and a venue for the collection of feedback to inform the content of the subject and future iterations.

The success of *Equity Buddies* also reflected the care with which the curriculum was designed in terms of practical and highly relevant readings and tutorial content directly related to the needs of the mentors as they related to their mentees. The implementation of the curriculum supported the mentors' learning, meeting the needs they encountered through the social and academic challenges of the mentoring process. With the creation of a learning community among its participants *Equity Buddies* enabled everyone involved to experience what a true university community could be like. For the individual mentors and mentees their participation enabled them to feel more a part of the university and to value the friendships and social possibilities that were possible because of the learning community *Equity Buddies* established.

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Chapter 18
The Practice of Being a Student: CoPs and Graduate Student Success

Aimée deChambeau

Abstract This report frames the major results of recent research into graduate student success using a community of practice model based on the work of Jean Lave and Etienne Wenger as the organizational framework and lens for analyzing collected data. The goal was to determine if a community of practice developed among doctoral students and if so, whether it aided the students in their role and practice of becoming, and being, successful students. An examination of the first eight doctoral cohorts in a hybrid low-residency, self-directed graduate education program determined that student CoPs can develop to support students' success in the practice of being students. An important emergent finding from this study is that when a community of practice first forms, the opportunities for students to talk about and otherwise share their experiences, especially across cohorts, are fundamentally important to the development of that community. Without opportunities for students to connect and bond, the power of sharing stories that help them navigate from novice to experienced and successful student is diluted by a community system that is too weak to sustain connections—especially intergenerational connections—significantly enough for a community of practice to develop and sustain over time. Institutions interested in fostering CoP development among students should recognize and nurture these opportunities.

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18.1   Introduction

Spontaneous development of a community of practice can take place when individuals involved in a common activity or with a sense of shared identity begin working together to deal with organizational complexities or establish a shared intellectual space for continued learning. Given that the practice of becoming an accomplished and successful student who is able to develop scholarly abilities and deepen disciplinary understanding, experience personal growth and achievement, while at the same time maintaining a healthy school-work-life balance is a complex exercise, how might students foster communities of practice that help support their success in this endeavor?

This report frames the major results of recent research into communities of practice and their effect on graduate student success. The research was structured using Jean Lave and Etienne Wenger's community of practice model as the organizational framework and lens for analyzing collected data (Lave and Wenger 1991; Wenger 1998). The goal was to determine whether a community of practice developed among doctoral students and, if so, whether it functioned as a supportive structure that enabled students to succeed through graduation. This study concentrated specifically on their practice of becoming—and being—successful as students within their academic program. The research site was a doctoral program in Sustainability Education at a private college in the southwestern United States. Students come to this particular program from a range of backgrounds, and they bring with them a variety of experiences as professional practitioners in different fields. This research, and the individuals, cohorts, and communities of practice studied are naturally contained within the intellectual, professional, and temporal space they occupy between being admitted to, and graduating from, the specific Ph.D. program under study.

Characteristics of the first eight student cohorts were analyzed to determine if community fostered early in the program resulted in individuals' membership in a community of practice through all of their years in the program, even past graduation. More specifically, it examined the smaller sub-communities of practice that developed spontaneously among the students within this particular program and how they contributed to the formation of a larger community of practice. Further, it identified cross-cohort and other patterns of communication among students relevant to moving new individuals from their peripheral positions as novice doctoral students along the trajectory to more accomplished students able to complete their research and graduate from the program.

18.2   Background and Context

A community of practice, as defined by Lave and Wenger (1991) "is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice" (p. 98). The practice that a community centers around is thus the shared activity in which the members are, or wish to become, practitioners. In the context of this study, the practice in question is that of becoming—and being—a successful student who is able to develop scholarly abilities and deepen disciplinary understanding, experience personal growth and achievement, and at the same time maintain a healthy school-work-life balance.

Hara (2009) described Lave and Wenger's (1991) concept of community of practice as "[providing] us with a lens by which we can focus our understanding of informal collaborative learning" (p. 2), while Alison Fuller (2007) explained that the CoP model invites "a focus on learning as a collective, relational and…social process" (p. 19). Lave and Wenger's early communities of practice concept as a learning model was of primary importance in focusing the design of this research because, as Fuller's explanation implies, their model shifts the analytic focus away from learning as strictly internal to learning as something taking place as part of coparticipatory processes within a social context (Hanks 1991, p. 13). This change in focus from personal to social is summarized best by William Hanks (1991), who noted that situating learning "in certain forms of social coparticipation" instead of "defining it as the acquisition of propositional knowledge," allowed [Lave and Wenger] to ask what kinds of social engagements provide the proper context for learning to take place rather than asking "what kinds of cognitive processes and conceptual structures are involved" (p. 14).

Lave and Wenger's "community of practice [is described as] an intrinsic condition for the existence of knowledge…because it provides the interpretive support necessary for making sense of its heritage" (1991, p. 98). Communities of practice can be important to student success in graduate education if they "provide a social structure within which students can learn from one another about their roles and responsibilities as students; what resources, skills, and tools are relevant, necessary, and available; and receive help and critical feedback when navigating theory, method, and research design" (deChambeau 2014, p. 15). Emotional support and practical advice regarding work-school-life balance can also be found within a graduate student CoP.A student community of practice can also help to interrupt any periods of isolation students may experience during their academic work (Janson et al. 2004; Lee et al. 2006), an issue which has also been addressed through the use of cohorts and learning communities (Tisdell et al. 2004).

Various types of structural support in graduate education thus include strategies based on communities of practice, similarly defined learning communities, and cohort models. In general, students are brought together and then remain together through the course of their graduate work. A social, collaborative experience providing a context within which learning takes place can be established as part of the

course or program, or it can develop spontaneously. In either case, these types of structural support attempt to ensure that students are engaged with one another, with ideas and concepts, and with their own past and developing experiences within their practice (i.e., the work that they do), and are able to co-create knowledge (deChambeau 2014, p. 17).

The effectiveness of communities of practice, learning communities, and cohorts in higher education are addressed in the published literature (Kraska 2008; Rausch and Crawford 2012). Specific studies address questions regarding whether such learning structures enable graduate students to become better practitioners in their specific fields of study, such as high school math teachers, nurses, or ESL teachers (Booth 2011; Boyle and Boyce 1995; Clark 2010; Goos and Bennison 2008; Johnson 2006). Very little research, however, addresses the practice of simply being a successful student at the graduate level (Bain et al. 2009; Hahs 1998; Martinsuo, and Turkulainen 2011; Engstrom 2008; Tinto 2005). This study addressed a gap in the research literature, and focused on student development from novice to experienced graduate student, thereby deepening the available research in the area of student support and success at the graduate level.

18.3 Method

18.3.1 Research Design

Determining whether a self-organizing system—a community of practice—was developing among graduate students, and whether it was beneficial to their success, was best served by employing a qualitative, mixed methods approach. The data consisted of survey responses, direct student experiences related during anecdote circles, individual interview responses, historical documents, and information shared on social media sites. A qualitative research approach allowed for "collection of data about the perceptions and lived experiences of students engaged in the process of being students, and how they [responded] to those experiences in positive and effective ways" (deChambeau 2014, p. 98). As Patton (2002) stressed, "what people actually say and the description of events observed remain the essence of qualitative inquiry" (p. 457).

Community of practice theory, whole systems thinking, appreciative inquiry, and anecdote circles were specifically chosen as relevant, applicable organizational design and change frameworks, and influenced the research overall. Community of practice theory provided the information necessary to be able to recognize the structure and characteristics of a system that self-organized in support of a group of people engaged in a shared endeavor and who collaborated through an informal network to co-create domain-specific knowledge, and thus to identify whether a CoP had developed among the graduate students (deChambeau 2014, p. 99).

Whole systems thinking was influential because it focuses on the whole rather than the parts, and helps achieve a full understanding of what is happening (Morgan 2005, p. 12). Systems thinking aligns nicely with community of practice theory, sharing obvious similarities. Senge (1990) wrote, for example, that it helps to identify the patterns that emerge from the interactions between and among the parts of a network or networks (pp. 68–69). Systems thinking is thus less a formula and more a perspective for observing flow and movement, according to Morgan (2005, p. 4). In fact, Morgan's description of a system could easily be about a community of practice:

> Systems behavior is largely driven by shared interests and identity, information, processes and relationships. Systems, and especially loosely-coupled ones such as networks, are held together by some sort of shared identity and meaning in the form of values, core beliefs, competencies, principles, purpose and mission. Effective systems have some sort of coherence and shared understanding (although not necessarily integrity) at their core. This combination of identity and meaning also helps to create the internal energy that, in turn, leads to the deeper capacity which is the foundation of systems performance. (2005, p. 14)

This research sought evidence of the spontaneous development of CoPs among graduate students, and whole systems thinking was easy to apply to the analysis of a new system as it developed. Pittman (2004) described the whole systems design approach to organizational change as beginning "with individuals identifying together a seed of shared vision and organizational ideology. This seed is cultivated through strategic collaboration of a diversity of stakeholders in the design of organizational structures and managerial patterns aligned with shared values" (p. 203). An active approach such as described by Pittman can also be reflected in the birth of a community of practice, "[manifested as] collaboratively agreed upon communication structures, creation and availability of shared artifacts and values, and reification of the work and processes the CoP experiences as it grows and adapts over time" (deChambeau 2014, p. 101).

Another important influence on the overall research design and direction was appreciative inquiry. As a change strategy, appreciative inquiry looks for the healthy, positive strengths in an organization and invests in them (Stratton-Berkessel 2010). Gathering data about what was working well within the context of graduate students forming a community of practice and supporting one another in navigating their doctoral journey reflected the appreciative inquiry influence. Appreciative inquiry is also about telling and hearing the stories about the 'healthiest moments' and most positive attributes of a system (Stratton-Berkessel 2010). It looks to identify "…cultural values; descriptions of engaged work; of technologies, systems, and processes; increased knowledge of individual and organizational capabilities; and elevated potential for future change" (Stratton-Berkessel 2010, p. 33), all of which are also important characteristics of a community of practice.

Finally, anecdote circles were a key component guiding both design and data gathering for this research. Anecdote circles are lightly moderated discussion groups that differ from focus groups in that they are not intended to answer a specific question but are instead crafted in such a way as to explore broad themes.

They are a method for capturing focused "representational stories about an organisation, and act as a vehicle for the design of intervention strategies for beneficial organisational change" (O'Toole et al. 2008, pp. 28–29). Participants are encouraged to relate anecdotes, allowing the researcher to efficiently capture specific examples of lived experiences and observed behaviors. Organizations interested in effecting change can use anecdote circles to facilitate that change, to help individuals share significant improvements in work processes, or to overcome limitations of surveys or interviews when quantifying either shortfalls or successes (Callahan et al. 2006; Millen et al. 2002; O'Toole et al. 2008; Ramaswamy et al. 2005). Anecdote circles were used in this research to focus individual students on stories about their lived experience, and of what they learned and shared with other students in order to help improve their success.

18.3.2   *Research Participants*

The site for this study was a Ph.D. program in Sustainability Education at a private college located in the southwestern United States. The study participants were all current doctoral students and alumni from the program. The college's program was small enough to provide a manageable set of possible participants, large enough to have variety and diversity in participants, and new enough to be in the early stages of developing communities and sub-cultures.

The Ph.D. program uses a low-residency, hybrid-delivery educational model that combines face-to-face residencies with online course content and cohort connections. Students complete core courses together in the first year, after which their work is self-directed. Once the core courses are completed, each student's work becomes self-directed and individualized unless they are participating in shared courses or seminars. Students manage their remaining course and research work under the direction of their course mentors and dissertation committees. These student-mentor and student-committee relationships are exclusive, and shared coursework is no longer the primary mechanism for students to remain in contact with their peers. Thus, students must find other ways to stay in touch.

The population for all active areas of this research was limited to the students who were enrolled in or had graduated from the first eight Ph.D. cohorts, as those were the cohorts established at the time of the study. Passive areas of this study, however, included participant observation during symposia and in online social media spaces where all of the ten possible cohorts as well as some administrators and faculty may have been present.

Active participants were self-selected. Students included in the study responded to a survey, an invitation to participate in an anecdote circle, or an invitation to participate in an interview. No administrators or faculty were permitted to participate in any of the active research areas. Overall, out of 85 potential participants there were 44 individuals who completed the survey, a subset of whom also participated in an anecdote circles or interview. The majority of participants fall within

Table 18.1 Students participating in each data gathering method and cohorts represented (deChambeau 2014, p. 98)

	Current students		Alumni		Total per method	Cohorts represented
	Female	Male	Female	Male		
Survey	19	6	8	8	41	1, 2, 3, 4, 5, 6, 7, 8
Anecdote circle	10	6	0	0	16	4, 5, 6, 7, 8
Interview	2	1	2	1	6	3, 4, 5, 6, 7, 8

the age range of 30–49 years, with the overall age spectrum ranging from mid-20s to mid-60s. More women than men participated, with 26 women and 15 men represented. Geographically, although the vast majority of participants were widely spread across North America, there were students from three continents in the study (Table 18.1).

18.4   Research Approach

Participant observation, one web-based survey, three anecdote circles, and six individual interviews yielded substantial data from 44 individuals about the graduate student experience, with a specific eye toward ways in which the practice of being a student manifested and whether a community supported that practice. Data were analyzed to determine whether a beneficial community of practice had developed; where, when, and how the exchange of information and the development of knowledge that moves students toward success took place; and ways in which those exchanges could be encouraged, facilitated, and nurtured (deChambeau 2014, p. 19).

This qualitative study used methods associated with a grounded theory approach to gathering and analyzing data (Strauss and Corbin 1990; Bryant and Charmaz 2007; Birks and Mills 2011). The methods used have deliberate, internal structures built in for verification and validity. Coding, constant comparative analysis, and iterative cycling of research findings back into the data (Birks and Mills 2011, p. 94) formed the major work in the analytical process. This variety of techniques combine specifically to help the researcher break through assumptions and open up their thinking (Strauss and Corbin 1990; Birks and Mills 2011). Continuous questioning of the data leads to possible categories, properties, and dimensions that are then used to organize and iteratively compare the data throughout the research and analysis process.

The community of practice framework from Lave and Wenger's original model (1991) and Wenger's (1998) extended model was operationalized to provide a solid and specific framework for defining more fully the communities and sub-communities of practice within and across cohorts in the study. This specific

framework was strictly applied when analyzing students' experiences in order to minimize possible drift into other types of communities such as learning communities, professional networks, and similar types of support structures. Tools and concepts from Wenger et al. (2009) book *Digital Habitats* were used to question and describe any digital ecosystems in use by the students. Wenger et al. wrote that communities require habitats to thrive (2009, p. 38), and this research identified both traditional and digital habitats in which graduate students' sub-communities of practice flourish. The additional concept of microclimate emerged from this research, helping to differentiate "between the habitat itself and the characteristics or qualities of a communication space that protects the habitat, nurtures its growth, or even simply permits it to emerge" (deChambeau 2014, p. 20).

18.4.1 The Importance of Stories

One way that students exchange information about their experiences and strategies for success is through storytelling. Storytelling is a significant knowledge exchange activity (Hara 2009), and knowledge exchange is a fundamental feature of communities of practice. It is easier to place a story within a given context, adding value for both the teller and the listener; stories carry more information than written manuals.

Gathering students' stories was thus an important aspect of this study. One emergent and unexpected finding, however, was that while a CoP is new and just beginning to crystallize, "the points of contact where stories can be exchanged become as important as the stories themselves" (deChambeau 2014, p. 21). To fully realize the potential for stories as a knowledge exchange activity within a community of practice there must be places and spaces for the storyteller to interact with their listener(s). Opportunities for sharing among the students thus became an important indicator of the development and ultimate growth of the community of practice.

The communities of practice framework formed the boundary within which data was gathered, with a focus on "collecting stories relevant to the practice of becoming and being a successful graduate student in the field of sustainability education" (deChambeau 2014, p. 22). Early data gathering included questions about when, where, and how students were coming together to share information. When the data indicated that a nascent community of practice was developing it became clear that opportunities for students to interact and share stories became as important within the context of this research as the stories themselves. Thus, opportunities for sharing and bonding, and the nurturing of microclimates where relationships and communication strategies solidify into critical nodes within a vibrant network, are essential for supporting the collective success of the community (deChambeau 2014).

18.4.2   Assumptions

An underlying assumption of this research was that as relationships and communication rhythms developed within and among cohorts, crucial information that contributed to the success of the students was exchanged through the sharing of stories and advice based on experience. Given a sufficiently strong and focused network of relationships and communication patterns, a community of practice could develop that supports students in their practice of becoming and being successful students.

18.4.3   Rationale and Significance

Research on student success from a scholarship of teaching and learning perspective focuses primarily on undergraduate student success (Boyer Commission 1998; Cortese and Kennedy 2011; Seidman 2005) and relatively little current research is concerned with student success at the doctoral level. The majority of research into graduate student success is focused on predicting success, generally defined as completion of the degree, based on data such as GRE scores (for example, Burton and Wang 2005; Gururaj et al. 2010), or on enrollment and completion trends (see, for example, Nevill and Chen 2007). Between 43 and 50 % of graduate students will not persist to graduation even over a 10-year span, depending on what broad fields and disciplines are surveyed (Sowell et al. 2010; Tinto 1993). The Ph.D. Completion Project by the Council of Graduate Schools is changing some of the research into success-as-persistence by looking at policies and practices that institutions can implement as interventions within the categories of selection and admissions, mentoring and advising, financial support, research mode of the field, curricular and administrative processes and procedures, and program environment (Sowell et al. p. 6). The project is providing solid baseline data, but is still limited by the nature of collecting commonly available, standard data across institutions.

An understanding of student communities of practice such as that provided in this chapter can inform institutional and program planning, and help to provide thoughtful student services that can recognize and encourage a student CoP when one is developing, without getting in the way. Designing and facilitating such support services has great potential for improving persistence within individual programs. Institutions can imitate strategies identified in this research in support of student success, such as ways in which a graduate student community of practice develops and adapts in order to sustain its community-self, as well as sustain the individual members.

18.4.4   Findings

Students' Definition of Success

It was important to determine what the students defined as success in order to compare their definition to the general, institution-driven measures of success, as well as to understand what students considered to be indicators of success in order to better interpret their answers and anecdotes about their practice of being students. Practically speaking, students were interested in completing the requirements for graduation and receiving their degree. The achievement of a Ph.D. was seen as the acquisition of credentials required for further career advancement, and as a recognized milestone that permits individuals to continue the work that they want to do at the level they wish to do it. Students described success as the ability to use, apply, and share knowledge and deeper insights that they gained from intensive study and research. The indicators of success identified by the students were:

- Completion of their degree as a personal accomplishment as well as an earned credential for further professional advancement.
- Increased scholarly abilities, including deeper understanding of disciplinary content, improved academic skills, contributions to knowledge and the ability to put theory into practice.
- Personal growth and transformational change, including confidence in their own voice, finding and maintaining balance during and after completing school, and unity between their avocation and personal lives.
- Expansion of lifelong learning skills and tools, including the foundation of a network of like-minded colleagues with whom they can continue the conversations, scholarship, and work of sustainability education (deChambeau 2014, p. 142).

Digital Habitats

Communication patterns are important for how a student community of practice develops and thrives over time. Although the low-residency nature of the program under study built in critical face-to-face time for students, the fact remained that the majority of the time students spent in the program was at a distance from the rest of the community. This is especially true in the years that students were working independently on their research and writing. As Wenger et al. (2009) noted, "separation in time and space is a fact of life that can make the experience of community difficult" when community members are not in close geographical proximity (p. 56). Attending to the structure and facilitation of the interactions and the virtual spaces within which the interactions take place can help ensure that the quality of communication and learning does not suffer. This is born out in online learning strategies, for example, where leadership and structure are critical for engagement for online learners (see, for example, Garrison and Cleveland-Innes 2005).
The boundaries of community initiated during face-to-face meetings can be extended by establishing a digital habitat, which is described by Wenger et al. as

"an experience of place enabled by technology" (2009, p. 38). This virtual space is really a series of related, interconnected, and interacting communication methods that when combined form the digital habitat (deChambeau 2014, p. 144). Face-to-face experiences are included in this web of interrelated methods, especially when they help make it easier for individuals to communicate virtually.

Students participating in this research observed that time spent together in person, especially early in the program, was very important in establishing relationships that made meeting in virtual spaces easier. One student remarked, for example, that the informal time they were able to spend with other students when rooming together in a dorm during a residency was "a healthy thing, because it creates a foundation for later when all we can do is talk on the phone" (Interview-0505, personal communication September 26, 2013).

The flipside of this situation is also true. Students looked for virtual spaces in which they hoped to meet other students prior to their first residency, so that they could get to know them before meeting in person. Social media, discussed later in this chapter, had a significant impact on the students' community of practice, accelerating its development by providing an easy space for students to connect with one another before and after face-to-face encounters. In their discussion of digital habitats, Wenger et al. made it clear that communities are social entities, and regardless of their level of technology "it is by enabling social processes that technology contributes to the emergence of communities" (2009, p. 191).

Preferred Communication Methods

As noted, social media played an important role in the development of the student community of practice. Several other communications methods were used by the students, and provided insight into whether a CoP was developing. The college maintained an online learning management system (LMS) used for core courses and an all student discussion area. Students generally only used the LMS when enrolled in their core courses, and rarely used the college-wide discussion area. Once the core courses were completed students felt that there was little reason to log into the LMS again. In fact, the LMS became a source of frustration as a general communication platform and was abandoned in favor of other, more widely used tools.

Email was the most popular communication choice for all students, whether communicating with one or many of their peers. When communicating with other students in the same cohort, men preferred email and Skype, while women preferred email and the telephone. For men and women, email was also the preferred method for corresponding with individuals from other cohorts. Facebook was a popular tool for cross-cohort communication, except by male alumni. In fact, there was very little reported interaction at all between male graduates and individuals from other cohorts.

Small groups formed the strongest nodes within the student community network, and these small group bonds were the fundamental thread that pulled the entire community together. Preferences for small group communications varied across gender and whether participants were alumni or current students. Skype was more

popular with current students than alumni, although newer students might have been more technologically enabled than earlier cohorts. Cohort 5 initiated what became known as "Write and Skype" or "Skype and Type" sessions, which were essentially writing accountability groups that helped individuals to achieve specific goals. Students in these Skype sessions were present as if in the same room, although geographically distributed. It was an effective way to share a sense of camaraderie and helped keep students motivated and on track. Google chat was similarly used as a way for students to be virtually present for one another, but was not as popular as Skype.

As mentioned earlier, the LMS was ineffective as a cross cohort communication tool and did not function as a platform for maintaining community beyond a student's initial year. A Cohort 8 student was disappointed when she found that no active, cross-cohort discussions were taking place in the LMS, as she had hoped to meet fellow students virtually prior to her first annual symposium (Circle-0808, personal communication May 15, 2013). The weakness of the LMS for community building had been recognized much earlier, when in 2009 a student from Cohort 4 tried to establish a Ning site, a private social media environment. It was not successful in part because there was limited buy-in from other students at the time, and then ultimately because Ning commercialized and there was no financial backing for a student-centric site. At about the same time Facebook became more ubiquitous, and students who were already using it connected with their classmates in that social media space. Cohort 5 established the first private cohort group on Facebook and called it the "Cohort 5 PhD Clubhouse." Peers acting as information brokers across platforms kept Cohort 5 members who chose not to use Facebook apprised of relevant conversations and important information.

In 2010 Facebook improved its Group feature, and allowed any member in a group to invite more members. This eliminated the bottleneck created by a single administrator for any given group. By 2012 a private, all-cohort Facebook group was established and, beginning with Cohort 9, individual cohort groups were set up prior to the students' first on campus, face-to-face meeting with their cohort. Similar to the experience of the Cohort 5 PhD Clubhouse group members, peers acting as information brokers kept students from different cohorts who did not participate via social media in the loop. Social media, specifically Facebook, had a major impact on communications and relationship building within and across cohorts and increased the speed with which the graduate student community of practice developed.

Information brokerage played a significant role in maintaining community connections. In the several cases where students noted that they received information presented in one venue, e.g. Facebook, via a close peer, it was because of a relationship that was already established. Ongoing relationships, particularly in dyads and triads of students, were usually established based on shared interests in academic content (for example, feminist pedagogy, ecotourism, civic engagement, climate change) or research methodology (grounded theory, ethnography, phenomenology, mixed methods, etc.) These students were already communicating

with one another regularly via email, text messages, Skype, and phone conversations, and those consciously acting as information brokers had a deep understanding of their friends' research interests as well as their reasons for not engaging on social media. Without these relationships, the students who were not engaged via social media would have remained otherwise isolated from the social media segment of community communication.

Community of Practice Characteristics

Meaning, community, and learning were the primary characteristics used to determine whether a CoP was developing among the students, and were based closely upon Wenger's (1998) model as presented in his book *Communities of Practice*. Meaning is critical in this model because, as Wenger wrote, "practice is about meaning as an experience of everyday life" (1998, p. 52). Meaning is negotiated by individuals and groups through participation with one another and with experiences, both past and future, and is reified through shared memories and artifacts. The development of a practice—and ultimately a community of practice—takes time because negotiation of meaning takes place over time (Wenger 1998, p. 86).

A community of practice is held together by three specific properties of practice including mutual engagement, a joint enterprise, and a shared repertoire. A requirement for a CoP, however, is that it also sustain "enough mutual engagement in pursuing an enterprise together to share some significant learning" over time, according to Wenger (1998, p. 86). The combination of participation and reification result in a shared history for the community, and learning is what takes place when meaning is negotiated from these histories. According to Wenger (1998), "practice evolves as shared histories of learning. History in this sense is neither merely a personal or a collective experience nor just a set of enduring artifacts and institutions, but a combination of participation and reification intertwined over time" (p. 87).

Negotiating Meaning

Experience and social interpretation combine to essentially define the practice of being a student within the graduate student CoP (deChambeau 2014, p. 156). This is an iterative and constant process, and how the CoP defines a successful student may change over time. When Wenger approaches practice as *meaning from experience* and as an *experience of making meaning* he is implying that meaning is a process rather than a static concept that is easy to define. For Wenger, negotiation is a term that is intended to "convey a flavor of continuous interaction, of gradual achievement, and of give-and-take" (1998, p. 53).

Students in this study were clearly engaged in negotiating meaning individually and collectively with respect to their goals of achieving success as students. Various examples of students helping their colleagues think through their research problems were shared in anecdotes and interviews. One poignant quote illustrates both the importance of the personal bonds students shared (caring, hearing, knowing) and their active engagement in negotiating meaning:

You care about this person. You hear them. You know them a little bit. And you feel like it's they're going to spend a lot of time on something, and then they're going to not really get there. How can you help them get to their true alignment faster? And in some cases, I was able to say the right thing and ask the right question. And there were other cases where I never did figure it out, and some of those people dropped out of the program. Some of them are not graduating at the same time. And it was very painful to me because I just didn't know what to do. (Circle-0501, personal communication May 16, 2013)

As students experienced achievements and successes they also shared their strategies for producing successful results. Students asked for and received assistance from one another and the community on a wide range of topics, including academic, administrative, and personal issues. They collaborated on shared course content, on the design of their academic programs, and on approaches to their dissertation research. Peer mentoring was most frequent within the same cohort, but increased across cohorts as more opportunities to interact with different cohorts presented themselves. Students wanted to see what successful products looked like, and requested example artifacts such as IRB requests, qualifying papers, and dissertation proposals that had passed muster. The importance of sharing artifacts across cohorts, i.e. across generations, was captured quite clearly in this anecdote:

When I was doing my IRB, someone from cohort five, no, three, let me… She gave me her IRB, so that was very helpful because like then I could see what does an IRB look like. That made a huge difference for me. Without that, I would've been so lost. So, having a sample IRB made a huge difference, and that was through a direct contact with someone in the program. (Circle-0405, personal communication May 15, 2013)

Participation

Individuals and the community are both affected by the individual's participation; they act on and have an effect on one another. Individuals also bring with them their experiences as participants in other communities and, as Wenger wrote, they negotiate meaning "in the context of [their] forms of membership in various communities" (1998, p. 57). Students bring prior professional and academic experiences to their graduate studies, and one cohort may have a different understanding of an academic process than the others. These "various understandings and experiences, and their impact on the negotiation and renegotiation of meaning as students participate bring out the *practice* in the graduate student community of practice" (deChambeau 2014, p. 160). Students in the study were clearly participating, including actively working to improve the community within which they were engaged in the practice of being students.

Students gathered in person and virtually with strong intent, spent time together, and actively listened to one another. Listening as an act of participation, for example, allowed students to use one another as sounding boards for research ideas, as audiences for practicing presentations, and as compassionate friends for understanding one another's frustrations. One student shard, for example, that in her cohort the students were as involved in their peers' research planning as they were in their own (Interview-0713, personal communication November 11, 2013). Bonding among students occurred within and across cohorts, and in several cases

students exhibited deep acts of caring well beyond academic encouragement. In one instance, for example, a cohort raised funds for a cash-strapped classmate to travel to the annual symposium so that he wouldn't miss experiencing important face-to-face interactions with other students (Interview-0302, personal communication September 13, 2013).

Many times, research participants shared stories to illustrate what they considered to be the importance of informal in-person get-togethers and activities. Every cohort represented in the study provided anecdotes illustrating the importance of opportunities for gathering and bonding during symposia and colloquia. Examples included living together in dorms or sharing houses during colloquia, cooking together, and participating in self-organized activities. One student with a conservative business background noted that he was encouraged to step out of his comfort zone and found himself practicing Tai Chi and meditation and other things he had never tried before (Interview-0401, personal communication November 30, 2013). Thus, "participation in informal, un-structured time together is considered to be extremely important to the overall health and level of future engagement for the community" (deChambeau 2014, p. 162).

Peripheral participation is a key concept in CoP theory, and newcomers to a community may participate through observation at first, to get a feel for the culture and social patterns before actively engaging. New students meet and bond with their cohort first, and are introduced to the wider community at the first symposium, where they contribute their research ideas through poster sessions. During the symposium they are also exposed to the moderately experienced students who are presenting their research proposals, as well as the most experienced students who are presenting their completed dissertation research.

Reification

Closely related to participation and the negotiation of meaning is reification, or making the abstract concrete. Wenger noted that reification is especially important to understand with respect to CoPs, because it creates "points of focus around which the negotiation of meaning becomes organized" (1998, p. 58). The graduate students, for example, created and shared tools and resources that helped them complete their work as students, such as checklists and tip sheets. These tools were created to fill a need, such as incomplete institutional instructions (e.g., a graduation artifacts checklist), or to simplify complex instructions (e.g., a simplified APA style cheat sheet). Participation and reification together allowed the community to "both negotiate meaning and keep track of its history of negotiated meaning through memory (from participation) and artifacts (through reification)" (deChambeau 2014, p. 165). As one student commented, "it does make a big difference when we have a past to look at" (Circle-0501, personal communication May 16, 2013).

One issue with which the graduate student community struggled was collecting and making available artifacts created by the students. As their digital habitat became more sophisticated, the developing student CoP began considering better ways to manage artifacts beyond sharing via individual email messages or posting

to Facebook, and near the end of Spring 2014 several students launched a Digication ePortfolio site specifically for graduate students to share resources.

Community

Wenger (1998) identified three properties of a practice that help hold a community together: mutual engagement, a joint enterprise, and a shared repertoire. It is the association of practice and community via these properties that distinguishes a community of practice from other types of communities.

Mutual Engagement

When members of a community are mutually engaged in "actions whose meaning they negotiate with one another" they are operating as a community of practice (Wenger 1998, p.73). Opportunities for mutual engagement and for including members in work that matters are essential for a CoP to exist. For the graduate student CoP, the college facilitated some community development through the cohort structure and the residency requirements, and encouraged students to be responsible for the work of community maintenance. This allowed the student practice to direct the development of the community without the institution prescribing how they should do so.

Diversity and mutual relationships contribute to mutual engagement. The students brought with them a wide variety of academic and professional experiences, and as the program matured the level of cultural and ethnic diversity increased. Strong mutual relationships among the students were found in the smaller groups with more tightly held personal connections. In this study, the more deeply bonded small groups proved to be the glue that held the entire community together. Not all students were equally connected with one another, and the overlapping connections across small groups pulled the community together as a whole. Accomplishments and new learning, for example, would spread from small group to the larger community via the overlapping individuals. Two or three students, for example, who found a solution or achieved a breakthrough, would share with a wider group and so on.

Mutual engagement was clearly evident among the students, as they worked together to understand not only the context but also the process of succeeding within their academic program. Students worked together to make sense of their role as students within the program as well as within the wider field of sustainability education. A give-and-take culture developed that provided both academic as well as emotional support for the students. One student commented, for example, that the students in her cohort built a culture of offering each other support and reciprocity:

> I really feel like there's, there's a sense that every…that not only can I offer something, but that somehow, we've been able to build a culture of doing that for each other. That, you know, if I'm overwhelmed and there's a group paper that's being written, somebody else can take a little bit more of a lead. I'll do the same thing, you know, at a different time. (Circle-0707, personal communication May 16, 2013).

Regular and consistent communication among students was an important form of mutual engagement that reduced feelings of isolation, increased motivation, and maintained student commitment to their work over time. The college required regular cohort calls, which were either conference calls or online virtual meetings, and although they were recognized as important were criticized by students for being unwieldy. The cohort calls did however provide a model for regular check-ins, and in several instances students self organized into smaller groups and engaged in regular calls or virtual meetings. One student from an early cohort remarked that he believed that the few students from his cohort who did not check in regularly with their peers via the group call did not finish the program (Interview-0401, personal communication November 30, 2013).

Joint Enterprise

The joint enterprise of a CoP is what the community has determined the members do. In this case, the joint enterprise is the development of individuals as students within this particular program, and how they come to understand the meaning in their experience of being a student. Students discovered and shared all aspects of the determination it took to make the academic and administrative journey, and to do so while at the same time achieving their own measure of success (deChambeau 2014, p. 174). By helping themselves and each other make the most of their academic experience, students shaped their own practice—i.e., the practice of being a successful student—and established their own levels of mutual accountability. According to Wenger, negotiating the enterprise, which can also be understood as shaping practice, and establishing a "regime of accountability" are key aspects of the joint enterprise characteristic of a CoP (1998, pp. 80–81).

A common theme in students' anecdotes about their experiences addressed the ways in which students interpreted academic requirements and shared that understanding with others. In several instances, for example, an individual's conceptualization of requirements would be reified in a spreadsheet, checklist, or calendar and shared with others. Mutual accountability proved to be a very strong motivator and helped students to maintain progress and stay on track academically. Often this was manifested as shared deadlines or feedback on academic products such as papers, presentations, and dissertation chapters. After relating a story about how she shared her clearly designed academic plan with her cohort, one student noted that someone was always a little bit ahead of the game and willing to share a heads up about what their peers should be preparing to do, or warning of possible pitfalls or issues that need attention (Circle-0707, personal communication May 16, 2013).

Shared Repertoire

Wenger wrote, "over time, the joint pursuit of an enterprise creates resources for negotiating meaning" and that what these resources have in common is the fact that they "belong to the practice of a community pursuing an enterprise" (1998, p. 82). Ranging from artifacts to traditions, this collection of resources makes up the shared repertoire of the CoP (deChambeau 2014, p. 176).

Students created spaces for themselves, both physical and virtual within which they worked together to solve problems as well as celebrate successes. The community is highly democratic, and operates in a conscientiously non-violent manner with actions guided by sustainability mores of equity, social justice, and ecological principles. Core faculty and early coursework set the sustainability and education (i.e., disciplinary) foundations of the program, instilling values such as non-violent and respectful communication.

Students recognized the importance of cross-cohort connections and a few women in one of the early cohorts made a conscientious decision to reach out to new cohort members to welcome them and provide advice and encouragement (Interview-0302, personal communication September 13, 2013). Informal as well as student-organized outreach activities for new cohorts became a tradition during the annual symposia based on the actions of individuals from that early cohort. This was demonstrated in an anecdote from a later cohort member:

> I've spent time with people from other cohorts that are behind us, mentoring them and giving advice on how to best find a mentor, how to make your courses feed into your dissertation, how to do this, how to do that, how to do your qualifying paper. I found myself giving a lot of advice to people in other cohorts, and they were very thankful to have that advice and used it. Many of them used it and have sent me emails saying thank you that was really great advice. So, I think that cross cohort connection needs to be fostered and not just a social setting, but in a way that [is formal]. (Circle-0501, personal communication May 14, 2013)

The shared repertoire of the graduate student CoP experienced growth as students regularly engaged in a variety of communication patterns and habits, and as they reified and shared their work more widely within the community.

Learning

The sustained negotiation of meaning, development of practice, and mutual engagement in pursuit of a joint enterprise should result in significant learning, according to Wenger (1998), who also noted that "from this perspective, communities of practice can be thought of as shared histories of learning" (p. 86) and that "practices evolve as shared histories of learning" (p. 87).

Shared Histories of Learning

For a graduate student CoP to progress it must develop an intergenerational rhythm and flow that sustains it across enough cohorts to benefit a consistent stream of students progressing through the program. Stated another way, while a CoP does not require a fixed membership, it does need enough consistency and intergenerational contact to pass along its shared repertoire, even as that repertoire changes over time (deChambeau 2014, p. 179).

This research did confirm that a graduate student CoP was in its early stages, and that shared histories were developing. At the time of the study the CoP had advanced enough that it needed to find the balance between participation and reification that would effectively promote continued learning over time. Without adequate numbers of artifacts and materials available, the CoP ran the risk of not

sufficiently enabling past practice to influence current practice. Similarly, without significant participation, the value of shared experience and interactive negotiation could have been weakened (Wenger 1998, p. 65). Students often commented on the value of sharing example work, and one case from an early cohort member exhibits the frustration felt when samples were not available:

> I really had…no clue what an education dissertation [was] supposed to look like or what it [was]. Now, I have a better idea of it. So, one thing, in terms of getting support and mentorship is just to have examples of this is what an education dissertation is. I had no idea. And I think that was a big frustration for me. (Circle-0405, personal communication May 15, 2013)

Balance was important with respect to cross-cohort interactions as well, since reification was important for generating resources that could be shared over time, while participation by multiple generations simultaneously aided in the interpretation and use of reified artifacts and behaviors based on the communities' shared repertoire (deChambeau 2014, p. 180).

One important aspect of the developing student CoP was that it began to learn about and take action based on its own needs. The lack of archiving capabilities for storing and sharing artifacts was a source of frustration for students, for example, and students set up a Digication ePortfolio site in response to that need. Other events and changes initiated by students helped create a healthy balance between reification, participation, and the resulting shared histories of learning, and sped up the growth and development of the CoP. Students proposed and offered different types of presentations during symposia, beyond poster sessions, proposal presentations, and dissertation presentations. They included additional topics to help teach one another based on their experiences in practical areas, for example citation management, research methods and design, and unleashing one's creativity. As noted previously, early frustrations with the learning management system as a whole program communication space resulted in attempts at creating better social media spaces, with students eventually gravitating toward Facebook as an acceptable tool.

As the CoP continues to mature it will find new ways to generate and capture its shared histories of learning and grow its shared repertoire. New communication tools may replace older methods, and changes will be made during the symposia schedules to facilitate more time for making new connections and strengthening exiting bonds. "Learning occurs constantly, and as the community of practice matures and gains new members, there is a better balance between reification and participation over time, provided enough opportunities are available for intergenerational interactions and the students take advantage of those opportunities" (deChambeau 2014, p. 183).

18.4.5 Findings Discussion

As shown in the previous section, a community of practice, as measured by Wenger's characteristics, was clearly developing among the graduate students.

Students negotiated meaning from their experiences in graduate school, and were mutually engaged in the academic journey. Together they created shared histories of this negotiated meaning, and increased cross-cohort communication and connections helped sustain the community over time.

Achievement

One of the primary research questions was whether students were sharing stories and advice that helped them to complete their work effectively and move along a trajectory from novice to experienced graduate student. The data indicated that indeed a community was forming that helped students develop in their practice of being a successful student. As practice is reified and shared through artifacts such as qualifying papers, IRB requests, and dissertations, a practice model is created for novices to help them in understanding their role as students at the graduate level. Individuals' expectations of themselves as well as insight into what others expect from them become easier to set as the community's shared understanding of the work becomes clear. Finally, as students continually negotiate meaning they also adapt the process itself, and change it collectively.

Cross Cohort Communication

Another key question addressed by this research determined if cross-cohort communication was happening in meaningful ways. The finding was that as this graduate student community of practice was just beginning to form, the cross-cohort connections were not yet as robust as expected. The minimal connections that did exist, however, were critical to sustaining the CoP over time and required strengthening. It is likely that the CoP that is developing would not be as strong as it is, had members of one of the early cohorts not made a conscientious decision to reach out to newer cohorts to share experiences, advice, and build strong intergenerational bonds.

Sub-communities of students are forming and connecting in meaningful ways, through shared courses across cohorts, cooperative planning of symposia, and via social media. Cross-cohort connections based on content such as research methods or subject content exist, but are minimal and weak; when they occur it is often only for a short time when newer students seek answers, such as during symposia, but don't develop further as stronger peer mentoring relationships might.

Opportunities for Sharing

A community of practice cannot develop unless there are sufficient opportunities for individuals to come together to share experiences and negotiate meaning from those experiences. An important area of investigation was to determine when and how information was shared, and if there were enough opportunities presented to the students to result in the formation of a CoP. The data indicated that the exchange of significant information such as advice and stories about the student experience occurred in a variety of physical and virtual places, and via different modes of communication. It was absolutely clear that students valued face-to-face interactions, and felt that time spent together in person was essential for building

relationships that were then maintained over other, virtual modes of communication such as Skype or the telephone. In fact, students valued this time so highly that they deliberately built space into the symposia schedules to encourage interactions within and across cohorts in a less structured environment.

Building informal gathering time into the annual meetings provided more opportunities for sharing and over time will continue to facilitate connection building among students. Cross cohort communication was significantly impacted by the use of social media, and the ubiquitousness of Facebook had a major effect on accelerating the development of the CoP. Based on the close bonds that were identified within cohorts, there appeared to be sufficient opportunities for students to build strong relationships. However, more opportunities for building collaborative associations across cohorts and with alumni needed to be promoted. In cases where the institution suggests specific conferences for students to attend and present, for example, offering mixers for alumni and current students should be encouraged.

Temporal Context

Finally, determining whether the sub-community of a single cohort is kept together beyond the timeframe of the shared core courses, providing support through the more independent 3rd and 4th years of study, was an important aspect of this research. This was a question that was only partially answered. The trust, respect, and camaraderie that grew within a cohort certainly influenced how often and to what degree students would reach out to one another to either give or receive advice or share experiences and lessons learned. Strong relationships resulted in students staying in touch with one another for the duration of the program, and had an impact on persistence. Shared academic interests such as similar research frameworks or methods, and strong friendships among students, did predict whether students remained in contact and continued to support one another throughout the program.

The question about what happened within a single cohort was complicated by the fact that as the numbers of cohorts grew, the numbers of individuals who did not finish within 4 years increased. These individuals are in some cases adopted by the following cohort, which can help provide some motivational support to help student persist. At the time of the study the cohort adoption trend was just beginning and so fell outside the parameters of the study. It is of sufficient interest and possible impact, however, that it should be examined more closely and possibly facilitated as a persistence strategy by the CoP or the institution. Table 18.2 summarizes these findings by context.

18.4.6 Conclusion

A student community of practice had developed within the first eight cohorts of Ph.D. students at the site under study. The research showed that as a new CoP, it was laying

Table 18.2 Findings based on context (adapted from deChambeau 2014, p. 189)

Overall context	Questions	Answers
Achievement	• Did students share stories and advice that helped them to complete their work effectively and move along a trajectory from novice to experienced graduate student?	• Yes, but the community of practice is in its early stages • Artifacts are created and shared • Students are teaching one another what they learn about the common elements of the program • Opportunities for sharing are required
Cross-cohort communication	• Was cross-cohort communication happening in meaningful ways?	• Small groups of collaborators and colleagues exist • Subgroups are connecting in • meaningful ways • Cross cohort relationships are critical • Some weak, short-lived cross cohort connections exist • No truly robust cross cohort communities of practice exist yet
Physical, virtual, and intellectual opportunities for sharing	• When and how was information shared? • Were there were enough opportunities presented to the students to result in the formation of a CoP?	• Stories are taking place in a variety of places, using difference modes of communication • Informal time at the symposia provides opportunities for sharing • Engaging across cohorts via Facebook has had the biggest impact on bringing the community together • Within cohorts there seems to be sufficient time for sharing
Temporal context	• Did knowledge exchange keep the sub-community of a single cohort beyond the timeframe of the core courses, providing support through the more independent years of study?	• Partially answered • Relationships students build include the trust, respect, and camaraderie required to promote sharing • Staying in contact and supporting one another helps with persistence • What happens between the second and third years rests on the relationships built early in the program, and on points of shared interest

a foundation of shared histories upon which it can build. It is likely that this growth will continue to accelerate for some time, as "communication methods become more clearly established and frequently used, and as the shared learning is remembered over time as memories of participation and reified in shared artifacts (including stories and traditions)" (deChambeau 2014, p. 190). It is of the utmost importance to the CoP, however, that a robust configuration of communication tools and platforms used by the vast majority of members continue in order for the community of practice to thrive over time.

This is particularly true for any strategies the CoP or the institution can facilitate for increasing cross cohort interactions. Personal and collective engagement across cohorts allows for the most effective and efficient sharing of stories and advice and artifacts between the experienced successful students and the novices. Ensuring the most opportunities for connecting across cohorts will always be part of the heavy work of community maintenance (deChambeau 2014, p. 190). The co-creation and sharing of knowledge flows though intergenerational communication, and is also critical for sustaining the community of practice over time.

One very important lesson from this research was that without the opportunities to share time—and experiences, stories, resources, and lessons learned—with one another across cohorts and over time, a community of practice among graduate students would not have developed. The intentional decision of an early cohort to reach across artificial boundaries and design cross cohort functions during the symposia was instrumental, and created a tradition of establishing relationships and behaviors that helped grow a small sub-community of individuals into a larger community of practice. The community adopted the use of a publicly available social media platform to establish a useful and central part of the graduate students' digital habitat, in response to frustrations with an inadequate LMS and the lack of a quick, easy-to-use, and active social media space. Students also responded organically to the need for a space to archive their artifacts and worked with the college to set up a Digication ePortfolio system. These, and future efforts like these, will help the community of practice continue to develop its practice, using its physical and digital habitats as places to negotiate meaning through use of shared histories.

A CoP Is Possible and Beneficial

It is possible for a graduate student CoP to develop spontaneously to support the practice of becoming and being a successful student, and it can contribute to student achievement and persistence in an academic program. As one student in the study commented, the feeling of belonging combined with the continued support of the community helped her "to achieve what she was able to achieve" (Circle-0507, personal communication May 14, 2013). This student, and several others, had concerns that they didn't belong in graduate school (i.e., suffered from imposters' syndrome) but found the support of the community helped keep them motivated, gain confidence, and stay on track to accomplish their goals.

There were several factors identified in this research as critical to the student success and the success of the CoP as a whole:

- Face-to-face interactions early in the program smooth the way for more frequent and effective virtual communication later.
- Participation in informal, unstructured time together during residencies is important to the overall health and level of future engagement of students, including across cohorts.
- Accountability routines help students stay motivated and persist in the program. These include strategies such as formal and informal check-ins, buddy systems

such as Write and Skype sessions or shared calendars, and shared processes for staying on track academically.

- Small groups, and the overlap between groups, hold the entire community together. Close bonds between small groups of students help individuals achieve goals and persist through the program, and information and strategies shared among groups helps the entire community move forward.
- Virtual spaces such as social media sites can facilitate peripheral participation early in the program, making the enculturation process for new students easier. Social media and virtual interactions can also deepen face-to-face interactions during residencies, particularly among new acquaintances.
- When students feel supported by the community they sustain their motivation, reduce their isolation, build confidence, and persist through the program.
- Having a past to look at is critical, and as students share resources and example work it helps clarify expectations and improves new work product. (deChambeau 2014, pp. 192–3)

Social Microclimates Are Critical for CoP Development

Wenger (1998) discussed the importance of mutual relationships within the context of mutual engagement, and these relationships are one type of microclimate as identified in this study. The concept of microclimates that emerged from this research goes a little bit deeper, however, adding a layer of description that includes the characteristics or the qualities of the communication space within which sub-communities (i.e., relationships) can thrive (deChambeau 2014, p. 195). A microclimate can be the level of trust individuals feel for one another that allows them to interact openly and candidly. A microclimate can be the immediacy or ubiquitousness of a closed Facebook group that brings community members within close virtual proximity, or it can be the shared physical space of a dorm, house, or kitchen where students get to know one another in an unstructured, informal environment. The notion is that "there are many opportunities and instances where students are engaged with one another inside a communication space that, because of its own particular microclimate, nurtures that mutual relationship and mutual engagement that is critical for the development of a community of practice" (deChambeau 2014, p. 195).

Cross Cohort Microclimates Are Critical for Sustaining the CoP

For a CoP to truly be beneficial for students it must be able to sustain itself over time and across several generations. Microclimates that serve as incubators for cross cohort knowledge exchange, relationship building, and collaboration are critical for nurturing connections that sustain the CoP over time. Meaningful opportunities for students from different cohorts, including alumni, must be made available as often as possible. Lessons learned and knowledge created in earlier cohort becomes the foundation for new understanding of the roles of individuals in the practice of being a student. As each graduating class leaves the institution, their collective

understanding of the practice of being a student will cycle out with them if strong cross cohort relationships and exchanges of information have not been established.

Recommendations for Institutions

An institution should not try to mandate a graduate student community of practice into existence, but it is possible that one may generate organically. Institutions or programs should be alert to the characteristics of a CoP, and facilitate or provide resources in support of its development should one start to grow. A CoP may arise in response to a perceived need or specific situation, and institutions that recognize that one is developing can promote and support the physical and virtual events and spaces students need to make the strongest connections with one another.

Institutions with hybrid learning models should make full use of face-to-face class time for students to engage with one another, and should also consider different ways to support students in maximizing any unstructured time when meeting in person. Resources should be made available so that students can easily and comfortably congregate during down times. Possibilities include access to group transportation for spontaneous events, shared housing, semi-structured and student initiated group events, etc. Individuals and groups from different cohorts should specifically be brought into contact with one another as often as possible when face-to-face meetings occur, and cross cohort interactions during unstructured time should be encouraged and supported.

Students' virtual spaces are important as well. Institutions should recognize and be responsive to the development of digital habitats for the student community of practice, but only if the tools and platforms they offer can be configured in ways the students need in order to most effectively support their community. Use of social media should be encouraged, especially across cohorts. Whenever possible, students from different cohorts should be able to interact freely across learning management systems. Institutions should be aware that students may migrate away from the school's systems if they are not easy-to-use, active, and flexible. If institutions find that students are using alternative systems, they should look at how they provide communication technology support for their programs and re-examine them in light of real student needs.

Recommendations for Further Research

Microclimates as a concept relevant to the development of a community of practice deserves further exploration in general, especially within the context of other learning delivery models in higher education. Further research in the creation and use of microclimates as related to meaningful cross-cohort communication has potential impact on new paradigms for communication, especially in online education, and ways in which programs and institutions encourage greater persistence and completion.

Another interesting area for further research is the reflective use of CoP development as a mechanism for program evaluation and improvement. CoPs often develop in response to a perceived need. Thoughtful consideration of stories of lived experiences among students within a CoP could reveal gaps in institutional

support for individuals enrolled in a program, provide insights into what helps students develop personally and academically, and identify strategies that foster persistence through to graduation.

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Chapter 19
The Lifecycle of a Student-Led Community of Practice in Higher Education

Marianne Knaus and Deb Callcott

Abstract This chapter profiles a higher education community of practice that has developed as a result of student initiatives. It demonstrates how a core group of students in a university context were the driving force in organizing social and academic network support systems to assist students in their transition to university and in developing a sense of identity and belonging. In the outset, it was not intended to be a community of practice, but as the commitment, drive and energy of the core group became evident, other members wanted to be a part of this developing community. The benefits for individuals included increased motivation, self-confidence, experiences in leadership roles, and a sense of belonging. The community of practice became an asset to the organization providing support networks for students as well as social engagement. This chapter will center on the lifecycle of the organization that became "Network Teach", and uses Lave and Wenger's (Situated learning: legitimate peripheral participation. Cambridge University Press, Cambridge, 1991) social learning theory to demonstrate the progression of how a community of practice evolved.

Keywords Communities of practice · Higher education · Leadership · Mentoring

19.1 Introduction

The community of practice (CoP) perspective within a university context is explained in this chapter. A CoP involves members who participate and contribute to a shared common goal (Wenger 1999). CoPs are based on the work of Lave and Wenger (1991) and social learning theory. Learning is 'inherently social in nature' (Hansman 2008, p. 298) and social learning theory maintains that engagement in

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social practice is how learning takes place. In a CoP, the learning process is not based on the individual but on a group and socially situated learning (Islam 2008). Learning takes place through engagement and experiences embedded in daily life as people interact with one another. St. Clair (2008) emphasizes that a CoP is a shared practice, a group of people who have similar ways of thinking to achieve the same end or result. A community can be any size and can form in any setting. In the education sector, a (CoP) is not a new idea and they have existed within organizations as a mode of collaborative learning for many years (Wenger et al. 2002). A CoP is defined by Lave and Wenger (1991, p. 98) as 'participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities'. The concept of a CoP can vary in different organizations but it is the common understanding that initially bonds members together (Cheng and Lee 2014). A variety of models of CoPs occur in the teaching professions including classrooms, staff development, on-line learning, in higher education institutions and research teams.

This chapter focuses on the higher education context as a community of practice and in particular profiles a CoP that has evolved in a teacher education university. In many higher education CoP models, it is generally the academic teaching staff that organizes or leads the students (Cheng and Lee 2014). However, the case study presented in this chapter, illustrates a student organization that was a student initiative. The Network Teach program is the name given to the group in the case study. This organization meets the criteria of a CoP as described above and there are three main elements that constitute a CoP: mutual engagement, joint enterprise and shared repertoire (Wenger 1999; Cousin and Deepwell 2005; Cheng and Lee 2014). It is these three elements that shape the way a CoP operates.

19.1.1 Joint Enterprise

Wenger (1998) describes joint enterprise as the binding together of members with the same ideals. There are many organizations that can be amalgamated in a joint enterprise but the difference with a CoP is the 'levels of ownership and the functionality of the group *for itself'* (Cousin and Deepwell 2005, p. 60). A joint enterprise can be thought of as a shared goal and, in the negotiation of this goal, mutual accountability is created (St. Clair 2008). Joint enterprise establishes what the organization is all about (Wenger 1998).

19.1.2 Mutual Engagement

Not all communities are communities of practice and it is mutual engagement that sets a CoP apart from a network of people (Wenger et al. 2002; Cousin and Deepwell 2005). Members of a CoP are mutually engaged when they share ideas, interact and

collaborate in social relationships (Cheng and Lee 2014). Mutual engagement is considered by Wenger (1998) as how the organization functions and it is this mutual engagement that brings the members together to build a community.

19.1.3 Shared Repertoire

A shared repertoire refers to the frameworks, routines, habits and discourses shared by members, and the knowledge that is cultivated and maintained (Cheng and Lee 2014). Wenger (1998) refers to shared repertoire as the skills, that over time, the members have developed. In the education sector CoPs all share the three structural elements of mutual engagement, joint enterprise and shared repertoire (Tummons 2012).

The chapter is organized as follows. The CoP lifecycle is defined followed by the context which provides a background to the students and the university represented in the case study. Network Teach is unique in that it is a student-run organization offering social networking and academic support for all students in the School of Education at a university in Western Australia. The next section is a literature review examining university life and CoPs in higher education with the aim of providing current knowledge and findings on the topic. The third section centres on the lifecycle of the Network Teach CoP; the story of how it has evolved. The three main elements of a CoP; joint enterprise, mutual engagement and shared repertoire, will be illustrated in the lifecycle of the case study. Next is an evaluation of the CoP articulating the impact and outcomes. The final section provides the concluding remarks and demonstrates the benefits of a student led organization to all facets of the university including students, academics and the faculty.

19.2 CoP Lifecycle

A CoP, according to Wenger et al. (2002) 'are groups of people who share a concern, a set of problems, or passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis' (p. 4). This statement depicts very clearly the members of Network Teach. Wenger (1999) proposed that a CoP has a lifecycle and is an evolutionary process that develops over time. A CoP, according to Wenger et al. (2002) goes through five stages of community development:

- Potential;
- Coalescing;
- Maturing;
- Stewardship; and
- Transformation.

Further on in this chapter the lifecycle of Network Teach will be demonstrated using the five stages above.

19.3   Context

The university is situated in Perth Western Australia, and is a public university that offers over 400 courses across two metropolitan campuses and one regional campus. The university has over 27,000 students at undergraduate and postgraduate level. The origins of the university date back to 1902 when it was a teachers college and the first tertiary institution in Western Australia. It is now a modern university with a culturally diverse student body. The Good Universities Guide 2015 announced a five star rating for its teaching quality, generic skills and overall satisfaction for the sixth year in a row as rated by the students. Network Teach is based in the School of Education which is in the Faculty of Education and Arts. The School of Education offers teacher education courses for secondary, primary and early childhood degrees. It is the largest school of education in Western Australia graduating more professional educators than any other institution in the state.

The students attending the university come from a wide range of localities including metropolitan, rural and remote. Perth is a very multicultural city and the enrolments represent a wide diversity of cultures, backgrounds and languages. Research by Budgen et al. (2014), based on the first year cohort at the university, revealed that the majority of students were from the metropolitan area. Of the first year cohort surveyed as part of this research, 76 % were first generation university students with the remaining 24 % having at least one parent attend a tertiary institution (p. 163).

The university has developed five key graduate attributes that are the characteristics, qualities, skill sand capabilities for student to develop by the time they graduate:

- Ability to communicate;
- Ability to work in teams;
- Critical appraisal skills;
- Ability to generate ideas; and
- Cross-cultural and international outlook.

These attributes are designed not only to improve the students' personal skills and to give them a competitive edge in the workplace but to assist in becoming engaged contributors within the community.

19.4   University Life

There are a range of issues that affect student retention and transition to university. Some students even abandon their studies as they find the transition too difficult (Boyd and Lintern 2006; Briggs et al. 2012). University life can be quite overwhelming in a new and unfamiliar environment, and for some it can be a culture shock. Many first-year students lack the knowledge of what to expect and there may be incompatibility between perceived romantic notions and the reality of university life. The media, friends and their own desires may have provided students with an unrealistic expectation (Kaufka 2010). Many universities in Australia and overseas have targeted student retention and attrition, especially in the undergraduate courses (Krause 2005). Several factors contribute to the retention of students including personal concerns such as student intentions, goals and commitments; academic concerns and social experiences (Callcott et al. 2014). Transition to university life includes many challenges and students need time to adjust. The Australian Council for Educational Research (Australian Council for Educational Research [ACER] 2008) reports that in Australia almost one third of first year students' drop out of university.

A major pressure facing students is financial commitments with 61 % of full-time students working an average of 13 h per week in addition to their studies (James et al. 2010). The more time students spend away from university working, the less time they have available for social engagement and developing a connectedness to the campus. Work can become a higher priority than university and they are less likely to define themselves as university students, impacting on their 'student identity development, and ultimately on student retention' (Scanlon et al. 2007). Starting university can be a daunting experience for many students and they struggle with isolation, not knowing anyone and trying to adopt a new social network. Making new friends and establishing a sense of belonging are important in developing a strong concept of self and Huon and Sankey (2002) suggest that students entering tertiary institutions for the first time need to reorganize the way they view themselves from a personal as well as social viewpoint. Developing peer interactions in the early stages of transition assist in the development of a strong concept of self that are associated with learning and achievement (Dweck 1999).

Providing support for students to make connections and to be to become integrated into the university community has been identified as assisting in commitment to and persistence with study (James et al. 2010). Student engagement, either social or academic in nature, contributes to higher rates of retention (Tinto 2012). Data from the Australian Survey of Student Engagement (ACER 2008, p. 51) reveals that only 24 % of students felt they were given the support required to socialize with their peers in the first year with 37 % stating that they received no support at all. Social and academic engagement is regarded as being important in the prevention of the feeling of anonymity, and in promoting a sense of belonging and being a part of a university community (Scanlon et al. 2007; Tinto 2012). It has been acknowledged that social networking strategies, whether they are formal or informal, play a necessary role toward social integration and transition (Masters and Donnison 2010).

Many universities have adopted programs targeting attrition rates; however, a major failing of these programs is that they are vague and generic targeting first-year students as whole rather than individual faculties (Danaher et al. 2008). Support provided by university systems is considered by Briggs et al. (2012) and Tinto (2012) as a vital element in a successful transition through provision of opportunities and support for socialization and adaptation. Network Teach is a community of learners that has evolved as a result of the need for more social connectedness and academic support within a university. The organization has been recognized by the university hierarchy for its vitality, uniqueness and provision of services to assist students both in the transition and continuation of university life. As a result, university administrators have since acknowledged the need for cultivating and supporting Network Teach.

19.5 Higher Education and CoPs

In education it is commonplace for CoPs to exist as learning is predominately based on relationships and the sharing of knowledge with others (Buysse et al. 2003). In higher education there are multiple communities of practice, particularly in large faculties or teaching departments (Carr et al. 2008). There are at least seven dimensions in academic CoPs as identified by Nistor et al. (2015) 'academic research, scientific publications, research fundraising, university teaching, young researcher support, general coordination and administration, and cooperation with other researcher teams' (p. 259). In teacher education, CoPs have commonly been used as a model for professional development and engaging in a shared learning goal (Buysse et al. 2003). It is common for university academics to be members of multiple CoPs across faculties and the university as a whole, and they can be defined by disciplinary or pedagogical boundaries such as student learning and how to improve their own practices or perhaps within the confines of educational research (Tummons 2012; Carr et al. 2008). Much of the research on CoPs in higher education focuses on the academics and teaching staff, not on student led CoPs (Carr et al. 2008). While the work within these CoPs examines how to improve the teaching and learning experiences of students in the higher education sector or their all-round university experience, there is not much literature on CoPs that are formed by the students. Most CoPs in higher education are administrated at the senior management level not by student cohorts (Cheng and Lee 2014).

CoPs often develop naturally and in the higher education sector this is often the case (Klein and Connell 2008). In fact Cheng and Lee (2014) explain that 'it is difficult to launch a CoP in any organization since it cannot be imposed or created for it can only be coordinated, facilitated and cultivated' (p. 751). Brown and Duguid (1991) emphasise that organizations should not ignore CoPs but be proactive to encourage their development. Wenger et al. (2002) emphasise the perspective of cultivating CoPs to facilitate and support the organization. They use the analogy of a plant, that it does its own growing; however, you can do much to

encourage the healthy growth of the plant. Some communities can 'grow spontaneously' however others need 'careful seeding' (pp. 12–13). When a CoP is dynamic, it can grow and evolve. Members require opportunities for engagement and connectivity. Anderson (2008) outlines four necessary features to assist learning and development of a CoP, 'learning as belonging (community) and doing (practice) is complimented by learning as becoming (identity) and meaning (experience)' (p. 85). These four features link well with the essential ingredients required for the transition of students as they begin a new life as a university student.

Anderson (2008) highlights some negative aspects of CoPs including the possibility that an organization, while helping some people to achieve their ends, may exclude others. In particular, Klein and Connell (2008) refer to the overlooking of the newest members of the group, that they do not become marginalized and remote from senior members. Another restriction could be that CoPs can become conservative and that the core group have a set way of doing things rather than an ongoing process of negotiation. To promote the evolution of CoPs, new members need to be nurtured and their ideas embraced. The notion of power can also be a negative aspect of a CoP where it involves the misuse of power and control. Klein and Connell (2008) emphasize a flexible approach within a CoP to help to cultivate the community. This entails having the awareness to take action and to modify the role of active members accordingly. Klein and Connell (2008) also suggest that the core group of active members assume responsibility rather than an individual.

Research by Islam (2008) of an undergraduate student-run consulting group based in a business school, demonstrates how a CoP within higher education can provide an effective transition to professional life. The study found that students, by engaging in practice-oriented pursuits were more effectively prepared for their business careers. The organization was a non-profit consulting group that used apprenticeship as central to its perspective. Students became role models to each other while professors and other university departments were used in support roles. Islam (2008) reports that this particular model, 'acts as an intermediary' between university and professional settings and eases the transition to work settings (p. 279). Similarly, Network Teach has many benefits for students as they gain practice and experience in leadership roles helping to prepare them for the teaching profession.

19.6 The Lifecycle of Network Teach

The following section will demonstrate the emergence and growth of a student led CoP that became known as Network Teach and will identify four of the five stages of development that the community has progressed through.

19.6.1 Early Beginnings

The early beginnings of Network Teach demonstrate the first developmental stage described by Wenger et al. (2002) as the "Potential Stage". The first mentors were an informal group who had begun to see themselves as members who shared the same passion and common ground. It is the beginning of a community of practice with a core group taking responsibility for getting the community started.

In the early stages there was no thought of formally constructing a CoP. Instead, there was a gradual evolution of a community that progressed through various stages. The initial beginnings occurred because a first year university student in the Bachelor of Education (primary) program asked why they did not have special polo shirts that identified them as the "School of Education," when students from other faculties and schools had an opportunity to wear polo shirts that identified with their area of study. This question sparked conversation amongst academics and the need to provide a sense of belonging for new students. In discussion with other academics at the university, who also showed some interest in the retention of first year students, a small research grant application was successful. This research grant allowed small buyouts from teaching for the researchers and provided funding for the provision of free polo shirts for current students who were prepared to act as group leaders for incoming first year students. The structure in the early years involved using this group of current students acting as leaders to meet the new students on arrival at university orientation and personally welcome them into the School of Education. During the formal Orientation for the primary course, the first year students were allocated the name of a famous education theorist and students in these allocated groups were introduced to these specific students, initially branded as Education Mentors, plus a staff member from the primary course that were their first contact on Orientation day. These mentors then provided activities during the first semester such as BBQs and sports activities with students from within the group invited to take on active roles in organizing and planning activities.

Teacher education shirts were also purchased and sold at cost price to all pre-service primary teachers with logos identifying them as belonging to The School of Education, Primary. Mentors wore their shirts to the events that were scheduled and soon, many students had purchased their own shirts. Funding also allowed for the purchase of items for social events such as art and craft materials, coffee vouchers for meetings with mentors and subsidizing events that were held off campus such as bowling.

This early model, based on a team-based approach was very time-consuming for the Academic staff and students involved. The education mentors had limited time to assist with planned events as they had their own studies to complete and academic staff were working on a voluntary basis to provide support. With the early model of the program, it was very difficult for the Education Mentors to be proactive and to demonstrate initiative in planning and running activities independently. There were many limitations including the cost of materials to run

activities and the time limitations of academic staff to assist with planning and booking of rooms and venues for activities. Often academic staff members, particularly the First Year Coordinator, ended up doing all the room booking, equipment preparation as well as running events. Sometimes events were planned and booked and very few students turned up, which was quite disheartening for all involved.

Despite this model of delivery having limitations in terms of delivery and achievement of desired outcomes, the results of preliminary research by Budgen et al. (2014) indicated a strong need for first year students to be supported in their initial year at university. Of the first year students surveyed 80 % of students felt that having these activities available to them helped them to feel welcome at the university and more than half the surveyed students reported that the activities helped them to settle in. More than half of the surveyed students stated that the activities that were provided made spending time at university more appealing and helped them to make friends (p. 164). The research identified that the reason the Education Mentors wanted to provide support for other students was because it was their own difficulties as a first year student that gave them the incentive to volunteer for the program. Over the period of 2010 and 2011, the program ran with all its limitations, relying heavily on volunteers from the student group and on the goodwill of a few academic staff that gave many voluntary hours planning and assisting with event organization and implementation. The current learning community, Network Teach, was built on these primitive but formative attempts to provide a student based leadership group to mentor and support new students in the School of Education.

19.6.2   The Groundswell Rises

Network Teach is now set apart from just being a network of people but has become a true community of practice with a complex dimension of organization. Wenger (1998) describes this as Mutual Engagement with members bound as a social entity. At this stage, funding for the organization came from the efforts of the members which included fundraising with events such as sausage sizzles.

In June 2011, two students from the first year primary cohort and the First Year Primary Coordinator offered their insights into what first year students really needed in their first year at University. These insights were very similar to the intended outcomes that the present Education Mentors group was desperately trying to meet. The two students were invited to join the Education Mentors group and to share their enthusiasm and understanding of the needs of first year students, as well as ideas on meeting their needs with the group. The two students had four main attributes that determined the success of the CoP in the early years; passion for teacher education, a drive for success of the organization, a vision for long-term success of the organization and a sense of the structure that was needed for the organization to be successful. The members of the Education Mentors were

suddenly supported and invigorated and became the core of the early committee. Being united and having a common goal that is negotiated by its members demonstrates what Wenger (1998) regards as Joint Enterprise. The CoP had a purpose and a level of ownership.

One of the first initiatives of the now strengthened and increasingly focused Education Mentors Group was to form a small management committee of student volunteers, who could oversee the running and growth of the organization. Encouraged by the enthusiasm, passion and success of these students, more students joined the organization. Academic staff input and control reduced as students became more proactive in the organization. The First Year Primary Coordinator who originally had the initial engagement with the students, remained as part of management committee of the organization, and as the liaison person between the students and the School of Education in order to educate and encourage academic staff within the School of Education to support the now student based initiative.

19.6.3 The Birth of Network Teach

This part of the lifecycle could be referred to as stage two, the "Coalescing Stage". Wenger et al. (2002) describe this stage:

> When a community is able to combine a good understanding of what already exists with a vision of where it can go, it is ready to move to the coalescing stage. During this second stage, the community is officially launched by hosting community events, though community building has already begun with networking in the planning stage. During this time, it is crucial to have activities that allow members to build relationships, trust, and an awareness of their common interests and needs. (p. 82)

In 2012 at a meeting with the Head of School of Education attended by the small management committee of the Education Mentors, the idea of a dedicated education community providing peer support services to all Bachelor of Education degree students was initiated and the Head of School approved the organization name of Network Teach. The organization evolved as a result of student innovativeness but was now supported by university hierarchy. Cheng and Lee (2014) state that 'A CoP can emerge from bottom-up initiatives but this does not mean that organizations cannot influence their development' (p. 752). Support from the university was now forthcoming. The School of Education was allocated a sum of money to support the First Year Experience (FYE) as part of a University implementation "Curriculum 2012" (Edith Cowan University 2010). The decision was made by the School of Education regarding the amount of financial support allocated to the creation and implementation of a First year Experience Plan. This support, amongst other things, allowed for the training of Mentors through university based FYE mentor training and also allowed for purchases to be made for events such as sausages for BBQ's.

The Primary First Year Coordinator was very much involved in running the organization through duties such as the purchase of requirements for the event as well as the booking of rooms and the filling in of the paperwork required to run these events. Network Teach members were however active at events and interacting with First Year students. While the first year students were being supported with social events and activities during Orientation week it was difficult to provide events and mentoring support on an ongoing and consistent basis with the present structure. At this stage, events were only being provided to our pre-service primary teaching students and there was no engagement with first year students from other courses due to limited student and staff man power.

Research by Budgen et al. (2014), provided data analysis of the 2010 first year cohort of primary pre-service teachers, however, it can be surmised that many of the issues faced by the cohort of first years are those faced by students in other education courses in the years beyond 1st year, many of whom are also believed to be first-generation at university students. It is proposed that issues such as pressure on finances during practicum, and a lack of understanding of the requirements of study by families, contribute to the alienation from social constructs for all students and not just the first year cohort. A solid example of the social alienation in university is noted by one student in Budgen et al's (2014) study:

> Aloneness worsens as studies progressed (p. 167).

> Further, the need to reach out to others in similar situations for support is outlined by the following statement from a student:

> …Anyone who hasn't been to uni doesn't understand and isn't as supportive as someone who has (p. 167).

These statements link to the problems students face at university mentioned in the literature review on university life and the need for friendships, social engagement and student identity. Based on the research evidence from Budgen et al. (2014), Network Teach set out to address some of these issues.

19.6.4   Mid 2011 Network Teach Evolves

Wenger et al. (2002), identified stage 3 of the lifecycle of a CoP when they stated 'During the maturation stage, the main issue a community faces shifts from establishing value to clarifying the community's focus, role, and boundaries. Once a community has established its viability and value, it might grow rapidly …' (p. 97). This description fits perfectly with the Network Teach CoP as the next stage produced rapid growth and expansion of the organization.

During this phase of the lifecycle we see the capability that Network Teach has produced in what Wenger (1998) describes as a Shared Repertoire of routines, ways of doing things and skills. In mid-2011, Network Teach were assigned by the Head of School to develop a comprehensive first year experience providing social and

academic support to students starting at university. In addition to meeting with new students at Orientation and running some social activities for first year students, Network Teach began offering study groups and revision sessions for the first year Primary Education students.

The two students who made the initial approach to the Primary First Year Coordinator came up with many new ideas to improve and grow Network Teach. Students were no longer referred to as Education Mentors and instead became Network Teach members. The Network Teach Facebook page and the Network Teach website (with the approval of the Head of School), were set up to engage students and inform them about the organization. This was a big turning point for the organization as now more students were able to be reached through social media. Prior to this, students were only informed of events through the generic Learning Management System, Blackboard.

More early childhood students were now attending events and wanting to be involved so it was decided that Network Teach would include not just the primary cohort of first year students but also the early childhood first years. This required the management team to grow and expand. After expressions of interest were put out to students, the management team grew to around ten students and included the First Year Coordinator. Formal meetings were now held and attracted a small number of students that acted as volunteers at events.

Network Teach played a major role at Orientation in 2012, not only through the provision of initial support to small groups of students by the Education Mentors as in the previous model, but Orientation became more "an event" run by Network Teach, as opposed to previous years where academic staff provided all the information on the university and the chosen course. Formal orientation proceedings now included an introduction to Network Teach by the leaders of the group and a campus tour with a question and answer session about study at university led by the Education Mentors with their orientation groups. In 2012, the first year welcome BBQ was introduced taking place in the second week of semester after the major lecture of the week where most first years were present, a tradition that still continues. It was at these welcome events that both primary and early childhood student cohorts received a free BBQ lunch cooked by Network Teach volunteers and were encouraged to meet with each other as well as with academic staff members. Some spontaneous games occurred and volleyball nets were put up to provide opportunities for students to mix with their peers. Academic staff in the role of First Year Coordinators of both primary and early childhood courses attended and encouraged lecturers and tutors from each course to interact with the students in a more social and informal way. This was very successful for both students and academics.

Network Teach members also took part in cultural awareness training run through the university, to cater to the needs of culturally diverse students in the School of Education. Budgen et al. (2014) identified that 11 % of the surveyed first year intake at this university identified as having a language other than English (p. 163) and so it was perceived that cultural training was an important characteristic for the Network Teach mentors. Many of the Network Teach members went

on to be involved in the first Aboriginal Mentoring Program at the University with the local High School.

The first free professional development session on Internet Safety was organized by Network Teach. The opportunity to attend was afforded to the primary and early childhood student cohorts with tremendous success. Students in the school wanted more of these sessions to add to their experience and for the opportunity to add the certification of attendance at the professional development to their curriculum vitae.

A Family Fun Day organized and managed by Network Teach was held at the university in September of 2012 providing an opportunity for families and friends of students to see the campus on which their family member studied. The need for this type of event was identified in the research of Budgen et al. (2014) in which students acknowledged the importance of family support and understanding in their success at university. There were many opportunities for children to interact with the Network Teach students who volunteered as face painters, BBQ cookers and activity organizers. The event was totally planned and run by the Network teach mentors and was the first real event organized for members of the community that were not necessarily students. This provided an opportunity to promote Network Teach to students and their families and also to the university as a whole as many of the attendees at the Family Fun Day were users of the university facilities such as the gymnasium. Network Teach members relished this opportunity at organization and leadership on a wider scale and it was decided that further opportunities to organize and run larger scale events should happen. This was now much easier as the presence of Network Teach in the School of Education had increased, and many more students now came forward to volunteer to be part of the Network Teach team.

First year study sessions were established by Network Teach for the first time in 2019. These sessions were run by Network Teach students themselves who were the facilitators and involved a sharing of information and knowledge amongst the group. To meet the requirements of the university, a disclaimer was provided that students were not being given information by academic staff, rather it was a collaborative study session led by a facilitator who organized the room and bought snacks and drinks for the students in the session. There were four sessions run (one for each of the 1st year Units) and approximately 20–30 students attended each session. Initially, only the primary units had revision sessions. Anecdotally, these sessions were highly rated by students and were a great success.

At this time, the university as part of the First Year Experience (FYE) 2012 advocated the need for one on one mentoring for students in their first year. Thirty members of the Network Teach organization completed this training and created a one to one mentoring roster in a designated Network Teach office. It was thought that providing this support would give struggling students an opportunity to meet with a mentor who would direct them to appropriate services at ECU and/or provide them with a listening and understanding ear. After running this one to one mentoring for 12 months, this attempt to interact with first year students was disbanded after seeing approximately five students in the whole year. A second Research Project published at this time indicated that first year students in the School of

Education perceived visiting a mentor one to one as a deficit approach and students much preferred the group study sessions (Callcott et al. 2014). This reflects the innate need of those in teacher training and the teaching profession to collaborate and reflect in order to learn, another important dimension of Lave and Wengers' theory (1991). Skills such as verbalizing, discussion and analysis—traits highly evident and highly regarded in the teaching profession were recognized by the students themselves as necessary for learning. The opportunities to demonstrate and develop the above traits were not provided in the one to one mentoring situation. For this reason it was proposed not to continue the mentoring sessions in a one to one arrangement.

Network Teach Student First Year Experience coordinators were introduced into the official structure of Network Teach. These student coordinators had the responsibility of facilitating specific events and also being available to the cohort as a reference point for their cohort. Numbers of volunteers had grown with the impact of social media and exposure to events as well as regular official monthly meetings for planning. These meetings provided opportunities for students to take on leadership roles, to learn correct meeting procedure and to initiate ideas. It included a president, vice president, secretary, and finance officer. The finance officer reported on fund raising success and the budget was allocated to future activities. Financial support provided by the School of Education budget allocation for the FYE 2012 enabled many events to take place such as Welcome Pizza Day for students enrolling mid-year and a further professional development event for School of Education students on "Bullying Prevention in Schools" and a school wide BBQ event.

A highlight in October 2012 was the Network Teach Ball, organized and run by the Network Teach ball committee. The amount of organization for this event to run was huge by any standards and even with the support of the First Year Experience 2012 finance, a loss was made on the event due to the required number of tickets to be sold not being achieved to break even. This was a true learning curve for all students associated with Network Teach who had worked so hard to achieve a positive outcome. While the ball itself was a wonderful event for the School of Education, the students reflected on where they had gone wrong and how they could improve their organization in the future.

Early childhood revision sessions were held in October and another first for the School was a fourth year Farewell Celebration completely organized and run by the Network Teach students. While academic staff were present to assist with university processes, the end of 2012 saw the beginning of true and complete student ownership of the Network Teach organization that makes this organization the success it is today. Another significant event took place at the end of 2019. As the organization grew, public profile increased and outside organizations involved in providing resources and services for pre-service teachers became interested in supporting the Network Teach organization. The president wrote to various organizations to request assistance. Two or three major businesses responded and it was with much excitement Network Teach could now list a group of "supporters" when advertising their organization.

19.6.5   2013, More Growth

The Network Teach organization had developed rapidly and was providing a wide range of activities. It is now in stage four, "Stewardship" according to Wenger et al. (2002). The group has sustained its momentum and continues to maintain energy. There is a solid foundation with senior community members and new members adding vitality to the group.

A new Head of School recognized the significant positive impact this organization had on the School of Education and was encouraging and supportive. Network Teach had been implemented in the School of Education on three campuses of the University in 2012, but due to a different course structure and a smaller cohort on one of the three campuses, the impetus of the impact was somewhat less than on the initial campus site. There was a concentrated effort in 2013 to include students from all campuses of the organization into the overarching support structure of Network Teach. Video links were introduced for meetings so that all campuses could participate in monthly meetings and where possible, events were replicated on other campuses. A new committee was formed at the north of the river campus to oversee events and in consultation with their counterparts south of the river. Wenger et al. (2002) suggest that 'communities change in structure and characteristics as they grow…between 50 and 150, communities tend to divide into subgroups around topics or geographic location, and beyond 150 members, the subgroups usually develop strong local identities' (p. 36).

The initial core group of Network Teach moved onto their teaching careers and new members were now at the helm. The key position holders sought the support of the Head of School to allow the organization to become incorporated. This decision was made in order to protect the integrity of Network Teach as it grew and to attract sponsors of the organization to a not for profit agency allowing a tax deduction. It was felt that governance by a board under a constitution would protect and guide Network Teach as it looked to the future. This was accomplished in late 2013 ready for implementation in 2014 which would be the last year at university for the two of the founding students. Incorporation, while protecting the Association, also allowed for sponsorship by the generous community organizations that had been supportive in the early years.

While moving to an Incorporated Association structure was critical for the growth and maintenance of integrity of Network Teach, many staff were intimidated and often felt quite threatened by the increasing impact of Network Teach within the School of Education. It is at this point, a great deal of credit must be given to the Head of School who saw the advantages and benefits of this direction and supported and defended Network Teach at all times and at all levels of the university. He could see the value in the collegial operating model espoused by Johnson (2013) whereby students are appointed to positions of responsibility and work in collaboration with academic staff at the University. Wenger et al. (2002) strongly suggest that CoPs need to be cultivated. The Head of School provided the support required for Network Teach to continue to evolve. Koeglreiter et al. (2008)

add that 'CoPs should be nurtured and supported by elements of the wider organization in which they exist, so reaching across what might be termed organizational boundaries' (p. 186). Network Teach, while an independent body, is very much embedded in and owned by the students in the School of Education at the university.

Incoming sponsorship money enabled further publicity, larger committees, and increases not only in the number of events but an increase in the size and range of events. In addition to the social events implemented in 2012, professional development opportunities were increased. School of Education students could now choose from around 20 PD events brought to them free of charge or with minimal cost, paid for by Network Teach through their sponsorship support. They would receive a certificate of attendance that could be added to their teaching curriculum vitae. These were very popular and were all organized by the Network Teach Committees. They decided who they wanted to invite based on the perceived needs of the student cohorts of which they were a part of, and organized the advertising and the responses from students. A system was developed by the Network Teach students that enabled online check-in to the events and mail merge printing of certificates and parking passes. IT equipment and room bookings were all the responsibility of Network Teach for these events with assistance from academic staff (who had the role of Network Teach Academic Advisors) where required.

University systems are often quite tricky and it is to the credit of the Network teach executive Team that they established a rapport with the major stakeholders in the university such as Room Bookings, Printing, and Corporate Affairs in order to make sure that their requests were met even though they were students and not staff members of the university. This was not always the situation and in the rare circumstance that a request was denied, one of the Network Teach Academic Advisors was available to recommend a resolution or to act as a facilitator.

In order to provide a greater understanding of what Network Teach was all about, the Network Teach students organized morning teas on each campus to meet and greet the School of Education academic staff and administrative staff. Students were asked to provide feedback about a particular School of Education staff member that had been particularly helpful or had inspired them through their teaching. A Wall of Praise was set up on all campuses highlighting the positive comments received from the students. This proved extremely popular and emails were sent not only to the recipients of a nomination but also to the Head of School in support of creating an effective community of learning.

Again the year culminated in a ball for all School of Education students. This time, having learnt from their previous mistakes, there was no loss of income and Network Teach was even able to subsidize the cost of the tickets to attending students. Approaches were made by other service providers in the teaching area to be associated with Network Teach and further sponsors were gained to enable growth and the ability to meet the needs of all students.

19.6.6   2014 What a Year!

The Network Teach organization has continued on in stage four, that of "Stewardship". Stage five is referred to as "Transformation" where according to Wenger et al. (2002) the organization comes to an end or fades away. The founding members have tried to ensure the continual stewardship of the community and have put in place a structure to ensure the continuation of the program, thus avoiding stage five, transformation and decline. Hansman (2008, p. 300) states 'The groups life cycle is determined by the value they provide to the group, not by organizational values or institutional schedules.' The core group of members modelled an ongoing commitment, drive and energy that are extended to other younger inexperienced members. These new members are able to recognize the value that Network Teach provides. Ng and Pemberton (2013) suggest that 'In essence, communities of practice are driven by the value that members get from them, with membership being more than just an 'association', but motivated by active participation in order to create this value' (p. 1526).

In its quest for producing high quality graduates Network Teach saw its place in supporting student career aspirations and evolving to the changing community demands for job ready pre-service teachers. Rather than focus on social school engagement as a priority, the decision was made by Network Teach to prioritize academic extension activities and increase ultimate future employability of the students within the School of Education. Activities and events, organized and delivered by Network Teach had an emphasis on enriching student achievement, promoting academic excellence and enhance employability upon graduation. However, whilst the activities were primarily academic in nature, such as the provision of a wide range of professional development sessions available to students, the activities were still social in nature. Professional development sessions had been offered on a small scale to students in 2013. In 2014, 61 sessions were offered and a total of 1534 students attended (average of 25 students per session) across all three of the university campuses.

Network Teach worked collaboratively with the university careers team in providing support and resources at the Careers Fair which is held each year for all fourth year students. Network Teach also created posters, were responsible for marketing and advertising of the Careers Fairs and disseminated information electronically through social media. Approximately 200 undergraduates attended the fair and 325 attended the Postgraduate Fair. For the first time ever, Network Teach organized and implemented a conference on campus inviting significant leaders in the field of education to present on the day. Network Teach were responsible for all aspects including marketing, ticket sales, catering and the running of the event. Capacity ticket sales were reached after only two days of advertising. Presenters sourced by Network Teach students did not charge or heavily reduced delivery rates. As well as keynote speakers, a resource market was organized for the sale of educational resources. Over 120 students attended with six presenters. This conference is planned to be bigger in 2015 to allow more students to attend.

On top of the activities that had been initiated in 2012 and 2013, more School based activities were organized on the three campuses to support the social and emotional wellbeing of students, to promote a sense of belonging and to build collegiality. These included Quiz nights (240 attendees across campuses), a fourth year soiree event to farewell fourth year students (135 attendees), staffing of the Network Teach stand at Open day, running of Orientations, providing guided tours of the School of Education buildings for interested school students; all events generated and run by Network Teach in 2014. Through sponsorship money Network Teach were also able for the first time to run a holiday program in partnership with the Smith Family specifically in areas of socio economic disadvantage. New activities planned for 2015 include specific functions for second and third year students and a Final Practicum Master class for fourth years and Graduate Diploma students going out on professional practice.

At the end of 2014, at the Annual general meeting of Network Teach, the Board of Governance structure was discussed, analyzed and voted in by Network Teach members. The first official Network Teach Board of Directors meeting was held in January, 2015. One of the founding student members was voted in unopposed as chairman of the board with board representatives comprised of the Head of School, Academic Advisor (Academic Staff member), a community volunteer, the Student Engagement Manager (the Staff member who was an initial founder of Network Teach) and all presidents and Vice Presidents from all campuses.

What has sustained Network Teach for such a long period of time is the vibrancy and high energy levels. Wenger et al. (2002) refer to this a sense of aliveness and comment that 'Because communities of practice are voluntary, what makes them successful over time is their ability to generate enough excitement, relevance, and value to attract and engage members' (p. 50). From its inception and early beginnings, Network Teach has grown and developed to accommodate over 4000 enrolled education students and implement in excess of 200 annual events. Network Teach has embedded itself in all aspects of student engagement within the School of Education and is widely embraced by the university.

19.7 Evaluating and Articulating the Impact and Outcomes

Mitchell et al. (2008) propose two main benefits for CoPs; benefits for the individual and benefits for the organization.

19.7.1 Individual Benefits

The Network Teach organization has been pivotal for hundreds of students to feel accepted and belong to a community. The community element has been the most

significant benefit of the Network Teach organization. The coming together of students from a wide range of backgrounds, ages and experience to a common goal and purpose has provided individual members not only with new learning and understanding, but a sense of community. Wenger et al. (2002) describe a CoP as 'a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment (p. 34).

Real world contexts are the typically the best environments for learning and Network Teach offers students experience in mentoring and leadership, an important asset for any pre-service teacher before embarking on their teaching career. Network Teach has provided many students with opportunities for leadership that they may not have been able to experience otherwise. These abilities are very relevant for teaching and important for future leaders within the school community. Hansman (2008) points to some key aspects on leadership that has been demonstrated by Network Teach: 'The power in CoPs is that they organize themselves, set their own agendas, learn in a way that is meaningful to group members and establish their own leadership' (p. 301). Leaders play an essential role in supporting other members and facilitating a culture of sharing and networking. Wenger (2000, p. 231) states that 'Communities of practice depend on internal leadership, and enabling the leaders to play their role is a way to help the community to develop'.

The 2015 model of Network Teach management reflects the growth from within the organization and promotes the idea of middle management. While Network teach is now an Incorporated Association governed by a Board of Management, the students within the organization each manage individual portfolios overseen by a President and Vice President on each campus. These students are called 'position holders'. The portfolios managed by position holders include Year Group Event Coordinators for events that are yearly based such as the First Year Welcome events. Course group Coordinators who are also position holders are responsible for events in their particular education course as well as Faculty Relations Coordinators who are responsible for planning events that involve both students and Staff members. Events are run by committees of students that volunteer for this portfolio and often involve a mix of position holders. Students from all courses and year levels are welcome and encouraged to assist at events which are publicized through Facebook and the Network teach website. In a CoP there is generally one main leader but a community best function with several leaders (Wenger 2000). Network Teach has adopted this approach to leadership and has multiple leaders.

Network Teach actively supports the development of five graduate attributes, identified as important goals for the university. The first attribute, the ability to communicate through written and spoken expression occurs frequently in the role of organizing and conducting events. The ability to work in teams, which is the second attribute, is essential for all members of Network Teach when they contribute and collaborate effectively. Relationships and good communication are central to CoPs; to the individuals, groups and stakeholders (Koeglreiter et al. 2008). Planning, organizing, problem solving and decision making are a part of the third graduate attributes, critical appraisal skills, a vital component needed for the organization of events. The fourth attribute is the ability to generate ideas,

something that the organization has been demonstrating exceptionally well since its inception. The final attribute, cross-cultural and international outlook, is achieved as students engage productively with diverse cultures that make up the school of education cohort.

While there are obvious benefits to the students receiving the services provided by Network Teach, there are further benefits available to the Network Teach position holders as well. Research by Budgen et al. (2014) reported that the mentors providing even the limited interactions in the early stages of Network Teach reported "increased motivation, confidence, and development of relationships with peers and staff as a consequence of their involvement in the program" (p. 167). Desirable attributes in pre service teachers include the ability to communicate clearly and collaborate with others, to accept responsibility and to reflect actively on outcomes. All of these attributes are fortified by participation and engagement in the Network Teach leadership community.

Lave and Wenger (1991) introduced the notion of legitimate peripheral participation—highlighting newcomers and the journey of becoming fully accepted as a member of a community. The journey for members to move from the periphery to becoming a core group member is reliant on mentoring and guidance similar to what Lave and Wenger (1991) refer to as the expert and the novice apprentice.

19.7.2 Organizational Benefits

In a CoP not all members are expected to participate equally and Wenger et al. (2002) suggest that members have various degrees of participation. Usually there is a coordinator who organizes events and connects community members. The coordinator is assisted by a core group of people, and in the case of Network Teach these members are the executive team and takes on most of the leadership. Assisting this core group is the active group according to Wenger et al. (2002), those who attend meetings 'but without the regularity or intensity of the core group' (p. 56). Surrounding this group is the main bulk of the members referred to as the peripheral group. These members may not contribute actively in team meetings as such but participate in functions and interact through discussions on Facebook or through the Website.

The university management recognized the significance and impact of Network Teach and became fully supportive of all the activities and events. A CoP, according to Wenger (1998), is important to the operation of any organization, and becomes a significant asset. It became obvious that Network Teach had become an asset to the university when events that were usually led by academic staff were handed over to Network Teach to run and facilitate, for example, Orientation. Another indicator that Network Teach was becoming an integral part of the School of Education was when financial assistance from the university was provided to run some of the events.

Research conducted on the Network Teach organization revealed that 82.4 % of students indicated that having Network Teach activities and events made them feel welcome at the university with 71 % responding that these activities and events made them feel a part of the university (Callcott et al. 2014). The students also commented that being involved in Network Teach boosted their confidence and created long lasting friendships and bonds with their peers. Scanlon et al. (2007) identified in their research that social interaction is key to identity formation, an important aspect when transitioning to a new environment such as university. These positive responses could only benefit the School of Education and the quest for higher student retention rates and a smoother transition into university life.

19.8 Issues and Challenges

Throughout the Lifecycle of the CoP, issues and challenges have been identified and action has been taken to address particular problems. The two research projects conducted on the Network Teach program have collected a range of data and the analyses has been used to report issues based on student responses and these have been the driving force for change. The information was used to maintain a progressive direction for the Association. Network Teach has continued to evolve and change in order to avoid the last stage of Wenger et al. (2002) progression of community development: Transformation. At this point there is no evidence of decline or losing members and energy. The core group of members have set up a plan of action to continue the organization and they have been able to move into teaching careers without the active day to day engagement in Network Teach. So far it has been very successful in its goals and achievements.

The evolution of Network Teach has not been without difficulties along the way. In the early stages, there were difficulties in finding students that were prepared to volunteer as Education Mentors. It was disheartening for the students that did volunteer and become trained to be Education Mentors, to discover that many first year students were apprehensive about having a mentor and did not avail themselves of the service. It was only after research data collected by the authors, identified the mismatch in between the type of mentoring service requested by students in the School of Education (interactive group study) and the type provided by the mentors (one to one), that students began to utilize the services and knowledge of the volunteers in Network Teach in a positive and rewarding way.

Initially social events were held off campus, however research results showed that students wanted social events on campus. In the early years of the program, social events were organized at the local bowling alley or lawn bowls center. While some students still turned up at these events, on campus BBQ's, pizza afternoons and morning teas were far more popular. Events run on campus were always cheaper for students and it was only in the later years of Network Teach when sponsorship and fundraising allowed for subsidization of costs to students for events, that activities such as the ball and river cruises became popular social events.

University paperwork was also a minefield for Network Teach with risk analyses, function forms and room and furniture bookings to be completed for every event. As this was often beyond the capacity of the Network Teach leaders, the task to complete these forms and to liaise with campus support staff often fell back on the volunteer academic staff members. This was laborious and time consuming on top of ordering and picking up food and drinks for events.

Finally, one of the biggest issues at times throughout the evolution of the student organization was the reaction of some staff that perceived Network Teach and student leadership to be an attempt at student' takeover' and an undermining of academic staff authority. The academic staff member guiding the students involved in the organization, demonstrated diplomacy and patience in dealing with the concerns of other academic staff, regarding the growth and the vigor of the students involved in Network Teach. The support of the Head of School in dealing with issues that arose in this area was, and still is, instrumental to the continued growth of this student organization.

19.9 Conclusion

This chapter has used Lave and Wenger's (1991) theoretical approach to demonstrate the lifecycle of a community of practice. Network Teach is a case study of a student led organization that has all the elements that constitute a CoP; Joint Enterprise, Mutual Engagement and a Shared Repertoire. The lifecycle of Network Teach demonstrates four of the five phases that CoPs typically demonstrate from the planning and launching stages of potential and coalescing to the growing and sustaining stages of maturing and stewardship.

Plans for the future have been outlined in the Strategic Plan of the Association. The core values underpinning the future direction of Network Teach include; equipping aspiring teachers with the necessary resources, experience and skills to achieve personal excellence and also, providing opportunities for Network Teach Position holders to inspire and assist others in reaching their potential. This is to be achieved by actively promoting Network Teach to students in the School of Education via marketing promotion across all campuses through digital media and banners with the aim of increasing membership and Position Holders within the organization. Consequently there is an aspiration to increase the number of student participants in events provided by the School of Education and Network Teach. Growth through corporate partnerships through the provision of sponsorship funding is also highly sought after, with a continued emphasis on the School of Education to assist with the funding of student engagement at events. Network Teach also hopes to support students undertaking online teaching courses in the future.

Network Teach has over the last 5 years, developed and grown into a very energetic and vibrant organization. It has endeavored to maintain its vitality to avoid the transformation stage where a CoP goes through the progression of

decline. Network Teach, with the support from the School of Education and the University, hopes to continue to grow and evolve to meet the needs of the students that it serves well into the future.

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Part IV
Virtual Communities of Practice in Higher Education

Chapter 20 "Meitheal: an Irish Case Study in Building a Virtual Community of Practice in Transitional Times" by Stone et al. describes the development of a cross institutional online CoP.

Chapter 21 "Facilitating a Community of Practice (CoP) in the Arts: connecting online university learning to 'real-world' experience" by Rourke and Mendelssohn discusses the role that 'cognitive apprenticeship model', online self and peer review, reflective blogging and collaborative writing can play towards promoting 'a sense of community' amongst postgraduate art students.

Chapter 22 "The Australian Chemistry Discipline Network–a supportive community of practice in a hard science" by Schultz and O'Brien describes a Virtual CoP focused on chemistry discipline.

Chapter 23 "Bringing focus through community: Social learning in online teaching, learning and research" by Phelan describes the inception and evolution of the Community of Interest (the COI) in Online Teaching, Learning and Research at the University of Newcastle.

Chapter 24 "Practicing the Practice: The Heutagogy Community of Practice" by Booth et al. presents a CoP that aims to promote awareness of and to enact the learning principles that are its topical focus: heutagogy, or self-determined learning.

Chapter 25 "The connected community of practice in educational technology: A model for future networked professional development?" by Lodge and Corrin examines the organic evolution of 'educational technology community' as a model for future networked CoPs.

Chapter 26 "International collaborative writing groups as communities of practice" by Matthews et al. describes an International Collaborative Writing Group (ICWG) initiative that was implemented to build participants' writing capacity and contribute new insight into scholarly teaching.

Chapter 27 "Principles of Modeling CoPs for pedagogical change: Lessons learnt from practice 2006 to 2014" by Cochrane and Narayan the authors draw upon their experiences of facilitating CoPs within a variety of higher education contexts to identify several key principles for modelling CoPs to enable pedagogical change.

Chapter 20
Meitheal: An Irish Case Study in Building a Virtual Community of Practice in Transitional Times

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Abstract This chapter tells the story of the development of a largely on-line community of practice among participants from three institutions that are in the process of becoming incorporated. It is set in the socio-historical context of Ireland. An Irish metaphor, Meitheal, is used to describe the work, which built from initial collaboration by two of the authors in two different institutions, and spread 'virtually' to include the other authors. Leadership is spread, and boundaries are fluid. Adobe Connect (a web conferencing platform) and Google Hangouts (an online system for video chat and collaboration) were used, in conjunction with Google

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Communities, to share and develop tools and systems that have worked for the benefit of all. Specific examples of these tools and systems are presented, along with challenges, benefits, lessons learned and suggestions for future research. Literature about Communities of Practice, rhizomatic learning and Foucauldian analysis of power underpins the work.

Keywords Digital learning · Higher education · Collaboration · Academic development · Rhizomatic learning · Shared leadership · Virtual communities of practice · Ireland

20.1   Introduction

This chapter tells the story of the formation and operation of a virtual 'community of practice' in higher education currently under way in Dublin, Ireland. The authors, who write in the first person using given names subsequently, belong to three institutions being brought together (incorporated) within Dublin City University (DCU). The "incorporation" (the term being used) of institutions is never a straightforward enterprise, and there are always politics involved. A group of us with a shared interest in learning technologies, working at grassroots level, decided we would expand an existing 'e-meeting' that two colleagues, Suzanne and Patrick, were already running, in order to share experience, ideas and support as the incorporation gets under way. Suzanne, Patrick and Alan work in technology support; Elaine and Noeleen are Digital Pedagogy Advisors/Academic Management and Development; Enda is a lecturer; Clare, Pip and Muireann work in teaching enhancement, Clare as a learning technologist and Pip and Muireann as teaching and learning developers. Among the questions that arise in the literature, and which we explore in the chapter, are how a CoP comes into being, and the grounds on which it operates, including issues of leadership and membership.

   The chapter presents an account of this work as it developed. First, we describe the background of our work, including information for readers about the Irish educational context and the history and nature of the incorporating institutions. Next we present some underpinning theories and literature that are relevant to our work, and explain why we have chosen to work in the way that we have. Then we present specific examples of how the group's work has influenced each of us in our respective roles, so readers can see how our community of practice (CoP) has provided support and new ideas. Finally, after discussing challenges that the work has generated, benefits gained, and lessons learned in the process, we suggest some ideas for future research. We recognise that our work is based within a socio-historical context of Irish education that may or may not resonate with readers elsewhere. We also recognise that our group is small and the work still in its early stages but hope that the chapter provides examples of how politics and distance can be overcome using both occasional face-to-face and regular virtual meetings.

Throughout, we seek to investigate whether and how our experience is similar to that of other communities of practice described in the literature, and what our experience contributes to this field.

20.1.1 Background

As mentioned, Suzanne and Patrick both work in educational technology support, Suzanne at St Patrick's College, Drumcondra (SPD) and Patrick at Dublin City University. They had been communicating via Adobe Connect, a videoconferencing tool used at both institutions, for some weeks in 2014 when others became aware of the conversation, and were invited to join in. The purpose of these meetings initially was to share expertise around Adobe Connect[1] and in turn support the broader teaching staff to integrate the new tool into their teaching and learning. As part of the process of developing an identity for the group, the participants decided to name it "Meitheal", an Irish term. We explain this concept in some detail, as it well encapsulates our intentions for the group, and our ways of working. The name Meitheal comes from a centuries-old custom in Ireland where a group of people (typically neighbours) come together to help each other out with farming tasks. It describes a form of co-operative labour that usually occurred in response to seasonal demands that a farmer would be unable to meet on his own. For example, if a farmer needed help with the harvesting of crops or turf-cutting, "a Meitheal" team of helpers could form to assist for the required period of time. Generally, people would join teams expecting no reward other than food and drink or a return of work for work done (O'Dowd 1981).

Nowadays Ireland is far less dependent on its agricultural economy and with the increasing mechanisation of farms (particularly after 1945) the practice of Meitheal is not nearly as common as it once was. However, it is this spirit of mutual co-operation and support in changing times that underpins our Meitheal group, albeit in a technological rather than an agricultural context.

20.1.2 Institutional Histories

In this next section, we explain briefly the history of each institution and the incorporation process that is providing the 'transitional times' referred to in our chapter title. Mater Dei Institute of Education (MDI) was established in 1966 as a college of education specialising in the preparation of religious educators and teachers for post-primary schools. It caters for approximately 800 students on

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[1]Adobe Connect is the web conferencing platform that is used for live synchronous online classes at DCU.

undergraduate and postgraduate programmes of religious education, education, theology, philosophy and the humanities, and has been a college of DCU since 1999. St Patrick's College, Drumcondra, was established in 1875 as a college of education for primary school teachers and has been at the centre of Irish life for almost a century and a half. It provides programmes in education and humanities at undergraduate and postgraduate levels to over 2500 students and has been a college of DCU since 1993. Dublin City University enrolled its first students as the National Institute for Higher Education in 1980 and was awarded university status in 1989. Today the University provides undergraduate and postgraduate programmes to over 12,000 students (approximately 1000 of whom are off-campus students) within its four Faculties (Humanities and Social Sciences, Science and Health, Engineering and Computing, and DCU Business School) and the Open Education Unit (OEU) which manages distance programmes.

The DCU Incorporation process, currently under way, will see the development of a fifth Faculty within DCU that is envisaged as a world-class Institute of Education and will be based on the current SPD campus. Meitheal, our evolving online community of practice, seeks to enable staff to become involved in the incorporation process across the institutions in a supportive and proactive manner. The literature suggests that trust is vital in building sound CoPs (Houghton et al. 2015; Roberts 2006). Our CoP is based upon examples of collaboration and cooperation that have existed across all three campuses at both academic and administrative levels for many years; for instance, a number of shared academic programmes currently exist between the various institutes, while EOLAS (the online learning department at SPD) and staff at MDI have worked closely with colleagues in the Teaching Enhancement Unit (TEU), and Information System Services (ISS) based at DCU for several years before the incorporation process began. As these interactions have been positive, the foundations for trust within the CoP were therefore set prior to the inception of Meitheal. For the purposes of this chapter, we are using Houghton et al.'s (2015, p. 528) definition of a CoP as "a socio-linguistic grouping of people who communicate, participate and are actively engaged in shared practice" (citing Eckert 2006). The shared practice for us is the need to encourage sound uptake and utilisation of technology to enhance teaching and learning.

While the realisation of this incorporation will involve certain challenges, it is hoped that one of the major advantages will be the strengthening of expertise and an expansion of the collaboration of staff across these institutes. As the process progresses, working relationships have become stronger as infrastructural planning (such as ICT systems) moves to a co-ordinated approach at the University level. Developments such as the consolidation of previously independent Moodle[2] (Learning Management System) sites for MDI and SPD into that of DCU in summer 2013 have strengthened the long-established working relationships

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[2]Moodle is the Learning Management System in use across all three incorporating institutions, to facilitate online teaching.

between MDI, EOLAS at SPD and ISS/TEU at DCU. Because much of our Meitheal work relates to digital technologies and their uses, this kind of continuing collaboration has been vital. The literature on CoPs indicates the importance of recognising different "intellectually and geographically disparate environments" (Houghton et al. 2015, p. 528), as well as "organizations that, individually, might not have the time, resources or manpower to remain current" and have "different functional responsibilities, but [are] sharing a common product responsibility" (Kerno 2008, p. 71). All of us in Meitheal, in one way or another, are charged with developing DCU's 'twenty-first century campus' where technologies are used to benefit student learning.

Having provided readers with a brief overview of the socio-historical context in which we are located, and the development of closer relationships between our three institutions, we now turn to explaining the kinds of theories and literature that have motivated and supported our work. This will include a perusal of power and individual agency in our changing environment.

20.2 Theoretical Underpinnings to the Work

Lewin (1951, p. 69) argued that "There's nothing as practical as a good theory". While our work is obviously practice-based, there are a number of theories or recent academic writing that we have determined are relevant to our case study. We draw on this knowledge in everyday practice, and find it helpful in our understanding of the situations we encounter. These theories include the work done by Foucault on the workings of power in institutions, work done around communities of practice (CoPs) and rhizomatic learning. Lave and Wenger (1991) coined the term 'communities of practice' to describe a process of situated learning.

20.2.1 Power

The literature on CoPs is variable in addressing the workings of institutional and CoP power. Roberts (2006, p. 626) defines power as "the ability or capacity to achieve something, whether by influence, force or control". We are claiming in this chapter that we have, at grassroots level, exercised individual agency and power to contribute positively during the incorporation process, both to support each other's work and for the greater good of our staff and students. This exercising of power is not always evident in accounts of CoP practice. For instance Lea (2005, pp. 184–5) critiques Lave and Wenger's (1991) work as not addressing issues of agency, and not sufficiently addressing issues of inclusion and marginalisation. She refers to a "subtle shift that, arguably, has erased attention to issues of power and authority" in Wenger et al. (2002) work, stating that it focusses rather on "design and support for learning communities". Both Kerno (2008) and Roberts (2006) express opinions

about whether and how strong hierarchies, aligned with management support or otherwise, affect the workings of CoPs. In our situation, we have *three* kinds of organizational hierarchy and management structures potentially affecting the environment within which Meitheal seeks to practise. As later case study material will demonstrate, these have had no negative impact on our ability to continue with Meitheal's development, as we have had management support for the work. We use Foucault's work to explain our actions in Meitheal.

Michel Foucault's work in analysing the functioning of power in institutions is important in the context of our CoP. Where people may be reluctant to contribute to institutional development, particularly in the changing times that our institutions face here in Ireland, Foucault is adamant that each can exercise power at whatever level of the hierarchy they may be. He stated that "Individuals 'are always in the position of simultaneously undergoing and exercising … power'" (Foucault 1980, p. 98, in Bruce Ferguson 1999, p. 17). Olssen (1995, p. 73) explained that "Foucault is interested in explaining the discontinuities, breaks, and ruptures that signal fundamental changes in discursive systems" and our educational systems here in Ireland are certainly operating in times of fundamental change on several fronts, with strong encouragement from government for rationalisation and reconfiguration (HEA 2013). It is easy in such environments for staff to query whether those at the grassroots levels of our institutions can have any voice in what is happening, and for resistance to emerge. However, it has been our intention as colleagues in all three institutions to work together to make the incorporation a positive experience—a chance to grow. Middleton, a Foucauldian analyst, explained how this kind of collaboration can happen (Middleton 1998, p. 6):

> Like blood in the tiny capillaries of the human body, the disciplinary knowledge of professionals – articulated to the powers of government – flow through the conduits of intersecting professional networks, information systems, and social institutions.

Each of us operates as a professional in our own field and institution. Drawing on Foucault, we believe that by building relationships across the university to support our day to day practice as professionals, we can influence aspects of how the incorporation proceeds. Middleton (1998, p. xvi) further explains Foucault's insistence that "apparatuses of power" should be investigated less from top down perspectives and more from "the bottom-up perspective of everyday life" within our institutions. Foucault's thinking is that people are "vehicles of power, not its points of application" (Foucault 1980, p. 98) and that power circulates in a net-like way, not being held exclusively in anybody's hands as property or money can be. Recognising that, we have proceeded confidently in our intention to create a virtual community of practice across the three institutions. In that community we share ideas and resources, discuss educational practice face-to-face through online mediation, and collaborate where possible, sometimes offering workshops and sharing speakers across campuses.

20.2.2 Communities of Practice Power Issues

In their writing, both Kerno (2008) and Roberts (2006) discuss the impact of institutional hierarchy (hence, power operations) on the functioning of CoPs. Kerno's examples are drawn from industry as well as from the literature. He sees "unresolved issues and difficulties that are not readily apparent" and that "typically occur at the structural, ecological, and cultural level of organizational analysis" (2008, p. 73). Given the way that CoPs operate in organic and fluid ways, he foresees tensions for management in trying to 'manage' such groups. Notwithstanding, he claims that management support must be present across the institutional hierarchies in order for progress to occur. Roberts (2006), conversely, citing Coopey (1998), indicates that management ideology and practices may work against the establishment of trust in workplaces—a point that was evident also in Houghton et al.'s study. They found that respondents in their CoP research were suspicious about the LMS (learning management system) used for the online part of their CoP, as "it looked and felt 'corporate', and this led to suspicions about its purpose" (Houghton et al. 2015, p. 534). One aspect of power operation that Foucault investigated was the panopticon, a centralised guard tower originally used in prisons to ensure that prisoners could always be observed. He generalised this notion to issues of 'constant observation' in institutions, and as Houghton et al. (2015, p. 533) explained, respondents in their business faculty-related study "were sceptical of the privacy, trust, ownership and viewership of the TCoP sites, particularly the institutional ones". However we in Meitheal used the LMS, Moodle, and no such suspicions were evident in our group. The trust that had built up prior to the inception of Meitheal is, we believe, a reason for this lack of suspicion. So, probably, is the limited and voluntary nature of our group. It was *our* work, although supported by management in allowing us the time for our activities. All members could freely include the virtual meetings and subsequent asynchronous discussions/reflections and collaborative work into their schedules.

So, from Foucault's work we draw confidence, in our own areas, to act in ways that we believe will contribute positively to the ongoing development of the incorporating institutions. We also refer to the literature around building CoPs before proceeding to describe how we use rhizomatic learning in this work. In CoPs, individuals who are novice learners within, or on the margins of, a field of practice can learn from those more experienced. They can then become strongly embedded in the CoP, members of which can, in their turn, share insights with other newcomers to the community. Wenger et al. (2002, p. 4) described CoPs as "groups of people who share a concern, a set of problems, or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis". When readers look at the case study material later in the chapter, they will see ways in which Suzanne and Patrick, as 'experts' in the field initially, shared their experience and ideas with later comers to the group, some quite novice and others more experienced. Eventually over time, members of the group have built up expertise in one area or another to the extent that they have been happy to share this

area with the wider group, including, at times, newcomers who have briefly 'visited'. The power issues around inclusion/marginalisation will be considered shortly, as will the intentions of the Meitheal group in terms of expansion.

Lave and Wenger (1991, in Illeris 2002) described 'peripheral participation'. In this, the learner is recognised as someone who starts at the periphery and will gradually, through participation in more and more community activity, learn cognitively, emotionally and socially the work areas of the community. In this way, they gradually move from the periphery to a more central position, taking up full membership of the community. The term 'apprenticeship' is also used in much of the literature, e.g. Kerno (2008) and McArdle and Coutts (2010). Muireann described how 'moving into membership' resonates with her. She joined Meitheal when it was already established, and gradually got to know what was going on with the group as well as learning about technologies pertinent to her job. It is worth noting, however, that Gee's work on 'semiotic social spaces' (SSS) has been posited as an alternative to CoP practice. Some of the points that Gee argues are typical of SSSs include that newcomers and 'masters' share common space; that both individual and distributed knowledge is encouraged in an SSS (i.e., both the individual and the group benefits); that dispersed knowledge is accessed 'outside of' the group; and that leadership is porous with leaders being resources also (Gee 2005, pp. 225–8). Each of these points has been evident in Meitheal. We do not work to a strict 'apprenticeship' model but each, including those who are new to technologies, is encouraged to contribute and to demonstrate as they encounter a useful app or tool. We each hunt down apps or tools 'outside of the group' to support student learning, and share these both face to face (when such meetings happen sporadically) and online (regularly).

Interestingly, while some of the literature suggests that CoPs have established 'rules' or 'values', ours have not been articulated as such, although inherent in the Meitheal concept. McArdle and Coutts (2010, p. 208) suggest that reflection is needed to examine 'ground rules and values' that are implied in CoPs, while Houghton et al. (2015, p. 529) warn that "the way academics tend to understand teaching and learning within departments is internalised and standardised over time, forming 'regimes' of teaching and learning" (citing Trowler and Cooper 2002). The warning pertains to academics feeling 'pushed into' CoPs or having to share information online, perceiving this as 'disruptive and stressful'. In our CoP, we *sought* to develop the CoP, perceiving it as a positive. As Houghton et al. express it, "Success in online CoP development is partly dependent on members embracing rather than resisting the use of technology" (2015, p. 529). Despite the fact that at least one of us (Pip) is a long-established academic with little previous experience of online teaching, both newbies and experienced technologists have 'embraced the use of technology' and seen it as an effective and economical way of meeting, faced with time constraints and geographically separated campuses. We may not have articulated our values per se, but we believe our experience to date indicates that these would include equity, democracy, non-hierarchical practice with shared leadership, inclusion, supportive challenges and widespread sharing.

One of our group has already written about the digital operation of communities of practice (Stone 2011, pp. 21–22). Suzanne stated:

> Wenger (2006) highlights the opportunities for developing Communities of Practice in the online environment. New technologies such as the Internet, and the advent of Web 2.0 applications will allow communities to be formed regardless of geography (Wenger 2006). In fact, technologies such as Web 2.0 applications allow for the development of communities of practice regardless of place and time.

However, resistance to structuring of such communities can happen if they are perceived to be threatening to existing information connections. Gannon-Leary and Fontainha (2007) warn that in their study, they identified in some disciplines a culture of individuality rather than sharing; of the difficulty of some forms of expertise being able to be effectively shared online; of the shifting membership inherent in digital communities of practice; and of feelings of threat to existing collegiality in groups that may already occur face-to-face. A thornier issue was also identified in their work:

> Crossing virtual boundaries between institutions can result in institutional-related problems, especially legal issues, e.g. data protection, intellectual property (Stokols et al. 2003, 2005; Cummings and Kiesler 2005). *I worry about intellectual property rights: We give too much away…nobody else gives as much detail electronically…* (UK academic). (Gannon-Leary and Fontainha 2007, p. 4, italics theirs)

Fortunately, in our incorporating situation, this has not so far occurred as a problem. Indeed, the incorporation is likely to *lessen* such tensions we believe.

But there can be other ways in which digital communities of practice can be both threatening, and in which this threat can be addressed. Wang and Gearhart (2006) suggest that learners of all types can feel alienated in cyberspace. They suggest that asynchronous communication can help to dispel this alienation. Using asynchronous as opposed to synchronous communication also has the benefit of allowing time for reflection.

20.2.3   Trust

This is an issue that relates to power and its use in relationships. One aspect of trust that we've noticed in Meitheal is the way that our asynchronous communication, buttressed at times by face to face conversations, has enabled us to build trust within our community. Examples of how this has benefited our practice are presented later in the chapter. Gannon-Leary and Fontainha (2007, p. 5) identified the development of trust as a critical success factor (CSF) in communities of practice.

> Communication, therefore, is another CSF and is fundamental in the development of trust and the community. Along with trust, communication allows the CoP to grow, change and achieve its objectives. Trust is built through continued interaction developing common values and a shared understanding (Gibson and Manuel 2003; Amin and Roberts 2006).

A third CSF involves CoP membership. Andrews and Schwarz (2002) have reported the benefits of identifying group members with prior knowledge of each other to help consolidate membership and develop trust.

Their identification of the importance of these issues is reiterated by Preece (2004), who wrote that "Trust, empathy and reciprocity are the building blocks for relationships that unite members" (Preece 2004, p. 295). Preece argues for "relationships that build a sense of trust and mutual obligation; and a common language and context that is shared by community members" (Preece 2004, pp. 297–8). The members of our Meitheal group agree that through developing trusting relationships with the group, sharing, reciprocity and learning from one another has taken place.

20.2.4 Rhizomatic Learning

While Meitheal meetings have operated synchronously, using platforms that we discuss later, sessions have been recorded. Accordingly, those who were not able to join in face to face online, but who wish to visit the discussion subsequently, can do so. Our CoP demonstrates the fluid boundaries suggested by Wenger, and it demonstrates many of the features of rhizomatic learning.

Deleuze and Guattari (1988, p. 25) wrote:

A Rhizome has no beginning or end; it is always in the middle, between things, interbeing...The middle is by no means an average; on the contrary, it is where things pick up speed. *Between* things does not designate a localizable relation going from one thing to the other and back again, but a perpendicular direction, a transversal movement that sweeps one *and* the other away, a stream without beginning or end that undermines its banks and picks up speed in the middle.

We will refer to this kind of fluidity in our 'lessons learned' section. A notable characteristic of our particular community of practice is an ethos of learning that could be described as 'rhizomatic' in nature. In the purely botanical sense, a rhizome refers to a plant—usually an underground, horizontal stem (such as ginger)—that produces shoots above and roots below from which new plants grow. Deleuze and Guattari, writing in their seminal work *A Thousand Plateaus* (1988), use the metaphor of a rhizome to introduce a way of thinking that is deliberately non-linear and adaptable in style. They, and others such as Bailey et al. (2007), describe the essential characteristics that define a rhizomatic philosophy, paraphrased below:

Connection and Heterogeneity, which implies that any point of the network can be connected to another point;

Multiplicity where there is continual evolution of rules because new elements are continually being added;

Assignifying Rupture, which means that if broken or ruptured at any point, the 'plant' or network will restart; and

Cartography and Decalomania where, similarly to a map, knowledge can be accessed and utilised in multiple ways.

Because our Meitheal work often has to operate on a 'stop-start' basis, with members joining in as and when they can, the relevance of a rhizomatic philosophy has obvious merit. The fluidity of being able to come and go as one wishes, and as work commitments demand, has resulted in an atmosphere of sharing and acceptance in the group that is indicative of considerable trust. We would certainly recommend this type of non-hierarchical, tolerant practice to others seeking to develop online CoPs.

Dave Cormier was the first educationalist to apply the rhizomatic metaphor to learning, and the digital learning landscape in particular. As he puts it: "A rhizomatic plant has no center and no defined boundary; rather, it is made up of a number of semi-independent nodes, each of which is capable of growing and spreading on its own, bounded only by the limits of its habitat" (Cormier 2008, unpaginated). While, as we have shown, a history of collaboration exists between our respective campuses, each institution operated to a large extent autonomously in their own 'habitat'. With greater collaboration and stronger infrastructural links emerging from the incorporation process, the 'limits of our habitats' are now blurring. Also, in Meitheal, there has not been a 'centre' per se. The group started initially with Suzanne (SPD) and Patrick (DCU), and has subsequently spread rhizomatically. Now, any one of us can take the lead in a session, and we do—newbie and experienced status notwithstanding.

Cormier goes on to explain *what* is discussed in such an environment, putting emphasis on the constant need for negotiation that is also a hallmark of CoP theory.

> In the rhizomatic model of learning, curriculum is not driven by predefined inputs from experts; it is constructed and negotiated in real time by the contributions of those engaged in the learning process. This community acts as the curriculum, spontaneously shaping, constructing, and reconstructing itself and the subject of its learning in the same way that the rhizome responds to changing environmental conditions. (Cormier 2008, unpaginated)

He suggests that the rhizome metaphor "may be particularly apt as a model for disciplines on the bleeding edge where the canon is fluid and knowledge is a moving target." While there are various roles within our Meitheal group, all of us need to keep up to date with ever-evolving technologies and teaching ideas so a rhizomatic, highly adaptable approach to our professional learning has become essential.

Having described our contexts and our theoretical underpinnings, in the remainder of the chapter we turn to how we worked in a 'Meitheal' way to create and develop our online and face to face community of practice across our incorporating institutions. As explained, the Meitheal community builds on collaborative work that had been going on for some time.

20.3   Dreaming and Scheming—Our Case Study

In the summer of 2013, an upgrade of Moodle was introduced to DCU and as part of this process the SPD Moodle site was re-situated with the DCU Moodle site. This development reinforced the long-established working relationships between EOLAS at SPD and ISS/TEU at DCU. Staff at both campuses shared resources and expertise to support staff in using the new version of Moodle including a range of video guides available to staff across our incorporating institutions. In May 2013, regular meetings, both face to face and via telephone, were established by the learning technologists at SPD and DCU to ensure clear communication between the separate physical campuses in relation to eLearning systems integration and developments as part of the incorporation. While the more formal incorporation process was guided at institutional level, an open communication channel at grassroots level was identified as essential to ensure that any developments in relation to eLearning accommodated the needs of both campuses.

In early 2014, these conversations evolved into online meetings using Adobe Connect, an online synchronous web conferencing tool newly available to both campuses. Initially the purpose of moving to online meetings to the Adobe Connect platform was to facilitate the development of expertise around this new platform, a responsibility that lay with learning technologists at both SPD and DCU. While this work initially involved just Suzanne and Patrick, the group quickly grew to include other staff at the TEU, OEU and MDI. The OEU staff also have responsibilities for supporting a wide range of distance tutors new to using Adobe Connect, so the group had a common purpose right from the start. Initially, the two learning technologists took leadership roles in the group demonstrating the capabilities and functionalities of Adobe Connect to those just beginning to use the tool. However, as others began to use the tool, the leadership shifted across the group and has emerged very much as a shared leadership model, with each member taking a lead role as appropriate, in keeping with the Rhizomatic theory.

The group continue to share practice and expertise around Adobe Connect, but from the start, moved to expand the range of shared concerns to the broader topic of teaching and learning, with a particular focus on technology supported teaching and learning. While the members include many involved in supporting the use of technology in teaching and learning, the focus for all members lies with pedagogical concerns beyond the technology. Adobe Connect has proven a very useful tool in terms of this core focus of the pedagogical value of various technologies. For example, the screen sharing functionality has allowed the group to demonstrate a variety of tools in action, and to reflect upon and discuss these tools in terms of their pedagogical value.

While these online synchronous sessions have allowed the group to explore a variety of topics together in real time, the group identified the need for an asynchronous extension of the CoP to allow for greater reflection on the work of the group, and thus avoid becoming simply 'toolkit' sessions (solution-focused rather than reflective) as described by Houghton et al. (2015). In choosing an

asynchronous tool, the group found that Google+ Communities offered many of the characteristics required. Firstly, Google+ Communities was available to all staff in the Meitheal group and so minimal administration/access issues were involved when introducing the tool. In addition, two of our members had positive prior experiences with Google+ Communities. The tool also had the advantage of a commenting functionality which the group hoped would allow for more reflection within the CoP. Using Google+ also allows the group to extend the group outwards to any new members who might join from an outside organisation in the future as long as they have a gmail address, although we are not, per se, expansionist in our intentions. The addition of an asynchronous option for Meitheal has resulted in the group developing a more reflective element to the CoP. The group now has an open dialogue in place, allowing members to reflect on the work of the synchronous sessions in between these online meetings and share reflections on their own work and the work of their colleagues as it relates to prior discussion. The asynchronous element has also extended to the use of Google Docs and Google Calendar which the group use for collaborative work planning more recently.

At intervals, the group extended membership to other staff members across the DCU campus, in particular to support two lecturers wanting practice in using Adobe Connect in their teaching and learning. The purpose and structure of Meitheal remains fluid, as appropriate in a rhizomatic process, as these two lecturers have not continued to participate in the group, with their immediate needs having been met. They have, however, given positive feedback on the opportunity, and what they learned from the experience. Meitheal will continue to allow for the inclusion of peripheral members as appropriate, whether regularly or temporarily.

This permissiveness helps to address some of the concerns, both relating to power and more generally, expressed by writers such as Houghton et al. (2015, pp. 534–6). Their respondents were resistant for reasons of 'time jealousy', loss of confidentiality, not seeing value in the activity, difficulties in using the technology or lack of interest in it, and seeing 'no cash value' in it. Time jealousy was also cited by Kerno (2008) as was competitiveness, not having formally sanctioned power, and frequently being located within a 'Western' orientation towards self rather than the group (see also Roberts 2006). Both Houghton et al's business faculty orientation, and Kerno's business/organisational investigation, may be providing examples of the kind of disciplinary 'insularity' that the former alluded to. Our CoP, by contrast, builds around expertise and experience in education and technology. Furthermore, despite the generalist claims by the two previously-cited authors about East/West orientations, as should be evident from our description of Meitheal in Ireland currently and historically, there is support for the idea of the group as well as the individual benefiting from collaboration. To be fair to both authors, though, they call for further investigation into whether this East/West dichotomy is valid, through provision of exemplars. Roberts states: "It would be helpful to examine the nature of communities of practice of various sizes, in different sectors, and in a variety of socio-cultural contexts" (2006, p. 636). Our hope is that our case study is contributing to the literature in just such a way.

While fluidity and flexibility are cornerstones of Meitheal, and as indicated earlier we don't have 'rules', it is also important to have some loose structures/ protocols to ensure the sustainability of the community. Generally, a loose agenda was circulated in advance of the session as early sessions lacked some focus. In adopting some structure it was important to name a host for each session, without attributing a leadership role to the group on a permanent basis.

Having described how our Meitheal CoP became established and grew, we will now describe some of the challenges we have faced; how we incorporate learning from Meitheal into our own practice; and lessons learned in the process. Finally, we will conclude the chapter with ideas for future research.

20.4 Challenges and Benefits

The challenges we have faced in our work, and with regard to Meitheal, vary according to our respective backgrounds and experience but in general, do *not* represent the main challenges discussed in the literature, perhaps because of the distinct socio-economic and institutional circumstances within which we are located, and because we are more 'education service-oriented' than the business/industry focus of much of the literature. In this section, we also identify a range of benefits from our involvement in Meitheal as we speak with our individual voices.

20.4.1 Time Constraints and Management

Enda believes that one of the great challenges is simply the constraint placed upon staff by busy schedules and how this impacts on the time available for this hugely valuable collaboration.

> Several of us have found it difficult to 'attend' the agreed two-weekly slot on a number of occasions and in this regard the digital technologies have proved very helpful. For instance, the fact that the meetings are recorded and can be played back at a later date is most beneficial; if you miss the meeting, you can catch up on the recording later and follow up with colleagues by other means. Also, the Google Community has proved particularly invaluable in this regard. It enables asynchronous collaboration, sharing of resources and dialogue with colleagues, which happens outside of the synchronous Adobe Connect sessions.

Suzanne describes scheduling issues as potentially problematic, as many of us work to different schedules. Roberts (2006) also described 'relational proximity' and the problems of dispersed teams, but indicated that these may be more effectively addressed through ICTs, and indeed, Suzanne shows how our experience supports this contention.

> Generally, the entire group is not online for every meeting and this is where the asynchronous extension of the community of practice became invaluable. Those who cannot commit to the scheduled online meeting on any given fortnight, often contribute to conversations on Google+ in the interim, thus remaining an active member of the community. This flexibility is a very important part of the ethos of the group, encouraging engagement without adding undue pressure to busy workloads.

As indicated earlier, the 'voluntary' nature of participation within Meitheal, coupled with a supportive management that allows worker autonomy, have helped our work. As Roberts states it, 'Communities of practice may be better suited to harmonious and trusting organizational environments in which workers are given a high degree of autonomy' (2006, p. 3).

20.4.2   Techno-Glitches

Suzanne describes Adobe Connect as a long established web conferencing tool that is relatively stable and reliable in terms of synchronous online learning. However, as with all technologies, there were some technical challenges particularly at the outset of regular meetings.

> A reasonable web connection is required for successful Adobe Connect sessions, and some issues did arise for participants depending on the type of internet connection used. Therefore, the flexibility afforded by the technology in logging in from home offices/elsewhere was somewhat curtailed depending on web connections. System access issues also arose due to the integration of Adobe Connect within Moodle. In addition, some functionality proved difficult to use at times. For example, using a number of web cameras simultaneously was not always possible as the bandwidth was unable to support video streaming. The process of working through these various issues has been an invaluable learning experience for me in terms of supporting staff at SPD in using Adobe Connect. Importantly, it has also allowed me to pre-empt issues that might arise in live classes for staff which has benefited both staff and students engaged in synchronous online learning at SPD.

Technological problems have been identified by several writers in the field, including Houghton et al. (2015) and Gannon-Leary and Fontainha (2007, p. 5). The latter authors argue that ICTs 'lack the richness of face-to-face communication' but our use of both Hangouts and Adobe Connect have permitted us to see each other, even though to smooth out technological issues, we've mainly opted to leave webcams off on Adobe Connect. Our experience does, however, back Gannon-Leary and Fontainha's caution by suggesting that it is important, in building community, to use ICTs that do permit at least occasional 'virtual face-to-face' contact.

20.4.3   Ongoing Professional Development

Clare notes that a challenge of our roles is keeping up to speed with new technologies and gaining practical experience of these.

> Rather ironically, over the years I have found myself on occasion pointing academics to tools that I haven't actually used or experienced myself. The Meitheal community not only alerts me to particularly useful tools, blogs and apps relevant to educational technologies (thus filtering the noise of multiple recommendations) but gives an opportunity to see them being demonstrated so that I can immediately put them into practice where applicable. The Canva tool[3] is one example I can recall being recommended that I have since directly employed.

The opportunity to participate and present using either Hangouts or Adobe Connect meetings regularly had also been invaluable in helping to address the challenges in learning how to present a 'professional' virtual classroom session.

> I would also point to the fact that the consistency/frequency of these sessions is vital as regular practice is important to develop a degree of competency and comfort with this technology and medium. (Having two weeks between each meeting provides the ideal level of regularity for me as weekly sessions would simply have been too much). Finally, I can proudly state that I have hosted two webinar sessions for other audiences in recent months and there is simply no way I could have done that without getting practice on Meitheal.

McArdle and Coutts, writing about continuous professional development and collaborative engagement for professional renewal, stated that 'the idea of CPD taking place within a community of practice thus opens up new discourses that link naturally with ideas of professional renewal and the recreation of professional knowledge' (2010, p. 211).Their research very much synchronises with our experience in Meitheal, as Clare's words suggest. This aspect could be validated via future research in other contexts.

20.4.4   Being a 'Newbie'

Pip comments on the challenges for her of a 'novice' stature both as an e-educator and of being new to Ireland. She had done some e-learning courses at her previous institutions but never had to teach using the skills, which had largely been forgotten. She felt a 'new kid on the block' compared to colleagues, but

> …one of the big advantages of being in a group such as Meitheal is that it has been an ideal forum to learn from the experiences of others. Adobe Connect has enabled me to see how people teach using this form of delivery (and has subsequently allowed me to conduct 'classroom observations' for OEU staff who teach via this medium - a nice 'rhizomatic' spinoff). So there has been modelling of the ideas and links that people have been discussing on a given day. The 'share my screen' feature has enabled facilitators to show

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[3]Canva is a graphic design tool, available from www.canva.com.

everyone YouTube clips, apps and screencasts that help us to see the relevance and applicability of the material being shared. As a strongly visual learner, I have found that really valuable.

Pip has found Meitheal connections effective in helping her, as an experienced staff developer from New Zealand, to build professional networks of the kind she had built up over decades back home. She has met Suzanne and Enda at several face-to-face events but also sees them regularly online, and appreciates their skills and collaborative natures across institutions.

The most recent collaboration is the compilation of a Google Doc[4] that enables us all to post up our respective professional development events and their dates before these are externally advertised. This enables us to notify one another of upcoming staff development events. It also lets us see what's coming up in each other's institutions, which we may want to attend or to encourage others to attend. We have now adapted the Google Docs method to a shared Google Calendar as well. We have also compiled this chapter using Google Docs from our diverse locations, and allowing for our respective work commitments!

20.4.5 Technology Leadership

Patrick describes how Meitheal has proved to be an effective platform to share ideas amongst colleagues. It has also allowed colleagues to provide valued feedback on workshops.

> I was preparing a workshop on how to film, edit and produce a video using the recently installed recording studio within NIDL. My plan was to deliver a traditional workshop in which the attendees would listen as I demonstrated how to use the equipment during each stage. Upon reflection I realised that I could design a flipped workshop by producing a series of demonstration videos using a wearable camera[5] I had demonstrated during one of the Meitheal meetings. The Meitheal group members were the participants in the workshop and prior to attending, they were required to view three videos (one each concerning filming, editing and producing). The workshop required three groups (with at least two members in each group) to complete a video by following the steps outlined in the demonstration videos. I was able to rotate the groups so that one group was working on filming while another undertook editing and a third captioning. The videos were able to be replayed in a separate room to jog memories while one group or the other was working in the studio.

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[4]Google Docs are an app that allows multiple people to contribute to a work, either asynchronously or synchronously.

[5]This small head-mounted camera has a built-in microphone which is located on the lens. The system lets users capture picture and sound simultaneously, allowing close-up views of equipment and techniques.

Patrick states that this workshop would not have happened without the ideas generated and discussed within Meitheal. He had also received vital feedback from the group, via an online survey instrument, on how to improve the workshop for other facilitators and future participants.

20.4.6   Knowledge Extension

Enda has found participation in the Meitheal group to be hugely beneficial for a number of reasons. It has been invaluable for deepening understanding between participants regarding current and planned practices, processes and projects in each institution, which is very beneficial in its own right but particularly important with regard to the forthcoming incorporation. He has also discovered new tools.

> Through the regular (informal) presentations by participants I have learned about a number of edtech tools with which I was not familiar (such as Canva and Powtoon[6]) and have since implemented a number of these. Meitheal is a source of support for all involved, where participants can bring queries, problems and initial ideas for supportive discussion and deliberation. A good example of this is a project which I have initiated, known as Project 252 (http://project252.donenda.com). The Meitheal group has been particularly helpful in terms of being a forum to float ideas and offer suggestions and resources on how to progress and enhance the project, as well as submit a number of contributions to the project itself.

20.4.7   Meitheal Environment and Practices

Noeleen reports having found the Meitheal meetings to be very informative in terms of exploring technologies she is currently using but also new technologies and tools which could prove very useful for the extended OEU team, the tutors.

> The somewhat casual and informal setting of the meetings has allowed us to share thoughts and ideas and, more importantly, ask questions without fear. Similar to other members of the group, I too have enjoyed the opportunity to engage with colleagues across units and campuses without the pressure of negotiating time for travel to a face-to-face meet up. The added bonus of recorded meetings allows me to catch up on sessions I have missed due to other commitments, but also to recap on practical tips such as the management of breakout rooms in online tutorials. Having a group to approach when testing new ideas or exploring best practice is great; the Meitheal group is certainly very supportive of this.

The 'casual and informal' meeting process has occasionally seen moments—sometimes extended throughout the entire meeting—of great hilarity. We think this is very good for team cohesion and stress reduction in our busy and pressured workplaces. Interestingly, this kind of informality and humour has not been a strong

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[6]This software allows users to construct cartoon-type presentations, complete with sound. See www.powtoon.com.

feature of the literature we have perused for this chapter. This perhaps provides an avenue for future research, particularly as it pertains to reducing tension in transitional times.

20.4.8   Benefits of Collaboration

Elaine sees the main advantage of Meitheal as being the subsequent effects of being part of a collaborative group.

> This collaboration has had a huge influence on many aspects of my working life through the sharing of expertise and knowledge on simple, yet important, aspects of working within a large organization to areas of technical, pedagogical and academic development. One example of this includes my involvement in the writing of this chapter. Meitheal has provided a safe environment to explore new technologies and to gain knowledge on tools and applications that it would not have been possible to test within a small team.

She believes that participating in the group has afforded her the opportunity to gain confidence in her professional abilities. Part of her role is to provide Adobe Connect support, training and/or instructional documentation to tutors and students within the humanities programmes offered by the OEU.

> While the task of detailing the features and interface of Adobe Connect was reasonably easy, I had relatively little experience of running sessions. Partaking in Meitheal Adobe Connect sessions provided the opportunity to gain the confidence and familiarity needed to confidently support tutors and students.

> One of the strengths of Meitheal lies in the dynamic nature of the membership of the group as it can facilitate the sharing of a wide range of skills and expertise, as people join and leave the group. One final aspect, emerging from the collaborative nature of Meitheal, was the reduction in anxiety when exploring new technologies and the mutual benefit of working with colleagues on projects.

We referred earlier to the workings of power in large institutions. Elaine's words indicate that, for her, the sharing and practice opportunities available in our CoP have enabled her to work more confidently, with less anxiety, and to contribute positively with colleagues in projects. This type of experience builds agency, and enables staff to exercise localised power in shifting environments. Her comments also reinforce the 'apprenticeship' aspects of CoPs that much of the literature stresses.

Elaine's and Clare's comments on the benefits of collaboration, the building of confidence in technology usage, and the opportunities for professional development in pressured workplaces are reinforced by Suzanne. She states:

> The Meitheal online learning community of practice has been invaluable to me on so many levels. In particular, it has been an excellent means of building a relationship with colleagues across campuses as a strong level of collegiality emerged from the shared learning experience. Furthermore, Meitheal has supported staff professional development around Adobe Connect by providing a supportive environment for me to gain experience with the platform.

Suzanne describes one particularly positive experience for her that relates to professional development in Adobe Connect breakout room functionality.

> While I had worked with staff at SPD to demonstrate the technical processes involved with managing online breakout rooms, I had struggled to convey the breakout room 'experience' to staff in advance of live sessions. It was difficult to gather a group larger than four/five at one time due to busy schedules but Meitheal provided a ready-made group for this purpose and the feedback from staff was incredibly positive.

One of these staff members said:

> The group was really useful because in order to try out some of the teaching and learning/interactive tools in a real and meaningful way, it was necessary to have a reasonably sized group. As staff we are all so busy that it would be impossible to get a group of colleagues together from a department to do this and trying these things with one, two or even three colleagues doesn't replicate the real teaching and learning class context where we could have anything up to 55 students.

The ability to compare platforms that might be used by teachers at SPD was also a benefit for Suzanne. She explains that SPD will have a large group of students on both the PME (Professional Masters in Education) and B.Ed (Bachelor of Education) programmes (400+ and 120+) who will be on extended school placement in term one of 2015–2016. A new online learning framework is currently in development to meet the needs of these students. Part of the requirements will involve facilitating students to meet online to participate in group work. As Adobe Connect requires the presence of a host for full functionality, it is considered unsuitable for such online meetings. Meitheal has facilitated the exploration and testing of Google Hangouts and enabled assessment of this platform for use with these groups of students. Furthermore, staff involved in school placement and course directors will also need to familiarise themselves with this process and Meitheal provides a space for this. This point was also reinforced by Enda, who said MDI is investigating the use of Hangouts for these purposes.

These vignettes demonstrate the meaningful engagement of Meitheal members within our CoP. This engagement has resulted in our learning about new tools and practices that have been successively been applied to our day to day practices. We hope that our experiences have given others thinking of building an online CoP some ideas about the benefits and challenges of such work. We discuss the implications of our experience, including its resonance or otherwise with the literature on CoPs, below.

20.5 Lessons Learned, Questions for the Future

20.5.1 Building Trust

As described in our literature review section, the building and maintenance of trust is vital to the healthy functioning of CoPs. The points below indicate what has worked for us and what, despite the short operation of our CoP, may work well for others.

- The grassroots level structure. Shared/fluid leadership negotiated by the group depending on the topic allowed members to become empowered early in the development without feeling pressure to take a leadership role until they were comfortable with the technology. Giving ourselves an identity, Meitheal, near the start allowed us to make our philosophy explicit and so guide the progress of the group, even though we didn't specify 'rules' as such. Some structure was necessary for sessions to ensure efficient use of time.
- Keeping the group small really worked in terms of trust. Even though we know each other now in a face to face context, Meitheal helped with this, and for us to engage online across units and institutions. If the group had been larger to start with, we query whether this would have worked. It seemed to have been problematic for Houghton et al. (2015).

20.5.2 Building Confidence

Several of the authors of CoP literature indicate that confidence in being able to access the virtual CoP (Gannon-Leary and Fontainha 2007); to speak in cross-disciplinary conversations in a CoP (Gannon-Leary and Fontainha 2007; Houghton et al. 2015; Kerno 2008); and becoming integrated into the CoP from 'apprentice' status (Gee 2005) are important skills to develop. In our case, we found that:

- Allowing each member, even the self-proclaimed 'newbies', to share leadership and to demonstrate emerging technologies within the CoP was both motivating and supportive for the entire group.
- The informal environment is such that mistakes in using the technology are seen as opportunities from which all can learn.
- We recommend selecting online tools that people are going to need to learn anyway. We deliberately chose Adobe Connect (which is used to teach in all our institutions in some ways) and the Google suite of tools (Hangouts, G+) as they are all types of technology that our institutions support and encourage. Hence, we could build our own confidence and use this to support our staff and students to build theirs.

20.5.3 Engaging Participants (with the Focus of the Group and the Technology)

Failure to engage at all, disengagement or resistance are common themes in the literature. We addressed these as follows.

- The grassroots level structure—this allowed the group to dictate its own focus/topics which ensured that motivation was high right from the start.
- Starting by focusing on developing skills around the platform/s we used served us well. This happened by accident for us, but perhaps when starting a VCoP each group does need to spend some time developing skills around the online platform of choice. Looking at the literature (e.g. Dube et al. 2006; Houghton et al. 2015) some groups have found it difficult to engage members with the technology and we definitely found that time was required to support the use of the platform initially.
- Using established technologies probably helped us more than we realised. Our choice of G+ served us particularly well as it was tried and tested and worked very efficiently as it was linked to our email addresses. Accordingly, when a Meitheal member posts a resource to the Community, we are immediately notified and can choose when and whether to investigate.

20.5.4 Time Management Issues

Globally, higher education staff have to manage competing pressures on their time. In our transitional situation, there is the additional issue of geographical location and travel needs. Nonetheless, we think our choice of a virtual CoP has helped, as has our flexibility.

- Time was an issue for us initially when we had the weekly sessions. Moving to fortnightly sessions has worked well for us and could be a guideline for others. The fact that there is no sense of pressure to attend all sessions has also worked well, as we have generally had reasonably good attendance and engagement with the asynchronous communication between sessions. Time to attend live sessions (virtual or face to face) will always be an issue, but the support of having recordings available and the use of the Google+ asynchronous tool has worked well.
- As indicated, having members on three different campuses could have caused problems with face-to-face meetings. Having the online options has significantly reduced these problems, while still allowing connection and community to grow without hassles of travel time or parking issues

20.5.5 Challenges for the Future of the Group

We have learned a lot as our Meitheal work has progressed. There are also significant warnings in the literature on what might be in store for us. These issues include:

- How to negotiate shared leadership if the group expands. One of our 'temporary visitors' has already suggested periphery members taking a lead role for some sessions. Gannon-Leary and Fontainha (2007, p. 6) state that 'As the community becomes more distributed the need for driving leadership becomes more important'. We have worked effectively with non-hierarchical leadership; whether this same flexibility would maintain the community if it expands is an issue for future research.
- A high level of 'digital literacy' within our existing group, particularly amongst those who set up the LMS-based and G+ systems initially, will have helped assuage issues experienced by others in relation to confidentiality (Houghton et al. 2015). This might be an issue for us if we expand the group.
- Selling the need to engage online may be a challenge if Meitheal extends across the campuses, but with a lot of staff needing to move into online/blended learning we will have to find a way and this could be a great opportunity as well.

20.6 Conclusion

We believe that our initiative in working collaboratively in the Meitheal community of practice has been a positive step forward in times of uncertainty and change. As Marcus and Fischer (1986, p. 166) said, "In periods when fields are without secure foundations, practice becomes the engine of innovation". Our individual foundations as autonomous institutions feel subject to change as incorporation proceeds, but we think there is great potential in the new times. Our group has extended 'normal practice' innovatively to help with the forward movement. We have provided evidence in this chapter of how our participation in Meitheal has stimulated each of us in various ways to improve and extend our practice, to share skills with others, and to role model use of technologies to each other and our students.

Our collaboration at grassroots level has illustrated Foucault's claim that power can circulate in 'net-like' ways across the interstices of institutions and that individuals can be the vehicles of power, not just its points of application (Foucault 1980). We have not waited for enforced collaboration once the incorporation process has run its course, which the literature suggests can work against healthy CoP engagement and operation (e.g. Houghton et al. 2015). Instead, we have acted as 'specific intellectuals' (Foucault) to assist in a positive way to implement an inevitable change in ways that work for us. As Taylor and De Lourdes Machado (2006, p. 155) stated, "Any number of people within an organization can be found that possess a strategic perspective" (2006, 155). We have noted strategic opportunities to help DCU to achieve its stated aim of providing a "twenty-first century digital campus" (DCU 2012) and are contributing to this through our voluntary engagement. As Kerno's work suggests, we have built a CoP "the nature and scope of [the interaction of which] is to solve commonly faced or experienced problems, to exchange ideas, to share knowledge directly applicable to daily work, and to

refine and spread innovative practices" despite not possessing "any of the formally sanctioned powers manifest within the organization chart" (2008, p. 74).

However, we believe it is probably wise, in establishing and starting to support such a group, to keep numbers manageable until a healthy community is built up. The issues of trust and relationship that Preece (2004) refers to are easier to establish in a smaller group. Once the community is functioning well, it is easier to welcome newcomers. Having said that, if others are looking to establish a cross-institutional group, it would be advisable to ensure that such a group contained representatives from each institution at the outset. This should minimise perspectives of 'agenda-setting' by one or other of the parties. In our case, with the institutions being incorporated, it's been invaluable knowing colleagues and their strengths in each institution, and being able to disseminate ideas, share workshops and resources, as ways of building a healthy new wider community.

We contend in this chapter that it is both possible and helpful to establish cross-institutional communities of practice. We have argued that such establishment can happen even in transitional times, and that the work can be undertaken by people at *any* level of an institution, not just in the senior ranks. We have described how we have adopted a specifically Irish concept, that of Meitheal or mutual support for shared work, in our endeavours and how we have built on past collaboration but extended this using digital and occasional face-to-face meetings and resources. Our work has provided examples of the effective (and occasionally challenging) use of two different platforms, Google Hangouts and Adobe Connect, to facilitate our community of practice, buttressed by the Google Communities site. Each has demonstrated its value but also its shortcomings. Notwithstanding, each of us has been able to take from the common work examples of resources, ideas and applications to help us in our diverse positions and locations. Our work supports the contention of Preece (2004) that trust and sound relationships are vital for such work.

Gannon-Leary and Fontainha (2007, p. 1) noted that "Much of the literature on CoPs emanates from outside Europe, despite the fact that e-learning articles have a large diffusion around Europe. The authors suggest further exploration of this topic by identifying and studying CoPs and virtual learning communities across EU countries." Our work in Meitheal is an Irish-based example of such exploration. While it is small and fledgling, and we recognise the caution we need to advance when suggesting any generalisations based on our work, we offer it in the hopes of stimulating other work in Europe, as elsewhere, on digital options for supporting the development of communities of practice.

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Chapter 21
Facilitating a Community of Practice (CoP) in the Arts: Connecting Online University Learning to 'Real-World' Experience

Arianne Rourke and Joanna Mendelssohn

Abstract This chapter discusses the role that 'cognitive apprenticeship model' (Collins et al. in Knowing, learning, and instruction: essays in honor of Robert Glaser. Lawrence Erlbaum Associates, Hillsdale, 1989), online self and peer review, reflective blogging and collaborative writing can play towards promoting 'a sense of community' amongst coursework postgraduate students studying for careers in the arts industry (Rourke et al. in Did I tell you its anonymous? The triumphs and pitfalls of online peer review, 2008). According to Rourke and Coleman (Assessment for learning research and writing skills through scaffolded online peer review, 2011a) they are "positioned in a community of practice (COP) in the ever changing and developing art world. This art world in which they work or seek to work is creative, collaborative and connected, therefore the world in which they learn, authentically, should be modelled and correspond rather than be at odds" (p. 6143). Three case study examples are detailed: (1) an internship course that uses reflective blog journals; (2) a fully online course that teaches students to research and write a research paper; and (3) a writing course that uses collaborative writing to produce an ejournal (*Artwrite* blog). The chapter emphasises the importance of scaffolding the online learning environment and taking into account students' interests and levels of understanding. The significant role alumni can play in higher education to mentor students while helping to break down the barriers between university studies and 'real world' practice is also discussed.

Keywords Communities of practice · Online peer review · Collaborative learning · Cognitive apprenticeship model · Reflective blogging · Ejournal writing

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21.1 Introduction

The literature in higher education has espoused for many years the need to provide an elearning environment that can facilitate students to self-direct their own learning in an online context designed to be 'personalised' for their needs (Mylonas et al. 2004; Dagger et al. 2004) and take into account both their interests and differing levels of understanding (Felder and Silverman 1988). The idea of promoting student autonomy so that they may take responsibility for their own learning are indeed worthy goals in higher education. However their implementation means that the educator must adopt the premise of shifting from the more traditional 'teaching paradigm' to a more student centered 'learning paradigm' (Reigeluth 1999). The abundance of fully online 'technologically-driven' courses and educational trends such as the 'flipped classroom' (Bland 2006; Bergmann and Sams 2012) may have some merit, but this approach to learning may lead to more problems than it solves. These recent 'trends' in teaching and learning if not carefully considered, may led to students feeling isolated, disconnected and disenfranchised.

To reduce this sense of seclusion, online courses need to actively engage and connect students in the learning process and to provide learning tasks that encourage students to work together as a community while developing empathy. Students need to be taught to value the work of others as they 'team-work' in the process of constructing and understanding disciplinary knowledge. "The great advantage of peer learning is that it offers the opportunity for students to teach and learn from each other, providing a learning experience that is qualitatively different from the usual teacher-student interactions" (De Raadt et al. 2005, p. 159). Postgraduate students in particular value interactions with other postgraduate students, rather than a completely 'teacher-driven' learning approach. Many have expressed their joy at attending classes with other mature age students, particularly when they have been provided with 'in class' and online opportunities to share their stories of work and art interests with other 'like-minded' people. Through the bond of having chosen to study in an art related discipline, these students often feel immediately 'connected' with other students when discussing work related issues within the arts industry. Creating opportunities for this type of interaction is particularly needed for postgraduate coursework students who attend classes at night after working all day, come from different educational backgrounds or who for convenience sake, choose to take all their studies online.

Added to this, in a context where there are fewer theoretical or practical connections between courses and less emphasis on providing face-to-face (f2f) opportunities for working as teams towards a common goal, educators need to work harder than ever to create a 'community of practice' (CoP) (Lave 1987; Lave and Wenger 1991; Wenger et al. 2002). One way in which educators could make learning more worthwhile and meaningful would be to encourage this sense of community within the student cohort. Once this is in place there is the opportunity for a CoP to grow both within and outside the tertiary learning environment.

Wenger et al. (2002) argue that a CoP is made up of "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 4). As will be discussed here, this can be achieved in the online environment if learning activities are focused less on knowledge acquisition and more on developing life-long skills. Being able to collaborate, work well in a team, give and receive constructive criticism and value the contributions of others are attributes not often valued in tertiary institutions but are 'highly prized' in the real-world environment of professional practice. An important goal of online learning is to provide well-planned online collaborative learning (OCL) environments that nourish the establishment of an evolving learning CoP (Levinsen 2006; Bullen 1998). As Rourke and Coleman (2009) have argued, students a sense of ownership of the learning space become both collaborative as well as self-directed in their learning, which are important objectives to fulfill in higher education (p. 896).

There is a trend towards twenty-first century tertiary educators moving away from seeing themselves as the 'keepers of knowledge'. Instead many have come to understand that they are more like facilitators in a learning environment that blurs the boundaries between university learning and real world experience, where student input is acknowledged. As Guglielmo (2005/6) has argued, it is important for educators to create "intentional and significant interactions among students through collaborative activity" (p. 104). In this context group work, this is key to keeping students connected with both their courses and with each other. With the goals of providing a supportive interactive situational learning (Lave and Wenger 1991) environment that embraces technology, where co-operation, peer support and team-building skills are promoted. This should be a learning environment where assessment is 'for' learning not for testing what has been learnt, where students "gain a sense of empowerment and personal identity while learning how to interact with others online" (Oravec 2002, p. 621). Many students today have the experience of connecting and communicating through social media such as Facebook. Through this medium they gain the confidence to share their personal identities with others. When planning interactive online learning activities, educators should look at ways of empowering students to feel confident to express their views and opinion about their learning so that they develop 'social engagement skills' useful for their future roles in the workforce, this chapter provides three case study examples where this was provided.

This chapter will discuss the role that 'cognitive apprenticeship model' (Collins et al. 1989), online self and peer review, reflective blogging and collaborative writing can play towards promoting 'a sense of community' and interaction amongst postgraduate students studying for future careers in the arts industry (Rourke et al. 2008). These students are according to Rourke and Coleman (2011a), "positioned in a community of practice (COP) in the ever changing and developing art world. This art world in which they work or seek to work is creative, collaborative and connected, therefore the world in which they learn, authentically, should be modelled and correspond rather than be at odds" (p. 6143).

Three case study examples will be discussed in detail: (1) an internship course that uses reflective blog journals; (2) a fully online course that teaches students to research and write a research paper; and (3) a writing course that uses collaborative writing to produce an ejournal (Artwrite archive). These case studies emphasis the importance of facilitating collaboration and reflective learning in both online activities and the learning environment, demonstrating how various online tools can be used to promote a 'sense of community' and interaction amongst a postgraduate student cohort. The importance of providing a scaffolded online learning environment that takes into account students' interests, levels of understanding and that connects and encourages students to interact during the learning process will be emphasised. The important role alumni can play in higher education to support and mentor students while helping to break down the barriers between university study and 'real world' practice will also be discussed.

The emphasis will be on arguing that educators should provide processes of authentic assessment in their online courses (Rourke and Coleman 2011b), where students are able to develop real-life skills and understanding that will assist them in their future careers and life outside of university. This assessment should include 'student-directed' group activities that encourage students to interact with the goal of developing the necessary social skill needed for their future roles as art administrators. As Falchikov and Thompson (2008) have argued, assessment "needs to support learning in general and be driven by the learner, to foster the attributes we expect of graduates and help learners prepare for a lifetime of learning" (p. 50). In the three case study examples discussed, it will be emphasised how it is possible to design a curriculum that can provide students with many opportunities to make authentic links between professional and personal learning practices. Emphasising the importance of preparing students to be effective communicators both individually and within a group context, as well as enhancing their ability to have 'meaningful' interacts both within and outside the university-learning environment. In these courses, all taught within the Master of Art Administration (MArt Admin.) at the University of New South Wales (UNSW), Australia, connections have been forged between the students' university learning and real world experience, with the goal of laying down the seeds for a Community of Practice (CoP) to flourish.

21.2 Creating a 'Sense of Community' (SoC)

It is important to develop a 'sense of community' (SoC) both in the f2f as well as in the virtual classroom where according to Wellman and Gulia (1999), students can experience a greater sense of well being and benefit from having their peers support when needed. The SoC maybe reduced however, if students feel they receive limited personal attention or they feel isolated, distracted (Besser and Donahue 1996; Twigg 1997) or disconnected (Kerka 1996). This can be of particular concern for postgraduate coursework students who often study at night and, because of

extensive work and family commitments, have less time to interact and connect with other students outside the classroom.

The majority of students studying for a Masters of Art Administration come to the degree highly motivated to gain the knowledge and skills needed to have a successful and fulfilling career in the arts. These students come from many different disciplinary backgrounds and have all successfully completed a variety of different degrees (not all in a art related discipline). Both local and international students come to the program excited about the idea of working in an industry that values creativity and innovation, where through the process of being involved in 'the arts', they can feel part of a 'community'. There are many cases where students have taken up studying medicine or law straight after completing their high school certificate, pressured to do so from their parents who felt that these were more secure well-paid professions. After practicing in these professions for many years, these students decided to leave and instead pursue a career in the arts to fulfill their own desire to become involved in something more creative. In their reflective writing these students expressed 'a sense of belonging' and the camaraderie they felt, when writing and talking about art, attending art exhibitions and events together and sharing their views on the arts industry while on their internships.

According to McMillan and Chavis (1986a, b), a SoC is cultivated when there is "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (p. 9). This social cohesiveness usually flourishes when according to Westheimer and Kahne (1993), people with similar interest and goals interact. It is possible to nurture a sense of collegiality in a university environment when both learning activities and assessments are designed to promote collaboration, and when students are working towards achieving a common goal. Hung and Der-Thanq (2001) have argued "People, forming a community, come together because they are able to identify with something—a need, a common shared goal and identity" (p. 3). Students need be provided with the opportunity to engage in not just academic but also 'social' activities that nurture a SoC, particularly when the goal is to enter a professional practice where having the skill to work effectively in a team is highly valued. The online environment can provide a platform where in any location, at any time, students can come together as a community and share their goals, concerns and views and feel less alone and more supported, as they embark on the stressful journey of university learning.

According to Gibbs (1995) people need to feel a sense of 'connectedness' and to feel part of a group. As Lave and Wenger (1991) have argued, learning is "an integral and inseparable aspect of social practice" (p. 31), where the learner enhances both their knowledge and understanding through interaction with others. Developing a SoC is imperative in many professional practices that rely on inter-professional interactions to function. Student in higher education should be provided throughout their studies with the opportunity to practice and learn the skill of interacting effectively with others so they will be better equipped to succeed in their future professions. As Gherardi et al. (1998) have argued, "every practice is

dependent on social processes through which it is sustained and perpetuated, and that learning takes place through the engagement in that practice" (p. 279).

Bielaczyc and Collins (1999) have described "the defining quality of a learning community" as "a culture of learning in which everyone is involved in a collective effort of understanding" (p. 4). To achieve this goal educators need to provide a positive and engaging learning environment where the learner can feel a 'sense of worth', while valuing the attributes of others. A SoC is fostered when an accumulated 'knowledge-base' is shared in a non-judgmental and supportive environment where students are exposed to multiple perspectives. Most university online learning platforms offer students a 'safe' environment where they can freely converse with a broad range of people who they may not feel comfortable interacting with on a f2f basis. Within this online environment students learn to have more tolerance for other, be exposed to views they may not normally encounter and develop empathy and if they are carefully monitored by their peers, develop respect for others.

Valuing others, sharing experiences, developing empathy and enjoying the 'process' of learning are not the most commonly valued learning outcomes in higher education. 'Sharing knowledge' and experiences is often one of the objectives for creating a CoP, but without the goal of developing the afore-mentioned attributes, this has a tendency to become an exercise of 'knowledge generating' rather than one of encouraging 'personal growth' and collaboration. Other attributes that Rovai (2002) argues are needed in order to develop a 'sense of community' in a online environment include: "mutual interdependence, sense of belonging, connectedness, spirit, trust, interactivity, common expectations, shared values and goals and overlapping life histories" (p. 4). These attributes will be discussed further in the following section.

21.3 'Connecting' in the Online Learning Environment

If higher education online courses are not carefully designed to facilitate active, engaging and collaborative learning, then they cannot play a role in either enhancing or even replacing the traditional f2f classroom. Further more, the online environment needs to provide both teaching strategies and learning activities that encourage a "sense of place, socialisation/support" as well as "a cohesive context leading to senses of identity, belonging and purpose" (Brook and Oliver 2003, pp. 139–140). This can be achieved in the initial stages of online courses if instructors provide in the discussion forum an introductory exercise where students' upload photos and introduce themselves. This will encourage dialogue between students and start them feeling a sense of camaraderie as they begin to find common grounds of discussion and begin to learn to interact in the online environment. Lauzon (1992) has argued that online educators should "search out means for reducing structure and increasing dialogue so that learners may move from being simply recipients of knowledge to actively embracing and working with objective

knowledge to make it their own" (p. 34). The online learning environment should encourage 'active' engagement with the goal of promoting both the long-term retention of learning and the often overlooked aptitudes of being collaborative, having empathy for others and the skill of being critically reflective. A 'connected' online learning environment should 'holistically' engage the student, enticing them to want to contribute and collaborate, provide less emphasis on the teacher as the main generator of knowledge and more emphasis on the student input into the learning process.

In the online learning environment according to Gunawardena (1995) and Gunawardena and Zittle (1997), the facilitators' major role is to build a sense of 'social presence'; where conversations can happen and ideas can be generated and explored; and where students are able to be provided with the opportunity to share their individual points of view while contributing to the collective construction of knowledge. In this technology-driven environment it is imperative that students learn to trust each other and feel secure to share their knowledge and understandings. Students do not want to feel that others are judging or exploiting their opinions and ideas but instead are being respected and valued. Online instructors as facilitators of learning need to be more committed to encouraging interactions between students and to nurturing a supportive environment where they can feel safe and comfortable to share their feelings and opinions.

Jolliffe et al. (2001) have argued that: "Computer-mediated communication is an important component of web-based learning, as it allows for both communication and collaborative learning, which in turn can lead to deeper processing of information and create a sense of a learning community" (p. 42). It is not always easy however, for educators to establish an online 'learning community' amongst postgraduate student who have less time to devote to online socializing. With the added factor that many of these students have financial as well as family commitments, they find it difficult to establish a study/work/life balance. Many postgraduate students are also spending less time in the f2f classroom and more time studying online because of the changing nature of social media and research databases. As a result of these factors it has become more imperative than ever, that educators provide opportunities for these students to build rapport with both their teacher and their student peers.

Barab et al. (2004) have emphasized the importance of online learning environments creating an online community where students interactive, support and trust each other. In the Kehrwald (2007) study, participants defined the role 'trust' plays in the online learning environment in terms of: 'confidence, comfort and courage' as follows:

1. *Confidence* in the other party, including confidence that the others would not act in a negative or unfriendly way as well as confidence that the other party can help, i.e., "has something I need", will provide an appropriate response, or help me in some way.

2. *Comfort* in interacting with others including putting themselves at risk through idea sharing, personal disclosure, etc. This idea is related to the creation of a safe environment.
3. *Courage* to "have a go" and participate actively in discussions and other interpersonal transactions. This also includes the courage to respond honestly and openly in ongoing dialogues (p. 505).

With these three 'C's' 'confidence, comfort and courage' in place in a online learning environment a CoP can flourish and grow, particularly if students feel secure and confident to share their ideas and opinion without receiving harsh judgmental comments or adverse criticism. This environment needs to encourage 'openness', ethical appropriateness and supportive behavior in order for trust and rapport to built and lay foundations for future professional collaborations. It is noted however, that in order to encourage 'confidence, comfort and courage' to eventuate in an online environment, students have to be motivated to want to learn, participate and interact with others. The next section of this chapter will discuss the importance of linking university learning to 'real world' practice as a means of motivating students to want to learn by giving them the opportunity to see the value of their tertiary learning to their future professions.

21.4 Linking University Learning to Real World Practice

According to Lave and Wenger (1991), CoPs have three objectives: "relations among persons, activity and the world; existence over time; and relation to other communities" (p. 98). In order to sustain a CoP that has active more engaged and motivated participants, it is argued that members need to feel that they have a sense of common purpose, goals and interests. Members also need to feel that they are a worthy addition to the group and their opinions are valued. Within the group, it is imperative that individuals support and encourage each other and keep an open mind. In order to achieve these goals it is imperative that CoPs developed within a course or program, also make authentic links between university learning and 'real world' practice.

Daniel (2008) has argued that there is a need to establish a 'community of reflective practitioners' within the university premise. Learning in this environment can no longer be just 'text-book' knowledge that is often dated before it is even presented to the learner who in the 21st century through the advancement of social media is often well aware of global developments and debates. As such, many students have already developed online social communities, and so are aware of the negotiations to create and maintain these. Within the educational context of our discipline, they just need to be directed on 'how' such negotiations work within a professional CoP. Wenger (2000) has speculated that: "communities of practice grow out of a convergent interplay of competence and experience that involves mutual engagement. They offer an opportunity to negotiate competence through an

experience of direct participation" (p. 229). Encouraging students to be involved in a social context communicating to each other in a group situation provides the opportunity for each individual to develop community and social skills. These are important skills worth developing for their future role as professionals. In order for university studies to have 'real world' relevance, students need to also have the opportunity to directly participate with communities and practice outside the classroom.

The application of theory to a 'real world' practice is an important skill that students should learn according to Fuller et al. (2006), especially in this technological age where the world that was once tangible and physical has become virtual and freely available wherever a computer screen or personal communication device can be found. This world regularly challenges many earlier preconceptions as to the nature of knowledge and the nature of research has changed so that almost anything can be learnt virtually. The overwhelming majority of the current generation of graduate students are "digital natives" (Prensky 2001), who cannot imagine a world without the internet and with modern social media being invented as they entered adolescence, they are well equipped for online learning. As a result of their focus on the virtual world, students may have gained online communicative skills but along the way may have lost f2f communication skills and the sense of working in an f2f practice-based community. Allee (2000) believes that: "People function as a *community* through relationships of mutual engagement that bind members together into a social entity. They interact regularly and engage in joint activities that build relationship and trust" (p. 5). Many of these factors develop when students are provided with the opportunity to engage in 'real life' learning opportunities outside and beyond the constraints of a university teaching environment. It is imperative Lombardi (2007) has argues, that students are more exposed to their future professional communities, so that they are more prepared to cope with the uncertainty and ramifications of solving problems in real-world situations. One caution however, is that students need to be motivated to want to interact and learn while working in their workplace internships. It could be argued however, that with extra encouragement and support from their peers and lecturers during this process, students may become more motivated to face the daily problems that arise in a workplace situation.

Wenger (1998) identified three characteristics of any CoP including: 'mutual engagement' where there are regular interactions between community members, 'joint enterprise' (the members'common endeavor, goal, vision or pursuit) and shared repertoire (ways of thinking, speaking, expressing, remembering common to the community). In order to provide an online learning space where these three characteristics can blossom, mutual respect and trust need to be present and the environment needs to be conducive to promoting collaborations and the sharing of knowledge and experiences. In the next sections of this chapter there will be a discussion of three postgraduate courses where CoPs were nurtured. The role 'reflective practice' play in promoting a CoP is discussed, with particular emphasis on how important 'reflective practice' is for a group of postgraduate students who will most likely 'cross paths' in their future roles as arts industry professionals.

21.5   Theory into Practice: Developing a CoP in the Arts

21.5.1   Case Study 1: Reflective Blogging in the Arts

The role that reflective journals play in education to promote learning and critical thinking has been extensively discussed in the literature (Holly 1997; Riley-Doucet and Wilson 1997). Student journals are used in many educational "contexts as a means of facilitating reflection, deepening personal understanding and stimulating critical thinking" (Bain et al. 1999, p. 51). In 2008 it was decided that the students in the MArt Admin. Internship course could benefit from writing a 'reflective' journal as this process could assist these students to 'make sense' and links between their university learning and real world practice. According to Boud (2001) journal writing is a form of reflective practice that can be used, "as a device for working with events and experiences in order to extract meaning from them" (p. 9). Through the process of journal writing, students have the opportunity to reflect on their experiences and get to understand themselves better as they contemplate, interpret and evaluate their daily interactions with others both within and outside the university learning environment. Journal writing as a learning tool has many educational benefits, it allows for the 'free-flow' of thoughts, the opportunity to further develop one's 'voice' as well as to be creative and introspective while exploring one's views and opinions. This form of writing differs greatly from that of writing an academic essay, which has a structure, formal language and is supported by evidence from research. In contrast blog journaling provides a platform where students can freely express their feelings in their own comfortable way of writing, without concern for syntax, grammar and phrasing. Blog journaling extends the notion of the traditional paper journal by providing the opportunity for students to engage in collaborative writing and group conversations. Here students can write and design dynamic creative journals in a relaxed format that is less restrictive and uncompromising compared to the format of an academic essay.

Graybeal (1987) argued that the open discussion process of team journals has many benefits "which result from writing for an audience of peers. Team journals make possible an 'exchange' of energy, that is virtually impossible in a journal written ostensibly for the student" (p. 307). Since Graybeal (1987) endorsed the value of 'team journals' the education environment has moved on to embrace digital diaries and blogs. Rourke and Coleman (2009) argue that the "asynchronous discussion that takes place in a blog environment provides the user with a more personal reflective space" (p. 890). This provides the opportunity for developing a 'collaborative space', which is more valuable to the student body than the traditional diaries or journal writing previously utilized in education. A blog is a 'social space', where conversations and interactions can happen, where the structure can be loose and free flowing compared to a diary written by a individual that can introspective and one-sided.

Valli (1993) differentiated between 'deliberative' reflection where knowledge "about the topic is used to inform practice" (p. 13), and 'dialectical' reflection,

where knowledge "about the topic is less important and reflection is more personally grounded as the student draws upon personal knowledge to transform or reconstruct their experience" (p. 13). Blog journals that aim at promoting reflection about 'real world' experiences can provide the opportunity for students to engage in both 'deliberative' and 'dialectical' reflection while they cogitate about their daily activities and interactions with others. Reflective writing provides students with the opportunity to "compare their own problem-solving processes with those of an expert, another student, and ultimately, an internal cognitive model of expertise" (p. 483). Having the ability while blogging, to compare solutions to problems with others, can reassures students that they are not alone, as they think collaboratively 'how' they might solve problems in the workplace. Journal writing as an educational tool provides the learner with a record of 'developing thoughts' and the opportunity to retrospectively 'look back' and reflect on previous experiences and understandings.

Moon (1999) identifies many positive attributes of writing journals for promoting learning (pp. 188–194) these include:

- To deepen the quality of learning, in the form of critical thinking or developing a questioning attitude.
- To enable learners to understand their own learning process.
- To increase active involvement in learning and personal ownership of learning.
- To enhance professional practice or the professional self in practice.
- To enhance the personal valuing of the self towards self-empowerment.
- To enhance creativity by making better use of intuitive understanding.
- To free-up writing and the representation of learning.
- To provide an alternative 'voice' for those not good at expressing themselves.
- To foster reflective and creative interaction in a group.

These are all worthwhile objectives that are not so easily achieved in a traditionally formatted f2f classroom where the teacher leads the discussion. However in the online environment that nurtures collaboration, the students have the opportunity to feel empowered and valued as contributors of knowledge. Adding to this, a reflective writing task where there is the opportunity to discuss 'real-world' experience where university knowledge can be put into practice, students have the opportunity to gain 'authentic' transferable skills that work in a 'real world' context.

In the MArt Admin. Students are required to complete a 240 h arts industry based internship where they have the opportunity to gain 'real world' experience. When the degree first began students undertook their internships as a solitary experience, responding directly to their internship supervisor with a written record of their experiences, including pitfalls. From 1994 students held two f2f meetings with their classmates—one at the beginning of semester where they discussed their ambitions, and one at the end of semester where they described and analyzed their success, or otherwise. Originally these students took their internships within the Sydney region, but increasingly some became interested in incorporating the

internship experience into international travel. In addition, from the late 1990s there was a significant cohort of international students. For family reasons many of these students wished to undertake internships in their home countries. The complexity of properly supervising such a diverse cohort was solved in 2002, when the faculty introduced online software, originally WebCT and later Blackboard.

This enables students to both post their reports online for other students to see and to discuss, and also to maintain communication with each other via the discussion board. The value of this innovation was made obvious in the first year it was introduced, when one student, undertaking an internship at the Gallery of Modern Art in Glasgow, was able to communicate comparison points with students at the Museums of Contemporary Art in Chicago and Sydney (Taplin 2002). The cultural isolation experienced by students undertaking internships at long distance (or in the case of some part-time students at weekends), was eased by the creation of an online community. As the software capacity changed, so the course developed. Since 2008 students have been required to write a blog journal, first in blogger (http://www.blogger.com) then later in the LMS of Moodle. Here students participate in 'work integrated learning' that provides, according to Delahaye and Choy (2007), "contextual learning founded on the theory of constructivism because learners make meanings by contextualizing the content within the learning environment in the workplace" (p. 3). Work integrated learning happens in "programs where academic and professional learning are situated together within the work environment as part of a student's formal course of study" (Franz 2007, p. 1).

The blog journaling task in the internship course is not a graded assessment; students are required to write twelve 300–500 word entries and comment at least twelve times on other students' blog journals during their 240 h internship. Making 'reflection' an assessable learning outcome could present particular challenges according to Hobbs (2007) as: "forced and evaluated self-exploration raises certain moral and practical issues that cannot be avoided" (p. 405). It was decided not to have the blog journal as an assessable task because critically evaluating and grading students' writing could result in them feeling inhibited about sharing their emotions, which could limit the expressiveness and free-flowing nature of their writing. Previous research by Bain et al. (1999) has discovered that "Students receiving supervised dialogue did not attain a higher level of written reflection…suggesting that significant benefits can be achieved through journal writing, without the intensive involvement of a reflective supervisor" (p. 70).

Students in the course are encouraged to write down anything they wish about their daily activities and interactions while on their internship and to share arts related events and opportunities with the class. According to Rourke and Coleman (2011b), the main aim of the Internship blog journal is:

> on developing and nurturing other more essential life-long skills, students learn the value of constructive criticism, empathy, and the moral obligation of assisting others with kind words, while improving their ability to communicate their thoughts, knowledge and understandings of the art world in both visual and written form (p. 1095).

The student cohort continue to use the blog journal, following rules that were originally drawn-up by the Session 1, 2008 Internship class. In the students' own words these include:

1. The 300–500 words per week may take the form of two or more postings per week, to encourage frequent posting, particularly when blogging time is not abundant.
2. Be anecdotal, its always juicer when you refer to actual events.
3. No racial/religious/gender/lifestyle prejudice. Online etiquette: no offensive language and references, which may be demeaning or degrading to people, both individuals and groups.
4. Work cooperatively, offer positive advice.
5. Confidentiality is sacrosanct, no details to be left on the interweb that may come back to haunt you.
6. Respect other's privacy and intellectual property by not disseminating or copying material.
7. The issue of anonymity is optional as the use of aliases and avoiding references to people and places can be potentially confusing.
8. Pictures essential, videos if you're feeling sporty.
9. Read and comment regularly on others blogs, it makes the whole thing more interesting.
10. Blog the experiences we find interesting, relevant, challenging, include other art linked activities.
11. Ask questions for feedback, don't expect readers to comment on what you want just by chance, let us know where you want feedback.
12. And finally don't forget your sense of humour from time to time, we all need a laugh now and then.

There has been no need to change these online blogging 'community' rules as every subsequent Internship class has agreed with them and have not found them restrictive or unnecessary. Through blogging, students were able to gain collective solutions to individual problems by learning from others experiences in an open, friendly and supportive online environment that promoted collaboration and a 'sense of community' As Beale (2007) indicated, blogs as reflective journals also "support a sense of community amongst the students. They can read and comment on other students postings, and can learn from both experiences that others have discovered, and from the insights of their peers regarding those experiences" (p. 2). The teacher removes him or herself from playing an integral role in the learning process and hands over instead the control to the student cohort to manage the direction of their learning. The postgraduate student cohort on the whole took responsibility for not only completing the required twelve blog journal posts but also responding regularly and more often than required to other student's blog journals. Some students after graduating and gaining an art industry position continue to write their blogs, which they turn into a professional online journal. The next section of this chapter discusses how writing a research paper using peer

review can also 'connect' students in the online environment and promote the development of a CoP.

21.5.2   Case Study 2: Teaching in the LMS Postgraduate Students How to Write a Research Paper

A core component of the MArt Admin. is the completion of a 10,000 word Research paper. Many of the students who are completing at the same time the required 240-hour arts industry Internship, use their practice-based experience as case studies in their papers. The research paper provides students with the opportunity to reflect on their learning and make links between their university learning and real world practice. This course is taught fully online in the Learning Management System (LMS) of Moodle, where students are required to complete three staged activities (Stage 1: Writing a Proposal; Stage 2: Writing a Contents page and Stage 3: Writing a Literature review). In this course a "cognitive and social constructivist learning approach was developed through a digitized scaffold to support these learners' needs in an environment that was authentic as it had 'real art-world' relevance" (Rourke et al. 2011c, p. 128).

Students in this course peer and self review each assignment in each stage of the course against an assessment criteria and rubrics. On the LMS students are provided with examples of a good, average and poor assignment as well as peer reviews. Through this assessment process students learn how to assess their and other's work against a criteria, give and receive constructive criticism and support each other through the process of writing a research paper. This process relied on students taking responsibility for their own learning as well as to work as a group to meet deadlines, as submitting a late review could adversely affect another student's progress. The students in the Research paper course at first found the removal of the teacher as director of their learning difficult. This was testified by the large quantity of emails the instructor received from students in the first few weeks, asking for reassurance that they were completing the online activities correctly. Once students became more confident about the online peer review process, these emails become less frequent and instead the online discussion forum was used more frequently to ask other students (rather than the instructor) for advice. Through this process students developed their own 'CoP' where they kept each other on track and as a group, they 'team' worked through solving any problems that arose, such as navigating around the LMS and matching their feedback comments to the assessment criteria. By the end of the semester students were posting comments of congratulations to each other for completing not just the peer review process, but also in many cases, their first submitted chaptered 10,000 word paper for examination.

In order to enhance the "authentic nature" (Rourke et al. 2011c, p. 128) of the Research paper, the course adopted a 'cognitive apprenticeship model' (Collins et al. 1989). Cognitive apprenticeship is a process where a master of a skill teaches

that skill to an apprentice. In the case of the Research paper course the skill of writing a paper proposal, contents page and literature review are broken down into manageable stages where learning activities are provided to scaffold the learning process. The instructor provides worked examples for the students to follow both for the process of writing the paper as well as for the process of peer reviewing. Rourke (2007) states that a "worked example can be defined as: an instructional method that provides a domain specific example to follow and study of a problem that includes a worked-out solution (often in steps). Worked examples direct the learner's attention to what needs to be learnt" (p. 3) in the case discussed, the steps to write a proposal, content's page and literature review. Within the peer review process students are encouraged to support each other and collaborate while they work towards the common goal of completing their papers.

Many students have previous experience volunteering and working in the arts industry so they have common interests, knowledge and expertise to bring to the task. The majority of students however, have not had previous experience writing a chaptered research paper, so require support and assistance from both an online instructor and supervisor while they work through the process. Collins et al. (1989) argue that cognitive apprenticeships are less effective when skills and concepts are taught independent of their real-world context and situation. It is imperative that the examples and learning activities provided by the instructor link 'university learning to real world practice' as many students use the process of writing their research papers as a preparation for their future careers within the arts industry. Rourke and Coleman (2011b) have argued that the "art world in which they work or seek to work is creative, collaborative and connected, therefore the world in which they learn, authentically, should be modeled and correspond rather than be at odds with this world" (p. 1093). An important goal of the Research paper course is that students place their knowledge and understanding from their previous studies into a real world context and examine and reflect upon how they might contribute to the arts industry profession.

Brown et al. (1989), have argued that: "Situations might be said to co-produce knowledge through activity. Learning and cognition, it is now possible to argue, are fundamentally situated" (p. 32). The Research paper contextualizes learning by directing students' writing and thinking towards their future career path rather than just towards achieving a grade. As such, it is important that during the process of writing their research papers and completing their Internships these Postgraduate students forge professional relationships within both the student as well as the arts industry community. Establishing these 'authentic' collaborations are an important outcome of the MArt Admin. degree, which focuses on developing students as 'professionals' so that they are fully equipped to enter the arts industry and make a valuable contribution to the profession. Many of the past MArt. Admin. alumni are willing to give back to their field by volunteering to become Internship placement supervisors mentoring students through their arts industry placements and assisting them in their situational case study research.

An important learning objective of the Research paper course is collaboration and sharing of knowledge and experiences amongst peers as students work within a

CoP to achieve a common goal. Taplin (2002), who wrote her paper while based in Glasgow, acknowledged the extra assistance given to her online by her fellow students, Laura Hudson and Antonia Kasunic who were on the other side of the world. Postgraduate students bring with them according to Eraut (2000), "aspects of personal expertise, practical wisdom and tacit knowledge" (p. 42). Many of these relationships have been previously forged in collaborative projects students have worked on in their coursework Masters and in working together in arts industry projects both as employees and volunteers. According to Allee (2000): "People organize around domain of knowledge that gives members a sense of joint enterprise and brings them together. Members identify with the domain of knowledge and a joint undertaking that emerges from shared understanding of their situation" (p. 5).

Many of the topics that students write about extend knowledge of, or overlap with, previous students' research papers, entering into the larger ongoing debates and knowledge building about the arts industry that is ever changing and evolving. As such they become part of the arts community through both working, volunteering and participating in this world that informs both their professional practice and university studies. According to Rourke et al. (2011c), many of these "student's in the MArt Admin. are located in a community of practice in the art world. They will ultimately work as art administrators, art curators, gallery managers and educationalists. Therefore, the Research paper must have authentic context for relevance in their future careers" (p. 129). Many of these research papers also build on the knowledge, skills and understandings student have acquired from their previous MArt Admin. studies such as the experience of collaboratively writing a ejournal Artwrite, which will next be discussed.

21.5.3   Case Study 3: Teaching Postgraduate Students Collaboratively to Write an Ejournal

In 1991 the MArt Admin redeveloped an existing course, 'Writing for Different Cultures and Audiences', which had previously examined different genres of writing, into a workshop where students developed their own examples of writing including catalogue introductions, extended captions, news releases and reports as well as stretching their imagination to write for children in an informative but enticing manner. The students responded so well to the chance to be more creative in their approach to what had hitherto been a purely theoretical subject, so that in 1992 it was developed further, and Artwrite was born. This publication, which was also taught to undergraduate Art Theory students, had the ambitious aim for students to write, edit and publish their own work within one academic semester. Although it was ostensibly a writing course, from the very start one of the objectives of this new program was to teach project management so that students who wished to work in the arts would understand the realities of working to a deadline.

Nick Waterlow, the first program director, had originally worked in community arts in the UK and his directorship of successive Biennales of Sydney was based on encouraging a collaborative model, rather than a 'command and control' model of leadership (Mendelssohn, *Artlink*). Students already collaborated in their curatorial course to create exhibitions. It was therefore a logical extension to use the project-based writing task to establish within the student cohort a 'sense of community' of working together towards a common goal. At the same time the experience of writing, editing and publishing provided the opportunity to gain 'hands on' experience essential for future careers in a competitive arts industry.

Artwrite became possible because COFA (College of Fine Arts, UNSW, since 2014 has been renamed: Art & Design, UNSW) had just opened its first student computer laboratories with Mac Classic computers. The early issues were published as photocopies courtesy of the faculty print workshop. (*Artwrite*, no.1- no.18). From the outset the subtext of the course was to teach collaboration and project management and this was enhanced by the activities of some of the first students, including John Kirkman, the first director of the Casula Powerhouse Arts Centre who bought to the class the kind of ensemble management style he had learnt at the performance troupe, the Flying Fruit Fly Circus. The lecturer, Mendelssohn, consciously retreated from directing the class. Instead she put in place structures to encourage successive cohorts of students to take ownership of their project. Following generations of students rose to the challenge and were soon actively soliciting advertising in order to make their publication surpass those of their predecessors. The course enabled students to take more responsibility for their learning and to work as a team instead of seeing themselves as individuals, striving to achieve in a competitive university environment. This class context enabled students to learn to shift their power relationship from being a student to being the kind of scholar (Keeling 2008) who takes the initiative to formulate their own knowledge.

With the approval of his classmates, in 1995 a student experimented with uploading a copy on his personal web page, less than 6 months after Netscape first introduced the World Wide Web. The following year, as COFA began to create content for its own first fully-fledged web portal, the computer services unit staff began to publish the student writing online. Fortunately the National Library of Australia's Pandora Archive (Pandora) began to harvest these early pages (*Artwrite*, archive: 10 1996) and has continued to do so. The hard copy version of *Artwrite* ended in 2000 after complex new Australian taxation laws made it administratively difficult for students to collect advertising revenue. Creating an online publication was made feasible because of the technological innovations of the twenty-first century. Each incarnation of different forms of online teaching technologies has made it easier for students to comment on each other's work in progress, to finesse the content and to encourage the students to enjoy the kind of ensemble management that is most successful in the arts.

This begins to fulfil some of Wenger (1998) characteristics of a CoP of 'mutual engagement' and 'joint enterprise' previously mentioned, where students commit, interact and support each other while actively participating collaboratively in the

production of an art journal. By Issue 25 (*Artwrite*, archive: 25 2002) the web site had become visually complex as well as displaying enviable professional standards. The success of this enterprise relied on students bringing together and sharing their various skills, expertise, knowledge and experiences while working as a coherent team. They all gained valuable experience and knowledge of how well they worked under pressure and how to work collaboratively with others that will assist them in their future careers in the arts industry.

Initially students used a combination of email and the faculty's classroom folders on their computer servers as a way of developing successive stages of the publication, but in 2001 UNSW allocated significant funding "to provide opportunities for improved and more widespread use of educational technology via the establishment of the Educational Development and Technology Centre (EDTeC)" (Niland 2001). As the (then) Vice-Chancellor's report to the University Council makes clear, this technological innovation was seen in part as a cost-saving measure because of reduced government funding. However whatever the university's prime motivation may have been for encouraging technological innovation, the result of these changes was to significantly enhance the student experience. Mendelssohn (2002) recounts the sense of discovery experienced by both students and teacher as they explored the possibilities of online teaching:

> In terms of the logistics of producing a genuinely collaborative magazine, and involving all students in every stage of production, a secure on-line communication site has been invaluable. Once assignments were received in a half publishable form they have been posted and made available for discussion. This has meant translating them into html before uploading. Then we have had fairly robust discussion. Over 760 messages from a class of 34. Most of the comments are intense and pertinent. Many of them have been constructive.

> This issue of *Artwrite* has been the most successful ever, Note the editorial. Because of their on-line discussions and the way they have evolved the students are really aware of the international communication aspects of writing for the web (Mendelssohn 2002).

The editorial cited above claims:

> … this years' ArtWrite is an electronic first. Just think, the text you read and reinterpret is nestled amidst delicate internal organs, it has never felt the fresh whiteness of paper, nor the bitter tang of ink. No printer spurted these babies off – it's all been done via technological ether. The organic body of Art Write is entirely computer-born, a Venus spawned from interspersed mother boards.

> Now doesn't that make what follows all the more enticing, all the more worthwhile? I should hope so, because if you don't appreciate what we – the Art Write team of 2002 – have created for you, then numerous computer viruses will destroy your hard drive and all information there in encrypted within seconds. Don't worry my friend, this is something we all experienced once or twice while creating this on-line mag. Such is life in the technological age. So sit back, click away, and enjoy the content that follows. (Artwrite, archive: 25 2002)

The next incarnation of *Artwrite* was driven by a reduction in the faculty budget, which effectively eliminated specialised technical support. However accounts of changes in teaching and learning technologies cannot be separated from changes in student computer literacy. In the 1990s it was not uncommon to find university

students who had never used a computer. One of the issues in teaching those classes was how to effectively teach a class where technical expertise ranged from the basic to cutting edge innovators. By 2004, when the cuts took effect, almost all students had a workable knowledge of computers and most understood how to work online. Moving to blog software was therefore easier than anticipated (*Artwrite*, archive: 2004).

The transition to blogging was made easier because of the activities of one student who was a former IT specialist, repositioning his career towards the arts. The introduction of a blended online teaching environment, where the students effectively become part of an online publishing house, has enabled both students and teacher to draw extensively on the different cultures and backgrounds of the individual students (*Artwrite* blog). This was most noticeable in Issue 43# in 2010 when a group of enterprising students from China translated a selection of articles into Mandarin. Throughout its different incarnations *Artwrite* has been guided by the same underlying principles: 'Where possible editorial decisions are made collectively'.

As Benzie et al. (2005), have argued: "what can be understood and achieved by a group of learners working together can often be more than any one learner could understand and achieve alone" (p. 181). From the beginning of the incarnation of *Artwrite*, the imperative was to provide a positive learning environment where students could successfully collaborated towards achieving a common goal, without this the online journal would never have come to fruition. It was always intended to be a 'student led' initiative, not the typical teacher or 'assessment driven' learning process. Promoting 'active' not 'passive' learning by providing students with the opportunity to gain according to Robson (2002), greater ownership and responsibility for learning and more freedom to express themselves.

In *Artwrite* all writing is sub-edited by more than one student, working in partnership with the author. Publication deadlines are absolute. If one student fails to meet a deadline, another will step up to take their place. Twenty per cent of the final grade is based on participation and contribution to the publication as a whole, so there are always willing volunteers. Students however, have the opportunity to develop a 'sense of autonomy' (Coe and Smyth 2010). As a CoP emerges and grows, students learn to manage and support each other during the process of writing and editing their class initiated and produced ejournal. While ostensibly a writing course, *Artwrite* is in effect a rigorous exercise in project management. The use of online teaching and learning software for this process has enabled free discussion among students as well as the ability to see the difference between an unmediated blog post and a considered piece of writing. This is important, as a result of the changes to communication technologies, students are now more familiar with the spontaneous nature of blogs and Twitter than they are with rigorously edited long-form essays.

This journal produced by the MArt Admin. students has been recognised as having such scholarly merit that all online versions of *Artwrite* were preserved in

the 'The National Library of Australia's Pandora archive' soon after it went online (*Artwrite*, archive). It is also accessible via the Web Archive (*Artwrite* web archive). Some of the early writers of *Artwrite* are now leading figures in the Australian (and Asia-Pacific) visual arts community. Because of these resources students can read the student writing of both rising stars and established figures in the arts firmament. It has therefore become a crucial element in establishing an esprit de corps among MArt Admin. students and graduates. According to Wenger et al. (2002), what makes CoP "successful over time is their ability to generate enough excitement, relevance and value to attract and engage members" (p. 1).

What is remarkable about the development of such a strong cohesion amongst the graduates of this degree is that a significant majority of them are part-time students with strong work and/or family commitments and consequently little time for on campus social activities, while a significant minority are international students or from an NESB background. While most of the international students speak Mandarin, they come from diverse backgrounds and centres, including Hong Kong, Taiwan, Shanghai, Beijing and provincial cities. The reason the *Artwrite* project transcends cultural differences is that in the editing phase it requires daily contact between its writers and sub-editors, and this contact of necessity is online, in the classroom discussion board and via email. The ability of NESB students to make considered statements in writing, rather than verbally stumble in class, engenders confidence. Likewise students, who are hard pressed for time, find it easier to write responses on handheld devices without loosing the sense of feeling part of the wider community. It is no accident that the founders of the Sydney's SafARI project, which is now established as a fringe festival to the Biennale of Sydney, began their project just after completing their *Artwrite* class.

It is worth noting that in the *Artwrite* course at least, while some of the innovations that enhanced student learning were led by the lecturer, the initial transfer to an online production was a student initiative. It should also be noted that, as is often the case, many of the innovations were driven by necessity. The budgetary constraints of recent years led to larger class sizes. The original motivation for the university to develop online teaching was that in the 1990s the Australian government dramatically reduced funding. However the development of Web.2 (O'Reilly) in the first years of this century enabled the creation of the kind of flexible interactive CoP that could have been hard to achieve with traditional f2f teaching.

A long-term consequence of these CoP courses has been that over 25 years, as graduates in the MArt Admin have progressively taken leadership positions in arts organizations in Australia and Asia, there has been a development of an intergenerational esprit de corps. Graduates approach the faculty with Internship opportunities, students feel confident that by participating in the MArt Admin they have taken the first step towards a substantial career in the arts.

21.6   Conclusion

In education there are some who argue that assessment should 'drive' learning (Cox and Clark 1998; Hedberg and Corrent-Agostinho 2000) and others who advocate that assessment should be designed to be more 'authentic' by directly linking to students current or future professional practice (Wonacott 2000; Tillema et al. 2000). This chapter has argued the importance of educators promoting a 'meaningful' not 'assessment-driven' learning environment that holistically educates students, promotes life-long learning skills and that links university learning to 'real-world' practice. According to Hobbs (2007), many courses across a variety of disciplines in higher education have included a "reflective practice assignment for purposes of instilling a spirit of professional development" (p. 405).

All the examples discussed here include the elements of reflection, collaboration and focus on building a CoP with a master postgraduate student cohort. In this 'student centered' environment, learners have been encouraged to self and group-reflect on the learning process while working towards achieving a common goal. Within this learning paradigm, students achieved as Boud et al. (1985) argue, a level of 'reflection' through engaging in "intellectual and affective activities" where "individuals engage to explore their experiences in order to lead to new understandings and appreciations" (p. 19). The ultimate aim was to provide a dynamic, personalized and 'meaning charged' curriculum that provides students with the opportunity to gain valuable experience and understanding of how they can function and thrive in the arts profession. The case studies provide evidence to argue towards pedagogy where communities are the way of structuring courses. To achieve this goal, the educators discussed in these case studies handed the engagement and motivation of learning to the community. Building a supportive, encouraging and nurturing environment amongst the student populace where an evolving CoP can grow and be nourished, should be of paramount importance to educators in higher education.

21.7   Future Recommendations

In the future the authors will be looking at innovative ways of using eportfolios to promote collaborative practice and to foster links between current students and graduates working in the field, with the objective of encouraging postgraduate students to make authentic links between their university learning across their degree program, and real world practice. These eportfolios will have the ultimate goal of building collaborations between the student cohort and arts industry professionals so that a CoP that extends beyond the university curriculum into their future lives as arts professionals, may flourish.

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Chapter 22
The Australian Chemistry Discipline Network: A Supportive Community of Practice in a Hard Science

Madeleine Schultz and Glennys O'Brien

Abstract Chemistry is one of the oldest and most traditional of the science disciplines, and there is a long tradition of chemistry research in Australia and worldwide. Within chemistry, groupings are traditionally made around sub-discipline specialties such as inorganic, organic, physical and environmental chemistry, which each have their own journals, conferences, and customs. As a research-intensive discipline, chemistry is competitive rather than cooperative, with appointments and promotions based on publication metrics.

Keywords Chemistry education · Community of practice · Threshold learning outcomes · Gender equity

22.1 Introduction and Context

The importance of chemistry as the foundation to many other sciences means that chemistry is taught in all Australian universities. However, the scholarship of chemistry learning and teaching, including research into effective teaching strategies, has not historically been recognised as an important domain within chemistry in Australia. In 2011, the Australian Learning and Teaching Council (ALTC) funded the Chemistry Discipline Network (ChemNet) with a 2 year, $100,000 grant. The main aims of the project were to form a Community of Practice (CoP) of tertiary chemistry educators from all Australian institutions, and to develop and implement the Chemistry Threshold Learning Outcomes (CTLOs). This shared task

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provided purpose and structure to the network, and the many face-to-face meetings cemented virtual relationships, leading to a multiplicity of indicators of a CoP.

The formation of ChemNet coincided with several other important developments in the science learning and teaching environment in Australia. The timing also paralleled technological developments that make synchronous and asynchronous communication around Australia ever easier. Thus, ChemNet has reduced the isolation of academic staff who may be the only chemist, or only teaching-intensive chemist, at their institution. Members in this category have participated in both the core and active groups of the CoP.

This chapter uses Wenger's conceptual framework and the dimensions he defines for a CoP to analyse the formation, activities and sustainability of ChemNet. Discussion focuses on the challenges and successes in implementing a CoP within a hard science discipline, and the effectiveness of social learning within a particular academic environment where research is emphasised over education.

The principal finding of this case study is that a geographically dispersed but disciplinarily close-knit community can function as a supportive, non-hierarchical CoP based around mentorship, and generate significant social capital. The major pre-requisite is at least one committed person driving the activities and processes of the CoP. Synchronous communication through Skype meetings and asynchronous communication via email, even with a very large group of over 100 people, allow the characteristics of a CoP to develop and evolve as members move between different degrees of participation within different projects.

The richness of Community of Practice (CoP) conceptions, developing and diverging from the seminal writings of Lave and Wenger (Cox 2005; Lave and Wenger 1991; Li et al. 2009; Wenger 1998; Wenger et al. 2002) are enlightening to us as tertiary chemistry educators. They give us tools with which to examine our informal support network, the Chemistry Discipline Network (ChemNet), and the teaching environments in which we work. Although qualitative sociological enquiry is not a common activity for physical scientists, it is important to examine our network in CoP terms in order to understand its development, to identify its strengths and weaknesses, and to ensure its continuation. ChemNet has much to gain from this reflection because one major and critical activity of the Network— the articulation and development of Chemistry Threshold Learning Outcomes (CTLOs)—is drawing to a close and key members are moving on. Further projects, including those evolving out of the CTLO work, will maintain some momentum, but we need to examine the current situation systematically to identify our strengths in terms of what value members derive from the community that will keep them engaged and bring others in. Understanding CoP dynamics found in informally structured and purposed CoPs similar to ours can assist this.

A plethora of CoPs across many sectors and with varied structures, purposes, types of membership and degrees of (in)formality have been reported in the literature. In the corporate world, CoPs are managed and aim to increase productivity (Borzillo et al. 2011; Probst and Borzillo 2008; Wenger et al. 2002). Within academia, CoPs have been formed deliberately (Baker and Beames 2013; Molphy et al. 2007; Pharo et al. 2014; Sánchez-Cardona et al. 2012) as well as incidentally

(Nistor and Fischer 2012). A variety of analyses of these CoPs, both qualitative and quantitative, have been used to investigate their nature, journey, outcomes and successes. There is some literature on CoPs in chemistry for secondary teachers (Santos and Arroio 2013), at the secondary-tertiary interface (Szteinberg et al. 2014), and among tertiary chemistry teachers (Adlong et al. 2004; Baker and Beames 2013) that supports the importance and effectiveness of a CoP in this environment.

Power dynamics exist within Schools of Chemistry (or equivalent institutional units) in Australian Universities around the interplay between research and teaching, and their relative importance. We first examine the evolution of this balance through the history of chemistry research and chemical education. The generally low value placed on teaching led, in the 1990s, to informal groups of chemistry educators coming together for specific cross-institutional projects, subsequently leading to formal annual events and finally to the establishment of ChemNet in 2011, and this history is briefly described. Following this, we give an account of the development, activities, outcomes and artefacts of ChemNet. Then we analyse the characteristics of ChemNet as a CoP and its evolution over time. Wenger et al. (2011) emphasise the importance of both data and narrative in combination to measure value creation in CoPs. Our analysis encompasses these aspects. We reflect on the current state of our CoP and look to sustaining the community into the future.

22.1.1 The Culture of Chemistry

Chemistry is an ancient science with origins in metallurgy and alchemy. Modern chemistry grew out of discoveries and inventions of the seventeenth and eighteenth centuries and remains fundamentally an experimental science that adheres strongly to a positivist philosophy. Chemistry is classified within the hard sciences because of the perceived methodological rigour and objectivity required to report a result in chemistry (Hedges 1987). One characteristic of the discipline that distinguishes it from other fields is the ready reproducibility of results by different research groups and in different laboratories. This is a key part of the culture of chemistry.

The massive amount of factual knowledge and symbolic interpretation required to understand chemistry leads to the general perception that it is difficult (Johnstone 1991). This contributes to a sense of belonging among people expert in chemistry (similar to other specialised academic fields), because they share an uncommon language (Taber 2015b) and have travelled a shared pathway to gain their knowledge. However, there is also a competitive aspect to this culture. Appointments, promotion and prestige within university chemistry departments are largely associated with research success (Coe 2002, p. 28; Fox and McWhinnie 2004), reflected in journal publications and external grants, particularly those from

government funding agencies. Because of the high value placed on research publications based on novel results, chemistry academics frequently operate within a rather uncooperative structure and in an atmosphere of competition.

22.1.2 Tertiary Chemistry Education and the Scholarship of Teaching and Learning in Chemistry

Education in chemistry includes a combination of theoretical teaching and training in experimental techniques. Although curricular differences exist between countries and institutions, a large body of knowledge is common to any tertiary chemistry degree. This is illustrated by the similarities between available textbooks and curricula, particularly in the first year of undergraduate studies (Hill and Cross 2001; Schultz et al. 2013). Chemistry has expanded over the centuries and is now so broad and diverse that it is impossible to be an expert across the entire discipline. Thus, chemistry education involves sub-discipline specialisation. Sub-disciplines include organic chemistry, inorganic chemistry and physical chemistry, or even more narrow polymer chemistry, organometallic chemistry and carbohydrate chemistry. These sub-discipline groupings are reflected in the structure of professional organisations—not only national bodies such as the Royal Australian Chemical Institute (RACI) and the American Chemical Society (ACS), but also the International Union of Pure and Applied Chemistry (IUPAC) are organised around sub-discipline Divisions. Communications within the sub-disciplines occur at specialised conferences and in specialist journals. In the later years of undergraduate chemistry degrees, academic staff usually teach within their sub-discipline speciality. Teaching methods and research traditions differ between the sub-disciplines, which results in a tribal affiliation of chemists to their sub-discipline speciality (Becher and Trowler 2001). The plethora of sub-disciplines within chemistry means that only very large institutions have more than two or three representatives of each on their staff. Thus, chemistry academics are likely to communicate with chemists from other sub-disciplines in relation to their teaching, whereas they are likely attend conferences with experts in their own sub-discipline. Their affiliation to their sub-discipline means that communication about teaching may be superficial. This dynamic is not unique to chemistry.

There has long been interest in the unique difficulties of teaching and learning chemistry, moving between the macroscopic (observable), microscopic (diagrammatic) and symbolic (using chemical symbols). This was recognised in 1991 by Johnstone, who had been describing learning issues particular to chemical representations since the early 1970s (Johnstone 1983, 1991). In addition, misconceptions regarding physical phenomena are widespread and difficult to combat, which further increases the difficulty of understanding chemistry (Mulford and Robinson 2002; Nakhleh 1992; Taber and Tan 2011). While research into student misconceptions continues (Brandriet and Bretz 2014; Luxford and Bretz 2014; Wolfson

et al. 2014; Wren and Barbera 2013), the call has been made to move beyond documenting to attempt to remediate these (Regan et al. 2011; Tippett 2010; Treagust et al. 2011). Pedagogical content knowledge has been suggested as the way forward for chemical education (Bucat 2004), because an intimate understanding of content combined with experience with student difficulties allows optimisation of explanations (Talanquer 2007) and teaching strategies (Davidowitz and Rollnick 2011; Drechsler and van Driel 2008; Green and Rollnick 2006). In addition, the use of sophisticated and careful representations to assist visualisation of chemical processes has been recognised as critical within the pedagogy of chemical education (Tasker 2014). Thus, not only the curriculum but also teaching methods can be optimised for student learning.

These challenges in the teaching and learning of chemistry were recognised over a century ago, and conferences and meetings to share teaching strategies have long been held (Do 2006; Kametaka 1931). Multiple journals specifically dedicated to the scholarship of teaching and learning (SoTL) in chemistry exist. The oldest and one of the most respected journals for SoTL in chemistry, the Journal of Chemical Education (published by ACS, founded 1924), has gradually changed its focus over the past decades. Until the 1990s it primarily reported experiments and other activities for educators to adopt. Since 2000, approximately one third of the articles report the results of primary research in chemistry education, for example concerning characteristics of students and their learning, improved assessment strategies, and methods to probe student understanding. In addition to specialist fora, chemistry is included in a plethora of journals and conferences focused on teaching and learning in science. Both RACI and ACS have Divisions of Chemical Education, and IUPAC has a Committee on Chemical Education, indicating that it is widely recognised as a sub-discipline in its own right (Taber 2015a). In 2014, Monash University in Melbourne appointed Australia's first professor of chemistry education. This marks a turning point in the recognition of chemistry education as a valid field of research in Australia.

22.1.3   The Tension Between Chemistry Research and SoTL in Chemistry

A problem faced by chemical educators is the perception that research in this area is easier and therefore less valid than traditional chemistry research. This stems in part from the misconception that education research is less rigorous than hard science research, because it lies partly within the social sciences. However, high quality education journals have exacting standards for research publications and although the rigour required is different, it is no less (Taber 2015a).

Related to this, the general public holds the perception that social sciences are less important than physical sciences (Bernard 2012), in spite of evidence that advances in the former sphere often lead to improvements in the human condition.

This view also prevails, perhaps even more strongly, among those trained in the physical sciences. Thus, chemists are very likely to see their own work as much more valuable and contributing more to society than research in education. At the same time, a common career track for researchers in science education is to undertake a PhD in the corresponding science, work in the field, then move into education research (Rowland and Myatt 2014). This leads to the situation that science education researchers feel that their own work in science education is less worthy than their own previous (or in some cases concurrent) work in their original science field (Clavert et al. 2014). This is unfortunate because it reduces the likelihood that science education research is conducted by those best placed to perform it within their disciplines.

One of the first papers ever published in the Journal of Chemical Education, over 90 years ago, illustrates precisely the attitude towards those who specialise in teaching over research that prevails to this day:

> The trouble at present is that the teacher is suffering from an inferiority complex. He [sic] sees the prizes in the hands of the "research men" [sic] and when he compares his work with that of the latter he finds that the teacher is usually at a disadvantage… (Patrick 1924, p. 16)

22.1.4   Funding and Conferences in SoTL in Australia

In Australia in 1994, the Committee for the Advancement of University Teaching (CAUT) established UniServe to collect and disseminate teaching materials for multiple disciplines throughout the Australian university system. UniServe focused on computer-based teaching materials, which at that time were just beginning to be widely used. The UniServe Science meetings commenced in 1996 and were established to assist academic staff in using computers in their teaching. Their purpose evolved as computer use became routine and the conference was renamed the Australian Conference on Science and Mathematics Education (ACSME) in 2011. This conference is currently the most important forum for sharing results in chemistry education research in Australia. The number of chemistry presentations in each year since the UniServe meetings commenced is displayed in Fig. 22.1 (light bars) with the percentage of women named on abstracts above the bars in italics. One day of this conference (known as the Discipline Day) has been reserved since 2005 for meetings within disciplines and chemistry educators have used this opportunity to connect each year. In addition to these meetings, the Chemical Education Division of the RACI has been running conferences approximately every 2 years since 1973.

Some funding for research into chemical education has been available for many years through various Australian government funding schemes (McDonald 2011). Figure 22.1 summarises the numbers of Federal teaching and learning grants that
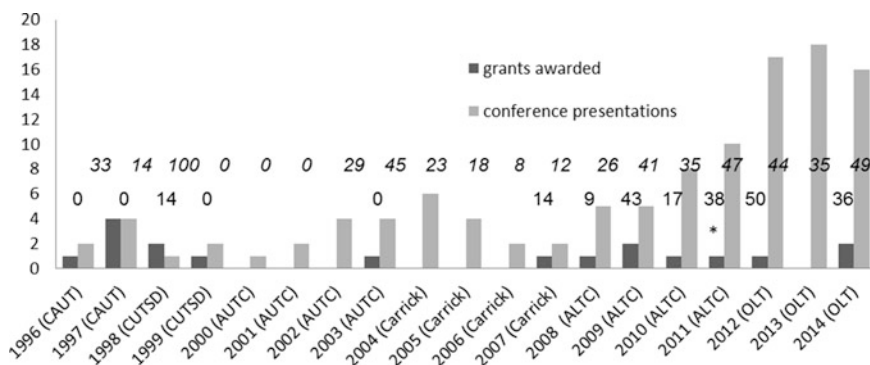
Fig. 22.1 Longitudinal data for numbers of federal grants awarded in chemistry (*dark bars*) and abstracts for chemistry presentations at UniServe/ACSME (*light bars*). The name of the granting agency is in *parentheses*. The percentages of women named on the grants (*regular font*) and named on abstracts (*italics*) are given above or on the corresponding *bars*. * this project's funding

have been awarded for projects in chemistry since 1996 (dark bars), with the percentage of women named among all named grant awardees above each column.

As can be seen from Fig. 22.1, there was a dearth of Federal funding for projects in chemistry education between 1999 and 2007. Although a small number of chemistry projects was funded throughout the 1990s and 2000s, some of which involved groups from multiple institutions working together, until 2010 there was no distinct teaching and learning space for chemistry in Australia. However, research and interest in SoTL in the sciences had been growing. One measure of this increased interest is the annual growth of ACSME, which has grown from 94 attendees at the first UniServe workshop in 1996 to over 250 participants across all science disciplines at the 2014 ACSME. The corresponding recent growth in the number of chemistry presentations at the conference over the past two decades (light bars in Fig. 22.1) contrasts with the relatively stable number of funded projects (dark bars).

An important development within Australian tertiary education from 2009 until 2011 was the ALTC-funded Learning and Teaching Academic Standards (LTAS) project. This arose in response to a Federal publication giving ownership of standards to the individual disciplines (Ewan 2010). For science, an overarching LTAS statement, containing Threshold Learning Outcomes (TLOs), was published in 2011 after extensive consultation across science disciplines (Jones et al. 2011). The chemistry community became heavily involved in the TLO process at this early stage and published a specific set of chemistry TLOs (CTLOs) in parallel with the science process (Buntine et al. 2011).

Within this environment and out of a successful ALTC bid, ChemNet was established. Its primary aims were to connect teaching focused chemistry academics and others with an interest in chemistry teaching and learning in a CoP. As a condition of receiving the funding, ChemNet was tasked with the development and

implementation of the recently published CTLOs (Buntine et al. 2011) as agreed thresholds for the bachelor degree in chemistry. This was to prove a major driver for the newly formed Network as described in detail below.

22.2 Formation of ChemNet as a Community of Practice

The theory of CoPs provides a framework within which groups and their activities can be defined and analysed. In outlining the development of ChemNet, we will employ a CoP perspective, using the indicators and the engagement levels from (Wenger 1998, pp. 125–126) as parameters. Then we will appraise the activities and outcomes via descriptors and measures used and reported in the literature. In addition we will consider the various types of knowledge shared in ChemNet, and the links of those knowledge types to social capital and types of learning (Daniel et al. 2003; Preece 2004).

In response to an ALTC call for applications for discipline learning and teaching networks in 2011, we put together an application for the Chemistry Discipline Network and were awarded $100,000. ChemNet aimed to bring together Australian academics with an interest in chemistry education for two main purposes:

1. to connect chemistry educators and those with an interest in SoTL in chemistry in the form of a CoP; and
2. to share our practice and teaching resources in chemistry education at the coalface, often teaching large classes, sometimes in isolated environments.

Other Discipline Learning and Teaching Networks were funded at the same time through this scheme, including several other science networks as well as networks in other fields. There was some communication between all networks during the first year, encouraged and facilitated by the funding agency. The science networks also cooperated and communicated through the Science and Mathematics Network of Australian university educators (SaMnet), and these connections were supported through the Australian Council of Deans of Science (ACDS), leading to the formation of the web based ACDS Teaching and Learning Centre (http://www.acds-tlcc.edu.au). Further inter-Network communication has been facilitated through the Promoting Excellence Networks (PEN), which are OLT-funded Networks in each Australian state.

A guiding principle of ChemNet from its conception has been inclusivity for all interested in tertiary chemistry education. We made explicit attempts to involve people who have not published journal articles or performed well under traditional evaluations of importance within chemistry research. This policy was retained as ChemNet has grown and the effectiveness of our practice in this regard is illustrated by the huge diversity of ChemNet members. Within 6 months of the formation of ChemNet, 87 members had joined of whom 25 had participated in virtual (Skype) meetings. As we write, ChemNet has over 156 members (of whom 54 are women)

from 40 Australian and several international institutions, ranging from sessional, part-time staff to professors. Some have no background in SoTL while others are recognised world leaders. Several have made their first forays into publishing educational research through ChemNet. In particular, ChemNet involves many women who historically have been marginalised in chemistry departments (Bell 2009; Mueller et al. 2002; Schultz 2012b; Stevens-Kalceff et al. 2007). The importance of including women in groups for successful team collaboration has been demonstrated (Bear and Woolley 2011). However, our inclusiveness was based on a more fundamental idea of fairness. The impact of ChemNet on women's involvement in SoTL in chemistry is discussed below.

We are aware of the dangers of having the core group too close; as has been recognised

> …tight bonds between members can become exclusive and thus present a major barrier to the integration of newcomers. Without proper monitoring, this closeness can hinder the acceptance of external input and the development of external collaborations (Li et al. 2009, p. 3)

For this reason, we welcomed new participants to every Skype meeting and reached out to new and existing academic staff to invite them into ChemNet. The importance of weak ties in social networks was described over 40 years ago by Granovetter (1973), and changes in communications technology have allowed sophisticated analysis of his concept in the Internet age (Ellison et al. 2014). These and related studies demonstrate that weak ties within social networks facilitate information sharing more effectively than isolated networks of strong ties. This can be understood through the diversity brought into a group that is not already strongly linked. The Internet is particularly effective in facilitating weak ties because of the low cost of maintaining them and the ease of sharing resources (Ellison et al. 2014).

Above all else we wanted to connect people with people to support each other in our work. In Australian universities, Schools of Chemistry or their equivalent typically have one to three teaching intensive staff. Alternatively, depending on institutional structures, chemistry teaching staff may find themselves alone in faculties, departments or schools that are not recognisably chemistry-led. These staff may be teaching over three semesters with little time between. They are often under pressure to produce research outcomes as well as carry heavy teaching and administration loads. They can experience isolation in their day-to-day teaching responsibilities and in any SoTL or development work they plan (Rowland and Myatt 2014). The fundamental aim of ChemNet was to build a group within which a sense of community and support would develop not only to cope with these circumstances, but also to advance participants' expertise. Wenger et al. (2002, p. 4) define CoPs as "groups of people who share a concern, a set of problems, or a passion about a topic… interacting on an ongoing basis." This definition usefully emphasises the common experiences of the participants in particular situations and thus the potential for mutual support and problem solving growing from that shared experience.

ChemNet began with activities centred on communications. We needed to build the membership and provide multiple ways for members to connect to the network and among themselves. The 2011 ACSME was held shortly after the funding was announced and we ran our first face-to-face meeting on the Discipline Day of that conference with over 30 people attending. After extensive discussions during that meeting, we formed working parties for the following tasks:

1. Developing of a website for multiple uses including communication of activities, storage of network meeting artefacts, and an asynchronous discussion platform.
2. Collecting a repository of sharable learning objects to be housed on the website.
3. Articulating and implementing the CTLOs.
4. Mapping of all chemistry subjects (credited units of study making up a degree course) at universities across Australia.

Although we did not refer to any literature at the time, one can easily recognise the development of Wenger's indicators of a CoP (1998, pp. 125–126) within these initial moves to set up and grow ChemNet. In particular, the first few Skype meetings resulted in the following features:

- Shared ways of engaging in doing things together and mutually agreed communication strategies.
- Rapid flow of information, particularly using email.
- Very quick setup of a problem to be discussed—problems in this case included the CTLO process described below, as well as organisational issues and planning.
- Substantial overlap in participants' descriptions of who belongs based on who was involved in meetings.
- Knowing what others know, what they can do, and how they can contribute to ChemNet from past associations—many ChemNet members had worked together or at least met in the past through other chemical education work.
- Mutually defining identities through shared discussions, particularly via Skype but also informal face-to-face meetings of members that occurred.
- Local lore, shared stories, inside jokes, knowing laughter—this was a critical aspect of Skype meetings that was not supported by email or the website.
- Developing or known jargon and shortcuts to communication—again, only live interactions allow this feature.
- A shared discourse about our experience as chemical educators reflecting a certain perspective on the world.

A further set of indicators: specific tools, representations, and other artefacts from chemistry education practice and pedagogy, also became evident early on when members shared published literature of their own or that they had used. This was facilitated by the Skype meetings but also by emails and the website.

Further, one can easily recognise differing levels of engagement or participation of members from the first stages of the CoP. According to Wenger's description,

the core group, normally comprising 10–15 % of members, sets the agenda and coordinates activities. In our case this included the members leading the working parties and actively participating (for example attending Skype meetings). The active group is described as participating occasionally rather than regularly and making up a further 15–20 % of CoP membership. ChemNet approximately mirrors these ratios and has done so since the beginning of the project. Peripheral group members (approximately 60–75 % of members) rarely participate and in our case are the majority of members, who receive emails but never engage further. Occasional responses to the email newsletter indicate a transition to more active membership (Borzillo et al. 2011).

22.2.1 Communication: The Key to Connection

Communication within CoPs is critical. Because ChemNet members are spread right across Australia, face-to-face meetings were always going to be infrequent, and so virtual communications were and remain essential to successfully developing the community and producing valuable outcomes. However, to cement the personal relationships necessary for a CoP, face-to-face meetings are invaluable (Preece 2004). Since our first face-to-face gathering at ACSME 2011, we have met on each subsequent annual Discipline Day. Figure 22.2 summarises member participation in the four meetings so far. This is the annual opportunity for members to meet face-to-face and it is always a dynamic and productive meeting.

As can be seen from Fig. 22.2, approximately half of the 39 Australian universities at which chemistry is taught have been represented at each of these meetings. On each occasion, people who were outsiders to the CoP have attended, moving them rapidly through the periphery to the active part of the CoP. Such
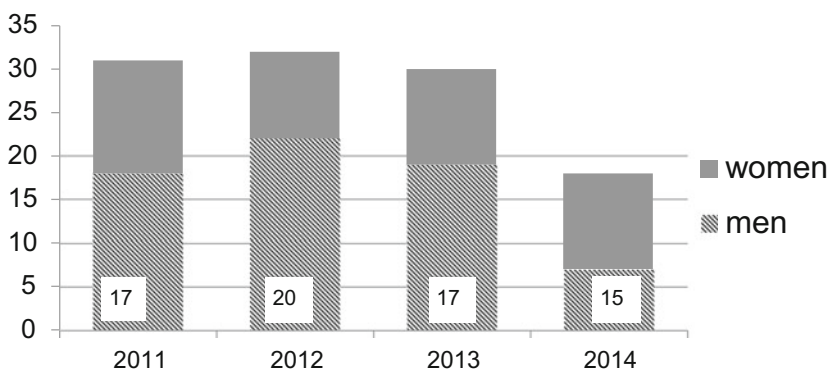

Fig. 22.2 Longitudinal data for attendance at Chemistry Discipline Day of ACSME, *colour-coded* by gender of participants. The number of different institutions represented is given on each *bar*
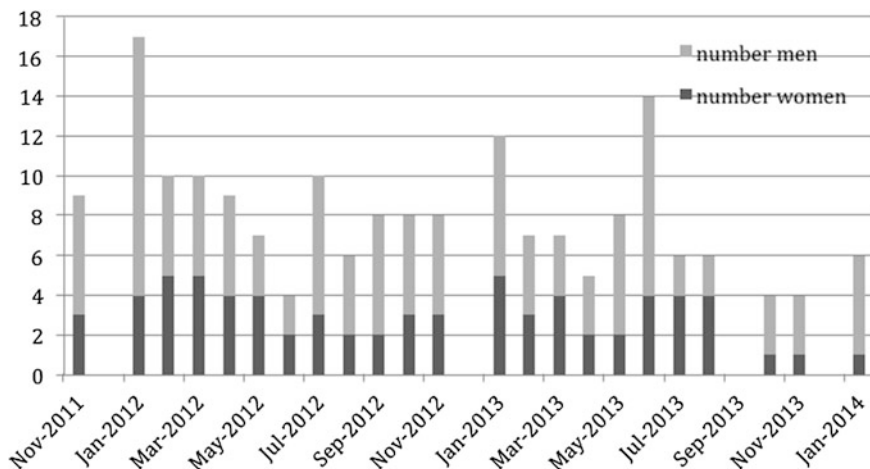
Fig. 22.3 Longitudinal data for attendance at ChemNet Skype meetings, *colour-coded* by gender of participants

participants were in some cases not involved in SoTL, and the ChemNet meeting was their first exposure to chemistry education research.

Monthly Skype meetings were held starting in late 2011. These meetings were well attended, and the active participation of some of the most senior members of the chemistry education community in Australia lent them importance and reassured the ChemNet directors that this was a valuable and valued activity. Figure 22.3 summarises attendance at these meetings over the 2 years during which they were held until early 2014 when, despite efforts of two members to manage the meetings and record notes, attendance dropped to zero. This represented an important dip in the activity of the CoP and can be attributed to the relocation of the person most heavily involved in running the meetings. A group of approximately 20 people regularly attended the Skype meetings over the central part of the project, comprising the core and active members.

Discussions during the Skype meetings were varied, and included the current ChemNet projects such as the mapping exercises, the website and the CTLO project, immediate teaching challenges and resources to support these, upcoming events (funding opportunities, conferences, special issues of journals) and planned grant applications. The rapid flow of information and set-up of problems became more evident over the months, showing strengthening of the CoP characteristics (Wenger 1998, pp. 125–126). Members new to SoTL were assisted in formulating educational research projects, including advice on structuring their research questions, ethics requirements and survey strategies. They were also quickly inculcated into the accepted jargon, lore and jokes of the active and core groups. Conference discussions allowed members to know who else was planning to attend, to arrange travel and to help break the ice in a new environment. Meetings were a very

supportive, welcoming environment and also included much humour as members came to know each other better and ties were strengthened.

In addition, ChemNet communicates with all members via a monthly emailed newsletter from one of the authors (MS) with information about upcoming events and deadlines, references of interest, funding opportunities and ChemNet activities. This newsletter is popular and every time it is sent (using mail merge, so is individually addressed), a handful of responses on diverse topics is received. Feedback from members indicates that this is a valuable way of staying in contact, although it lacks the humour and interaction of Skype meetings. The newsletter has continued beyond the funding period and much longer than the Skype meetings. A Twitter account (@chemnet_au) was set up for ChemNet at the time of its formation and has 145 followers, less than half of whom are ChemNet members. This form of communication has led to some important connections outside of Australia and also increased the sense of community among those members who use Twitter. None of the above activities were particularly expensive and in principle the activities could have been conducted without funding. However, the funding opportunity provided a catalyst for the commencement of the activities, paid for the services of administrative support and research assistance, and lent legitimacy to our initial outreach.

Social capital refers to the collective value of social networks associated with their characteristics of trust, cooperation, reciprocity, shared knowledge and understanding, and information and communication flows. Some have referred to social capital as the glue which binds networks together. The link between a community's knowledge and knowledge sharing to social capital in a CoP is multifaceted. Social interaction and social capital support the transmission of the knowledge, while transmission of knowledge further builds up social capital (Abou-Zeid 2007; Preece 2004). Within ChemNet, social capital and knowledge transmission were built through both the Skype meetings and the newsletters, and boosted through face-to-face meetings of members at conferences.

The main challenge to ChemNet has been communication through a website. An enormous amount of time and effort was devoted to designing the website, attempting to find out what would make it useful and popular, and then building the website. This included canvassing views at the first Discipline Day meeting in 2011, an "Ideas Exchange" session at ACSME in 2011 (Schultz 2013), further discussion by email, during Skype meetings and in person when members attended other events together. Many suggestions were received for what would make the website valuable, including sharing resources as exemplified for inorganic chemistry in the US by IonicViper (Interactive Online Network of Inorganic Chemists 2010), with tools for sharing learning objects and fora for discussing all aspects of our shared interest. Originally envisioned as the heart of the network, the website has languished almost unused and is currently a document repository. This continues to be a disappointment given the literature on the success of some virtual CoPs (Johnson 2001; Molphy et al. 2007). Conversely, regular emails and Skype conversations have proven to be the on-going life of ChemNet, supported by annual face-to-face meetings at conferences and informal face-to-face meetings among members who cross paths elsewhere.

As we noticed that people were not sharing learning objects and also not communicating using the discussion fora on the website, we realised that the main resource of the network is the members themselves. To promote people contacting each other directly we generated a spreadsheet with names and contact information as well as some detail about teaching areas of interest of members. However, this was also not used; apparently members prefer not to contact each other directly but prefer the facilitated contact through a Skype or face-to-face meeting.

Thus, ChemNet overcame the double tyrannies of distance and isolation through successful online communications, in the form of the monthly Skype meeting and the monthly email newsletter. In particular the Skype meetings turned out to be far more important that the website, showing that members found value in this form of participation. This may reflect the differences between taking part in the two activities: informal Skype meetings required no preparation, while the value of meeting and talking with others was high and immediately obtained. In contrast, preparing materials to share via a website had a moderate input load, while taking part in asynchronous discussion fora did not give immediate feedback.

22.2.2 Chemistry Threshold Learning Outcomes Project

The articulation of the CTLOs provided impetus for ChemNet and consumed a significant amount of the funds because ChemNet paid travel and accommodation for many attendees across the series of meetings. The working party was reorganised in mid-2012 when it was realised that the task was very large and required multiple meetings with large groups of chemistry academics to ensure that the process would be valid. At that time, few disciplines in Australia had attempted to develop such overarching documents and the task was somewhat intimidating. The ACDS, working with all the science disciplines given the same task, provided leadership and support and facilitated cooperation among the disciplines to make progress on this work.

The main activity over the period October 2012–July 2013 involved the CTLO working party leading and facilitating the development and implementation of the CTLOs by the broader chemistry community. This took the form of four separate, day-long workshops using a process of small group discussions, discussion capture, later distillation, and then sharing for feedback, in addition to two Discipline Day meetings that added to the consultation process. Face-to-face input was gathered from 69 chemists (30 % women) from 25 different institutions, most of whom attended more than one of the workshops (see Table 22.1). Eight of these people had attended the initial CTLO discussion workshop prior to the formation of ChemNet (Buntine et al. 2011).

The meetings included many research-intensive academics not usually directly associated with management of teaching and learning or educational development outside their own sub-discipline area. These meetings, apart from progressing towards the articulation of the CTLOs, greatly enhanced the visibility of ChemNet

**Table 22.1** Summary of face to face meetings of ChemNet held to discuss CTLOs

Date of meeting	Number of participants	Main discussion topic
26.09. 2012 Dis Day	32	Assessment of CTLOs on nature of science and concepts of chemistry
12.12.2012	15	Articulate concepts and principles of chemistry
04.02.2013	26	Agreement on statements from 12.12 workshop; how to express these as standards; how to evidence achievement
09.07.2013	20	Laboratory skills and assessment
2013 Dis Day	30	Teaching and assessing ethics, nature of science
05.02.2014	12	Determine extent to which CTLOs are achieved within chemistry majors using a mapping tool

in the whole tertiary chemistry community. Thus the CoP effectively invited non-teaching focused chemistry experts to take part so that all chemistry academics had ownership of the outcome, making use of weak ties (Granovetter 1973) and taking advantage of the group diversity. Degrees of community engagement (Wenger et al. 2002) are represented in Fig. 22.4.

Participants commented that they thoroughly enjoyed and valued the workshops, both the process of gathering commentary and opinion and the shared experience of close conversations about our discipline. The experience of intensive small group discussions to about the TLOs provided time for rich and fulfilling discussions that do not occur at conferences. Furthermore, in these workshops members could find themselves in a small group with senior members of the chemistry community due to the variety of people who took part. The development of the network and its social capital was boosted by the face-to-face meetings, which promoted trust (Daniel et al. 2003) and broke down some of the barriers of online communication (Preece 2004).

The series of CTLO meetings was supported (including financially) by RACI, in part because the Bachelor of Chemistry accreditation standards were undergoing

Fig. 22.4 Schematic representation of the participants in the CTLO process within the context of the ChemNet CoP
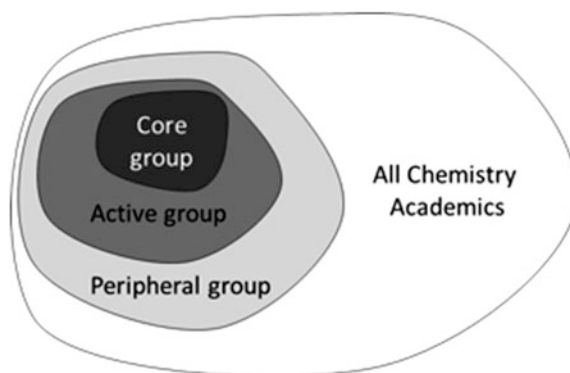
change from a prescriptive inputs framework to an outcomes based one, and the RACI was considering adoption of the CTLOs for that purpose. During that development period the ACDS teaching and learning community held a 1 day long gathering of the Science discipline networks to feedback their experiences and developments in their respective journeys along the path to TLOs (Yates and Buntine 2012). The CTLO process and outcomes facilitated through ChemNet have been incorporated into the restructuring of the RACI accreditation process for chemistry degree courses, which is a tremendous result and impact for this ChemNet work.

For some individuals in the Australian chemistry education community who originally did not engage with ChemNet, the CTLO process stimulated their engagement. These people could see where they could make a concrete contribution, although they did not engage with the network generally but just with this one activity. Thus, this project led to their movement from the periphery into the core of the CoP (Wenger et al. 2002). Discussion with our counterparts within the UK. Higher Education Academy's Physical Sciences Centre confirm that for a large group, the strategy of forming a smaller group to undertake a specific activity is very effective. Participants know that the group will be closed when their task is complete and the outcomes are shared. The group work may lead to further collaborations or workshops but the group itself is contained. Additional value to the CoP results from the new connections formed during the project, including who has been introduced to whom within their group work, forming new weak ties from previous bridges (Granovetter 1973).

22.2.3 Catalyst Grants

Towards the end of the funding period, it was decided to offer $1000 "Catalyst Grants" to members to help them conduct or conclude a chemistry education project, and ideally to result in publication. Only seven applications were received and all were funded. Applications came from regional, technical and research-intensive universities, and were from early- to mid-career academics. Catalyst grant holders report that receiving the grant was encouraging and a stimulus to their confidence, that reporting back on Discipline Day raised their profile and that they were encouraged to pursue more grants for future projects. Interestingly, these personal outcomes were reported rather than the monetary outcomes of the grant. This illustrates the importance of even very small funding initiatives for education research and the power of a small success to combat disillusionment. At least one Catalyst grant has resulted in publication of results in a recognised journal and continuation of the project through a larger collaboration. This small project of the CoP also drew a new cohort from the periphery into the core (Wenger 1998).

22.2.4   Current Activity

At the annual ACDS Teaching and Learning forum in 2013, the future of the science discipline networks was discussed in terms of possible form and activities. The continuing existence of ChemNet was envisaged to take the shape of an informal CoP, affiliated to both the ACDS TL Centre and the RACI Chemistry Education Division but not embodied within either of these organisations. Since the final report was submitted, the ChemNet monthly newsletter has been the main vehicle for keeping people informed of events and developments. Informal conversations show that members are very pleased to have the continued newsletters. The annual gathering at 2014 ACSME Discipline Day included short reports from several members about their projects and general discussion of teaching issues. Currently activity involving the whole network is low, and we are at a stage of examining our circumstances. Members have voiced a desire to maintain the CoP, reflecting on the connections made and support perceived in various ways during the period November 2011–early 2014. Several members expressed interest in rekindling the Skype meetings. With neither funding nor administrative backing, this will need a champion and some drive on the part of that person to re-establish and maintain the practices and activities. It was attempted during the early part of 2014 but did not gain traction. However the number of projects requiring a way to contact community members is growing, which provides an impetus for maintaining the group and gathering new members.

Outside entities with relationships to ChemNet can affect the sustainability and strength of the community, and understanding how outside institutions influence the community is key to our continuance. These include Schools of Chemistry, the RACI Chemical Education division, the OLT and the ACDS TL centre. These entities are aware of ChemNet and support its existence. We also have relationships with the Science Teachers Associations in some states. These are very active CoPs, more developed and more active than at the tertiary level, and provide sources of bridging social capital (Preece 2004).

22.3   Outcomes of the Chemistry Discipline Network

Measurement of what has come out of a network is not trivial. Publications in the academic literature are valued by the university system, and several papers have resulted from ChemNet activities (Mitchell Crow et al. 2012; Schultz 2014; Schultz et al. 2013). In addition, reports to RACI and ACDS were made, and several articles were published in the RACI magazine (Lim 2013; Schultz 2013; Schultz and Mitchell Crow 2012) as well as one in HERDSA News (Schultz 2012a).

Examining the number of presentations at the UniServe/ACSME conferences longitudinally (Fig. 22.1), it can be seen that there is significantly more engagement with this important meeting since 2011 as the number of chemistry submissions

jumps suddenly after the formation of ChemNet. This can be contrasted with the number of presentations at these conferences in physics over the same time period, which has remained static at between 7 and 11 presentations since 2005 with no trend. In addition, the proportion of female authors of chemistry abstracts has increased as shown in Fig. 22.1 (although the numbers prior to 2001 are so small as to make them statistically insignificant). Another example of the impact of ChemNet is that almost all Chemistry Education talks at the 2014 RACI Congress referred to or acknowledged ChemNet in some way.

An early, major activity run under the auspices of ChemNet was a July 2012 symposium held during the RACI Chemical Education Division conference in Adelaide. This symposium included both tertiary and secondary educators discussing standardised assessment, and a speaker was invited from the United States. Again because this was a face-to-face meeting, the connections formed and strengthened continued beyond the meeting itself. Collaborations are continuing as a result of that meeting including with overseas colleagues.

Teaching development other than publishing is difficult to quantify. The percentage of students passing a particular course may change with improved curriculum design or teaching methods, but this is difficult to control or to attribute to a single cause. Among the items shared informally at the Skype meetings were clicker questions that lead to a more active lecture environment, which should improve learning. In addition, discussion about how to introduce conceptually difficult topics may have led to improved teaching strategies among members. Further to this, principles of best practice in chemical representations for visualisation, developed and refined by two senior ChemNet members, have been disseminated through the group and presumably impact the teaching of those who were involved (Tasker 2014). The idea of translating research (our own and that of others) into practice permeated ChemNet, with frequent exchanges of published literature to promote good teaching. This is an example of the importance of weak ties within a diverse group in sharing useful information (Granovetter 1973).

One outcome of ChemNet is that all three OLT funded projects in chemistry since 2011 (Fig. 22.1) have had teams put together through ChemNet. The current large project "Assessing the assessments" is a direct continuation of the CTLO work from ChemNet and involves several members from the core of the CoP as well as others who were active members, already connected through strong ties to the lead applicant (Granovetter 1973). This project involves collecting exemplar assessment items and development of a tool to verify whether a particular assessment item demonstrates achievement of a particular CTLO. Team members are using weak ties within ChemNet to gather assessment items for this project. The smaller 2014 OLT Seed Project involves two core ChemNet members collecting and analysing pedagogical content knowledge, again making substantial use of their weak ties through ChemNet to organise meetings and gather data.

As we wrote in our final report, the Chemistry Discipline Network can be a mentor and matchmaker to people new to educational research. It includes a massive repository of experience in the members who are senior in the Australian chemical education community and who have been publishing in the SoTL for

many years. For academics who are new to SoTL and for those who have already been working in the field, the Network has proved to be a way to generate fruitful discussions and to get to know people (in person and virtually). For example, the incoming president of the Chemistry Education Division of the RACI owes many of his ties to the community partly to ChemNet.

The Network also offers a central point of contact to the large group of Australian chemistry academics who are interested in improving their teaching. This group includes research-intensive and teaching focused academics at all levels. Using ChemNet as an organiser has allowed the process of elucidating the CTLOs to be inclusive and representative. ChemNet has been recognised both by the RACI and the ACDS as the key player in establishing standards and assessment of threshold learning outcomes, and helping develop new accreditation standards. It has significant bonding social capital (Preece 2004) through the shared values and goals of many members around improving chemistry education.

22.3.1   ChemNet as a Vehicle for Participation by Women

It is clear from the percentages given in Fig. 22.1 that women were poorly represented in funded chemistry projects until 2009, since when the proportion of women named on grants in chemistry education has increased markedly. The proportion of female chemistry academics in Australia is currently around 15 % (although this figure varies widely between institutions), so women are actually overrepresented in funding for chemistry education research compared to their representation in chemistry departments. This analysis is somewhat complicated by the fact that women are less likely to be research intensive with correspondingly reduced teaching loads, and are therefore more often found with heavy teaching loads, as has been reported for physics (Stevens-Kalceff et al. 2007) and other science faculties (Bailyn 2003). Women are also more likely to teach into service subjects and to large classes in the first half of the degree and are therefore less able to attract postgraduate research students, making educational research in some cases their only option (Stevens-Kalceff et al. 2007). Thus, the proportion of women involved in funded chemical education projects may reflect the proportion of teaching-intensive academic staff who are female, although much finer-grained data collection and analysis is required to verify this.

Examining the data in Figs. 22.2 and 22.3 as well as the numbers involved in the CTLO project shows that women have been heavily involved in ChemNet, constituting 30–50 % of participants in every activity, which is well above our representation within chemistry departments generally. The cross-disciplinary State PENs also involve a disproportionate number of women; in 2015, approximately 90 % of the people in the leadership groups are female. Thus, it seems that the Network structure is particularly appealing to involvement by women. It is difficult to explain this observation without resorting to gender stereotypes; perhaps it is

because other avenues to academic leadership are closed to women (Bailyn 2003; Bell 2009; Stevens-Kalceff et al. 2007).

Given the persistent gap between academic status of men and women (Bell 2009), having a CoP that leads to traditionally recognised metrics including publications and grant success (particularly in Category 1) is a positive development. It is particularly heartening that the percentage of women on successful grants is now similar to the percentage of women presenting at ACSME (Fig. 22.1), correcting the previous imbalance that saw women not involved in nationally funded grants in spite of their engagement with the sub-discipline of chemistry education (seen in the years prior to 2009 in Fig. 22.1). Research indicates that mixed gender groups collaborate better (Bear and Woolley 2011) and produce higher-quality science (Campbell et al. 2013), so we hope that our gender mix has a positive effect on ChemNet outcomes as well as improving the careers of the women directly involved.

22.4 ChemNet as a Community of Practice

Wenger's indicators of progress focus on the socialisation aspects of learning leading to three dimensions of interaction within a CoP (Wenger 1998, 2000). These dimensions (or domains as described by Li et al. (2009)) are mutual engagement, joint enterprise and shared or common repertoire. ChemNet activities and outputs give evidence of these dimensions as follows:

1. Mutuality informs us of the depth of social capital in the community.

    a. Sustained mutual relationships: Relationships developed rapidly between members in Schools of Chemistry, or equivalent, which characteristically have few "teaching intensive" or "teaching focused" staff. These relationships, facilitated by the web, developed across the country. The network ensures these members interact informally and more often than just annually at conferences. In addition when they do attend a conference, they now have familiar faces to link up with.
    b. Rapid flow of information: the monthly email newsletter, maintained by one of the directors (MS), the monthly Skype meetings (minutes archived on website) and Twitter.
    c. Conversations and interactions are the continuation of an ongoing process, with members notably aware of bringing newcomers up to date.
    d. A shared discourse reflecting a certain perspective on the world: All members face considerable pressure in terms of workload, research—teaching balance, related career progression, related institutional support.

2. Joint enterprise is a measure of the "communal learning energy":

a. Shared ways of engaging in doing things together: Working parties, new projects, sharing of problems and possible solutions all exemplify the members working towards common goals.

b. Knowing what others know and how they can contribute: As individual members work and projects (inside or outside ChemNet) have become known in the network, others ask for their contributions or suggest their input to particular issues.

c. Mutual support: we have a common perspective as described above, and the most commonly reported value of ChemNet is mutual support in the face of multiple common issues and shared ideas of how to deal with some of them.

d. Projects carried out for the benefit of the community and the discipline as a whole, especially the Chemistry Threshold Learning Outcomes (CTLOs) and the snapshot mapping of chemistry subjects taught across twelve institutions.

e. ChemNet keeps learning at the centre of its enterprise by returning to the questions being asked by members and the challenges members face in their day-to-day teaching. This applies to both types of learning within ChemNet —the learning of our students, based on the learning of members as they improve the effectiveness of their teaching to aid student learning.

3. Shared repertoire (practice) which, as Wenger (2000) points out, is to be reflected upon as part of moving forwards:

a. Specific tools, representations and other artefacts: There is a well-developed discipline specific pedagogy, and ChemNet members both use and take part in advancing that pedagogy. At the same time members develop their own understanding and usage of that pedagogy.

b. The Chemistry Threshold Learning Outcomes (CTLOs), generated by the wider Chemistry community including core, active and peripheral members of ChemNet as well as some outsiders.

As we apply the CoP analysis to ChemNet, it is evident that it does not fit the "apprenticeship" model of situated learning (Cox 2005; Lave and Wenger 1991). A better description is a mentorship model. Mentoring has been described within CoP descriptions (Li et al. 2009; Wenger 2000) and a model for mentoring as the basis for a non-hierarchical CoP has been proposed (Smith et al. 2013). ChemNet is not recognisably hierarchical; rather those with experience or expertise in certain areas are known and take part on an equal social footing, with no loss of respect or recognition for their contribution. Social learning occurs informally, usually when one member asks the group for guidance and is connected via weak ties to someone with experience in that particular area of the discipline or other information required.

The knowledge shared within ChemNet can be categorised on the basis of content: discipline specific pedagogical content knowledge, more generic TandL knowledge, practical knowledge about organisational and administrative aspects of tertiary teaching and education research, and sector-wide knowledge (for example, current federal policy). In all of these categories, we find both explicit and tacit

Table 22.2 Comparison of tacit with explicit knowledge (adapted from Daniel et al. 2003)

Tacit knowledge	Explicit knowledge
Drawn from experience and the most powerful form of knowledge	Can become obsolete quickly
Difficult to articulate formally	Can be formally articulated, processed and stored
Difficult to communicate and share	Easily communicated and shared
Includes privately held insights, feelings, culture and values	Can be copied and imitated easily
Shared only when individuals are willing to engage in social interaction	Can be transmitted

knowledge. Daniel et al. (2003) provide a very useful comparison of these two types of knowledge, illustrating their dichotomy, shown in Table 22.2.

The very personal nature of tacit knowledge means it cannot be passed on without contact and rich communication. Thus, transmission of tacit knowledge necessarily occurs in informal settings where exchanges are close and personal, characteristic of CoPs in a mentoring environment. The sharing of valuable tacit experiential knowledge by more experienced chemistry educators with others in the network is the most important outcome of ChemNet and illustrates the powerful social capital generated in the network.

A flexible way to reflect on the value of a CoP is through narrative. Wenger et al. (2011) distinguish two types of narratives: ground narratives which describe the events, activities and interactions of the CoP, and aspirational narratives that describe what the CoP should be. They write

> …the tension between these two narratives creates a space for learning and for deciding what is worth learning. We locate the assessment and promotion of value creation through social learning in the space between the everyday and aspirational narratives. (p. 17)

We find evidence of a successful CoP both in analysis of activities and outcomes and also in the narratives of members reflecting on their experiences of connections made, projects begun, learning materials and practices shared, opinions garnered. We specifically collected narrative reflections from eight ChemNet members ranging from early- through mid- to late-career academics. Many informal comments and observations also indicate a successful and productive community.

The success of the communications put in place is especially illustrated by commentary of members. New entrants to chemistry education who were appointed in teaching focused positions reported that they benefitted greatly because the formation of ChemNet was timely and they quickly made weak and strong ties across the country including introductions to "big names" in the Australian Chemistry education community. Members more established in the chemistry education community reflected on the support and encouragement given to new entrants. Participation in the informal Skype meetings meant that when members new to the chemistry education community did attend a conference or other

gathering, they found entering the gathering much more relaxed because familiar faces or voices were present and that easy introductions to others followed.

Generally within face-to-face and online conversations, all members reported that the informality broke down barriers between the newcomers and the old hands and encouraged contributions because opinions were perceived to be valued. Members reported it was very useful to know what others were doing, where the informality permitted airing of problems and discussion of possible solutions. The supportive environment was appreciated and contrasted with the less supportive environment in other sub-disciplines of chemistry.

Informal conversations on chemistry education and general education issues allowed members to develop their understanding of the theories and pedagogy behind the practice. In relaxed multi-faceted discussions, newer members could pick up various aspects of particular concepts where those with more experience offered comments nuanced by their experiences as well as references to important literature in the area. This helped members feel less intimidated by the difficulties of entering the field of education theory and illustrates the trust generated within the CoP (Preece 2004).

Wenger et al. (2011) also provide a useful tool for assessing the value created by the CoP to members and beyond. This tool provides an excellent framework for quantitatively and qualitatively assessing a community's activities, outcomes and outputs. This appraisal is done via five cycles,

1. Immediate value: activities and interactions.
2. Potential value: knowledge capital, yet to be realised, and including personal assets (skills, ideas, abilities), relationships and connections, resources, collective intangible assets such as reputation and status, transformed ability to learn.
3. Applied value: changes in practice
4. Realised value: improved performance
5. Reframing value or redefining success.

Examples of the first four of these cycles are already apparent in the outcomes of ChemNet activities, although we have not enumerated them in detail. The activities described, the quantitative data reported above and the narrative supporting that data all point to the value created by ChemNet for the members and the Chemistry discipline community as a whole. In addition, the impact of our activities extends further via the ACDS and SaMnet. The value created within the ChemNet sphere of influence reflects the potential of CoPs explored in an academic setting by (Sánchez-Cardona et al. 2012). In addition, ChemNet satisfies the 10 'commandments' of a successful CoP developed in a business context (Probst and Borzillo 2008), and importantly does not fulfil any of the rules that lead to failure of a CoP. The significant social capital generated by ChemNet is directly related to its success as a CoP (Abou-Zeid 2007).

It is instructive to view the past 3 years in terms of activities and aspirations—what did we do, what did we intend and how these changed along the way. Among our intentions that did not translate into reality were that we planned and built a

website for sharing planned grant applications, teaching resources and general discussion, but ultimately the website was not used except for accessible storage of communication items and reports. A further example of an aspiration that did not translate is that although the working parties were established, by and large the work was not completed by the parties but by individuals. Consultation with the group was sought but the vision of teams working together on the projects completed by ChemNet did not eventuate. In addition, we planned to share assessment items for benchmarking and quality assurance. However, although eight people expressed interest, only three members shared their examination papers from first semester chemistry, so this aspect of the project stalled.

Looking across the CoP elements that Wenger (2000) recommend as "doable" (p. 320), it is evident that ChemNet has acted successfully upon all six. In addition to our outcomes demonstrating events held, connectivity established, membership raised, projects and artefacts in place that we have described, we can also reflect on the leadership developed. The authors of this chapter are co-directors of the Network and have both benefited from the leadership opportunities of the Network. One of us (GOB) also organised and co-directed the CTLO meetings, through which she has expanded her leadership skills and is recognised within the community as a leader. In addition others have come forward in leadership roles from time to time to carry forward particular activities. As co-directors we aim to recognise and encourage members to similarly lead possible projects or activities to help sustain ChemNet.

22.5   The Future of ChemNet and Reflections for Practice

Activity within ChemNet is at a low ebb as we write in early 2015. The current OLT projects based in the discipline of chemistry need the network to provide access to the chemistry education community. However, the driver for action in these cases lies within the project rather than the network. This may indicate that, at the moment, the most valuable ChemNet activities are maintaining and developing the informal and supportive communication channels and maintaining weak ties. The listed outcomes dependent on informal contacts and the narrative from members provide the evidence that this is important and draws members in. As a community of learning, it is within this social context that members advance their own knowledge and expertise in chemistry education. It could be argued that because the social support network appears of primary importance and the learning secondary, we are more like a simple support network. However, the outcomes certainly show that we have much grown and enhanced the community knowledge (for example through the CTLOs) as well as that of individuals informing their own practice. Indeed it would be difficult to disentangle the supportive communications aspect from the learning or expertise development.

Pharo et al. (2014) make relevant points for a science based CoP. Their circumstances, involving the creation of a series of CoPs within institutions but linked

together, are different to ChemNet, but their suggestions for conditions of success are pertinent. One such condition is "link participation to a common desire for particular outcomes" (p. 352). This may elucidate the reason for inactivity in ChemNet. One major activity, articulation of the CTLOs, has passed on into other hands, while others such as the mapping exercise have concluded. Perhaps there is a need for a distinct new activity to drive a new round of engagement.

This provides an important direction for the future. It is worth significant effort to rekindle informal meetings and discussions to sustain connections. It may be possible to enhance these discussions in real time meetings by advancing our use of technology for asynchronous communications that is more appealing than a website with log in and password. It may be useful to also promote smaller group collaborations for a specific project or topic over a specific time period. Such groups could form part of a strengthened critical mass to sustain ChemNet. Maintaining such small groups within the CoP as a whole will require commitment and understanding on the part of participants and ChemNet leadership, to avoid splintering and to promote overall growth of the CoP. This dichotomy of outcomes is shown diagrammatically in Fig. 22.5.

Clearly the right hand path is the desired direction. Finding activities or new learning valuable and relevant to ChemNet members needs consideration. This fits with Wenger's (2000) imperative to maintain the learning energy.

One of the key issues highlighted throughout the literature concerns the core group or leading members (Pharo et al. 2014; Probst and Borzillo 2008; Wenger et al. 2002). An issue for those still concerned with maintaining and building ChemNet is lack of time and the need to find ways of engaging other members to commit to more active participation and driving of certain activities. From the substantial literature of CoPs used as a tool for knowledge management in the business world, it is plain that the company or organization has reason to support the CoP, as part of maintenance and building of the corporate knowledge base (Borzillo et al. 2011; Probst and Borzillo 2008). In contrast ChemNet, like many other CoPs based in the tertiary education sector in Australia, has no external support from a larger organization, no external managerial drive, and no funding or
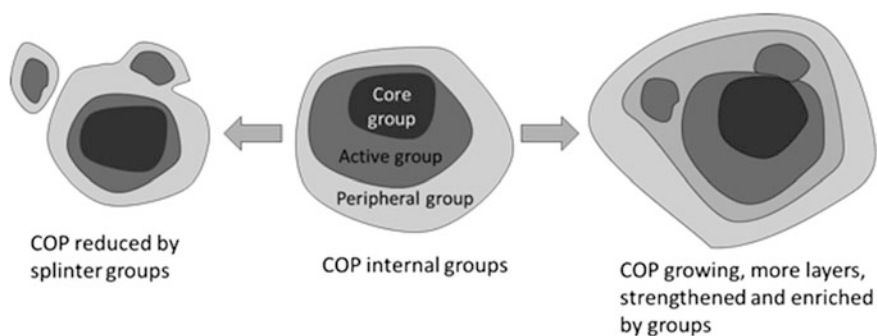

COP reduced by splinter groups

COP internal groups

COP growing, more layers, strengthened and enriched by groups

Fig. 22.5 Possible outcomes of growth and development of CoPs

recognition in workload, so it must be self-driving, self-motivated and self-rewarding.

We expect the mutual support and mentoring via informal communication to become more important over the next few years for teaching focused chemistry academics. The Australian Higher Education sector faces considerable uncertainty, pressures from which will impact highly on learning and teaching. With ChemNet as a strong and self-sustaining CoP, teaching staff will find support for maintaining standards and leading developments in both discipline and service teaching. ChemNet provides an invaluable resource in facilitating mentoring for chemistry academics.

Although the term community of practice is somewhat ill defined (Li et al. 2009), this is not a disadvantage but the beauty of the concept. It is open to subtle interpretation, thus allowing consideration of various groups as we have done, to interpret their strengths and weaknesses and to illuminate possible future paths and activities to ensure the long-term sustainability of the network.

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Chapter 23
Bringing Focus Through Community: Social Learning in Online Teaching, Learning and Research

Liam Phelan

Abstract In this Chapter I describe and reflect on the inception and evolution of the Community of Interest (the COI) in Online Teaching, Learning and Research at the University of Newcastle, Australia. The COI was initiated in mid-2012 with support from GradSchool, the Universty's online postgraduate coursework programs unit, as a way to bring focus to online teaching and learning at the University. The COI brings together colleagues from diverse disciplines across the University's five faculties, the Wollotuka Institute and the English Language and Foundation Studies Centre. Further, the COI brings together both academic and professional staff. Students are also welcome, but the COI has been less effective in attracting students. The COI's main mode of function is monthly face-to-face 'catch ups', with each one taking the form of a led discussion on a topic focus area proposed and/or presented by a COI participant. Since mid-2012 the COI has evolved in several ways, including 'spinning off' the Writing Circle on the Scholarship of Online Teaching and Learning, and more recently, launching the COI blog as a way to better link with colleagues across the University's multiple campuses and beyond. The COI is wholly voluntary and its existence reflects an interest for it amongst colleagues. The COI is very informal, however as it has evolved, it has received formal support through institutional policies that reflect the perceived merit of the COI.

Keywords Communities of practice · Distributed leadership · Social learning · Online learning · Blended learning

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23.1 Introduction

In this Chapter I describe and reflect on the establishment and evolution of the Community of Interest in Online Teaching, Learning and Research (or the COI, for short) at the University of Newcastle, (UON) Australia. The COI was initiated in mid-2012 in order to bring focus to online teaching, learning and research amongst interested colleagues across UON. The COI functions as a community of practice (CoP), providing those who choose to get involved the opportunity to catch up (we use the term *catch up* rather than meeting or another alternative to emphasise the informal, social character of the COI) with each other to:

1. Share good practices
2. Generate new knowledge and understanding together, and
3. Simply spend some time together.

The COI was named a community of *interest* rather than of *practice* in order to emphasise that an interest in online teaching, learning or research was sufficient to join in; i.e., there is no obligation to be currently *practicing* (!). The COI adopts a strengths-based approach to sharing practices, recognising and building on existing good practices used by colleagues across UON, including all five faculties, the Wollotuka Institute, the English Language and Foundation Studies Centre and other areas such as the library and the marketing unit. Participants in the COI include exceptional online teachers who are making creative and diverse innovations in their teaching practices. Use of the online learning mode at UON remains centred on postgraduate coursework programs, though UON's organisational strategy calls for a shift to wider use of online and blended learning modes. The COI provides colleagues the opportunity to begin to connect with each other, across faculties, schools and disciplines, and share some of those practices. Importantly, and beyond disciplinary boundaries, it also provides the opportunity for academic and professional staff to connect with each other.

The COI provides the opportunity for generating new knowledge and understanding about online teaching and learning too. Teaching and learning provides one of the most tangible areas in which academics in a university can genuinely transcend disciplinary silos: the COI provides an opportunity for colleagues to do just that.

The third point above is the one that's most important for building new and productive working relationships. In the short time the COI has been functioning, this has happened in a number of ways. Working relationships that have evolved from the COI can be more or less formalised, including new cross-disciplinary research collaborations.

23.2 Context, Background, and Environment

Online education has been described as a disruptive innovation in the higher education sector: an innovation that is significantly changing the sector, and therefore a change that entails challenges to existing institutions and traditional practices (Christensen 1997; Christensen and Eyring 2011). However, skilfully managed, disruptive innovations such as online education may offer opportunities for improving quality and expanding access to higher education delivery. At the very least, teaching and learning in the online (and blended or hybrid) mode offers up an apparent paradox: on the one hand, good teaching is good teaching irrespective of the mode of learning; on the other, online education entails both constraints and possibilities that are particular to that learning mode. The paradox can be resolved by using the rapidly increasing engagement in online education as an opportunity to bring new focus to teaching practices and the way education systems are organised.

With the perspective hindsight offers, the institutional approach taken at the University of Newcastle to engage with online education can be understood as consistent with Christensen's recommendations for established entities wishing to engage in a disruptive innovation: according to Christensen, the key to success in experimenting with a disruptive innovation is establishing an autonomous subsidiary body tasked with engaging with the disruptive innovation, and the opportunities and risks it entails.

GradSchool, where I work, was initially established in 2000 as a separate but wholly-owned entity tasked with developing the University's online postgraduate coursework program offerings. GradSchool has used its autonomy well and developed significant expertise in online education by working collaboratively with all of UoN's five faculties and the Wollotuka Institute. GradSchool does not engage in any teaching as such: teaching remains with faculties and schools. GradSchool markets programs and supports students through inquiries, admissions and through their period of enrolment, including fielding queries and supplying course notes in digital and hard copy form, and text books in digital and hard copy form. The institutional history to GradSchool is important because its establishment as an entity separate from the University, but with the express purpose of serving the University as a whole, easily facilitated the decision to support the COI as a common good for UON.

The COI's focus on aspects of teaching and learning is also helpful for working across disciplines. My research background is in transdisciplinary methodologies aimed at addressing wicked (Rittel and Webber 1973) sustainability problems: challenges, such as climate change for example, for which no single discipline is equipped to provide a complete understanding or resolution. As such, I am attuned to both the benefits of working across disciplines, but also the challenges of doing so in practice. As noted in the introduction, teaching and learning provides a tangible opportunity for working across disciplines. It does so because (i) teaching provides an obvious commonality for colleagues from across disciplines, and

because (ii) it provides a space for interaction which is more easily framed as being non-competitive, or at least less competitive, and with more scope for interesting interactions.

In 2012 I began with GradSchool as Online Teaching and Learning (OTL) Coordinator. This was a newly-created role, and I had the good fortune to be involved in writing the position description. I proposed the Community of Interest in Online Teaching, Learning and Research in 2012 as part of my work, and GradSchool's leadership enthusiastically accepted the proposal as a key element of the Coordinator's role in supporting high quality teaching across all of the University's online postgraduate coursework programs. The COI offered a way to bring a UON-wide focus to online teaching, long considered a poor alternative in comparison to face-to-face teaching. As such, the COI is wholly aligned with the purpose of my role. It also offered a way to establish and deepen working relationships amongst GradSchool and colleagues in faculties. Professional relationships in universities that span between 'the centre' and faculties can sometimes be strained, and the COI offered a way to address those strains constructively.

23.3 A Grounding in Practical Experience and Evident Theoretical Alignments

By bringing colleagues together regularly to engage with each other and with online teaching, learning and research, the COI supports continuous processes of critical reflection and action that can be so important for the ongoing evolution and even transformation of online teaching (Baran et al. 2011) and research practices. Critical reflection and transformative learning are highly valued in the academy. However, the COI's culture and mode of function is strongly informed by extensive, organising experience from my pre-academy career in largely volunteer-run civil society organisations focussed on environmental and social justice and human rights. That is, before joining the academy I worked with civil society organisations, and the COI initiative reflects those previous lived experiences rather than a deep theoretical appreciation of Communities of Practice (CoPs).

Nevertheless, the way the COI functions demonstrates alignment with theorising of CoPs (e.g. McDonald 2012; Nagy and Burch 2009) and distributed leadership (e.g. Spillane et al. 2004). The other, discipline-specific literature with which the COI loosely resonates is that of social learning (e.g. Keen et al. 2005), prominent in environmental studies, my field of expertise. Social learning describes processes by which new knowledge is co-created through the interaction of diverse stakeholders in a particular environmental management issue. Social learning insights are traditionally applied to environmental management contexts involving multiple and diverse stakeholders, often with competing interests: this is a significantly different context to CoPs which bring together people with shared interests. However,

participants' engagement and interaction and their co-creation of new knowledge is common across both contexts.

More broadly the COI is consistent with a central element of my approach to education practice, which is fostering a sense of community amongst students and teaching colleagues. I foster sense of community because I subscribe to a constructivist understanding of learning (see Duffy and Cunningham 1996). I conceptualise learning as a social activity consistent with Wenger's (1998) communities of practice ideas, and I recognise social interactions play a critical role in processes of learning and cognition (Vygotsky 1978). Learning communities support learning, including by promoting critical thinking skills (Fink 2003) and facilitating achievement of learning outcomes (Gibbs et al. 2004).

23.4 The Community of Interest in Online Teaching, Learning and Research: Leadership and Evolution

23.4.1 Leadership with a Light Touch

As noted above, my non-academic background is in activism with largely voluntary civil society organisations: in such contexts, colleagues who are treated without respect may simply walk away. My history with civil society organisations informs the respectful way in which I work currently, and establishing and nurturing the COI is an example of educational leadership practice informed by this background.

Facilitating the COI particularly requires connection and communication skills and attributes. These are important for setting the tone for the COI, for identifying and then appropriately framing topics of interest, inviting and supporting speakers, and for engaging with colleagues across the institution with an interest in online teaching, learning and research. Facilitating the COI requires an openness to new ideas and a willingness to cast the net wide, and from there, adopt an inclusive rather than exclusive approach to the COI's purpose. That is, I seek to include colleagues and ideas under the COI's umbrella rather than exclude them from the initiative. Facilitating the COI also requires an ego that is in check: the 'magic' of the COI is in the collective interaction of colleagues. In that sense, the COI is a collective enterprise, and the leadership role I carry out as facilitator is simply that: to *facilitate* colleagues' interactions, and all that emerges from those interactions.

I have sufficient anecdotal evidence to have formed the view that my leadership skills and abilities are recognised by at least some colleagues. This includes, for example, affirming emails and comments in person from colleagues. Beyond that, the COI continues to grow, and colleagues continue to find value in it, indicating the COI in its current form continues to serve useful ends.

The COI both exemplifies and encourages distributed leadership. I established and facilitate the COI without need for formalised, hierarchical authority (or

responsibility) to lead such an initiative. Similarly, participants in the COI identify and suggest focus topics for the COI, and with support, organise themselves to present them. A session in mid-2015 on 3D printing is a case in point: it was wholly proposed and planned by colleagues from Anatomy, Design, Fine Arts and the Centre for Teaching and Learning, who—using their formal and informal professional networks—came together to share their cutting edge expertise with colleagues.

The way the COI serves a need highlights one element that I think is important to the COI's success, which is the sense of freedom that can come with a wholly voluntary initiative such as this. There is no legislative, institutional or other obligation for the COI to exist: it is highly informal and exists only because there is a sufficient interest amongst colleagues for it to exist. If that interest were to fall away the COI would cease to function and participants, myself included, would simply direct their energies in other directions.

23.4.2   The COI's Life Cycle

23.4.2.1   Beginning

The COI was initially proposed in late 2011 in the course of drafting the job description for the OTL Coordinator. The OTL role began in early 2012 and the first catch up of the COI was called for mid-2012, after initial preparatory work to develop an initial sense of what the COI might be, how it might function and who might be interested to participate. The COI's first catch up was held at a café on the University's Callaghan campus: the venue was purposely chosen as an informal and social setting, consistent with the intent for how the COI would function. I invited a dozen or so of my existing contacts from across UON, all of whom had responded positively to earlier, individual approaches about the COI concept. A mix of academic and professional staff joined the first catch up, from diverse schools (e.g. Humanities, Nursing, and Environmental and Life Sciences) and professional units (e.g. Cultural Collections in the Library, and Planning, Quality and Reporting). At that first catch up we discussed and agreed a draft set of working principles (see Box 23.1). The scope of the COI was also expanded to include online research along with teaching and learning, and the proposed name of the COI was changed accordingly. At that first catch up colleagues present suggested that the next catch up of the COI could be a workshop on two social media tools: Twitter and Yammer. And from there we were underway: this approach—COI participants proposing topics and focus areas for the COI—has characterised the COI's operations since that first catch up.

Box 23.1 The Community of Interest's working principles (developed at the first catch up of the COI)

The COI's working principles

A. Things we're interested in:

1. **BIG PICTURE:** Including open access to materials, open education resources (OER) and creative commons (CC).
2. **ONLINE TEACHING PEDAGOGY & PRACTICES:** Comparatively we've got some good things going on here at Newcastle. There is also (always!?) scope for improvement in online pedagogy.
3. **INSTITUTIONAL CONTEXT, POLICIES & PRACTICES:** Digitised (and mobile) resources and online/blended education may serve as an invitation and tangible/practical opportunity for academics to work with colleagues across disciplines; there is work to do towards greater internal acceptance of the benefits (& joys?) of online teaching & learning.

B. The merits of putting energy into a community of interest:

1. There are benefits in sharing, i.e. rather than always making new wheels.
2. There are benefits in communications and networks across and outside disciplines, and amongst academic and professional staff, in relation to practices and interdisciplinary knowledge creation.
3. Getting together this way will likely create opportunities for engaging in collaborative online T&L research, and we anticipate exploring grant opportunities.

C. What this community of interest may look like:

1. We are interested in being inclusive and expansive in our approach, i.e. practically accessible to anyone in the UoN community with an interest in online T&L.
2. Our community of interest is an opportunity to bring focus to things that work well, to share practices, insights and ideas, and over time, draw in others who may be more tentative about online T&L.
3. There is interest in getting together face-to-face (at Callaghan and Ourimbah) and online, i.e. it's good to get together in person sometimes, it's also good to walk the talk and do it online too.
4. We're experimenting with this as it evolves, and we're interested to see a mix of informal catch ups, resource sharing, practice workshops, seminar-style presentations by leaders in this field from UoN and elsewhere, etc.
5. We'll set up and use a standard Blackboard course site for learning as we go; we'll look at UoN's Yammer network too.
6. We anticipate getting together monthly or so, and mixing up catch up days and times given that there won't (can't?) be a time that will always suit everybody.

Preparing this chapter has provided an impetus for some informal review and reflection related to the COI's working principles. The draft principles have continued to serve well as the COI has continuing to evolve. This is evident in key developments in the evolution of the COI over the past few years, discussed below. The current state of the COI largely mirrors the working principles as first articulated. Seemingly ironically, it is only with regard to online engagement that the COI in its current form has moved away from the working principles as articulated initially. Point C3 in Box 1 calls for engaging both face-to-face and online, and point C5 calls for using Blackboard and Yammer to communicate. We did experiment with both, and both Blackboard and Yammer remain available across the institution, with Blackboard used almost comprehensively in teaching, and Yammer used unevenly. However, neither was taken up with any enthusiasm by COI participants to engage in COI activities and in practice, the COI has been largely a face-to-face affair.

23.4.2.2   Catching up at the University's Ourimbah Campus

The University has multiple campuses together with the challenges that are typical for a multi-campus institution including the risk of staff at satellite campuses feeling ignored and excluded. The University's original and main campus is at Callaghan in outer Newcastle. The University also has a large campus at Ourimbah, more than an hour south on the Central Coast, as well as smaller campuses in central Newcastle (the City campus), in Sydney, at Port Macquarie on the North Coast, and in Singapore. Staff at the Ourimbah campus expressed interest in being part of the COI, and on two occasions in the COI's first year of operation I organised COI catch ups at Ourimbah. The first was to meet with interested colleagues to introduce the COI (and myself) and learn what might be interesting for colleagues at Ourimbah and how we might be able to have the COI function on that campus. The second catch up, at Ourimbah colleagues' request, introduced Callaghan-based educational designers from the Centre for Teaching and Learning to colleagues at Ourimbah.

There has been little other Ourimbah-specific COI activity since then. While I could have been more energetic in promoting the COI at Ourimbah, the COI philosophy is that it only functions if it's needed and wanted. That is, as well as a facilitating 'push' on my part, there also needs to be some 'pull' from colleagues. My sense is that establishing more regular, satellite campus-specific activities at Ourimbah—and any other campuses—is something to be tested periodically, and then established if there is sufficient interest. In the interim, the COI blog (see below) may serve to better include colleagues from campuses other than Callaghan.

23.4.2.3   Writing Circle for the Scholarship of Online Teaching and Learning

In mid-2013, the Writing Circle for the Scholarship of Online Teaching and Learning was 'spun off' from the COI, and is for academic colleagues from all disciplines with interests in scholarship of online teaching and learning. Participants come together for weekly 'Shut Up and Write' (Mewburn 2015) sessions, and monthly critique sessions of draft manuscripts. Shut Up and Write sessions are an hour long, at the same day, time and place each week. Participants bring laptops and sit around a boardroom-style table, working (quietly) on their own manuscripts. The monthly manuscript critique sessions follow on directly from the writing hour, and in that time, participants discuss a two-page extract of a manuscript circulated by a participant a few days earlier.

The Writing Circle was established with support from a colleague in Learning Development with long-standing expertise in writing circles, and functions on a slightly different basis to the wider COI. The COI is open to all and professional staff, academic staff and students are welcome to join in. At the same time, there is no expectation that anyone will or should participate. The focus of sessions varies from month to month and colleagues are reminded that while they are welcome there is no obligation to attend. As such, colleagues attend particular sessions if they are (a) interested and (b) available.

In contrast, joining the Writing Circle obliges colleagues to express an ongoing commitment. This is because the Writing Circle serves to foster trusting and supporting critical friend-type relationships amongst scholars with a shared interest in researching and writing about online teaching and learning. Establishing a shared sense of endeavour is important in order for colleagues to open up their writing-in-progress for critique. As such, the Writing Circle is smaller group of colleagues, a more stable group, and it meets more regularly. The Writing Circle, like the COI, is multidisciplinary, counting amongst its members colleagues from all five of the University's faculties, from disciplines as diverse as maths, family studies and business.

23.4.2.4   The COI Blog

In mid-2014 the COI hosted a session on 'Blogging as a Part of Academic Practice'. This focus was proposed by Graeme Stuart, a colleague at the University's Family Action Centre. The session was more than inspiring, showcasing both Graeme's blog on neighbourhood environmental activism (Stuart 2015) and Bill Mitchell's economics blog (Mitchell 2015), one of the most widely-read economics blogs internationally. In late 2014 we followed Graeme's and Bill's examples and established the COI blog (COI 2015) in order to be able to better reach out to colleagues across UON's several campuses, and in order to make available what is learned through the COI to interested colleagues beyond UON. The blog is hosted on the GradSchool website.

We launched the blog with a posting titled 'Hidden Potential or Hollow Promise?: Technologies and Equity in Higher Education'. This posting included text and video recordings of a session organised jointly by the COI and the University's Centre of Excellence for Equity in Higher Education, and featured academic and professional staff from the School of Education, the English Language and Foundation Studies Centre, and the Equity and Diversity Unit. The live session was organised as any other COI session, but was recorded, and the recording was then cut into four shorter recordings (each approximately 15 min long), consistent with the idea that video recordings available online are better received when they are short.

I noted above that the University faces all the usual challenges that come with a multi-campus institution. However, scheduling sessions at times that suit everyone with an interest is nigh impossible even when accounting for colleagues from a single campus only: recording sessions and posting them to the blog means they can be viewed by colleagues who were interested but unable to join the session. Subsequent blog postings have included recordings of other COI sessions (e.g. 'Promoting Your Research Online'). The blog also allows for other postings, not directly tied to COI events. For example, it includes postings celebrating the winner of the Postgraduate Students Associations' Online Teacher of the Year Award, and postings about online teaching practices such as techniques for teaching and assessing oral communication skills online.

23.4.2.5 Interdisciplinary Research Collaborations

As the COI has grown it has also fostered research collaborations amongst colleagues across disciplines. One high-profile example is the coming together of a number of colleagues from all five faculties to design and execute a trial of options for teaching and assessing oral communication skills online. The impetus for the trial was the suggestion that teaching and assessing oral communication skills could not be done, and that UON's programs delivered wholly online should be exempted from UON's graduate attributes, which include references to graduates capacities for oral communication. The trial was conducted as a federation of individual trials, with colleagues experimenting with a variety of teaching and assessment tasks and tools. [The conclusion of the trial was that teaching and assessing oral communication skills online is possible, may in some respects offer advantages over typical traditional approaches, and can be fun too (Phelan et al. 2014)].

Where the oral communications trial was multilateral, in that it involved colleagues from multiple schools, other bilateral interdisciplinary research collaborations have also evolved out of the COI. One example is colleagues from dietetics and speech pathology working together after having met through the COI.

23.4.2.6   A Continuing Evolution

The COI continues to evolve: at different times different colleagues will be more and less engaged, the focus topics always vary, the context in which the COI exists—from UON as an institution through to the Australian higher education sector as a whole—continues to change also, and the area of online education is particularly vibrant currently. It is always possible that interest in the COI will subside and the COI will cease to have a reason to exist. As noted earlier, there is no shame in the COI running its course and concluding: it will exist as long as there is interest. I expect, however, that the COI will continue to evolve and grow in the foreseeable future: there is a great deal of collaborative exploring still to do in online education, and the COI is serving us well in that endeavour.

23.4.3   Approaches that Engage Members

The COI works by bringing focus to aspects of online teaching, learning and research that are interesting for colleagues. Sometimes I set up sessions but usually colleagues propose sessions and the COI serves to facilitate that collective effort. Interest in sessions can be gauged by the number of colleagues that participate, and attendances can range from mid-teens to closer to fifty. However, larger numbers do not necessarily mean a better session. I have adopted an open space technology-type approach (WOS 2013) to the COI. That is, I don't worry about attendances, and instead take the view that the right people will be there at the time. A larger crowd can be more gratifying for a presenter, but equally, a smaller group can allow for a deeper conversation amongst highly interested colleagues. (We are yet to have a session where no one at all comes!) With this in mind, my strong sense is that continuing to encourage colleagues to propose focus topics for the COI has been a useful way to engage those same colleagues.

23.4.4   Support, Processes and Communications

23.4.4.1   Support for the COI from GradSchool …

The COI faced no explicit opposition through its establishment phase and in fact is an initiative that has found specific and general support in various parts of the University. First and foremost, GradSchool's key support from the very early days in providing the OLT Coordinator the time required to establish and facilitate the COI was critical to the COI's success. The COI was different to the way most University-wide initiatives are organised, GradSchool's leadership recognised the COI's potential and support it through including it in my responsibilities. GradSchool also provides financial support, for example, paying for photographs

Fig. 23.1 Screensaver that appeared on staff computers promoting an upcoming COI event (*Source* developed by Newcastle GradSchool Staff, used with permission of the developers)

used in promotional materials, occasional room hire and some limited catering on occasion. Part of the philosophy of the COI is that events are *offered* to the UON community, and staff and students can choose to come or not. That is, there is no expectation or obligation to come to a COI event: people only come if they want to and are available. In that spirit, I deliberately normally avoid the catering and room hire that is typical of many workshops, training, and other similar events on campus. Freed of the responsibility and pressure to always generate large crowds, I somewhat revel in this comparatively Spartan approach, having formed the view that people can come or not depending on whether the topic focus is interesting for them.

GradSchool also provided support through colleagues' expertise. For example, GradSchool colleagues volunteered significant expertise in promoting the COI, for example by thinking through promotional strategies including creating a set of promotional photographs to use in COI signage, through the design of screensavers promoting COI events that appear on staff computers (see Fig. 23.1).

23.4.4.2   … And from Colleagues …

The interest and enthusiasm of individual colleagues was also essential to the COI becoming a part of UON culture. Colleagues' interest was personally encouraging as well as being essential in giving the COI its life through proposals for focus topics and speakers to invite. It is in this way that the COI is very much a collective

effort. The COI has hosted a diverse range of speakers and topics: a psychologist on how to conduct online questionnaires for research; a librarian on the open access movement; a Department of Education official on what experiences of learning management systems students bring when they start at university; Office for Learning and Teaching fellows on standards for online teaching and learning and on the Peer Assisted Teaching Scheme; the University's grants officer on seeking external funding for initiatives in online teaching and learning; teaching colleagues on how intensive online enabling programs work, and more. This is a continuing wealth of ideas and its origin is the collective of colleagues who have come together through the COI.

23.4.4.3   … And in Formal Policies and Procedures

Shortly after the COI was initiated the University's new Vice-Chancellor launched a new strategic plan for the University, *NeW Directions* (UON 2012). *NeW Directions* included a call for the establishment of Knowledge Exchange Hubs. The knowledge exchange concept is similar to CoPs, though perhaps more limited, with its seeming prioritisation or focus on sharing knowledge, i.e. just one aspect of what characterises CoPs. The alignment of an element of the University's overall organisational strategy with the COI was serendipitous. At higher levels in the University's administration this may have provided some policy legitimacy for the COI initiative. At the very least, it would have introduced the idea of colleagues coming together in a CoP-like manner. I invited the University's new Pro Vice-Chancellor (Learning and Teaching) to present to the COI on her vision for learning and teaching at UON; on reflection, beyond providing the obvious opportunity for the new PVC to meet with diverse colleagues, this may have also been helpful by providing an opportunity for a senior figure in the University to see first-hand how the COI functions.

   With time the COI has become established as a part of the wider University's culture. One example of this is the English Language and Foundation Studies Centre including in their staff work plans the expectation that staff will participate in relevant COI events.

23.4.4.4   Processes and Protocols

The detail of how the COI functions has also been important to the COI's success. COI catch ups are regular, usually monthly or so, but not rigidly scheduled. Typically, a first COI catch up for the academic year will happen some months into the academic year. I have a set catch up time: 10am through 11am, and we start and finish on time. I vary the day we meet—after experimenting in the first year, usually a Tuesday, Wednesday or Thursday—in order to spread around the opportunity for colleagues with rigid teaching schedules and other commitments to join a COI catch up at least once in a while. We also change the venue for COI events. If we are

hosting a guest from outside UON we may hire a central, purpose-built workshop room and we may have limited inexpensive catering. Otherwise, we shift the catch up room around: we have many freely available seminar rooms on campus. I also wonder if bringing the COI to a room in the part of the campus from which the presenter is drawn facilitates colleagues' capacities for transcending disciplinary silos. The campus is large, and when necessary I include a grid reference and a link to a campus map to help colleagues arrive on time.

When facilitating a COI catch up I will set out chairs and tables in a way that is conducive to an engaging hour. This could be a semi-circle of chairs for a discussion, or chairs in small groups around tables for a workshop; we do not set chairs out in lecture hall formation. I ask presenters to keep their presentations short in order to afford them the opportunity to genuinely lead a discussion amongst participants: COI catch ups are not lectures. I begin by briefly welcoming and introducing the speaker and then hand over the session to the speaker. I facilitate question and discussion time and ensure the session finishes on time. The last catch up of the year is always agenda-free, and is simply an opportunity to catch up socially for a coffee as the work year winds down.

23.4.4.5 COI Communications

COI communications are key to nurturing the COI culture. I mostly use email to communicate with COI participants, and have built up a database of around 250 colleagues who have come to COI events. The tone I use in the emails is consistently and purposely informal and friendly, respectful without being pompous. For example, if a presenter is a professor I will use their title on the first appearance of their name, but then default to their given name. I ask for RSVPs for events and when received I acknowledge each one individually and promptly. When colleagues have queries about COI events I respond promptly and collegially. The characteristic tone of COI communications is evident in the COI blog (COI 2015), for example, the postings welcoming readers to the blog and introducing the COI.

23.4.5 Assessing, Evaluating and Articulating the Impact and Outcomes

Colleagues who are part of the COI find merit in the COI. This is evident in the constant stream of suggestions that colleagues make for COI events, and by colleagues choosing to participate in COI events.

A planned process of assessing, evaluating and articulating the impact and outcomes of the COI is scheduled for later this year, as the COI completes 3 years of activities. This will be helpful for developing a more robust understanding of the COI: what has worked well, what hasn't worked well, what opportunities might

exist for the continued evolution of the COI—what new things we might like to do. It will also be helpful for communicating the value of the COI. This could be useful should the value of the COI need to be articulated internally to the University and may also be useful for others seeking to establish their own CoPs.

Through formally evaluating the COI, I will seek to understand what the COI provides for the colleagues across the University who participate in it. Data collection will occur through various channels, including a brief questionnaire and focus groups to gather qualitative data. Quantitative data will come from recorded attendances at COI events, hits on the blog and views of the video recordings posted there, and publications produced through the Writing Circle. In short, the COI is established within a higher education context, and lends itself to being analysed according to quantitative metrics that are familiar in higher education (e.g. number of publications), qualitative measures and social media metrics.

23.5   Conclusion

The establishment and evolution of the COI has not been without challenges, and any dispersed leadership initiative such as this must successfully negotiate its engagement with established institutional hierarchical leadership frameworks. The COI's inception and evolution benefitted directly from institutional support locally and then may have benefitted indirectly from a new institution-wide policy context. Planned evaluation of the COI will likely be helpful in both better understanding the strengths and limitations of the COI and in communicating them internally as and where that may be useful.

The COI facilitation role is somewhat specialised in that is requires a demonstration of leadership without hierarchical authority. Dispersed leadership is built into the COI facilitator role, and it is there in other participants' roles too, through proposing and presenting topic focusses for COI catch ups, and using the engagement opportunities the COI provides such as initiating research collaborations. Inevitably, a CoP is about a community of people, and so a CoP's focus, culture and mode of function will reflect the people involved. The COI, like other CoPs, provides a working model for dispersed leadership initiatives in higher education institutions.

The COI creates a common good for UON, and one that colleagues join in voluntarily. However, facilitating the COI does require some resourcing, primarily in the form of staff time to build and nurture the COI and its culture. GradSchool has provided this support at UON, and the COI can be described as a contribution by GradSchool to the wider University.

The COI is proudly interdisciplinary, and also brings together academic and professional staff, and this is an important dimension to the COI. The COI is also open to students, but student engagement has been minimal. I would like students to also participate, but to date, bringing together colleagues from across disciplines and from the academic and professional spheres has felt sufficient enough of an

achievement. While complaints about the limitations of academics remaining within disciplinary silos are commonly heard, effective efforts to transcend disciplinary silos are less common. Teaching and learning provides one of the few tangible opportunities for colleagues to work together across disciplinary boundaries, and rapid change and expansion in engagement with online teaching and learning provides an entry point to a shared, interdisciplinary focus. By including online research in its scope, the COI expands the opportunity for working across disciplines beyond teaching and learning to also include research practices.

One way to reflect on an initiative such as this is to ask whether, given the opportunity, I would do it all the same again. But the question could be phrased better: every situation like this is unique, so doing it all the same again is not an option. Nevertheless, the question is useful for identifying any major alternatives in practice that might have been useful, and surely there are always ways that initiatives such as this could be improved with the benefit of hindsight. A key learning for me from this initiative is that the iterative approach we're taking—setting out our course through a draft set of principles with practices to match, but remaining open to evolving the COI in new directions as we think of them—allows for experimentation along the way.

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Chapter 24
Practicing the Practice: The Heutagogy Community of Practice

Melanie Booth, Lisa Marie Blaschke and Stewart Hase

Abstract Founded in 2013, the Heutagogy Community of Practice aims to promote awareness of and to enact the learning principles that are its topical focus: heutagogy, or self-determined learning. Similar to Communities of Practice, heutagogy shares common theoretical underpinnings in the ideas of emergence, self-organizing systems, human agency, and constructivism. The Heutagogy Community of Practice was founded for the purpose of bringing together those interested in the theory and practice of heutagogy. The Heutagogy Community of Practice has since expanded to become a springboard for the development of international conferences, publications, and numerous formal and informal collaborations among its members. This chapter presents a description of the evolution of the Heutagogy Community of Practice, while demonstrating the ways in which the Community has maximized the benefits of social media tools (such as WordPress, LinkedIn, Twitter, and Facebook) to connect its members and promote open knowledge-building and sharing.

Keywords Heutagogy · Self-Determined learning · Social media

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24.1   Introduction

The Heutagogy Community of Practice focuses on the theory and practice of
self-determined learning, or heutagogy (Hase and Kenyon 2000), and, as a
Community, has strived to enact and practice this theory. The Community's pur-
pose is:

> …to bring together people from around the world to share their practical experiences with
> heutagogy, their thoughts and questions about the theory, and their ongoing work within
> the field. In addition to giving participants an opportunity to connect on the topic of
> heutagogy, this Community of Practice also serves as a repository of published and ongoing
> research into its theory and practice. In essence, we hope to collectively create an envi-
> ronment that will advance the theory further, while also mirroring the practice of heutagogy
> as self-determined learning. (heutagogycop.wordpress.com)

As Communities of Practice and heutagogy both emphasize notions of
self-organization, emergence, context, relevance, active participation, and reflection
(Tennant 1997; Lave and Wenger 1991), using a Community of Practice framework
to foster learning about heutagogy (self-determined learning) and to advance its
practice was a natural choice. To further these principles, the Heutagogy
Community of Practice has expanded its reach, scope, activities, and engagement
through the use of several social media tools and a grass roots approach to outreach
and organization.

This chapter will provide the context for the Heutagogy Community of Practice,
including its history and its current state; discuss the theory and practice of heut-
agogy as it relates to the approach taken through the theory and application of
communities of practice; describe the goals of the Heutagogy Community of
Practice as well as its strengths and challenges; and will conclude with the authors'
reflections on the Heutagogy Community of Practice, its future plans, and lessons
learned that may be applicable to communities of practice in general.

24.2   Context and History

Communities of practice can either arise spontaneously or they can be nurtured or
seeded (Wenger 1998, p. 6). The Heutagogy Community of Practice began as an
approach to collect, curate, and disseminate emerging practices, and to collaborate
with practitioners and theorists who were working with and writing about the
concepts of self-determined learning. In 2005, Melanie Booth read Hase and
Kenyon's seminal article "From andragogy to heutagogy" (2000) while working on
her dissertation about self-directed learning. In 2012, Melanie referenced Lisa
Blaschke's (2012) article, "Heutagogy and lifelong learning: A review of heuta-
gogical practice and self-determined learning" while developing a new
adult-learning support program at the U.S. university at which she worked. Melanie
then reached out to Lisa (located in Germany), and after an initial, in-depth

conversation about their mutual interest in heutagogy, they identified the need to bring people together around the concept in order to more deeply understand and widely promote it, and decided to initiate a Community of Practice focused on heutagogy. After contacting Hase and Kenyon (both in Australia) for their endorsement and support, the idea was discussed and collectively improved upon—and the Heutagogy Community of Practice was born.

In accordance with Wenger's (1998) definition of a community of practice, the new Community met three essential criteria. First, its founders were involved in a joint enterprise that was open to negotiation, consistent with the principle that learning is an emergent activity. Second, there was an interest in the creation of the Community through mutual engagement, a social group with a common interest. Finally, there was the opportunity for the development of a shared repertoire, dependent on the understanding of the members, given the nascence of heutagogy.

Up until this point, there was no shared practice around heutagogy. There were a number of practitioners around the globe working with the principles and concepts, and a few organizations using heutagogy as a basis for their curriculum, but little connection between them. According to Wenger (1998), communities of practice go through several stages of development, the first of which is the *Potential* stage. At this stage of the Community's development, practitioners were finding each other and seeing if they did indeed have anything in common. This stage was to last quite a long time as there were a number of hurdles to overcome, not the least of which was how to connect like-minded people across the globe without creating a traditional organization as such, while maintaining the ideas of human agency, self-organization, negotiated learning, and emergence.

24.2.1 Designing the Virtual and Non-virtual Community

In describing the function of technology in supporting communities of practice, Wenger et al. (2009) write that:

> Technology extends and reframes how communities organize and express boundaries and relationships, which changes the dynamics of participation, peripherality, and legitimacy. It enables very large groups to share information and ideas at the same time as it helps smaller groups with narrower, more specialized and differentiated domains to form and function effectively. It allows communities to emerge in public, opening their boundaries limitlessly, but it also makes it easy to set up private spaces that are open only to members. It affords many ways to limit access, expressing intimacy or privilege, or it can greatly enlarge a group's periphery. (Location 533)

In designing the Heutagogy Community of Practice, the team decided to use WordPress as the primary platform or starting point for members. The WordPress site contained a description of the purpose the Community, a blog space for posts from visiting heutagogues, an initial working bibliography of published research in heutagogy, an announcements page, and a Twitter feed (Fig. 24.1).
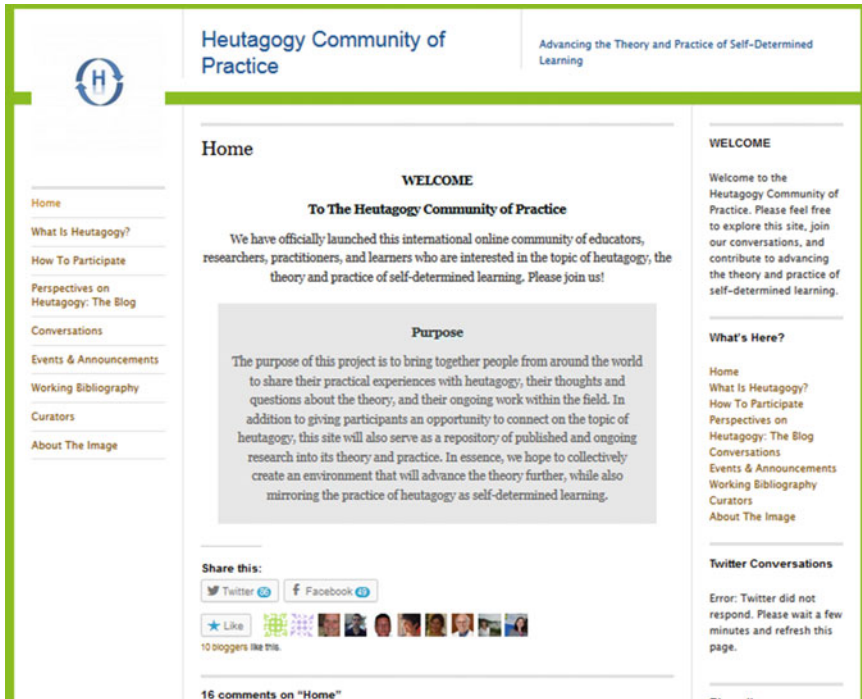
Fig. 24.1 The Heutagogy Community of Practice WordPress Site (http://heutagogycop.
wordpress.com, image used under Creative Commons license 3.0)

The WordPress site allowed members to comment on blog posts, but offered few
opportunities for genuine interaction. For this reason, a LinkedIn group with a
discussion forum (https://www.linkedin.com/groups/Heutagogy-Community-
Practice-4776262) was simultaneously created, which members could use to
introduce and respond to posted discussion topics. A Twitter account (https://
twitter.com/HeutagogyCoP) further facilitated communication and community
building using the Community's Twitter handle (@HeutagogyCoP) and heutagogy
hashtag (#heutagogy).

When the Heutagogy Community of Practice was launched in early 2013—in
parallel with the first International Heutagogy Conference—the founders each used
their personal and professional networks and existing communities to invite people
to participate. This was a very "home-grown," grass roots outreach approach,
supported by extensive use of social media, consistent with the principles of
communities of practice already discussed. It was important to provide as many
channels as possible for members to collaborate and share ideas (Lave and Wenger
1991). Figure 24.2 shows how the Heutagogy Community of Practice resources
and virtual locations have since expanded to include a member-created Facebook
site, various Twitter groups, as well as a repository of publications, presentations,
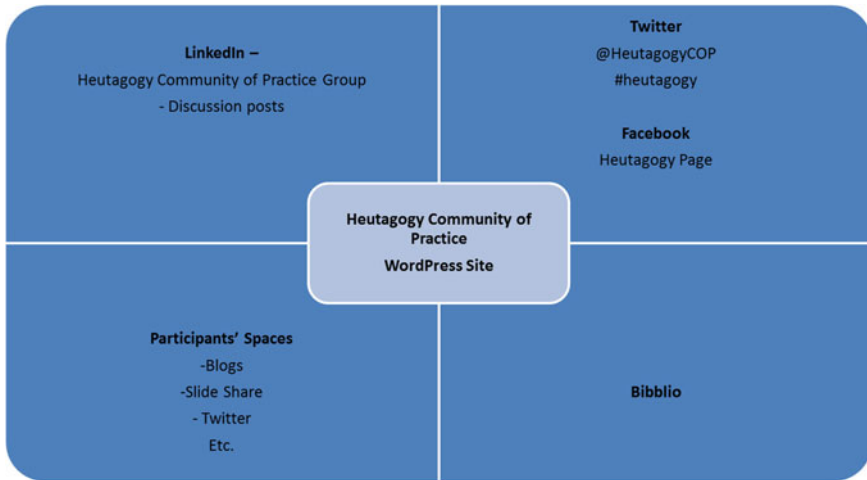
Fig. 24.2 The collection of social media sites that support the Heutagogy Community of Practice

and videos related to the topic of heutagogy on the online repository, Bibblio. This development aligns with Wenger's (1998) Active stage of community development; the Community has been very productive in terms of connecting heutagogues across the world.

The original purpose of the Heutagogy Community of Practice (as described above) continues to shape its ongoing development and formal and informal interactions, and the founders have continually sought to create connections across various realms and professions, including higher education, K-12 education, life-long education, e-learning, organizational training and development, and personal development and counseling. Using a distributed, flexible, and collaborative approach to facilitating the Community's activities, its curators and other volunteer members of the Community will take the lead on an initiative or project with others' support and collaboration.

Because of the distributed nature of the Heutagogy Community of Practice, there is little way of knowing how many people are actually involved. Through website, LinkedIn, and Twitter analytics, it is possible to view the Community's reach, but the size and engagement of the participants is difficult to measure, if not impossible (Fig. 24.3).

Nonetheless, the emerging and "self-determined" aspect of the Heutagogy Community of Practice continues to fuel its engagement, and, through the Community, members continually attempt to practice the theory of heutagogy. What has remained central to the project has been the founders' collective intention to use the Community of Practice itself as a model and mirror of the theory. Participants have been free to come and go, to actively participate or to lurk around the edges, to delve deep or to skim the surface of ideas in order to identify that which suits them, and to contribute and share their own practices and reflections in
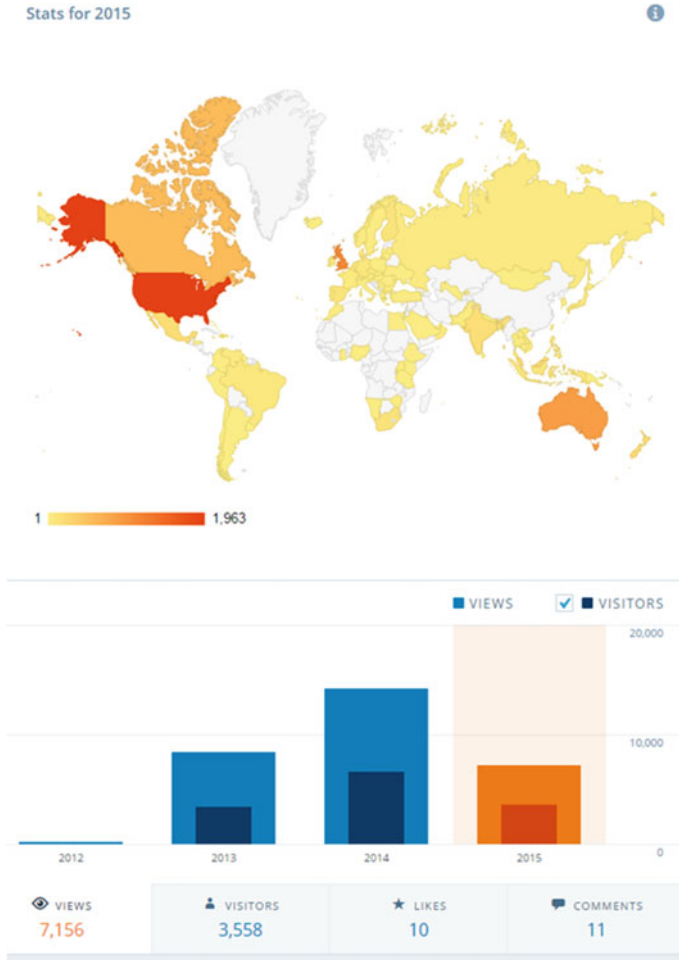
Fig. 24.3 Global reach of the Heutagogy Community of Practice (http://heutagogycop.wordpress.com, image used under Creative Commons license 3.0)

a myriad of ways, in order to further everyone's understanding of the theory of self-determined learning and engagement with it in practice. This runs contrary to Wenger's (1998) Stages of Development since in that model, active involvement disappears over time. Our experience suggests that a more dynamic model is possible that is better represented by a fluid membership and a cycle of involvement in which people attend intensely and then disperse, only to re-engage at a later time according to their individual needs for knowledge, connection, and collaboration. As a result, a community of practice can be viewed as organic and pulsating as participants' needs and interests wax and wane.

24.3   Heutagogy: The Framework of the Heutagogy Community of Practice

Heutagogy, or self-determined learning, was first conceptualized in 2000 by Hase and Kenyon due to their frustration with largely didactic teaching approaches occurring in universities. Similar to the community of practice, this new look at learning processes was supported by a long history of exciting theory and practice in education based on humanism, constructivism, complexity theory, and learner-managed learning. Innovative teachers in pockets around the world were experimenting with novel approaches to learning that placed the learner at the center of the learning process (Hase and Kenyon 2003; Ramsay et al. 2013; Andrews 2014; Ashton and Elliott 2007; Ashton and Newman 2006). They were aided and abetted by a relatively new global sensation, the Internet, and a revolution in communications technology (Blaschke 2012; Chapnick and Meloy 2005; McNickle 2003; Msilav and Setihako 2012; Palaiologos 2011; Garnett et al. 2011; Cochrane and Narayan 2014). At the same time, methods used to research the brain were becoming increasingly sophisticated and were beginning to illuminate how people really process information, remember, and learn. This brain research has begun to show us that learner-centered learning was in contradiction to mainstream practice but was on the right track.

Despite this evidence, not many educators were taking any notice, other than the aforementioned practitioners. The Steiner and Montessori movements, which were using very learner-centered approaches, were exceptions, but despite their obvious and demonstrated success (Lillard and Else-Quest 2006; Woods and Woods 2005), they were largely ignored by the mainstream. Hase and Kenyon (2000) decided that it was time to try and pull together the ideas derived from constructivism, humanism, systems thinking, complexity theory, and the developing science of brain research into one coherent concept. They thought that doing so might provide additional impetus to these very important theories about how people learn best. Since 2000, there has been a gradual but exponential increase in interest in heutagogy and the principles that have been derived from it. It has been applied in all educational sectors from pre-school education right through to the postgraduate level, as well as in the formal and informal training arenas (examples of the application of heutagogy are provided later in this chapter). The developing practice of e-learning has also been a particular focus for those interested in heutagogy (e.g. Blaschke 2012; Chapnick and Meloy 2005).

As education is a very conservative enterprise, like the governments and politicians that determine policy and funding, it takes a lot to change it. In any environment, the diffusion of innovation is slow as humans are reluctant to change, and in a conservative enterprise, change is even slower, which is still evident 15 years after the advent of heutagogy. Therefore, there is a great need for active participant-based forums such as the Heutagogy Community of Practice. With the initiation of the Community of Practice, educators from all over the globe have now been able to describe their innovative practices and their personal challenges against

educational orthodoxy in heutagical terms. Others have simply been inspired by heutagogy and its impact on how we think about learning. For many, there is an intuitive connection with heutagogy and their understanding of how people learn.

24.3.1   Heutagogy and Brain Research

Around the same time that the theory of heutagogy was coming into light, the developing science of brain research was providing some support for understanding learning and associated processes such as memory, retrieval of information, and attention. A summary of the research and its implications for learning and heutagogy is provided below to help illuminate the intentions of the Heutagogy Community of Practice, accordingly.

As alluded to above, humans are hard wired to learn. Throughout life we lay down increasingly larger numbers of intricate networks of neurons that influence each other through activation and association (Kahneman 2011). It is hard to predict what associations have been made in the brain without asking the person and finding out what new learning might have taken place. The more enriched the learning environment, the more dopamine is released (Willis 2006). Dopamine produces a feeling of pleasure or well-being and is, effectively, a reward system. It has long been well-known that an enriched learning environment leads to the development of the brain (Rosenzweig et al. 1962).

Doidge's work (2007) and other subsequent research in brain plasticity have shown that focused techniques that target specific parts of the brain are effective in improving performance or overcoming the effects of damage. Similarly, the more we actually do with a piece of new information, the more dendrites are formed to create more neuronal connections. This is mediated by the release of neutrophins (Willis 2006). So, finding lots of ways to use information or a skill is more likely to embed it in memory and enable retrieval, both essential components of any learning experience. Again, in attempting to practice the theory of heutagogy within the Heutagogy Community of Practice, participants are encouraged to find ways to continue to develop and apply the principles, to share these applications with others in the Community of Practice, and to discuss these applications in depth with other participants. In this way, the Heutagogy of Practice has encouraged a meta-practice, fueled by the reflection of its participants.

While learning is a central aspect of the role of the brain, memory is relatively fragile. Repeated exposure and high levels of stimulation improve memory and learning. Thus educational techniques that enable exploration and higher level processing are essential to learning. Humans need information presented in small bites rather than dense text, for example, and listening is not the best learning mode on its own. Furthermore, emotion is critical to learning, memory, and decision-making (e.g. Damasio 2003). The higher cognitive centers in the cerebral cortex are closely linked to the amygdala, the primitive, emotional part of the brain that drives emotions. As Hase states:

It is also clear that there are complex interactions between learning and emotions in that the latter may make learning more indelible (Ingleton 1999). Learning, then, is probably enhanced by excitement and enjoyment, and when there is a gap in understanding that creates curiosity, confusion or a gentle unease. Thus, it is the questions that the learning experience raises rather than the provision of answers that are the primary concern of heutagogy. (2009, p. 46)

Metacognitive processes that involve reflection, double-loop learning, and meditation have been shown to improve memory and, hence, learning (Dunlosky and Metcalf 2009; Fleming et al. 2010; Fleming and Dolan 2012). Again, the Heutagogy Community of Practice aims to make explicit these metacognitive processes within the discussions of the Community so that all members can collectively learn more about heutagogy and hopefully, have a deeper understanding of its applications and implications.

24.3.2 The Role of Human Agency: Learner-Centered Learning

The central concept on which heutagogy is based is that of human agency:

… the notion that humans have the capacity to make choices and decisions, and then act on them in the real world. However, how experiences and learning bring people to make the choices and decisions that they do make, and what actions they may then take is a very complex matter. What we are concerned with in self-determined learning is that people have agency with respect to how, what, and when they learn. It is something that is intrinsic to each individual person. Learning occurs in the learner's brain, as the result of his or her past and present experiences. (Hase 2014a, p. 5)

Humans are very accomplished learners well before we go to school. We learn by experimenting with the world, experiencing, and watching others. We are motivated by what captures our imaginations, and by what we value. As the constructivists such as Vygotsky (1978) and many others since have suggested, we make our own sense of the world, we construct it from our experiences. Formal education tends to change that by moving from a learner-centric, natural model of learning to a teacher-centric, forced model. Here, it is the teacher who attempts to not only devise the learning experiences (via the formal curriculum), which is probably legitimate, but also constructs meaning, their meaning, for the learners. Suddenly, non-formal learning is devalued. Only learning that is delivered by others, assessed, evaluated, and by which people are compared is valued. It is valued because the teacher drives it; incidental learning driven and accomplished by the learners themselves is not as valued and is rarely seen as legitimate.

The notion of human agency puts the learner at the heart of the learning activity. As far back as (1969), Carl Rogers talked about student-centered learning. This has become learner-centered learning over time (e.g. Armstrong 2012; Long 1990). People's understanding of the world is also affected by context, where the same concept can be interpreted differently as a result of the environment in which people

find themselves. This idea is found in Systems Thinking (e.g., Ackoff and Emery 1972; Emery 1993). Hase (2009, 2014a) has used techniques derived from Systems Thinking in involving learners in the design of their own learning in various contexts. More recently, Whitworth (2008) and Luckin et al. (2010) have developed the idea of 'learner-generated contexts' in which the learner is actively involved in applying context to their new learning as part of the learning process. Similarly, project based learning (e.g. Azer 2011) is a wonderful example of contextualizing learning in a dynamic way.

The Heutagogy Community of Practice strives to involve its participants as learners in these very ways to promote deep learning and engagement via a self-determined approach. Though some participants have more experience with the theory of heutagogy and its applications, no participants claim to be expert teachers delivering pre-packed theoretical content to students. Instead, in the Heutagogy Community of Practice, content is fluid and ever-developing through the meaning-making processes that every participant brings to his or her engagement.

24.3.3 A Different View of the Teacher and the Curriculum

Heutagogy does not seek to imply that the role of the teacher is in any way diminished. Rather, it is changed. In many ways this principle of heutagogy is fully aligned with new pedagogies emerging within education, such as connectivism (MOOCs), authentic learning, and rhizomatic learning (Siemens 2004; Herrington et al. 2014; Cormier 2008). Emphasizing the power of the community, these pedagogies place the learner firmly in the center and the teacher as guide, with learning emerging as a result of the connections within the community. In heutagogical terms, the teacher guides the learner with a hand that is sometimes firm on the process and at other times very soft. Hase (2014b) has proposed that the title 'teacher' be replaced with 'learning leader,' and has described a number of essential process skills and the diminution of more didactic and teacher-centered approaches. Furthermore, heutagogy does not claim that we should throw away curriculum altogether, but that we can be much more flexible about how the curriculum is achieved.

Heutagogy is most concerned about supporting an authentic learning *process*. Content, particularly in this digitally connected age, is not an issue. Most people can be taught how to access content. It is the filtering of it that is important through the research process, the critique, and the dialogue that follows. It is through these processes that learners make meaning about content. Heutagogy sees the curriculum as important, but it needs to be "flexible, adaptable and a living document that is open to change" (Hase 2014a, p. 6). Moreover, the connections between the learner's present experience and past learning are unpredictable (Hase and Kenyon 2013b). They can lead to profound changes in thinking, of understanding, and of seeing the world. At that point the learner may need to investigate a different path with a whole set of new questions to be answered about their experience. This is

also unpredictable and occurs in the mind of the learner. So, the curriculum—and the learning leader—need to be flexible enough to accommodate the learner's needs for new questions to be explored, for tangents to be followed. In effect, the learner needs to be involved in the design of her or his own learning in a formative way. In this way, the Heutagogy Community of Practice has also modeled flexibility.

One of the ideas to come out of heutagogy is that there is a difference between the acquisition of knowledge and skills (competency) and learning (Hase and Kenyon 2013b; Hase 2014a). The latter is a deeper process that involves more complex neuronal connections, perhaps resulting in 'ah, ha' experiences and new ways of seeing the world. Acquiring knowledge and skills may be less complex unless the learner is able to apply them in novel circumstances or contexts, where there is competence but not capability (Stephenson 1996). Again, it is the learner that will make this leap to capability when the time is right, when experience dictates. We have all experienced this moment when something we know or a skill we acquired years ago suddenly make sense and take on new meaning because of the circumstances in which we find ourselves.

24.3.4 Principles of Heutagogy

A number of principles to guide learning have been derived from heutagogy (Hase and Kenyon 2013a; Blaschke and Hase 2014; Blaschke and Hase 2015; Kenyon and Hase 2013; Blaschke 2012). As mentioned previously, these principles of heutagogy have significantly shaped the Heutagogy Community of Practice:

- Learner-centeredness:
    - Involve the learner in designing his/her own learning content and process as a partner;
    - Individualize learning as much as possible; Enable the learner to contextualize concepts, knowledge and new understanding;
    - Use experiential learning techniques;
    - Engage formative, flexible, or negotiated assessment;
    - Have confidence in the learner; and
    - Recognize that teaching and teacher control can become a block to learning.

- Non-linear curriculum:
    - Make the curriculum flexible so that new questions and understanding can be explored as new neuronal pathways are developed;
    - Recognize that learning is non-linear; and
    - Provide lots of resources and let the learner explore.

- Capability development, collaboration, and reflection:

    – Facilitate collaborative learning;
    – Facilitate reflection, and double loop and triple loop learning (metacognition);
    – Develop research skills including how to be discerning about ideas and content;
    – Differentiate between knowledge and skill acquisition (competencies) and deep learning; and
    – Recognize the importance of informal learning and that we only need to enable it rather than control it.

Heutagogy's characteristics of learner-centeredness, non-linear curriculum, capability development, collaboration, and reflection are represented within the Heutagogy Community of Practice through its use of technology to support development of these characteristics. (More information about the characteristics of heutagogy can be found in Hase (2014a, pp. 9–10). Many of these principles are consistent with those underpinning communities of practice such as reflection, collaborative learning, that learning is vested in the individual, negotiation, the importance of the non-linear nature of learning, and contextualization. Where heutagogy diverges with communities of practice is that social activity is not a pre-requisite for learning. According to heutagogy, people can effectively learn by themselves and do not need a social group or collaboration for their brain to respond to changes in the environment or new experiences. Collaboration is desirable in learning, but not essential. In this sense we think that Wenger (1998) and Tennant (1997), for example, overstate the importance of the social imperative in learning.

24.3.5 Applications of Heutagogy from Across the Community of Practice

Since the formal creation of the Heutagogy Community of Practice, the applications of heutagogy have expanded and become more visible. Though this cannot be contributed solely to the Heutagogy Community of Practice, the Community has informally and formally extended and supported the connections among practitioners. In addition to the use of heutagogy in the Heutagogy Community of Practice, heutagogy has been used in a variety of other contexts, many of which are listed below:

- Lifelong learning (Blaschke 2012; Eberle 2013; Blaschke and Hase 2014; Schuetz 2014);
- Workplace learning (Blaschke and Hase 2014; Hase 2013; Hase and Kenyon 2003; Ramsay et al. 2013);

- E-learning (Blaschke 2013; Blaschke et al. 2014; Belt 2014; Canţer 2012; Chapnick and Meloy 2005; Hase 2009; McNickle 2003; Msilav and Setihako 2012; Palaiologos 2011);
- Community education (Foskey 2013; Narayn 2014);
- Communities of practice (Price 2014);
- Social media (Garnett et al. 2011; Cochrane and Narayan 2014);
- Practitioner development (Canning 2013; Ridden 2014);
- School learning (Andrews 2014; Gerstein 2014)
- Higher education (Bhoyrub et al. 2010; Bull 2014; Dick 2013; Hexom 2014; Kenyon and Hase 2010; Kerry 2013; O'Beirne 2014; Tay and Hase 2004, 2013);
- Teacher education (Ashton and Elliott 2007; Ashton and Newman 2006); and
- Assessment (Albon 2006; Booth 2014; Eberle and Childress 2009).

In an ongoing, participant/learner-centered way, the Heutagogy Community of Practice seeks to support and reveal more applications of heutagogy. This reflective, meaning-making sharing, from multiple perspectives, is again at the heart of heutagogical theory and thus highly intentional within the Heutagogy Community of Practice. One example of this is the recent addition to the Community of Practice site called Learner Perspectives, whereby participants in the Community have contributed their perspectives as learners/practitioners in heutagogical contexts. As learners/practitioners, the Community of Practice participants have shared their privileged perspectives about the theory in action, and their reflections on the processes of learning (Hase and Kenyon 2013a; Blaschke et al. 2014).

24.3.6 Walking the Talk: A Heutagogical Approach to the Heutagogy Community of Practice

As mentioned earlier, it is within the theoretical framework of heutagogy, or self-determined learning, that the idea of a Heutagogy Community of Practice was conceptualized. Furthermore, the framework informs how the Community of Practice is organized, how its members participate, and how the co-founders and "curators" of the Community facilitate. The Heutagogy Community of Practice has been seen as a place where practitioners and theorists can come to share ideas and resources—to learn, deeply, from one another about the theory and practice of self-determined learning. Since its inception, participants in the Community of Practice have organized and hosted two international conferences (and are planning a third for March 2016); jointly published several book chapters and papers; created and facilitated World Heutagogy Day (September 26); and published two books: *Self-Determined Learning: Heutagogy in Action* (Hase and Kenyon 2013a) and *Experiences in Self-Determined Learning* (Blaschke et al. 2014), both of which feature chapters written by Community of Practice participants. In this way, the

Community is itself a very real application of Hase and Kenyon's (2000) original ambition to try and give some impetus to learner-centered learning.

24.4   Reflections on the Heutagogy Community of Practice

As it is for communities of practice (Wenger 1998), a key tenant of heutagogy is self-assessment through critical reflection (Booth 2014): how do we know what we know? How do we know how effective something is? How do we collectively make meaning of our experiences to result in deeper learning and improvement? Accordingly, here we reflect on and assess the strengths and challenges of the Heutagogy Community of Practice.

24.4.1   Strengths of the Heutagogy Community of Practice

One of the major strengths of the Heutagogy Community of Practice is its use of current technology to build upon and sustain the community. In creating a Heutagogy Community of Practice, we were not just creating a community of individuals interested in discussion, research, and further innovation in the theory, but also an environment where heutagogical design was practiced. By making heutagogy inherent to the design of the online community, we were creating a setting that would be conducive to fulfilling the group's needs and goals and a habitat where members could learn together. As the Heutagogy Community of Practice was created in an online environment, we were able to bring together members from geographically diverse locations and smoothly cross time and space barriers. Our decision to choose an environment rich with social media was also based on the close alignment of the topic of heutagogy (self-determined learning) with the affordances of the media that we used. Social media affordances that share characteristics of heutagogy include making connections and collaborating with others and discovering, sharing, and co-creating knowledge and information (McLoughlin and Lee 2007; Blaschke 2012; Harasim et al. 1998). Using Wenger et al.'s (2009) guidelines, we were careful to choose technology that was on a central platform (a WordPress blog with links to sub-groups such as LinkedIn and Twitter), that was easy to administer and use, and that had integrated tools that could support, sustain, and grow the Community.

Within the Community itself, there is a dedication to exploring multiple dimensions and perspectives about the topic of heutagogy, and there is openness to both the theoretical scholarship and practical application of the theory. Though there is not a formal membership process, the Community's participants are guided by a common purpose—understanding and exploring practical applications of self-determined learning in a variety of disciplines and environments—which has brought a clear focus to the collective. Communication is democratic, without

regard to race, religion, class, gender, age, or nationality: everyone has a voice (Harasim et al. 1998). Community participants are clearly engaged with the topic, responding to blog posts and posting questions and comments within the LinkedIn group. Within the discussion areas, they propose new ideas, ask questions or for guidance, build on the ideas of other group participants, and provide constructive criticism of ideas presented by fellow colleagues. These community characteristics indicate that there is "group flow," a condition that is a prerequisite to the emergence of innovation and "genius groups" (Sawyer 2007, p. 44).

Participation in the Heutagogy Community of Practice is also generally ongoing across multiple sites, although there are also extended lulls in the conversations. These lulls do not necessarily indicate a shortcoming within the Community, but could be indicative of reflection or a dominating presence of lurkers. According to Wenger et al. (2009), lurking can instead be "interpreted as 'legitimate peripheral participation,' a crucial process by which communities offer learning opportunities to those on the periphery" (Loc. 489). Rather, some of the conversations that begin online often extend to an offline conversation (e.g., e-mail, telephone call) for more in-depth discussion.

Another major strength of the Heutagogy Community of Practice is the way in which it connects researchers, scholars, and students across the world. Social media such as Twitter has played a critical role in supporting and expanding the community, as well as in publicizing the theory, its use, and its relevance in today's educational practices (Fig. 24.4). In his book *Open*, Price (2013) calls the media "an indispensable, if not primary, source of professional development. Fluid learning communities regularly come together for 'hashtag meet-ups' where issues are debated with no one person able to hog the conversation, due to the 140-character limit. People learn stuff, but they also share the small talk of friends" (Location 1423). Social media has provided a platform for Community of Practice researchers to connect, introduce ideas, and share their research. The online community has brought together academics, practitioners, and researchers of heutagogy, who have shared their research ideas, projects, and results with each other, more
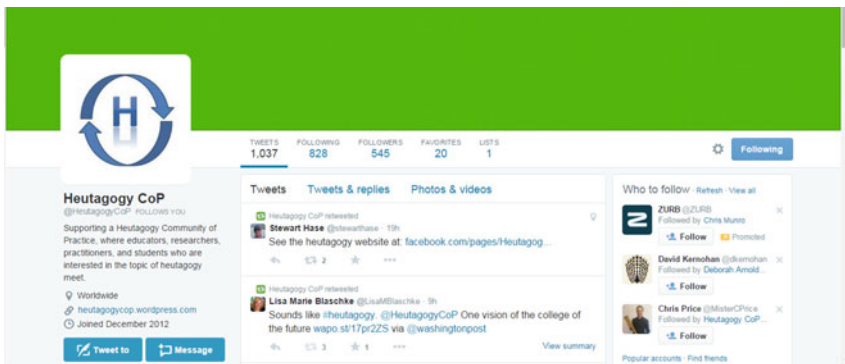

Fig. 24.4 Twitter site (@HeutagogyCoP: https://twitter.com/heutagogycop)

recently in the publication *Experiences in Self-determined Learning* (2014), a collection of experiences from across age groups and disciplines. The Community has also brought together graduate students with reviewers and potential advisors of their research work, as well as generated new areas of research, such as the more recent activity of gathering and distributing profiles of self-determined learners on the community blog.

In addition to connecting those interested in heutagy, the Heutagogy Community of Practice has also generated innovative ideas, which have emerged from both online and offline community discussions. Examples of these are the aforementioned book and Heutagogy Conferences in Prague, London, and Australia (planned for 2016), for which community members have collaborated in structure and content. According to Palloff and Pratt (2005), this type of collaboration helps solidify the community and establishes a foundation "for socially constructed meaning-making and acquisition of knowledge" (p. 16). Face-to-face interactions, also recommended by Palloff and Pratt for building strong communities, seem to have further strengthened and expanded the community. The face-to-face conferences held in Prague and London and workshops held throughout Europe and Australia have allowed community members to get to know each other better and to share and explore interests and ideas informally and in rapid progression.

In general, the design principles applied in the original design of the Heutagogy Community of Practice have also contributed to its success as a sustainable and growing community and are aligned neatly with those described as characteristic of communities of practice (Wenger et al. 2009). These principles included:

- Focusing on a common goal, which is the advancement of heutagogy, its theory and practice;
- Establishing specific sites for specific purposes, for example, WordPress as the central platform that includes off-shoot subgroups for discussion (LinkedIn discussion group), research and resources (Bibblio site, http://bibblio.org/u/The%20Heutagogy%20Collection/collections), connecting (Twitter site), and sharing information (Facebook site);
- Supporting democratic participation where everyone can participate and contribute (e.g., in responding to blog posts and LinkedIn discussions and in interacting with others using Twitter);
- Ensuring facilitation and oversight within the community, where rules are established for discussion and there is screening of initial contributions (e.g., through LinkedIn);
- Creating an environment that balances the processes of promoting the site with connecting members in co-creation of innovation and ideas; and
- Allowing technology use to evolve as the community evolves (e.g., expanding from WordPress and LinkedIn to Twitter, Facebook, GooglePlus, Slideshare and Bibblio)
- (Palloff and Pratt 1999, 2005; Sawyer 2007).

24.4.2 Challenges of the Heutagogy Community of Practice

The Heutagogy Community of Practice has not just been about success, however. The Community has also faced a number of challenges that have caused it to struggle in terms of its sustainability and growth. A significant challenge has been in curating and monitoring the Community. Curation requires time and attention, especially when across multiple technological locations, and the founders of the community have full-time employment, research activities, and other obligations on their time. Furthermore, the Community is not formally sponsored or supported by any institution—there are no funds or resources dedicated to it. Responsibility for the community is generally shared across the volunteer co-founders, with each one taking primary responsibility for an area and then monitoring, curating, and maintaining the area (Melanie: WordPress; Lisa: Twitter and LinkedIn; Stewart: Facebook and Bibblio). We also take a team approach, which means that if one member is not immediately available, the others will jump into lend a helping hand. Initially, we attempted to curate resources about heutagogy on the WordPress web site in a "working bibliography." However, over time the bibliography became outdated, and we found that new sources of information needed to "feed into" the site. Sources of information were also growing in size and type. We didn't have just journal articles anymore, but were expanding out into other media such as conference recordings and presentations, working "live" documents, and blog posts.

Over the online network, the Community founders were contacted by a pair of IT entrepreneurs who were in the process launching an open source education web site called Bibblio.org. From the ongoing discussions with the Bibblio team emerged the "All Things Heutagogy" site (Fig. 24.5), which now serves as a repository for research and information on heutagogy and self-determined learning. Even so, finding time to invest into curation and keeping the Community up-and-running can be tremendously challenging, especially as the community expands.
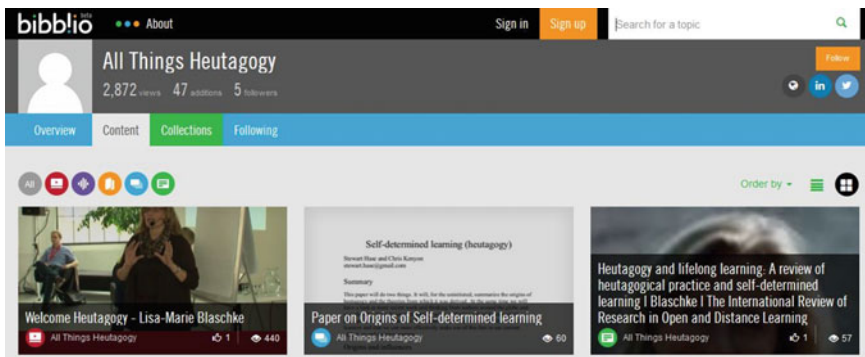

Fig. 24.5 All Things Heutagogy Bibblio site (http://bibblio.org/u/The%20Heutagogy%20Collection/content)

Sustaining and growing the community has also been an ongoing challenge. We do not know the true size or scope of the community, as it is continually emerging and often in different places within the online network. There is an ebb and flow of participants, and participants will "cherry-pick" aspects of the Community that are of interest to them and then only engage in those. In such an environment—with multiple online and physical locations where discussions cannot be monitored and which may begin online and then move offline—it is difficult to measure the impact and reach of the Community. Also, not all members are visibly active and engaged within the group. However, as mentioned earlier, this does not necessarily mean that members are not active and engaged, but may be participating in a peripheral way as online lurkers but offline participants (Wenger et al. 2009). Due to the asynchronous nature of the online environment, conversations can be drawn out over days and weeks, with members joining in on a discussion, dropping out for an extended period of time, and then re-emerging to pick up the conversation again.

Another challenge has been in "feeding" the Community of Practice, and keeping information and ideas flowing within it. Discussions within the LinkedIn area emerge in flashes, with some never igniting, some creating only a spark of interest, and some generating wide interest within the group. Participation has peaks and valleys, and so it is important that we invest time into keeping the conversations going. Twitter has been a major assist here, as the use of hashtags such as #heutagogy and #self-determined learning allow us to track when new information (blogs, research, news reports and other publications) that may be interest to the community are available on the web. Another added benefit of Twitter is that it has allowed us to expand on the Community, for example, by "following" Twitter users who tweet about heutagogy or self-determined learning. At the same time, members on Twitter may overlook information that has been pushed-out to the Community (e.g., through tweets), so that information needs to be distributed across different channels and multiple times.

Even though the technology framework can be considered a major strength of the Community, it can also be viewed as a challenge. The media platform has become more complex and somewhat fragmented as it has grown, lacking a common thread to join each of the sites. It is difficult to find one open-source media platform that fully supports the Community's activities, particularly as members use the Community for different purposes, at different times, and to different depths. Social media is not streamlined and silos of engagement have emerged. As mentioned previously, the Community of Practice also does not have the financial or structural resources to develop a fully integrated platform that allows us to connect across media. That said, although there are limited financial and time resources, the Heutagogy Community of Practice has fortunately not been plagued with challenges that can often burden communities, such as distrustful environments, members dropping out en masse, information overload, "groupthink", and technology breakdowns (Palloff and Pratt 2005; Wenger et al. 2009).

24.4.3 Emerging Future Plans

We are not entirely certain what the future will bring for the Heutagogy Community of Practice. In order to sustain it, we will need to keep the group flow continually moving in order to keep participants from moving away from the group, which can occur when group flow diminishes and members seek out new ventures and interests (Sawyer 2007). In keeping with heutagogical practice, the evolution of the Heutagogy Community of Practice will depend to a large degree on the participants themselves, with the participants collectively determining to what extent and how the Community will develop, or even if it will continue. Since the Heutagogy Community of Practice was first established in March 2013, it has experienced significant increases in the group membership, with 125 members in LinkedIn and over 500 followers on Twitter. On the Heutagogy Community of Practice web site itself (https://heutagogycop.wordpress.com/), there have been nearly 25,000 page views, with an average of around 1500 hits a month, and with over 100 followers from all over the world: United States, United Kingdom, Canada, Australia, Malaysia, Mexico, Japan, India, Singapore, France, Brazil, Spain, and Germany (most views by country).

As the online site continues to serve as a central platform, we will need to consider how to create a common thread amongst the current silos of media, thus allowing for more connections. Another consideration is the development of subgroups within the Community of Practice, for example, formed by topic area (such as conferences, projects, and areas for potential research) or particular professional applications (such as higher education, elementary education, or organizational training and development). One example of subgroups is described by Wenger et al. (2009) who refers to these as "bounded communities" where "blogs may be combined with other tools like discussion forums and member directories" (Location 3873). In these bounded communities, one primary blogger is established and offshoots are the made to other bloggers or to a collection of different blogs from the primary site and within one environment.

For the moment, the Heutagogy Community of Practice continues to grow organically. Additional face-to-face annual conferences are being planned (in 2016 in Australia), as are workshops and research projects, as well as a center for research (in Bradford in the UK). Interest in heutagogy is gaining new ground as word of the theory and of the Community of Practice itself is publicized. Connections continue to form and new opportunities will arise. Whatever the future holds, we are ready to embrace it with vigor, openness, and confidence.

24.5   Some Concluding Thoughts: Lessons Learned

As we have reflected on the Heutagogy Community of Practice—on its context and history, on the theory that informs it and on which it is focused, and on its strengths and challenges and its emergent, unknown future—we have identified some lessons that may be useful to other Community of Practice organizers and facilitators.

First, in organizing a Community of Practice such as the Heutagogy Community of Practice, where the participants are encouraged to drive the forward motion of the Community through their self-determined learning intentions and processes, it is important to set broad goals for the Community, but to also be flexible in how they are accomplished or even whether they are accomplished. In the Heutagogy Community of Practice, the umbrella goal of continued reflection and learning has been central while the activities of the Community itself have emerged and evolved to meet that goal. As the Heutagogy Community of Practice has exemplified, participants can and should significantly shape the direction of conversations and actions within the Community in important ways, such as creating and facilitating discussions, establishing conferences, and contributing to or editing publications. Due to the heavy dependence on the Community's participants to make the Community of Practice be a community, it is also important to continually step back to review, reflect, and continue to adapt together.

Another important lesson we have gleaned is to not force the engagement of participants. The Heutagogy Community of Practice's participants are present in the Community voluntarily and the Community is open. There is no application for membership, nor any formal vetting system on behalf of "administrators" of the Community (nor are there actually any "administrators"). The Community has strived to be as accessible as possible, and in doing so, to also allow participants' engagement to be what it is at any given time. After the initial launch of the Heutagogy Community of Practice, it took several months for there to be anything resembling deep engagement of multiple participants—in fact, it took several months to become what could be recognized as a Community of Practice. As its founders and curators, we have needed to allow it and its participants to ebb and flow, to come and go, and we have needed to be comfortable with its emergent nature. In a Community of Practice such as the Heutagogy Community of Practice, if the participants as learners/practitioners had not been involved in creating its direction based on their self-determined learning needs, the entire premise of this particular Community of Practice would collapse: we had to walk the talk.

Finally, one of the great strengths of any Community of Practice is that it can foster genuine collaboration, where the development and exchange of ideas and the creation of meaning, together, can occur. Collaboration, and intentionally preventing competition, has been another core value of the Heutagogy Community of Practice and has supported the continued rich development of heutagogy as a theory and practice. Simply put, like any community, the Heutagogy Community of Practice has developed a culture; an ego-centric approach has not been a part of this culture. This collaborative and non-hierarchical culture, for many of its participants,

is dissimilar to the organizational cultures in many of the institutions from which the participants hail. As students, researchers, professors, trainers, teachers, and administrators, a culture of inclusion, equity, collaboration, and where all participants' voices are welcomed, is foreign, but has been clearly welcomed and valued, and has helped promote the theory and practice of self-determined learning.

Communities of Practice such as this one can be places and spaces to delve deep, create, incubate, and marinate on the topic, together. "Community" and "Practice" are truly the key words, especially for the Heutagogy Community of Practice with learning and learner-centeredness at its core.

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Chapter 25
The Connected Community of Practice in Educational Technology: A Model for Future Networked Professional Development?

Jason M. Lodge and Linda Corrin

Abstract While intentionally created communities of practice have continued to grow within the higher education context, simultaneously an organic 'networked' community has grown amongst those involved in researching and implementing educational technology internationally. This global community, which we refer to as the "educational technology community", represents a new and emerging type of community of practice (CoP) that is not bound by geographic location or a need for synchronous contact between members. This chapter will examine this organically evolving educational technology community as a model for future networked CoPs. This analysis will lead to a possible model for future networked CoPs which will align with current thinking about networked learning and professional development (e.g. Sloep in Technology-enhanced professional learning: processes, practices and tools. Routledge, New York, 2014). The overall aim of the chapter therefore is to explore possible future methods of professional development through networked learning in higher education.

Keywords Educational technology · Networked learning · Community of practice

25.1 Introduction

The introduction and widespread growth in the use of educational technologies in higher education has led to deep and lasting changes in the way that students access and use content and the ways in which academics teach. Many studies (e.g. Gosper et al. 2013; Lodge 2010) have documented the increased use of digital devices by university students in the last decade with no signs of this trend slowing down in the

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near future. Similarly, albeit on a slower time-scale, universities are also implementing more electronic and digital devices in physical classrooms as well as creating larger and more elaborate digital learning environments. The affordances provided by these new technologies are taking some time to be realised in the university setting (Conole 2012) and it is not uncommon to still see the classical on-campus lecture and tutorial instructional approach being used despite the apparent ineffectiveness of the associated didactic methods (Venema and Lodge 2013). This context has created the foundation for a paradigm shift in the way that higher education is designed and delivered worldwide. In order for the shift to occur, however, both the skills that teaching academics need and the support they require are fundamentally changing (see for example Laurillard 2013). The community of people at the vanguard of this change are the focus of this chapter. The community in question constitutes teaching academics, teaching support staff, educational developers and others in similar roles who will loosely be referred to as the educational technology community. The community in this case is bound and defined by a shared goal of enhancing the practice of teaching in higher education with a specific emphasis on technology and innovation. In this chapter, we will first examine how members of this community define themselves on the basis of the knowledge they draw upon to carry out their practice. We will then explore what this community might tell us about the mechanisms by which future CoPs might form and operate.

The key trends described above have led to the organic inception and growth of this community across organisational, national and international boundaries. The global educational technology community is a prime example of the new ways in which groups with similar interests in a specific area of practice are forming across these boundaries (see also Wenger et al. 2009). While this can create challenges, the high level of digital literacy amongst the group, means it has also been able to pioneer innovative methods of communication and collaboration. Weller (2011) describes professionals engaged in these new networked, global communities as 'digital scholars'. These digital scholars are influenced by and can create influence through both their digital literacy and their online social capital. Importantly, this network or virtual community of digital scholars is potentially a harbinger of the CoPs of the future so understanding the workings of this community is of interest as communities become more technologically mediated.

In this chapter we examine this unorthodox and organic group of practitioners through the lens of CoPs. The analysis outlined in this chapter will use existing literature as a foundation, but will also depart somewhat from it to consider the role of networked learning in the development of this CoP. In the process of this analysis, we aim to highlight the differences between traditional CoPs and the educational technology community with specific focus on the affordances and difficulties of a networked asynchronous CoP. Wenger et al. (2009) argued that the growth in networked technologies would bring about possibilities for new kinds of communities such as the educational technology community to develop. At the same time, however, we do not wish to oversimplify or romanticise these new mechanisms for community formation or indeed the communities that are forming

through them. Henderson (2015) argues that there is a significant risk in uncritically applying notions of CoP to practice with educational technologies. While recognising the complex sociocultural milieu in which the educational technology community exists and operates, we will attempt to analyse the community using an established framework. Thus the common features of the most cited conceptualisations of CoPs, as identified by Cox (2005), will be used to analyse the formation and continuation of the educational technology community by addressing the following questions:

- Does the educational technology community in higher education resemble CoPs as they have been previously conceptualised theoretically?
- How do the features of the educational technology community compare to other established CoPs in practice?
- What are the advantages of this CoP over other established CoPs?
- What are the potential disadvantages of this CoP compared to other CoPs?
- What is the impact of this CoP on practice and how can the CoP be evaluated?
- Does this CoP provide a viable model for future networked CoPs?

Specific focus will be given to a number of factors that are apparent within the educational technology community. Matzat (2013) found that both blended and online professional learning networks face unique and significant hurdles including, but not limited to, trust issues and problems with participants not meaningfully contributing. There is also anecdotal evidence suggesting that virtually mediated CoPs, like the one that is the focus of this chapter, often lack leadership and can be dominated by a small but vocal group who take an overly critical or technopositivist perspective (see also Njenga and Fourie 2010).

Attempting to analyse the networked sharing and co-construction of practice knowledge through the lens of communities of practice is not without precedent. For example, Barile et al. (2012) argue that the increasing need for dynamism in highly innovative environments (such as that associated with design for learning with technology) necessitates complex networked communities of practice made up of what they call 'T-shaped' professionals. A 'T-shaped' professional has deep expertise in one area (the vertical stem of the T) but also has capacity for working across multiple knowledge and skill domains (the horizontal bar of the T). While the context Barile and colleagues describe differs slightly from higher education, the messy complexity and dynamic nature of the practice environment is common to both. An intentional, structured CoP is less effective in these kinds of environments than in more static settings. We therefore believe that a similar analysis of the educational technology community is at least worth exploring.

The overall aim of this chapter is twofold. Firstly the educational technology community will be analysed as a possible model for future networked CoPs as detailed above. This analysis is intended as a precursor to the provision of concrete strategies for the effective development of blended or wholly online CoPs of the future. As part of this analysis, the technological pedagogical content knowledge (TPACK) framework will be used to help better understand the roles and digital

habitus (as per Costa 2014) that members bring to the community. Secondly, this chapter will provide a foundation for the ongoing investigation and development of the educational technology community. While there are clear affordances being pioneered by this CoP, situating it within the established literature may point to ways in which the CoP can evolve to overcome some of the issues it currently faces.

25.2   Context and Community Membership

The role of technology in higher education is constantly evolving in response to advances in the availability, design, and capability of new technologies. For example, the ready availability of resources via the internet is challenging the role universities have traditionally held as providers of formal knowledge within developed societies. The evolution of new technologies, such as mobile devices and social networking tools, are posing challenges for institutions broadly, as well as within the context of teaching practice and the use of these technologies directly in the process of education. We have also seen significant rethinking of the ways in which learning activities, assessments, modules and entire degree programs are designed and delivered as a result of recent advances such as the advent of the massive open online courses (MOOC) (Bowen 2015). With this increase in free access to resources via the internet as well as world-class experts via MOOCs, universities must reassess their educational role beyond the provision of credentialing. Students and institutions are continuing to ask how to provide better value for on-campus students whilst simultaneously enhancing the virtual experience. In order to answer that question, teachers require expertise in both pedagogy and technology.

This growing need within institutions for expertise on the pedagogical and technological aspects of the new information environment led to the growth of the educational technology community in Australia and globally. Given the changing nature of the technologies and the approaches to using this technology, there is great diversity within this group. Our aim here is to attempt to define the individuals that make up the group that we are here referring to as the educational technology community. We again recognise the argument that a community of this type is necessarily complicated given that it spans different forums, platforms and geographical locations, which in turn create a complex sociocultural foundation for the community (see Henderson 2015). It is nonetheless of value to attempt to define the types of individuals that make up this community in order to better understand its functioning. Costa (2014) argues that the creation of digitally networked communities (within which she refers to as the 'participatory web') takes the emphasis away from institutions towards individuals. These individuals then think, behave and interact within these communities on the basis of their roles and their experiences within these constantly evolving digital networks. This is described by Costa as a form of digital habitus that will contribute significantly to the functioning of the community. Borrowing from Bourdieu (1990), the notion of habitus refers to the

changing ways in which individuals act, think and behave in an environment and continue to define and redefine their role within it. This notion is a useful way of understanding the relationship between the individual and the networked, digital environment in which this community exists. One way to attempt to understand the habitus of different professional groups who make up this community is to look at it through the lens of the TPACK framework (Mishra and Koehler 2006; see Fig. 25.1). By using this framework, it is possible to examine the epistemic framing through which members of the community define their roles as a lens to understand how they come to exist within it. Our aim here is not to provide a comprehensive analysis of habitus, but to delve into the epistemic base upon which different individuals within the network draw as a way of attempting to define their roles within the community.

Traditionally the work of designing and delivering programs and courses in higher education institutions was undertaken by academics with high levels of content knowledge (CK). The new information and technological environment, however, has led to an increasing demand for those charged with designing and developing higher education to have greater knowledge about technology (TK). This is particularly important given that in many institutions the use of learning management systems is a requirement in most, if not all, unit/subject level offerings. The knowledge about how best to teach, or pedagogical knowledge (PK), has been important for some time. However, as technology has a greater impact on higher education, the ways in which effective teaching is delivered have also had to be modified (Laurillard 2002). Thus, it is now insufficient for educators to simply be experts in CK. In order to design and deliver programs of study that would be anywhere near what is considered best practice, teachers either need to be knowledgeable in all three areas (CK, PK and TK), or seek assistance from others who will help to meet the shortfall in knowledge in the areas other than CK. Asking academics to become expert in pedagogy and technology to a sufficient degree to be able to do all the design work and set up the technologies themselves is a difficult prospect. Especially given that almost all will be judged by their institution on their research performance over and above the quality of their teaching (see Chalmers 2011).

Within this new higher education context, many roles have emerged to compensate for the difficulty in becoming expert in all areas now required to deliver world-class higher education. It is this mix of roles in which many within the educational technology community can be found. This eclectic mix of job roles undoubtedly impacts on the ways in which these individuals interact within the educational technology community. Each group draws on a different knowledge base that, in turn, influences how they go about their practice. The first group is academics who have high levels of CK, but are also proficient in pedagogical and technological knowledge (see for example Benson and Ward 2013). These academics can be found in traditional roles within disciplinary faculty or schools or
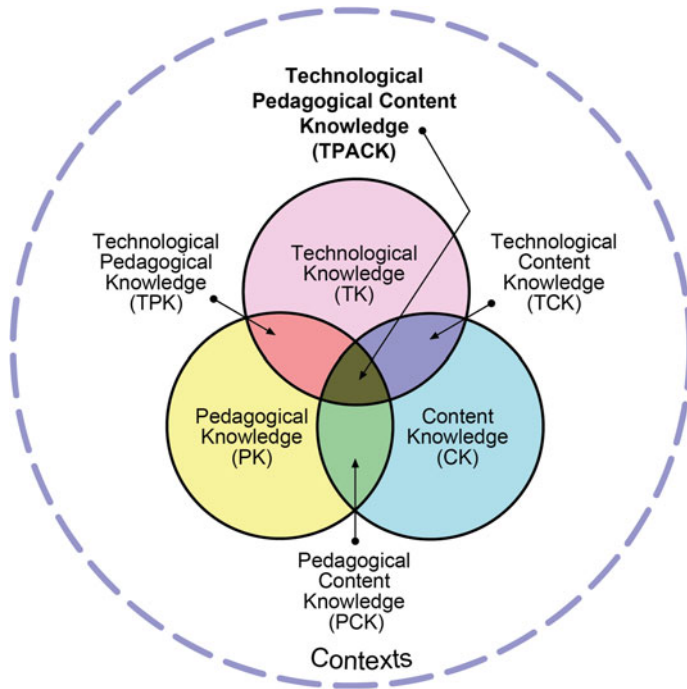
Fig. 25.1 Technological pedagogical content knowledge framework (reproduced by permission of the publisher, © 2012 by tpack.org)

within academic development positions.[1] There are also some academics with expertise in all three areas that are in research or leadership roles, though these appear to be less common (see also Bates and Sangra 2011).

Amongst the group of academics in something akin to academic development roles, there is variation in the amount of CK they have. As with many in these roles, they often have expertise in one disciplinary area in addition to high levels of PK. Similar roles can be found in most institutions that are classed as professional rather than academic. Whitchurch (2008) has described these roles as 'third space' professionals, whose duties cross the traditional boundaries between academic and professional work within institutions. These roles operate much like consultants in that these people confer directly with academic teaching staff about enhancing their practice (e.g. Barac et al. 2013). Inevitably even people in more traditional

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[1]It is recognised here that the traditional notion of 'academic development' has evolved over the last decade. The term is used here as established nomenclature. Discussion of the appropriateness of the terms 'academic development' and 'academic developer' is beyond the scope of this chapter. Despite this, it is worth noting here that these roles and the broader role of centralised learning and teaching units have changed markedly in many parts of the world over recent years (see Holt et al. 2011).

academic development roles, where the focus is primarily on PK, have had to develop some level of understanding of the role of technology in higher education (Mirriahi and Alonzo 2015). These trends have created significant deficits in the knowledge and skills required to adapt to the changes current facing higher education broadly, but particularly in relation to technology and its relationship with pedagogical and CK.

Leaving aside the traditional CK and PK and the combinations of roles that have expertise in one, the other or both of those areas, technology adds another dimension to teaching. As a result, many new and different roles have emerged within universities dealing directly with the implementation and maintenance of technologies. From a purely technological perspective, roles have been created in order to implement, manage and enhance a wide variety of educational technologies. Many of the people in these roles have high levels of technical expertise and often some pedagogical expertise, focusing often on one or more individual technologies or approaches. For example, many staff is required for the maintenance and upgrading of learning management systems. The nature of the work in this area is often project-based. In order to effectively implement these technologies, a combination of technological knowledge and PK is required. Many roles have been created that specifically go beyond technical knowledge, but also the incumbents in these roles have extensive PK. Roles that are labelled 'e-learning' or 'blended learning' designers or advisors are common, as are learning or educational designers and developers. These roles represent one of the largest growth areas in terms of university employment opportunities over the last decade (Whitchurch 2012).

Lastly, people with expertise in all three areas are rare within institutions and these people can be in roles such as local (i.e. faculty or school-based) champions for innovation in learning and teaching (or otherwise labelled 'lone rangers'; Taylor 1998). Particularly considering the extensive understanding of three entire bodies of knowledge, that each within themselves are vast, it is perhaps not surprising that people with expertise in all three areas are relatively rare but valued at a local level. Often the CK these people have overlaps significantly with either the PK or technological knowledge. For example, there is far more overlap between CK and PK if the discipline from which the content comes from is psychology, education or higher education. A summary of the main roles within institutions that form part of the educational technology community are summarised in Table 25.1.

The aim of this context section was to outline the broader environment in which universities now find themselves and outline the types of roles that members of the educational technology community might occupy within universities. At a minimum, we would hope that the TPACK framework and the mapping of various roles within institutions outlined in Table 25.1 provides a useful lens for describing the membership of the educational technology community. These descriptions are of importance to the analysis that follows, as both the broader environment and the emerging roles being created as a result of this environment set the foundation for the emergence and evolution of this CoP. Given the diversity of the roles that make up the community and the diverse knowledge base on which these different roles

Table 25.1 Roles of educational technology community in terms of TPCK framework

Expertise	Example roles	Nature of work
Content knowledge (CK)	Traditional academic, research and teaching	Delivery of content
	Teaching focussed academics	Research
		Research supervision
Pedagogical knowledge (PK)	Academic developers	Resource development
	Professional teaching support staff	Consultancy
	Learning designers	Delivery of workshops
		Learning and teaching projects
Technological knowledge (TK)	Technicians	Software development
	Infrastructure managers e.g. databases, corporate systems etc.	Database administration
	Technical support staff	Implementation projects
		Maintenance of enterprise systems
	Developers	
CK and PK	Teaching focussed academics	Teaching
	Academic developers	Curriculum design
		Scholarly activities in learning and teaching
		Workshop delivery
		Resource development
CK and TK	Specialist academics with expertise in impact of technology on the discipline	Teaching
		Research
		Research supervision
		Development and/or project work
PK and TK	'e-learning' support staff	Resource development
	Learning designers	Consultancy
	System specialists e.g. LMS support	Delivery of workshops
	Project personnel	Learning and teaching projects
		Software development
CK, PK and TK	'Lone rangers'	A range of activities as listed above
	Academics with specialties in teaching and/or educational technology	
	Specialist professional staff	

draw, it is apparent that there is likely to be great diversity in habitus, despite there being a shared goal in the community of improving the use of educational technologies. The reality for universities in the second decade of the twenty-first century

is that the way education is delivered is changing as a result of the use of technology. While it is perhaps hyperbole to suggest that universities might cease to exist if they do not adapt to this new reality, it is clear that the types of roles that people in the educational technology community inhabit are vital for the ongoing viability of the higher education enterprise. The variation and increasing specialisation in these roles is thus not only vital, but is also going to influence the ways in which practice is shared and enhanced.

25.3 Framework for Analysing the Community

When initially formulated by Lave and Wenger (1991), CoPs were conceptualised as an informal and situated approach to knowledge sharing and professional development within organisations. While Wenger (e.g. 1998) and others (e.g. Brown and Duguid 1991) have attempted to refine the concept, there is still some confusion about what constitutes a CoP, how they form and how they effectively function in higher education (McDonald et al. 2012). Despite the confusion around CoPs in the literature, there does seem to be some common themes across the main conceptualisations used (Cox 2005). These are operationalised as follows and will form the basis for the analysis of the community of educational technologists that are the focus of this chapter:

- Concept of community: how is the community conceptualised?
- View of learning: how does learning occur in the community?
- Power and conflict: what is the relationship between group members and leaders?
- Change: how does the community adapt to changing circumstances?
- Formality/informality: how formal/informal are the operations of the community?
- Diversity: how well is diversity accommodated within the community?

Given that the focus of a CoP is ostensibly on practice of some description, it is worth spending some time considering what practice looks like in relation to educational technology. Firstly, the use of technology in teaching in higher education necessitates a different practice paradigm than more traditional teaching methods that, at their core, rely more on transmission than on the co-construction of knowledge mediated via technology. Many researchers in the area (e.g. Bates and Poole 2003; Goodyear 2005; Laurillard 2002, 2013) suggest that design is a more appropriate framework for the construction of educational experiences for students incorporating educational technologies. Goodyear (2005) argues that the development of teaching for learning in higher education should be seen as a design problem space incorporating the contextual elements of the education setting and taking into consideration various aspects of the pedagogical context. Laurillard (2013) further argues that the practice of teaching more broadly (but specifically

practices utilising technology) should be considered as a design science. What these arguments share is a notion that teaching with technology is a different paradigm of practice than has been evidence in a traditional higher education context. As such, it is reasonable to argue that these new design approaches in themselves constitute a distinctive form of practice requiring new and innovative methods of both design and delivery. We will thus assume this being the case and take learning design as the overarching (but not only) practice framework for the educational technology CoP.

In addition to the challenges posed by the use of educational technology in higher education, at the other end of the spectrum, there are also clear organisational implications. While it has traditionally been difficult to engage academics in professional development, given constraints on their time and the continued pre-eminence of research over teaching (Chalmers 2011), adding technology into the mix further complicates this problem for university leaders (Bates and Sangra 2011). For example, mandating the use of certain technologies in teaching is often met with resistance and derision by teaching academics (Shelton 2014). There are also complex implications for using educational technology on academic workloads (Gregory and Lodge 2015). A highly structured and hierarchical approach to implementing new technologies and approaches is thus not as effective as university leaders would hope. The evolving nature of both the technologies themselves and the design practices that are created using the technologies means that it is very difficult to mandate the use of certain tools or practices. By the time a technology or practice is implemented and embedded within an organisation, the technology and often the approach has already been superseded. Therein lies one danger of a technology-driven approach to enhancing practice and it remains a problematic reality for institutions.

An alternative and seemingly more effective roll-out of educational technologies in higher education has been via an approach described as 'bricolage' (Jones and Clark 2014). This approach is in contrast to the top-down, strategic approach to the implementation of educational technology common in university settings. Jones and Clark argue that the implementation process should occur at the level of actual practice, building on the affordances of the tools at hand in such a way as to privilege the context in which the practitioner finds themselves. While this may come across as somewhat reminiscent of Mao's hundred flowers campaign, given the constant evolution of available technologies and the lag in organisational responses to this process, it is a credible representation of the realities of attempting to effectively innovate practice using educational technology in higher education. The rapid pace of change and difficulty in developing coherent and timely strategy at an institutional level means that the use of educational technology lends itself to practice driven advancement over strategic implementation and control of technology.

While hundreds of educational technology practices may indeed bloom under the right organisational conditions, these practices also need to be disseminated and shared. One framework that has attempted to capture the type of learning that occurs in communities connected using new technologies is that of networked

learning (Goodyear 2004). The notion of networked learning has been around for some decades and has been intimately linked to design-based approaches to practice in various disciplines such as architecture (e.g. Alexander 1979). Siemens' (2005) idea of connectivism was an attempt to capture learning that is distributed geographically and temporally, but connected through the use of technologically mediated networks. Connectivism, in this case, applies to the sharing of practice and professional learning. The idea of networked learning, taken either from a design perspective or from that of connectivism, allows for understanding how new forms of practice can be developed and shared in CoPs that utilise information and communication technologies as their main medium of collaboration.

That much of the development of learning and practice occurs in a networked, technology-mediated environment suggests one of a number of important differences between the educational technology CoP and the more traditional notion of a CoP. As they were first envisaged, CoPs in higher education were often considered to be bounded within individual institutions (Wenger 1998). Although that is now less so and CoPs are emerging on the basis of specific areas of practice (e.g. work integrated learning, assessment, etc.), the educational technology CoP is more focussed on tools than most other examples of CoPs, for example, those reported elsewhere in this volume. This, however, is only one of a few important differences between this and other CoPs in higher education. The members of this community have a wide range of roles and are not bounded by disciplines, institutions or even nations. Furthermore, the community is large, amorphous and tolerant of members who barely or never engage through making any contribution to the community themselves. This is notwithstanding the argument made by Veletsianos and Navarrete (2012) that lurking in a networked environment can be seen as a legitimate form of participation. In other words, the community is very difficult to accurately define and map out because there are a large number of its members who simply lurk in the background, listening to the ongoing conversations without saying anything themselves.

The differences between this community and the more traditional notion of a CoP will be examined further in the analysis below. However, it is important to point out at this stage that the people engaged in innovation in higher education using educational technology may or may not consider themselves a community at all. In other words, there are fundamental questions about whether this group has any shared identity or notion that they are a collective. Costa's (2014) notion of digital habitus also reflects this complex mix of evolving ideas about what individual roles within these sorts of networks mean for the larger community. It is not uncommon for networked communities to be highly dynamic and for the roles of individuals to evolve within it. For the purpose of attempting a meaningful analysis of this group, it is assumed that the educational technology community is an actual community, even if it can only be loosely be defined as such. Again, we do not wish to oversimplify or otherwise ignore the inherent complexity of this community (as per Henderson 2015) but rather, we seek a lens through which to analyse and understand this complexity. If this community is the harbinger of what shared practice might look like in the future, we feel it is important to begin with this

assumption, but perhaps revisit the notion that this group is a community after discussing the analysis below.

While it is difficult to provide any real certainty that the educational technology CoP is a community, what is clear is that a more traditional CoP is unlikely to work for these practitioners. Given that the highly structured approach of enhancing teaching practice in institutions with educational technology is less effective than a more organic approach, a formal, structured approach to creating professional development networks is not particularly effective (see also Jones and Clark 2014). Before the rise of 'third space' professionals, much of the innovation in teaching practice in universities was conducted by 'champions' or 'lone rangers' (as described above). Usually these people were discipline academics situated within faculties or schools. In most cases, these people either worked alone or in small project teams. That tradition has largely continued, with third space staff either included in the project teams or brought into consult on different stages of the innovation process. Barac et al. (2013) provide one example of what such a collaboration looks like in practice. Innovation in the use of educational technology in higher education has therefore often been in relative isolation. Pockets of innovation have often occurred at the level of practice rather than via strategic imperatives at faculty or institutional level.

Given that innovation has often and still is occurring in an organic and dispersed manner utilising new tools and technologies, it is perhaps not surprising that the developers of these innovations sought to share their practice in non-traditional ways. Having said that, there are some traditional forums for the sharing of practice in this community. Professional organisations with a focus on educational technology in higher education have existed for many years. EDUCAUSE in the US, The Association for Learning Technology (ALT) in the UK and the Australasian Society for Computers in Learning in Tertiary Education (ascilite) in Australia are all examples of professional bodies focussed in the area of educational technology. Without doubt, these traditional forms of practice sharing have been important, as have been nationally funded grant schemes such as the Carrick/Australian Learning and Teaching Council/Office for Learning and Teaching grant schemes in Australia. These schemes have allowed for the investigation and development of innovative practice beyond the local-level champions and within-institution project teams. To claim that the educational technology community has not been well served by traditional channels for sharing practice would therefore be misleading. For the purpose of the analysis below, we are however going to focus more on the non-traditional means for sharing practice that have been adopted by this community.

The types of non-traditional means of connecting this community have often involved the use of the very technologies that are used in practice. For example, the micro-blogging social network site Twitter is often used as a means of sharing resources and practices in the community (Veletsianos 2011). Twitter is also a tool that has received some attention for its potential as a teaching tool (e.g. Kassens-Noor 2012). So while conferences, journals, funding schemes and professional bodies do play a significant role in this community, what makes it

interesting and unique is that the members of the community are often using the tools that they are implementing in their practice. Further than this though, the methods of communication and sharing speed up the networked learning that occurs throughout the community. Advances reported in the research literature, examples of effective practice, updates to tools and technologies or tips for enhancing practice can all be shared globally and instantly via social networks such as Twitter and Facebook, blogs, wikis, or via myriad other channels. It is perhaps this, more than any other feature of this CoP, that makes for an interesting example of what is possible and perhaps likely for future CoPs. The possibility of genuine networked learning has great potential for enhancing practice more efficiently than is possible through more traditional channels.

25.4 Analysis of the CoP

The analysis of the educational technology CoP will be via the framework based on Cox (2005), as described above. While this analysis is based primarily on evidence from the peer-reviewed literature, it is also partly based on the experiences of the authors of this chapter. While it is recognised that this creates a limited and somewhat subjective range of data to support any inferences made in this analysis, care has been taken to be as systematic as possible to describe trends apparent in the CoP and relate them to the framework. The resulting outcome of this analysis should therefore be treated as a stimulus for further investigation of this CoP, rather than an exhaustive investigation of its features and operational variables. The nature of the CoP is also evolving over time, making any such investigation more of a snapshot than extensive longitudinal analysis. As will be discussed further below, members of the CoP rise to prominence and fade into the background from time to time.

25.4.1 Concept of Community

As alluded to above, the concept of a community in the case of the group of people who are engaged in the use of education technology in higher education is difficult. If we are to attempt to consider the group as a whole, it is very difficult to define the community with any degree of precision. As per Costa (2014), there is great variability in the digital habitus of this group as is there some variation in their online social capital. There are many individuals engaged in this work globally, but not all are engaged in communicating in all the main channels (e.g. not all of the members of this group are on Twitter). The community is therefore variable in terms of membership, the roles in which members of the community inhabit and the communication channels used; a feature not uncommon for networks of this kind (Dron and Anderson 2009). However, examining the community by looking at the

constituent parts, the argument could be made that the larger community and the evolution of practice more broadly emerges from the activity of the underlying networks. In other words, the larger community is a network made up of smaller networks all interconnected using various information and communication technologies. The networks that make up the larger network include the groups that frequent certain conferences or certain social media sites or who have an interest in a specific tool or area of practice.

If it can be assumed that the educational technology community is a network of interconnected networks (as per Dron and Anderson 2009), it is then advantageous to consider the community systemically. In this case, the community evolves and adapts dynamically with the evolution of technologies, practices, roles, social capital and habitus. The community has come about and grown organically, it is not constrained by organisational or structural elements of the environment as other CoPs might be. Systemically then, it is possible that this network of networks could engage in a globalised form of connectivism as hypothesised by Siemens (2005). Should this be the case, there are several implications. The first is that the system is unlikely to comply with any form of artificial constraint. Based on the arguments made by Jones and Clark (2014), it is reasonable to expect that a larger form of systemic and strategic control over this community would be as unsuccessful as attempts to apply such control at an institutional level. Secondly, capturing the state of the art is going to be problematic and become even more so over time. If best practice is an emergent property of the network of networks of people engaged in practice (as would be suggested by connectivism), any snapshot can only capture the fleeting state of the community at a particular point in time. Emergent phenomena are notoriously difficult to capture and so may it be with the type of practice that is shared within this community.

A final consideration when examining the concept of community amongst this group is the somewhat interesting paradox between the observation that the community seems often reluctant to define themselves as a community, but at the same time is fiercely protective of its members and suspicious of outsiders with different views about technologies or approaches (e.g. Selwyn 2015). This may also speak to constantly shifting power and status within the community, an issue we will revisit in our analysis. While there might be no agreed definition or identity in the community of practitioners in educational technology, there does seem to be a clear sense about what ideas and concepts do not fit within community. That being the case, there is probably sufficient shared understanding within the community to suggest that there is a shared identity, even if it is underpinned by what is not part of the community more than what is.

25.4.2   View of Learning

A shared view of learning in the educational technology community is particularly problematic for several reasons. Firstly, as described above, there is great diversity

within this community in terms of job roles, qualifications and disciplinary backgrounds. Just amongst those in academic positions within the community, the disciplinary tribes range from education to psychology to computer science to sociology to engineering. Each draws on different epistemological foundations and is thus likely to inhabit different roles and interact in different ways as a result of the ways of being that they bring to the community through their disciplinary identities. Particularly across the various branches of the social sciences, there are basic disagreements about what learning is and how we should go about investigating it. This is aside from the even more fundamental issue that just within disciplines, for example psychology, there is disagreement about whether learning should primarily be considered as a process or an output (de Houwer et al. 2013).

One particular issue that is difficult to reconcile within this community is that there are different career pathways that bring various members of the CoP to it. While some have strong academic teaching and/or research backgrounds, others have come from a design or development background. The latter group is usually strong in terms of their capacity for operational aspects of practice in higher education, but may not necessarily have the level of theoretical or higher level PK required. There is a possibility that the difference between the more theoretical, scholarly approach of academics and the competencies and operational focus of third space professionals could lead to misunderstandings and tension. The complexity of the tasks required to effectively design and deliver higher education utilising educational technology mean that all parties involved require an appreciation of the knowledge and skills that other parties bring to the project. When such different views of learning exist within such a large community, it is not hard to imagine that there is some confusion about how best to help students achieve the desired learning outcomes.

Without a shared conceptualisation of learning, this community may not achieve the kind of enhancements of practice that it promises. However, if the different views of those within the community can come to be seen as an advantage rather than a challenge, there is potential to develop a far more complete and powerful view of learning. Much like the endeavour being undertaken by the disparate disciplines that make up learning sciences, finding commonalities and methods for translating work across the different epistemologies of learning may actually be a strength of this community.

25.4.3 Power and Conflict

For the most part, the educational technology community would appear to share common goals and not engage in divisive or hostile behaviour. This is particularly so when comparing the actions of this group with those of other technology-centred communities such as those involved in video games (for example, see the 'gamergate' phenomenon). That is not to say that there has not been discussion about inequalities within this community. Watters (2014) for example, has

commented on the gender inequalities evident in the educational technology community. The established academic hierarchies also come into play here. The completion of a PhD, for example, is still widely accepted as a marker of higher status within the group. Paradoxically, the obtaining of formal qualifications in educational technology is not apparently important (Lodge and Lewis 2015). These examples suggest that there is unequal distribution of power within the community that sadly reflects out-dated notions of the worth of individual contributions.

In terms of leadership of the community, given its organic nature, it can be difficult to determine what shape any formal or informal leadership takes. Due to its amorphous nature, emphasis can simply be given to those with the loudest voices or those who are more adept at self-promotion. Costa (2014) suggests that online social capital can lead some individuals to have significantly greater influence in digital environments and communities of this kind without necessarily having any legitimacy to do so. This inequity of social capital carries particular risks in that the loudest voices are not necessarily the best informed. There are undoubtedly highly regarded and very experienced scholars in this community, but not all of them contribute to the meta-narrative that exists across the multiple channels that connect the community. For example, there are a number of eminent professors engaged actively with the educational technology community on Twitter, but many others who either are not on Twitter at all or who communicate very little or at all in the medium. Attention in this community, given the innovative channels by which it is bound together, can take many forms and may not necessarily reflect any legitimate claim to expertise about the practices that form the content of interest for the community. As such, leadership of the community is uncertain and power could be granted to parties that in more formal networks might never have been.

At the level of actual practice, there is some evidence of conflict arising from the differences in interpretations and disciplinary ways of understanding within the group as discussed above. Effective practice with educational technology is requiring greater blurring of practice boundaries. The emerging field of learning analytics is an example of where this is most evident. Educational researchers, computer scientists, professional staff and people from a variety of other backgrounds have all contributed to the development of the field. While the common interest of this sub-community has led to it being relatively harmonious, that is not to say that there has not been vigorous scholarly friction (e.g. Lodge and Lewis 2012). Conflict within the group tends to be centred more on levels of digital literacy, which has become a proxy for social capital within the community (as per Bourdieu 1986). Those with lower levels of literacy in the digital domain or who have skeptical attitudes towards the use of technology in higher education are referred to as 'Luddites' or worse. So while there seems to be some cohesion within this community, battle lines are drawn from time to time in relation to specific tools or technologies or via the apparent dichotomy between technophiles and luddites.

25.4.4   Change

As discussed above, the educational technology community is in an almost constant state of change. This is seemingly due to the constant evolution of technologies and associated practices, but there are other factors that contribute to this constant state of flux also. Members of the community are in high demand given the imperative for universities to adapt to the new knowledge reality described at the beginning of this chapter. In addition to their own individual habitus undergoing evolution, as members inhabit new and different roles within the community, it is common to see high levels of churn throughout the sector globally with both professional and academic staff moving between institutions at national and international levels on a regular basis. As the employment duties and focus of members of the community change, so does their involvement both at the level of crude engagement but also in terms of how they engage and what nature that engagement takes. With such large migration of members of the community, this is likely to affect the community far beyond the habitus of individual members.

Another interesting change process, aside from the fluctuations in practice and in community membership, is that the methods by which the community is connected also change and morph over time. This is partly driven by trends in information and communication technologies broadly, but also through the perceived affordances of the available tools. Wenger et al. (2009) outlined how technologies have and will continue to change the nature of communities of practice. This community is perhaps prototypical of exactly those changes given their proximity and familiarity with the tools of change in their own practice. These changes can be subtle or more akin to tectonic shifts. Where once blogging was one of the predominant forms of communication in the educational technology community, it is now common for micro-blogging and other social media sites to supplement the use of blogs. In this regard, several channels then point to various parts of a larger conversation about practice or technologies that might include links to research articles, blog posts or other resources available online. These complex sets of connections also adapt to the needs of members of the community and with the ebbs and flows of trends in technology more broadly. In other words, the content, membership and means of connection are all in a constant state of flux meaning change is a constant and perhaps defining characteristic of this community. Again, this is a trend that has also been captured in Costa's (2014) notion of digital habitus.

25.4.5   Formality/Informality

The educational technology community is predominantly informal in nature. This is partly due to the complex network of sub-networks within the community and the complex ways in which it is connected. Dron and Anderson (2009) make a particularly compelling case that these are common and perhaps necessary features of

networks of this type. Henderson (2015) also emphasised the messy and complex nature of communities of practice that deal with educational technology. While there are elements of the community that are formally structured, such as the professional bodies, conferences, etc., the larger community is far less so. It is therefore logical to conclude that the community is predominantly informal and complex in nature, which, as shall be discussed further in the implications section, brings with it both advantages and disadvantages.

25.4.6   Diversity

Conventional values of diversity appear to be upheld for the most part within the educational technology community. The vast range of roles and disciplinary backgrounds speak to the high level of diversity in the community. There appears to be not only tolerance, but also a necessity of different views and habitus being brought to the community for it to continue to evolve. It is also worth noting that diversity of opinion can result in conflict. As alluded to above, a clear demarcation appears to exist between techno-positivists and techno-skeptics, as well as quite fundamental disagreements based on disciplinary differences in notions of learning and design. Selwyn's (2015) description of his experiences at conferences most clearly demonstrates this diversity of opinion. Aside from this, the issues of gender inequality raised by Watters (2014) in particular suggest that acceptance of diversity may not extend beyond that of different habitus and ontology. As such, the actual acceptance of diversity in this community could be questioned on several fronts, some of which are clearly abhorrent, but others might be necessary for the ongoing evolution of the community and enhancement of practice.

25.4.7   Summary of Analysis

The analysis of the educational technology community utilizing the framework developed by Cox (2005) suggests that this CoP differs in many ways from the standard notion of a CoP as described in the literature to date (see Tight 2015). Much of this divergence can be explained by the amorphous nature of the community and through the fact that it is a networked community of practice (CoP). The use of information and communication technologies in innovative ways that reflect how they might be used in practice creates a complex and fluid community. The implications of the differences between this and other CoPs will be discussed further as part of the coverage of the implications of this analysis.

25.5 Implications

The analysis presented in this chapter leads to several conclusions about the ways in which the educational technology community can and cannot be described as a CoP as they have been described and theorized about to date. The analysis also raises many questions about whether or not this community exhibits the kind of connectivist learning hypothesized by Siemens (2005) and whether or not it makes for a viable model for future CoPs as alluded to by Wenger et al. (2009). Differences in structure, methods via which the community is linked up and how the community defines itself are all important divergences between this community and the types of CoPs that have been described elsewhere in this volume and in other places within the literature. The form of digital habitus that individuals bring to this community, largely freed from institutional constraint, also makes this community particularly complex, dynamic and possibly prone to conflict. The analysis presented here not only fails to answer the question about this being fairly described as a CoP, but without any real shared identity, the question about whether this group can be legitimately considered to be a community also remains unanswered. Despite the features that that clearly delineate this community from other CoPs, one important aspect remains true. The central focus of this community is the sharing and enhancement of practice and for that reason alone it deserves to be considered as a legitimate, though large and unorthodox, CoP.

There are many obvious advantages of the educational technology CoP. Amongst these are that the CoP can adapt quickly to changes in practice and to the types of tools that become available over time. This is most likely due to the high levels of digital literacy of the membership of the community as well as its informal structure and modes of connection. This interaction is further reinforced as many of the tools that the community use to stay connected are the same tools that form part of the practice of educational technology. A further advantage is gained through this evolving nature of the community; it is for the most part self-sustaining. While the informal and organic structure makes the CoP resistant to any form of overarching control, the ground up nature of the CoP also means it is resistant to strategic and managerial fads and is possibly seen as a safe place for sharing practice removed from high level interference. This aligns with the notion of bricolage as an effective approach to innovation in educational technology practice (Jones and Clark 2014).

As for the apparent disadvantages of the structure and operation of the educational technology community, power, conflict and diversity are ongoing issues. There is some apparent disagreement particularly on grounds of hype versus scepticism. Not all members of the community are fully supportive and open to the possibilities of increased technology use in higher education. Sceptical attitudes however are not always tolerated. Further to these issues, there is no moderation or formal method for moving the community forward and this may provide some scope for the community to be nimble in response to changes in technology and practice, it may also lead to the meta-narrative of the community becoming lost or

misguided. This is a particular risk in this community as leadership is not determined via legitimacy or quantifiable expertise. In many respects, aside from the diversity issues, the factors that could perhaps be considers the strengths of this community are also seemingly the factors that provide the greatest level of risk.

Setting aside the advantages and disadvantages of the ways in which the educational technology community operates, it is important to consider the impact the community has. It is difficult to determine what level of influence the educational technology CoP has on practice in higher education broadly. The impact of educational technology in the student experience is, in itself, difficult to gauge let alone the impact that a community might have whose members have at best distal influence over what actually happens in physical or virtual classes. The best indicator of the impact this community has might very well be through the aspects of the community that remain formal. The number of research and development projects that have been published in the peer reviewed literature and have been successful in attracting funding is one such indicator. Broadly, although student evaluations are problematic for many reasons (see Lodge and Bosanquet 2014), there is evidence that students are becoming more satisfied with their experiences at university (e.g. Baik et al. 2015). Again, while the educational technology CoP might not be able to take direct credit for this trend, it may have contributed. The possible impact that this community has on practice provides fertile ground for future work examining this community.

25.6 Conclusions

One of the main questions we began this chapter with was whether the educational technology community provides a viable model for future CoPs. The most obvious way in which it does is through the tools the community uses to stay connected. Social media and other forms of digital technology provide the main means through which the community stays up to date and shares practice. This is undoubtedly going to be a feature of CoPs in the future. Beyond that, however, there are other features of the community that could be harbingers of CoPs to come. The organic and ground up nature of the community provides an interesting and critical counterpoint to the more strategic and controlled nature of the CoPs described in earlier literature on CoPs. Similar to the way in which distributed leadership models (see Jones et al. 2012) are endemic of a rethinking of the means by which the administration of universities is conducted, ground-up communities of practice place more emphasis on the people who are closest to the site of practice. This makes sense, particularly as the rate of change in both educational technologies and associated practices is not likely to slow. Fast, nimble approaches to enhancing practice are likely to be more effective than strategic, policy driven mechanisms. For this reason, the CoP that is the educational technology community provides a solid model for how such a nimble approach to networked professional development might occur.

The aim of this chapter was to consider the CoP of people engaged in the research, development and implementation of educational technologies in higher education globally. We wanted to both introduce this community to a wider audience as a possible precursor of CoPs of the future and consider the features of this CoP to provide a foundation for further work in the future. Our analysis was experiential in nature in that it relied predominantly on the experiences of the authors of this chapter. We hope that our analysis provides sufficient grounding for future quantitative and qualitative examination of the CoP. As higher education continues to change and evolve in response to the new information environment that now exists, it will be important to consider how traditional practice sharing and professional development can also adapt to this new reality. The type of networked, organic and informal community that has developed around the use of educational technology in higher education provides a viable model for how these processes might work effectively in years to come.

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Chapter 26
International Collaborative Writing Groups as Communities of Practice

Kelly E. Matthews, Beth Marquis and Mick Healey

Abstract Shared learning is central to communities of practice (CoP) which engender a process for social learning. CoP increasingly are being adopted in higher education as a professional development strategy to engage academics ('faculty' in North America) in capacity building activities. An International Collaborative Writing Group (ICWG) initiative was implemented in 2012, in association with the International Society for the Scholarship of Teaching and Learning, to build participants' writing capacity and contribute new insight into scholarly teaching. Although not framed a priori as CoP, research from participants suggested that a sense of community, shared learning, and group leadership were central to the perceived success of, or disappointment with, the ICWG initiative. CoP emerged as a theoretical lens to illuminate how the practices of the 2012 ICWG initiative fostered participants' sense of community. We draw on the three interrelated aspects of CoP: the *domain-practice-community* framework; the *nurtured higher education CoP* stages of development model; and the notion of *digital habitats*. The application of CoP theory to the ICWG practice proved fruitful by revealing strategies to enhance the ICWG model and contributing insights to CoP theories in higher education contexts.

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26.1   Introduction

26.1.1   *Context*

Engaging students in high quality learning experiences occupies the minds of many of us working in higher education. There is general consensus that a scholarly, learning-centred approach to teaching is entwined with rich student learning. Engaging academics ('faculty' in the North American context) in professional development activities that build, nurture, and sustain effective teaching and learning practices is challenging, particularly given that in many higher education institutions research is favoured and rewarded above other competing demands (e.g. teaching, service). "One of the key ways in which to engage colleagues in their development as critical and reflective teachers, in a way that goes beyond the hints and tips they may need at the beginning of their teaching careers, is…to stimulate their intellectual curiosity.… The asking of questions is at the heart of intellectual curiosity and engaging staff in the Scholarship of Teaching and Learning (SoTL)" (Breslow et al. 2004). Identified as one of the fastest growing teaching development movements in higher education (Gibbs 2013), SoTL engages academics in a process of inquiry focused on their teaching practice, in their discipline context, predicated on evidence-based approaches intended to mirror research practices as a means to build teaching capacity (Healey 2000). The idea of SoTL extends beyond individual capacity building with an emphasis on making teaching public through seminars, conference presentations, and peer-reviewed publication (Hutchings et al. 2011). Publishing in SoTL presents challenges for many scholars, including the unfamiliar methodologies sometimes distant from disciplinary practices and the isolation experienced by many academics as lone SoTL practitioners in their disciplines (Hutchings et al. 2011).

Faculty learning communities and collaborative SoTL projects, which build a sense of community and shared purpose, have become key strategies for advancing SoTL (Cox and Richlin 2004; Hubball et al. 2010). Similar to disciplinary research, SoTL engenders collaboration and collegiality, with successful SoTL models drawing on the essential role of both formal and informal social learning in advancing teaching and learning (Mårtensson et al. 2011; Hubball et al. 2010). Similarly, academic writing groups leverage notions of community to develop publishing capacity (Galligan et al. 2003). The aim of this chapter is to explore an International Collaborative Writing Groups (ICWG) initiative, described in Box 26.1, through the lens of communities of practice (CoP) to contribute insights into both practical and theoretical understanding of CoP in higher education.

**Box 26.1 The aims of theICWG and overview ofprocess
International Collaborative Writing Group Initiative 2012**

The ICWG initiative was designed to achieve two main aims:

- To build the capacity of participants to work on and write about SoTL in international collaborative groups.
- To make a contribution to the literature on relevant SoTL topics, informed by international perspectives, via a special issue of *Teaching and Learning Inquiry: The ISSOTL Journal.*

The writing groups worked at a distance over a year-long period with a key part of the process being a 2-day residential event prior to the commencement of the ISSOTL conference in Hamilton, Canada, in October 2012.

We first outline the ICWG initiative as it occurred in 2012 before describing the initiative in terms of the interrelated elements of *domain, practice* and *community* typical of CoP. We then draw on the *nurtured in higher education CoP* stages of development and the notion of *digital habitats* to reflect on the ICWG before elucidating implications for collaborative writing groups as CoP.

26.1.2 International Collaborative Writing Groups

The three authors, Matthews, Marquis, and Healey, participated in the 2012 ICWG initiative and are involved in the second ICWG initiative in 2015. Marquis and Healey provided overall leadership for all the writing groups in the 2012 initiative, working initially with Sue Vajoczki as a third ICWG organiser (who passed away due to illness in 2011). Matthews was one of nine writing group facilitators in 2012. Matthews and Healey are leading the 2015 initiative and Marquis is one of the eight group facilitators.

Background The model of the ICWG was based on one developed by the International Network for Learning and Teaching (INLT) in Geography Higher Education, which had been applied successfully on four previous occasions, each of which led to sets of articles being published in the *Journal of Geography in Higher Education* (Hay et al. 2000; Healey 2006; Pawson 2008; Solem 2011).

Activities The writing groups were mainly located online and interacted within their groups. Prior to the 2-day conference, each group uploaded a 2000-word document which represented the only formal online activity shared across all participants. Several tasks with deadlines provided a timeline that framed the activities of the writing groups. These were outlined by Healey and Marquis, and included:

- *April 2012* Group facilitators to initiate contact with members;
- *August 2012* Each group posts a 2000-word summary of progress to eLearning management system;

- *September 2012* Each participant gives feedback on two of the summaries from other groups via the eLearning management system;
- *October 2012* Two-day workshop prior to the ISSOTL conference;
- *January 2013* Submission deadline for manuscripts;
- *January–March 2013* Peer review following *Teaching & Learning Inquiry*'s review process;
- *April 2013* Reviews returned;
- *May 2013* Final revisions due;
- *September 2013* Special issue published.

Structure Related to Leadership Figure 26.1 visualises the overall structure with nine writing groups each comprising seven to eight members including at least one student, a diverse range of academics or staff, and a group facilitator. As Fig. 26.1 suggests, Marquis and Healey took responsibility for the overall leadership. They instigated and coordinated the process, set timelines for completion of tasks, facilitated the 2-day workshop, provided feedback on draft submitted manuscripts, and edited the special issue. Marquis and Healey liaised mostly via email with group facilitators who then communicated with their writing groups. It was left to the individual group facilitators to determine how they wished to run their groups.

Writing Group Facilitators and Topics Marquis and Healey invited people to act as facilitators for a writing group. They approached colleagues who they believed had the ability to lead and encourage participants to write collaboratively and complete the articles on time. The emphasis was on effective leadership in the collaborative context of group writing including such criteria as facilitation skills, knowledge of relevant literature, and experience with related activities. Across the
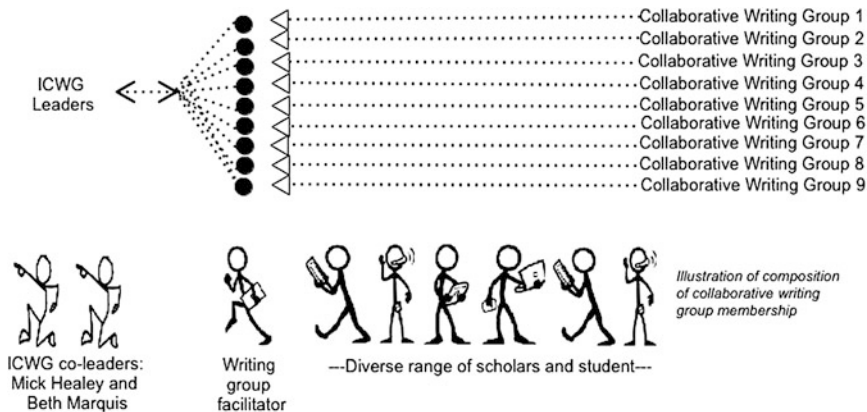

Fig. 26.1 The structure of the nine writing groups

nine facilitators consideration was given to inviting a range of people from several countries and disciplinary backgrounds. They approached potential facilitators individually with all but one being keen to participate. Of the nine selected facilitators, one withdrew part way through the process in the transition to a new job. Healey and Marquis approached a member of their group to take over the leadership.

The topics were decided in consultation with the writing facilitators and were kept deliberately broad to attract interest from a diverse range of participants and to allow the groups to shape the work in ways that suited them. They were organised into two loose themes and were described on the ISSOTL 2012 conference website as follows.

The Practice of SOTL. International *perspectives on an aspect of*:

1. Embedding SOTL into institutional cultures.
2. SOTL in an age of accountability.
3. Academic identity of SOTL practitioners.
4. Students as change agents through SOTL.

The Scholarship of Academic Practices. International perspectives on an aspect of:

1. Scholarship of academic leadership.
2. *Inquiry-based learning* Disciplinary practices and institutional embedding.
3. *Teaching and learning about ethics* Disciplinary practices and institutional embedding.
4. The student experience of their degree level program.
5. Scholarship of educational/faculty/academic development.

Writing Group Membership The ICWG were open to students, academics, and staff interested in SoTL who registered a desire to participate through an online form. Interested scholars provided a brief statement on how they would benefit from participation and what they could contribute along with indicating preference for a writing group based on the listed topics and providing some demographic data (e.g. status as student; years of SoTL experience; institution). The application process was linked to the ISSOTL 2012 conference website and closed in February 2012. Although interested scholars applied online prior to conference registration opening, it was expected that writing group participants would also attend the ISSOTL conference and would pay a nominal ICWG fee ($\sim$325USD) along with the conference registration fee. Nine subsidized places were offered to full-time students.

Selection of group participants was based on the intention for each group to include at least one student member and be comprised of members from diverse disciplines, different countries, and with varying levels of experience in SoTL. The co-leaders of the ICWG selected participants and assigned them to groups, based on these criteria and on potential participants' stated group preferences.

Participants A total of 135 people applied to join a writing group and, including the nine group facilitators, 72 people were initially involved. A handful of people dropped out near the beginning, usually because of issues with funding, and were replaced where possible. Ultimately, 69 people, representing 14 (predominantly 'western') countries (e.g. Australia, Belgium, Canada, Hungary, New Zealand, Norway, Singapore, South Africa, Sweden, Trinidad and Tobago, United Kingdom, United States of America) and a wide variety of disciplines and levels of experience, met in Hamilton, Canada prior to the ISSOTL conference and participated in the 2012 ICWG.

Outcomes Eight papers passed successfully through the *Teaching and Learning Inquiry* review process and were included in a special issue of the journal (Healey and Marquis 2013). A mixed methods research study on the efficacy of the ICWG initiative found participants were highly satisfied, indicating mean values above 4.0 on five-point Likert prompts (with five being the highest level of agreement). Overall, 2012 ICWG participants valued the publication (the *product*) as well as the *process* of collaborative writing across contexts, disciplines, and hemispheres with many groups reporting continuing collaborations (Marquis et al. 2014). Leadership emerged as a key factor in participants' satisfaction with the writing groups and an important element in the success of the ICWG as a capacity-building activity (Marquis et al. 2014).

Another analysis of the data focused on factors that impinged upon the efficacy of the ICWG initiative as a means to foster international, collaborative SoTL. This revealed four dominant themes: modes of collaboration, opportunities for social dialogue, developing a shared vision and voice, and leadership (Marquis et al. 2016). The majority of participants recognised the positive leadership within their writing groups as contributing to the achievement of the ICWG aims. Two participants expressed dissatisfaction with the experience related to perceptions of poor leadership.

Leadership A follow up study was conducted in order to investigate leadership in the ICWG context through the use of an online survey. Thematic analysis of open-ended comments from 30 participants, including members and group facilitators, indicated effective leaders introduced relevant literature, encouraged participation, allowed others to lead, managed timelines and tasks, and delegated responsibilities (Marquis et al. 2015). The authors concluded that distributed approaches, combined with transactional elements, underpinned participants' perspective of effective leadership within their groups. In regards to the research into the ICWG, leadership was discussed largely in terms of individual groups, highlighting the role of the group facilitator as the leader. Analysis pointed toward participants' views of what constituted effective group leadership: "achieving a

balance between creating space for multiple perspectives and developing a shared, cohesive vision for the work as a whole" (Marquis et al. 2016).

Emergence of CoP The ICWG initiative resonates with the definition of CoP: "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al. 2002) despite the fact that CoP were not explicit in the design or implementation of the ICWG. The sense of belonging, capacity building in writing about SoTL, and shared learning that were highlighted in participants' feedback on the 2012 ICWG pointed toward the process of co-authoring being a positive experience that nurtured collaboration. Two key questions arise: 'Were the ICWG, as a whole, a community of practice?' and 'Did the individual writing groups act as CoP?'

26.2 Applying the Lens of Communities of Practice (CoP)

Shared learning is central to CoP, which engender a process for social learning (Wenger et al. 2009). There is significant diversity in CoP and the first step for this critical reflection is recognising the CoP in the ICWG initiative. In *Cultivating CoP*, Wenger et al. (2002, pp. 24–27) outline several spectra to demonstrate the diversity of CoP, which we have applied to the ICWG and displayed in Table 26.1. As CoP, the writing groups in the ICWG were small in numbers and bound by a fixed timeframe with a set of intentional aims that were broad enough to encompass

Table 26.1 ICWG described across several CoP spectra

CoP spectrum	ICWG as CoP
Small or big	Big at level of ICWG initiative: the overall initiative involved 69 people
	Small at level of writing groups: each writing group comprised no more than eight members
Long-lived or short-lived	Short-lived: participation in the writing groups involved a year-long commitment (though some groups have continued to collaborate subsequently)
Colocated or distributed	Distributed: participants came from 14 countries that covered many time zones and both hemispheres
Homogenous or heterogeneous	Heterogeneous: participants were selected to optimise diversity of disciplinary background and experience with SoTL, and to encompass both student and academic perspectives
Inside or across boundaries	Across boundaries: participants crossed boundaries of higher education organisations
Spontaneous or intentional	Intentional: started as an intentional, structured effort with two clear aims and involved selection of participants
Unrecognised or institutionalised	Unrecognised: affiliated with the ISSoTL but not a part of its organisational structure nor participants' academics structures

individual goals. Membership was distributed across locations, institutions, and hemispheres, and included people with varying experience in SoTL.

What underpins all CoP are a structure of three overlapping elements: *domain, community*, and *practice*. These elements provide a common language with which to discuss and promote CoP as a legitimate activity and thus are useful as more than a theoretical exercise. Attending to these three elements in establishing CoP ensures a 'well-rounded community' (Wenger et al. 2002). This allows theory to inform the development of CoP or to be applied to an existing practice to consider the presence of CoP.

26.2.1 Domain

The shared *domain* of interest motivating participants in the writing groups was the SoTL, which represented the "common ground and a sense of identity" for writing group participants (Wenger et al. 2002, p. 28). The shared domain of SoTL in the ICWG created the "sense of accountability to a body of knowledge" which distinguishes a group of friends from a community (Wenger et al. 2002, p. 29). As an already established domain of practice, SoTL as the domain was easy to identify and facilitated the bringing together of those with some sense of SoTL identity or interest in SoTL. Research from 2012 writing group members indicated that participation not only contributed to the development of their SoTL writing skills, but also deepened their identities as SoTL practitioners (Marquis et al. 2014). As one of the papers to come out of the initiative eloquently described the process of developing a SoTL identity, for many people, is "troublesome in one way or another, giving rise to conflicts, discomfort, risk-taking, and transformative and integrative experiences" (Simmons et al. 2013, p. 16).

26.2.2 Community

The *community* or "social fabric of learning" was situated around the task of co-authoring a manuscript (Wenger et al. 2002, p. 28). Central to community are "interactions and relationships based on mutual respect and trust" that are entwined with members feeling a sense of belonging in an intellectual learning process (Wenger et al. 2002, p. 28). The 2012 ICWG research continually revealed themes of community as being central to participants' experiences. It was anticipated by the 2012 ICWG co-leaders that co-authoring would leverage collegiality and intellectual engagement amongst participants that led to a sense of community. Accordingly, many participants indicated that the collaborative nature of co-writing fostered a sense of belonging to the writing group (Marquis et al. 2014). However, there was also the potential that students and others new to SoTL would be at risk of isolation, as they might not have the academic experience of co-authoring or SoTL

publishing. The research showed this was not the case, with one student comment highlighting the role of community to their experience:

> I think back to what you had mentioned at the beginning, that sense of belonging. It wasn't something that I had expected; I expected to feel a part of the group but not to the extent that actually happened, which was very nice. (Marquis et al. 2014, p. 11)

The sense of community appeared to be linked, in the minds of participants, to regular and ongoing interactions, although it was the face-to-face activities that solidified trust and community, as one participant expressed:

> I do believe [the dinner] was the kick off to our bonding. We bonded very quickly and very richly, and it is not to say that we didn't have that creative disagreement […]. We had that throughout, maybe even more impassioned because we trusted each other to disagree more. (Marquis et al. 2016).

Modes of communication emerged as either inhibiting or fostering participants' sense of belonging to their writing groups (Marquis et al. 2016). The blended communication format of the ICWG lends itself to Wenger and colleagues' notion of digital habitats (Wenger et al. 2009). This will be explored in more depth later but is mentioned here because it relates to community and overlaps with practice.

26.2.3 Practice

The shared *practice* of the ICWG was developing skills in SoTL writing and contributing new knowledge via published articles. This process united participants in an endeavour to advance international perspectives on SoTL across a range of topics. Thus, the practice aligns with the stated aims of the ICWG. The writing groups shared "ideas, tools, information, styles, languages, stories, and documents" appropriate to academic standards for publishing and relevant to their specific topic (Wenger et al. 2002, p. 28). The exploration of existing knowledge within SoTL from international perspectives to contribute new insights is particularly salient with the notion of practice (Wenger et al. 2002).

26.2.4 Determining if the Writing Groups Were CoP

Articulating the ICWG across the seven spectra, displayed in Table 26.1, allowed the ICWG to be considered and characterised as CoP. The three elements (domain-community-practice) of CoP were easily identified in the ICWG initiative giving further indication that the writing groups were CoP. Indeed, the process of co-authoring has explicitly been discussed in the context of online or blended CoP, as Wenger et al. (2009) note that genuine community learning involves the interplay between participation and the creation of artefacts. In a sense, the *product* of a

publication drove the co-authoring *process* that enabled ongoing shared learning in the ISSOTL 2012 ICWG model.

The ongoing interactions of co-authoring that fostered the sense of belonging and capacity building that participants reported were situated mainly at the level of the writing groups. While there were some activities that involved all the 2012 participants (e.g. workshop, online commenting on group outlines), there were no consistent or ongoing interactions of all 2012 ICWG participants. Thus, we surmise the writing groups were the central CoP. The question arises: were the writing groups simply well performing teams able to complete a task or were they CoP?

As Wenger et al. (2002) suggest, not all communities are CoP as they represent knowledge structures as distinct from a 'community' and from 'practice'. The focus on a product, as was visible with the ICWG aim to produce a publication, might be seen to lend itself toward a functional, business model with people relating on a level of completing tasks via project management approaches. Indeed, the data collected around leadership within the groups suggested a transactional aspect of leadership was important (Marquis et al. 2015). The explicit focus on the product in the ICWG was intentional, with the rationale being that research has become the dominant academic activity as research outputs are rewarded in hiring, tenure, and promotion activities according to early career academic perceptions, including students, of those entering the profession (Matthews et al. 2014). So, to engage participants with multiple priorities, the ICWG model optimised the underlying scholarly principle of inquiry and publication with an outcome orientation that was more explicit in the design and public promotion of the ICWG than the process orientation typical of CoP initiated in many higher education contexts. However, Healey and Marquis had also anticipated the beneficial process outcomes that arise in effective collaborative writing situations and research from 2012 ICWG participants indicated that such outcomes were indeed experienced (Marquis et al. 2014). Although the ICWG could have easily become a project managed task to produce a publication, the evidence points toward the formation of CoP in the writing groups predicated on shared learning and knowledge construction with many participants indicating plans for ongoing collaborative writing after the formal completion of the ICWG initiative. Nonetheless, the shared learning could still resonate with a well-functioning team.

26.2.5 *Effective Team Leadership or CoP?*

Wenger et al. (2002) differentiate a team from a CoP based on the domain. They distinguish a task to be achieved from a domain that rests within a territory characterised by members who are invested in their domain. In this sense, the domain of SoTL and members' investment in legitimising teaching as serious academic business indicates a CoP instead of well-functioning teams drafting an article. The effective leadership described by participants did not resonate with a 'team leader' approach. Although the data showed elements of transactional leadership, it was

combined with leadership approaches that opened the floor for participants to have a voice and set the direction of the group. A salient comment from a group member demonstrates the balancing act between transactional and direction-setting leadership.

> One of the things that kind of led our distribution of effort was our decision about authorship. So we discussed at the table who could benefit most from being first author, and that individual was asked if s/he would be willing to kind of be the lead and coordinator. S/he is now our group leader, and is going to coordinate efforts, and then we divided our paper content by section, and people identified sections they were interested in working on. (Marquis et al. 2016)

As Wenger et al. (2002, p. 43) state, it is common for CoP to have tasks and goals as part of their practice; however, the "community coordinator does not 'lead' the community in the traditional sense, but brings people together and enables the community to find its direction". The ICWG started with group facilitators selected by Healey, Marquis and Vajoczki and in a 'team leader' model it would be expected that if leadership shifted, then they would also be responsible for that change. However, the ICWG worked on a group level through negotiated processes as CoP that set their own direction. This provides further evidence of the ICWG being CoP.

In reflecting upon the ICWG as CoP in the sense of domain, community, and practice, we are convinced that each writing group represented a CoP with data from participants also indicating many experienced a sense of community and shared learning. However, the ICWG were not explicitly framed as CoP nor were they explicitly promoted primarily as a process of shared learning and knowledge construction. Would every writing group member in the 2012 initiative agree they were in a CoP? The answer is no. As one group facilitator pointed out, "A couple of members, I suspect, gained little as their motivations tended toward the more extrinsic; regardless, they contributed" (Marquis et al. 2016). There were varying levels of participation within groups and individual motivations differed. It is not clear how the explicit focus on publication contributed to some participants adopting an 'extrinsic' or 'performative' approach.

This reflection highlights that the ICWG enabled experiential activity that encompasses the goals of both the process and product orientated. This should be considered in regards to the ongoing sustainability of the model. Future iterations must continue to recognise and perhaps highlight further the value proposition of 'belonging to a community' and 'shared learning' to nurture the process, whilst setting a goal oriented toward a product of value in the higher education context.

26.2.6 *Role of the Writing Group Facilitators*

Marquis et al. (2014) identified the essential role of the group facilitators given that leadership factors were identified by participants as central to their experience.

> An essential consideration, then, is the selection of group leaders. Inviting seasoned and/or especially promising mentors to fill these roles, as we endeavored to do in this case, is key. (Marquis et al. 2014, p. 20)

The extensive experience of Healey, Marquis and Vajoczki working in SoTL and academic development contributed to their implicit understanding of the qualities required for effective group leaders. The facilitators they selected all worked with groups that completed the task and achieved a quality manuscript that was published following a blind peer-review process. Two group facilitator Skype sessions were organised to allow for sharing amongst this group but otherwise little contact occurred at the level of the facilitators as a group or a community of practice. The one writing group where the leader shifted jobs and left the ICWG altogether was the only group to not achieve the task. The late appointment of the individual may have contributed among other factors to this outcome.

This highlights an issue for ICWG as an ongoing model. Selecting effective group facilitators is clearly important. While Healey and Marquis were deliberate in selecting writing group facilitators, both observed a lack of confidence amongst many of the facilitators and a sense of anxiety attached to leading a group of 'strangers' in a collaborative writing process. Even 'seasoned' peers who facilitated the groups sought guidance from Healey and wanted to share their facilitator experience with other facilitators during the process. It was this request that led to the second facilitator Skype session that followed the 2-day workshop. Given this experience, it may be appropriate to consider further fostering and supporting a community of practice amongst writing group facilitators for future versions of the ICWG.

Given the overlap of the 2012 ICWG *in practice* with CoP *in theory*, it is unsurprising that the CoP literature addresses the issue of leadership and facilitation for CoP and provides a framework for explicitly nurturing CoP that emphasises leadership at all stages.

26.3   CoP Lifecycle of ICWG

The broad CoP stages of development identified by Wenger et al. (2002) are framed by the parameters of time and energy generated. As a developmental framework, the intention is to guide those establishing CoP rather than to set rules that should be interpreted strictly. More as a heuristic device, Wenger has identified five stages: *potential, coalescing, maturing*, *stewardship*, and *transformation*, with each being described in-depth (Wenger et al. 2002). As would be expected given the diversity of CoP in general, and the uptake of CoP in higher education, this framework has been modified to reflect the context of university settings. McDonald et al. (2012) have proposed the *nurtured higher education CoP* model to "bridge the gap between early CoP *theory* and current CoP *practice*" that also "provides a clear link to understanding CoP in higher education and how they require a different approach

from the use of CoP in other contexts" (p. 9). The stages involve *initiation, creation, infancy, maturity and sustaining*, and *re-creating*. McDonald et al. (2012) imagine this as a lifecycle whereby in the maturity stage a decision is made to either de-commission the community or to re-prioritise and re-enter the CoP stages of development. Whilst this model adopts the temporal aspect of the Wenger framework, their emphasis is on 'nurturing' the CoP *in practice* from the perspective of leadership via facilitation. The notion of nurturing offers clarity to the broader parameter of energy offered by Wenger, which suits the context of higher education.

Given the context of ICWG in the higher education setting, we will adopt the McDonald et al. (2012) nurtured higher education CoP stages of development. This model will be used as a device that can prompt critical reflection and highlight ways to enhance the ICWG to more explicitly nurture CoP. Again, we draw on our experience in the 2012 ICWG initiative and the research conducted into participants' experiences.

26.3.1 Initiation and Creation

The 'spark' came from Healey and Vajoczki's experience with writing groups run by the INLT in Geography. As the 2012 ISSOTL conference hosts, Vajoczki and Marquis were well placed to coordinate the international writing groups initiative. By the end of the 2011 conference, the three had the structure in place, had gained the enthusiastic support of the ISSOTL board, and secured agreement from the editors of the new ISSOTL Journal *Teaching & Learning Inquiry* to devote an issue of the journal to the resulting papers.

As the initiators, the three scoped the landscape to align the ICWG idea to issues relevant to SoTL and ISSOTL whilst recognising their own position to drive the overall coordination in 2012. Scoping the landscape, aligning with institutional goals, and recruiting sponsorship are key elements of initiation in the nurtured CoP model (McDonald et al. 2012). Implicit in the nurtured model is a level of CoP occurring within an institution. The ICWG as a CoP example demonstrates how CoP can be specific to the higher education sector but span numerous institutions. The initiation of the ICWG also reveals the role of initiators as being connected into a social network as the three initiators optimised their relationships with key ISSOTL members at the conference to gain buy-in and support over a period of 3 days.

As Healey and Vajoczki relied on their networks and contacts to identify effective facilitators, McDonald et al. (2012) discuss leveraging contacts. Similar to the initiation stage, the role of CoP leaders within a social network emerges although it remains implicit in the McDonald et al. model (2012). Being well-connected within the SoTL network was an important factor for Healey and Vajoczki in the early stages of initiation and creation of the ICWG. Moreover,

leveraging those networks to promote the ICWG and spark interest in participating was essential.

McDonald et al. (2012) offer sage advice on gaining a 'critical mass' within CoP noting the voluntary nature of most CoP that relies on participants being intrinsically motivated. In one sense, this resonates with the ICWG that pragmatically structured the developmental activity around collaborative writing with a set timeline to allow for participants' time management. Furthermore, the application process and even the nominal fee contributed to academic investment in the writing groups (note: fee was waived for student participants). On the other hand, the focus on a publication could be viewed as extrinsic motivator. There is a fine line here.

In the higher education setting, CoP are envisioned as a means to engage academics in ongoing developmental, capacity building activities with more recent focus on how students can engage with academics in CoP to enhance teaching and learning. As McDonald et al. (2012) indicate, gaining a critical mass for CoP is a real challenge. Although the ICWG model might risk attracting academics with an extrinsic motivation to gain a publication, this has to be weighed against the challenge of attracting them in the first place. The ICWG model addresses the known challenges in the early stages of nurturing CoP in higher education. As a structured activity with an established goal, the ICWG model offered a firm sense of what would be required and accomplished within the year-long writing groups. The indication that many ICWG participants were planning further collaborative activities beyond the initial product suggests intrinsic motivation and a method to engage busy academics in CoP.

McDonald et al. (2012), drawing on Wenger et al. (2002), describe seven design principles relevant to the creation stage and intended to ensure a balanced CoP approach that enables varying levels of engagement. These design principles, including 'open dialogue between inside and outside perspectives' and the development of 'both public and private community spaces', become essential for CoP facilitators as they guide the setting up stage of the CoP and are underpinned by values of inclusiveness, participation, and flexibility that are all responsive to the context of the CoP. In the ICWG, Healey and Marquis as the overall ICWG leaders focused on these early stages (initiation and creation). As the ICWG involved nine parallel writing groups, each operating potentially as a community of practice, the challenges associated with these two stages of the nurtured CoP in the higher education context did not fall onto each individual writing group facilitator.

26.3.2 Infancy and Maturity

It is the infancy and maturity stages of development in the nurtured CoP model that really begin to draw on each writing group facilitator in the ICWG. This makes sense as the individual groups meet (virtually) and begin their work. At this point, Healey and Marquis took on a back stage role as they deliberately allowed the writing group facilitators to take the reins in their groups. The provision of the

group members' applications offered the facilitators a glimpse into motivation and background of the group members.

In the nurtured CoP model, the infancy stage is introduced through CoP convenors selecting the CoP topics, setting priorities for future meetings, and getting those meetings scheduled to ensure a critical mass in attendance. McDonald et al. (2012) emphasise participation in the infancy stage, which distinguishes CoP meeting from a typical meeting in the university context. They also refer to discussions unfolding online, supported by web 2.0 technologies, to parallel the face-to-face meetings. In maturing and sustaining CoP in higher education, McDonald et al. (2012) warn of 'managerialist' agendas of senior executives seeking to institutionalise CoP as a device to implement policies. The role of CoP convenors becomes important in 'protecting' and 'educating' institutional senior management on the value and role of CoP. Finally, the issue of members going and new members arriving is raised in the maturity stage with convenors needing to maintain group participation in the face of such changes.

In the context of the ICWG, many of these mid-stage challenges exist albeit on a different scale. A key difference is in the distribution of the writing group members across universities as opposed to being within the same institutional context. Thus, the group meetings in the infancy stage occurred in a virtual setting. Nonetheless, the infancy stage issues identified by McDonald et al. (2012) were visible within the writing group including: establishing rapport, giving space for all members to voice their views on the topic and identify means of contributing, and negotiating how the group communicates and manages tasks. Within the writing group context of the ICWG, the infancy and maturity stages comprised the majority of the year-long process as much of the initiation and creation stages occurred prior to the groups forming. The blended mode of the ICWG played a significant role in how the groups formed and matured. Matthews, as one of the 2012 group facilitators, reflects on her experiences in regards to these stages.

26.3.2.1 Digital Habitats

CoP need a place where shared learning can occur with the notion of digital habitats making sense in relation to the ICWG as the forming of the writing groups unfolded virtually (Wenger et al. 2009). It is the interplay between community and technology in relation to learning that is emphasised in Wenger and colleagues' notion, which resonated with Matthews. As a group facilitator, Matthews had to coordinate how online interactions would occur and what technologies could be used to facilitate them. She viewed the role of technology as a functional tool to enable consistent communication in ways that were familiar to regular internet users. Thus, the questions in her mind at this stage were about how she wanted to engage with the group to foster open dialogue with shared planning. It was the answer to this question that then drove decisions about technology. Upon reflection, a framework or some guidance on facilitating groups would have been useful to Matthews during the infancy stage along with how different technological tools and platforms foster

different types of group interaction; particularly given she had little experience in facilitating online groups when she accepted the role as a writing group facilitator.

Matthews' approach was to decide on a mode of communication that could enable the types of interactions and work processes that she envisioned. Drawing on her experiences in projects with distributed membership and experiences in collaborative writing, she identified that documents would be shared, created and co-edited, tasks would be assigned and shared amongst the members, and spaces for online conversations would be required. She decided, before consulting group members, that an online project management platform, Basecamp, would be adopted given her familiarity and past successes with the tool. Although her unilateral decision regarding technology does not align with Wenger et al. (2009) suggestions for group negotiation, as the group facilitator she took responsibility for the overall communication and thus much of the hidden back stage work that goes into maintaining online CoP. As such, selecting a technology she was familiar with, and confident in using, seemed sensible as it reduced her anxiety around the new experience of facilitating an online group, and allowed her to focus on how she wanted the members to interact.

Basecamp had many features under the one umbrella including discussion boards that can be linked to emails, notes that are effectively wikis, storage space for documents, and to-do lists that feed into a shared calendar. Pictures of group members could be uploaded to give a personal feel to comments. Basecamp included numerous tools to support specific group activities within one platform that packaged the tools into one online space, which became a key aspect of her writing group's digital habitat (Wenger et al. 2009).

A particular value to Basecamp was that the collection and storage of the group interactions could be available anytime to group members, which fostered transparency and allowed for asynchronous working. Transparency was central to Matthews' decision-making as it underpins the development of trust essential to her views of collaborative co-authorship. For the writing group, which represented a small, more specialised community of practice, Matthews felt relying on email as the central mode of communication would become burdensome amongst eight people and lead to splintered sub-groups of emails, with the danger being that the group fragments and some members feel or become excluded whilst others avoid communication and fly under the radar. As Wenger et al. (2009) suggest, how CoP with online interactions organise and determine their scope and build relationships is framed by technology, which shifts the dynamics of participation, peripherality, and legitimacy. Matthews' consideration of how she wanted the group to interact, based on transparency to foster trust, resonated with Wenger and colleagues' work. In essence, Matthews was 'technology stewarding' for her group as she took responsibility for her writing group's technology resources (Wenger et al. 2009).

Wenger et al. (2009) identified nine orientations for how CoP learn together, each with implications for CoP facilitators and the role of technologies. Matthews found these orientations a useful framework for retrospective reflection on how her writing group formed and matured, summarised in Table 26.2.

Table 26.2 Technologies used to enable interactions in the Matthews' writing group

Orientation	Writing groups in practice	Technology
Meetings	Two-day workshop, in person, synchronous	Basecamp platform: to-do tools used during workshop
Open-ended conversations	Reliance on fixed conversations with open-ended discussions unfolding during workshops	Basecamp platform: discussion boards tool linked to email
Projects	Co-authoring a manuscript	Basecamp platform: file sharing, discussion boards, wiki notes tools; word documents with tracked changes
Content	Creation of numerous artefacts both public and private	Basecamp platform for private; Mendeley referencing platform for public
Access to expertise	Designed into groups with selection to maximise diversity of experience	Basecamp platform: discussion boards tool linked to email
Relationships	Formation of personal relationships in parallel to intellectual activities	Basecamp platform: discussion boards tool linked to email
Individual participation	Designed into writing groups as co-authoring assumes an intellectual contribution	Basecamp platform: to-do lists and wiki notes tools; word documents with tracked changes
Community cultivation	Role of facilitator in coordinating and leading group	Basecamp platform: backend management of members and task setting tools
Serving a context	Designed into writing groups with manuscript contributing new knowledge to serve the broader field of SoTL	Email, online/print journal

In the ICWG research, modes of communication emerged as a strong theme in participants' interviews (Marquis et al. 2016). The workshop interactions were identified as the 'tipping point' for group formation of relationships and community building with technologies mentioned mainly in the context of where they failed to work. It is interesting that technologies that enabled ongoing communication were not a strong theme with a potential explanation being that in today's technology oriented ways of working and communicating, online CoP expect such technologies to be invisible. Another explanation is that the technologies used across all the groups were familiar and selected by facilitators. Of the nine groups, the majority relied on tested and trusted modes of technological communications: emails, word documents with tracked changes attached to emails, Skype sessions, and shared folders (e.g. Google Drive; Dropbox). Worth noting was the perception of participants that the face-to-face workshop was central, and preferable, as a mode of communication in comparison to virtual communication modes that were viewed as necessary but difficult (Marquis et al., in press).

During the workshop, there was not a designated space for facilitators to come together as the activities were writing group or whole group based. In regards to technology failing, the two online meeting sessions for writing group facilitators

were disrupted by technological malfunctions. The first meeting was run through an institutional web conference platform used at Marquis' University. Matthews' comments on Basecamp, using the notes feature, sum up the technology issues: "lots of technology dramas. 41 min in… and we start". The second facilitator meeting was organised via Skype, although several facilitators were unable to connect.

It is reasonable to suggest that the failure of technologies limited the interactions of the facilitators, potentially contributing the failure of the group of facilitators to become a community of practice in their own right. Matthews observed that several facilitators highlighted challenges and raised confidence issues where they had wanted to connect with other facilitators. How could a community of facilitators have enhanced the practice, capacity, and confidence of the writing group facilitators in the 2012 ICWG initiative? We can only guess in the 2012 context, but it points toward ways to enhance the next ICWG initiative.

26.3.3   Re-creating

In the nurtured higher education CoP lifecycle, the re-creation stage represents a 'stock take' on the priorities, purpose, domain, and leadership of the community of practice. Nurtured CoP has a formal structure and mode of leadership such that members can determine if a shift in priority is warranted (McDonald et al. 2012). In the ICWG model, also a structured approach, the 'disbanding' occurred as expected given the project orientation of co-authorship to create a manuscript. Once the manuscripts were peer-reviewed and published, the overall coordination from Healey and Marquis ended. Within the Matthews group, the original manuscript raised many questions and a sub-group of the 2012 writing group has continued to collaborate in an effort to follow-up on some of those questions. However, Matthews is not facilitating the group as another member took on that role. The changing of leadership within CoP and the shifting of the membership is evident in the Matthews writing group, which aligns with the McDonald et al. (2012) nurtured CoP model.

In the ICWG model, the second iteration attached to ISSOTL is unfolding in parallel to the 2015 conference. This could be said to represent the 're-creation' of the ICWG. Much like the 2012 initiative, the focus is on eight international writing groups working in parallel, predominantly online with a pre-conference workshop of two and a half days. Healey is overseeing the initiative with Matthews, and Marquis is taking on a writing group facilitation role in 2015.

26.4   Conclusion

The purpose of this chapter was to explore an ICWG initiative through the lens of CoP. Through such a reflection, the hope was to contribute insights into both practical and theoretical understanding of CoP in higher education, to reveal ways

to enhance the future iteration of the ICWG initiative, and to offer theoretical and practical guidance to others seeking to adopt or adapt the ICWG model.

We first described the 2012 ICWG initiative *in practice*, including the aims, structure, process, and outcomes. This led us to the question: was the ICWG initiative fostering a community of practice? By describing the ICWG as CoP and reflecting on the CoP framework of *domain-practice-community* (Wenger et al. 2002), we surmised that the nine parallel writing groups, within the broader context of the ICWG model, were individual CoP. We discussed the experiential nature of ICWG that was explicitly designed to achieve the product of peer-reviewed publications, whilst fostering ongoing collaboration and shared learning via mostly online interactions of writing groups. We spotlighted the multi-layered leadership structure that involved the overall ICWG coordinators on one level, the writing group facilitators on another level, and the distributed leadership approach within writing groups.

Given the higher education context, we then applied the stages of development of the nurtured CoP proposed by McDonald et al. (2012) to the ICWG. This revealed the responsibilities of leadership at the different stages in the ICWG, issues of engaging academics in ongoing CoP as capacity building developmental activities, and the added challenges of the writing groups forming and maturing online. We found the notion of *digital habitats* (Wenger et al. 2009) useful given the writing groups formed and matured in online environments. The emphasis on providing guidance to facilitators in the nurtured CoP model prompted in-depth reflection of leadership in the ICWG, particularly at the level of writing group facilitators.

Applying overlapping CoP theories to the ICWG proved a fruitful reflective exercise to enrich CoP theory and practices whilst also enhancing the ICWG model to foster better community interactions.

Several insights arose that contribute to the theoretical understanding of CoP in the higher education context. First, a social network perspective emerged in regards to the role of initiators who seek to coordinate multiple CoP. The selection of effective CoP facilitators was central to the success of the 2012 ICWG initiative as was the role of the co-leaders in gaining sponsorship. The role of the overall coordinator in being well connected within the social fabric of the higher education network is implied in the nurtured CoP model. Further articulation, informed by social network perspectives, could enrich the nurtured CoP model and assist people seeking to convene and coordinate CoP as an academic development strategy in their own institutions or across institutions through professional societies.

Second, the reflection raised a process-product tension within the experiential context of the ICWG initiative. At the heart of CoP are interactions that enable shared learning. In the nurtured CoP model, the centrepiece is enabling a process for shared learning as a developmental activity to build participants' capacity that takes into account the context of higher education. Unsurprisingly, what arises in the nurtured CoP model is the challenge of engaging a 'critical mass' of academics over a sustained period of time. Thus, pragmatic guidance is offered on how to overcome such issues. The ICWG approach addresses many of these issues by the

design of orienting the initiative around the explicit outcome of a publication. Wenger et al. (2009) acknowledge that certain CoP will produce tangible outcomes with co-authoring as a process for shared learning. In the higher education context, the ICWG structure seemed to address many of the challenges cited in the nurtured CoP model. This suggests that theories and models for CoP in higher education could integrate goal-orientated elements in the early development stages.

The CoP lens illuminated ways to enrich the ICWG initiative. First, it suggested the need to deliberately emphasize the process of shared learning that makes the value proposition of CoP more visible throughout the initiative. Second, it suggested the value of nurturing ICWG leaders as a separate CoP comprising the co-leaders and writing group facilitators. This would support the enhancement of their leadership capacity, raise self-efficacy of facilitators, and enable shared learning in real-time to affect practice directly. This also addresses potential sustainability issues of the ICWG model, particularly where effective facilitators are not readily available or known to the coordinators. Third, this reflection emphasised the potential of using the *digital habitats* orientations, which highlight the seamless interplay between shared learning and technology, as a guiding framework for facilitators in the early stages of setting up their writing groups. Ideally, this would be integrated into each writing group to sustain positive leadership approaches that enrich participants' overall satisfaction and learning.

In the end, we come back to the overall context for considering CoP and ICWG. Engaging students in high quality learning experiences occupies the minds of many of us working in higher education. There is broad consensus that scholarly, reflective teaching practices, with a focus on learning, lead to rich student learning. The ways to engender such practices amongst academics in higher education are contested. Notions of social, shared learning are emerging as evidenced by the increasing use of CoP as a professional learning activity. We have explored an ICWG initiative through the lens of CoP to highlight benefits of both within higher education contexts. By thinking about how the ICWG model fostered CoP, the next step is to explore the opportunities for how collaborative writing groups as CoP can be formed at the institutional, regional, and national levels.

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Chapter 27
Principles of Modeling CoPs for Pedagogical Change: Lessons Learnt from Practice 2006 to 2014

Thomas Cochrane and Vickel Narayan

Abstract In this chapter the authors draw upon their experiences of facilitating communities of practice (CoPs) within a variety of higher education contexts since 2006 to identify several key principles for modeling CoPs to enable pedagogical change. These principles include: the critical role of the technology steward, reproduction via brokering the activity of CoPs, building trust, sustaining collaboration, fostering uniqueness, cultivating creative pedagogies, addressing the fear factors, and critical peer reviewed reflection. A key catalyst facilitating these principles has been the reframing of mobile social media from a purely social domain to an educational domain.

Keywords Technology stewardship · Pedagogical framework · Designing triggering events · SOTL

27.1 Introduction

In the authors' view, education is about transformation (Brown 2006; Danvers 2003; Dewey 1916), and in the twenty first century this involves cultivating learning environments that focus upon developing student creativity for engagement within a global community. Critical to this is developing student digital literacies for new communication and collaboration tools to enhance their learning and subsequent work environments. Beginning with a focus upon developing student creativity, communication, and collaboration skills has led us to establish a theoretical foundation for academic development based upon social learning theories.

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27.1.1 Foundational Learning Theories

There are a range of learning theories that explore the social nature of learning including: how activity within our social environment shapes learning (Dewey 1916), how we learn from more experienced peers (Vygotsky 1978), how learning is linked to the authentic contexts in which it is situated (Brown et al. 1989), how we learn by observing and then becoming active members of communities (Lave and Wenger 1991), and how learning is part of a dialogical process between learners and teachers (Laurillard 2001). Key social learning theories that have informed the authors experience as learners, educators, and academic advisors include:

- social constructivism, based upon the earlier work of Vygotsky (1978);
- communities of practice (CoP) (Lave and Wenger 1991);
- the conversational framework (Laurillard 2001).

Social learning theories have formed the framework around which we have based our choices regarding student outcomes, supporting technologies, and academic development strategies. In particular we have found the concept of CoP to be a powerful enabler of pedagogical transformation as groups of practitioners support one another in the exploration of new assessment strategies and the design of new learning environments.

27.1.2 Nurturing CoPs via Mobile Social Media

Wenger has explored the role of technology in supporting the establishment and nurturing of CoPs, and made links between the rise of the affordances of social media and the ethos of CoPs (Wenger et al. 2005). The pre-cursor to social media, Web 2.0, was defined by O'Reilly (2005) as participatory, as opposed to the static content delivery focus of the early Web. Social media is characterized by being user-centric, and based around creating collaborative global communities with a shared interest, encompassing user content sharing platforms such as: YouTube, Flickr, Google Plus, Twitter, and SoundCloud. Social media can be reconceptualized as a forum for purely social activity to a rich set of tools supporting collaborative enquiry or learning communities (Cochrane 2012a, 2013). In order to do this Wenger et al. (2009) identified a key to the use of technology to support CoPs as the identification of the role of technology stewards within CoPs. Wenger et al., stress that the role of technology steward within a CoP is not limited to a traditional technology support role. A technology steward models the use and integration of appropriate technologies to support the activity of a CoP—not as an external expert or consultant, but as an active peer participant of a CoP. The concept of a technology steward represents a shift in the typical control of power within learning environments where the IT department's role is predominantly seen as maintaining the integrity and security of the network and rolling out desktop images to the end users. A shift in power to a more democratic approach aligns with our view of

education as a democratic participatory social process and environment (Dewey 1916). This mirrors a shift from teacher-directed pedagogies [for example instructivism and a focus upon the LMS for content delivery (Herrington et al. 2005)] towards student-determined pedagogies [for example heutagogy (Hase and Kenyon 2001, 2007)]. The role of the technology steward resonates with the authors' experience of their role within academic development.

With the rise to ubiquity of mobile devices (International Telecommunication Union 2014), social media platforms have quickly embraced mobile device accessibility, and many new social media platforms are designed for a mobile-first experience (for example: Instagram, Snapchat, Vine, Periscope). While most social media platforms are now device agnostic, mobile social media (mobile formatted social media—accessible via either responsive web design or cross-platform mobile Apps) has become a powerful enabler of CoPs, providing ubiquitous access and connectivity to a wide range of collaboration and communication tools. Mobile devices disrupt the traditional limitations of closed classroom spaces by allowing students to bridge their formal and informal learning environments [or learner-generated contexts (Luckin et al. 2010)], and become what Bruns (2007, 2008) terms producers of content (both producers and users). Thus the disruptive nature of mobile devices (Sharples 2001; Cochrane 2009b) provides a catalyst for new pedagogies (Kukulska-Hulme 2010) that focus upon building student creativity.

27.1.3 Principles of CoPs

The concept of CoP has undergone significant development since the term was initially coined by Lave and Wenger (1991) as they explored the traditional apprenticeship model of learning and the nature of situated learning. Wenger developed a theory of learning based upon the CoP concept (Wenger 1998), and has applied this theory to various practical contexts (Wenger et al. 2002). The evolving nature of the conceptualization of CoPs has been a source of criticism (Li et al. 2009), however the concept has been found to be particularly useful within educational contexts [for example: Jameson (2011)]. Unlike teams CoPs are more organic in nature and bottom up (participatory) rather than top down (or mandated by management). The glue holding a CoP together is the domain or shared interest—in our cases this has been an exploration of innovation in teaching and learning using mobile social media. CoPs are predicated upon developing a sense of relationship and mutual trust, involving sustained interaction over time, and often have a life span determined by a shared need or interest that the CoP may eventually meet or grow out of. The life-span of our CoPs has ranged from 1 to 4 years (Cochrane and Bateman 2013; Cochrane 2011). CoPs are focused around some form of shared practice—in our cases this has been a shared educational context exploring pedagogical praxis. The reified activities of a CoP, described by Wenger as boundary objects, can be used to broker the ethos and goal of one CoP to another associated or interested CoP. In our cases these boundary objects have included sharing collaborative assessment designs, eportfolios, and research

publications exploring the scholarship of teaching and learning (SOTL) (Boyer 1990; Haigh 2010; Weaver et al. 2012). In our experience CoPs grow as interested observers of the core group gain confidence to move from peripheral participation to becoming active participants and members of the CoP. Lave and Wenger (1991) termed the initial observational phase of CoP participation 'legitimate peripheral participation'. While CoPs are normally described as organic and self-forming, we have built upon Wenger et al. (2005), notion of intentional CoPs as a framework for academic development, where there is an intentional goal or plan behind the facilitation of CoPs. These CoPs provide a supportive environment for exploring innovation in teaching and learning.

27.1.4   A Framework for Creative Pedagogies

Growing out of our work of facilitating CoPs within a variety of educational contexts, we have developed a framework for creative pedagogies using mobile social media (Cochrane et al. 2014b). This framework links social learning theories to the unique affordances of mobile social media that can enable new pedagogical designs that focus upon developing student creativity as a goal. This framework is essentially a mashup of associated social learning theories and educational technology adoption frameworks, informed by our identification of six critical success factors for transforming pedagogy using mobile social media (Cochrane 2014). These critical success factors include:

- The pedagogical integration of the technology into the course and assessment.
- Lecturer modeling of the pedagogical use of the tools.
- Creating a supportive learning community.
- Appropriate choice of mobile devices and Web 2.0 social software.
- Technological and pedagogical support.
- Creating sustained interaction that facilitates the development of ontological shifts, both for the lecturers and the students.

The six critical success factors highlight the importance of supporting innovation in teaching and learning via technology with the establishment of CoP. Our framework then provides a simple implementation structure as a goal for these CoPs. Frameworks are useful for linking theory to practice in a pragmatic way for practitioners across a range of educational contexts to be able to implement. One concept that we have found particularly useful to provide a guide for pedagogical transformation is the pedagogy (P) andragogy (A) heutagogy (H) continuum (Luckin et al. 2010). The PAH continuum provides a conceptual measure of pedagogies from teacher-directed (pedagogy), to student-centered (andragogy), and student-determined (heutagogy). Our framework for using mobile social media for creative pedagogies (Table 27.1) links to supporting social learning theory breaking down the key concepts into a three level scale following the PAH continuum for implementation across a programme of study or course.

Table 27.1 A framework for creative pedagogies using mobile social media (modified from Luckin et al. 2010)

	Pedagogy	Andragogy	Heutagogy
Activity types	Content delivery	Teacher as guide	Teacher co-learner
	Digital assessment	Digital identity	Digital presence
	Teacher delivered content	Student-generated content	Student-generated contexts
	Teacher defined projects	Student negotiated teams	Student negotiated projects
Locus of control	Teacher	Student	Student
Cognition	Cognitive	Meta-cognitive	Epistemic
SAMR (Puentedura 2011)	Substitution and augmentation	Modification	Redefinition
	Portfolio–eportfolio	Reflection as VODCast	In situ reflections
	PowerPoint on iPad	Prezi on iPad	logue with source material
	Focus on productivity	New forms of col-laboration	Community building
	Mobile device as personal digital assistant and consumption tool	Mobile device as content creation and curation tool	Mobile device as col-laborative tool
Creativity (Sternberg et al. 2002)	Reproduction	Incrementation	Reinitiation
Knowledge pro-duction	Subject understanding	Process negotiation	Context shaping
Self-perception	Learning about	Learning to become	Active participation within a professional community

The framework aligns a move from teacher-directed pedagogy to student-determined heutagogy (Luckin et al. 2010) with Sternberg et al. (2002) three levels of creativity, Puentedura's (2011) three levels of educational technology adoption, and a refocus upon ontological pedagogies (Danvers 2003). In this framework we take a similar view to Danvers (2003) on the importance of enabling learning environments that foster student creativity.

> Creativity thrives in an atmosphere that is supportive, dynamic, and receptive to new ideas and activities. The learning environment has to encourage interactions between learners in which: action and reflection are carefully counter-balanced; open-ended periods of play and 'blue-sky' thinking alternate with goal-oriented problem-solving; stimulating inputs and staff interventions are interwoven with periods in which learners develop ideas and constructs at their own pace; critical thinking and robust debate co-exist with a supportive 'space' in which risk-taking, imaginative exploration and productive failure are accepted as positive processes of learning and, the development of meanings and interpretations is inseparable from material processes and production. (Danvers 2003)

The framework aims to nurture a culture that explores and supports innovation in teaching and learning to develop creative graduates.

27.2 CoP Scenarios

The authors of this chapter have collectively facilitated over sixty CoPs between 2006 and 2014, with most of these CoPs having had duration of at least 1 year. The level and contexts of these CoPs has varied from polytechnic foundation studies through to post graduate university courses. The scope and scale of these CoPs has also varied, from three participants within a single department to 300 participants from six institutions across the globe. Course contexts have ranged from the music and arts, to various design disciplines, health, journalism and law, and engineering.

Because we have been interested in pedagogical transformation as a goal for these CoPs, we have embedded the design and evaluation of these CoPs within research methodologies that are concerned with transformation, including participatory action research (Swantz 2008; Wadsworth 1998) and design based research (Van den Akker et al. 2006; McKenney and Reeves 2012; Amiel and Reeves 2008; Reeves et al. 2005). Data collection tools used mixed methods (both quantitative and qualitative) and included the collection of the shared experiences of the participants via the reified activities of the CoPs, collated via participant surveys, focus groups and interviews. The main research question informing the CoPs varied from project to project, but focused upon a common theme: Can mobile social media be used as a catalyst to drive pedagogical change across an entire programme of study, from teacher-directed pedagogy to student-directed heutagogy? The second research question that emerged focused upon the transferability of the framework: Can an established mobile social media framework be transferred between the contexts of different higher education institutions?

In this section we describe and critique our experiences from several examples of CoPs in a variety of contexts including:

- Designing an institutional academic development strategy (Cochrane et al. 2012; Cochrane 2010).
- Designing a social technologies course for professional development (Cochrane and Narayan 2013).
- Facilitating departmental academic CoPs (Cochrane et al. 2014c; Cochrane and Withell 2013).
- Reframing courses as CoPs (Cochrane et al. 2013d, 2014b; Narayan 2011).
- Facilitating international collaborative curriculum design (Cochrane et al. 2013b; Buchem et al. 2012).
- Enabling international student-generated collaborative projects (Cronin and Cochrane 2014; Cochrane and Rhodes 2013).
- Up scaling our CoP framework: designing a mobile social media learning technologies (MOSOMELT) cMOOC (Cochrane et al. 2015a).

27.2.1 Designing an Institutional Academic Development Strategy

Our first example was born out of frustration with the limited effectiveness of the traditional workshop model approach to academic development. We found that workshops promoted a focus upon an expert demonstration rather than long term participant appropriation of the affordances of learning technologies, and very little evidence of significant change in pedagogical practice. In comparison the development and facilitation of peer CoP of lecturers exploring the impact of learning technologies on their specific pedagogical contexts resulted in demonstrable pedagogical transformation (Cochrane and Kligyte 2007; Cochrane 2007). As a result of several iterations of the successful facilitation of departmental CoPs we designed an institutional wide academic development strategy built upon creating a network of technology stewards to facilitate departmental CoPs (Cochrane et al. 2012; Cochrane 2009a, 2010). Effectively we attempted to replicate our role as academic advisors from a limited central resource to developing departmental peer experts across the institution with the key role of mediating the effective use of technology for teaching and learning (Price and Kirkwood 2013). We launched this strategy with a week long workshop to develop a core group of technology stewards throughout the institution. The workshop was facilitated by Wenger and Trayner (http://wenger-trayner.com). The strategy was predicated upon a belief that "By becoming familiar with the available research on learning and teaching, critically analyzing and reflecting on their own teaching, and exploring new ideas and trying out different approaches, educators can re-energize and strengthen their practice" (Danvers 2003). From the initial launch of the strategy 50 e-learning community coordinators (effectively technology stewards) were commissioned across the institution with between a 0.2 and 0.4 time allocation for the role. This represented a significant commitment from the institution that lasted for an initial period of 3 years to establish the model. The model has continued on a reduced scale since the two authors as key drivers of the strategy have moved from the institution.

27.2.2 Designing a Social Technologies Course for Professional Development

In 2010 the authors were tasked with redeveloping an institutional professional development course on learning technologies. The existing course was outdated and receiving low participant satisfaction feedback. Rather than simply update the course we attempted to rethink the course as an experience of active participation within a community of practice. As a result we developed a social learning technologies (SLT) course based upon modeling participation within a CoP exploring the use of mobile social media to enable social learning pedagogies (Cochrane and Narayan 2011). The course went through four iterations (four cohorts of lecturers as

students) from 2011 to 2012 (Cochrane and Narayan 2012). A key outcome of the course was for participants to develop a theoretical understanding of teaching and learning as a social process, and subsequently design mobile social learning activities for their students relevant to their course context. The course proved to be a transformational experience for many participants (Cochrane and Narayan 2013). Many of the graduates of the SLT course went on to become technology stewards within their own departments, facilitating their own CoPs, with one graduate subsequently receiving a national teaching excellence award based upon the project they developed as an assignment for the SLT course.

27.2.3   Facilitating Departmental Academic CoPs

The nature of CoPs is that they are organic and unique to a particular context—this is also the limitation of the transferability of CoPs into new contexts. While the authors demonstrated the transferability of the success of departmental academic CoPs across a range of departments within their own institution (Cochrane et al. 2013d; Cochrane and Bateman 2013), moving to a new institution provided the opportunity to explore the transferability of the CoP framework to more than one institution. We found the strategy could be transferred not only to similar learning contexts in our new institution (Cochrane and Withell 2013), but also to new learning contexts (Cochrane et al. 2013e; Cochrane and Antonczak 2013b). A typical structure for these departmental CoPs is summarized in Table 27.2.

Critical reflective practice was built into this framework via an expectation that participants would engage with SOTL by publishing their experiences as case studies.

27.2.4   Reframing Courses as CoPs

One of our goals of reframing professional development as active participation within longitudinal CoPs was to give the participating lecturers the experience of a model that they could then integrate into their own pedagogical practice with their own students. In this model course design moves from a focus upon covering a prescribed canon of course related content delivery, to designing authentic learning experiences for students. Thus the role of the teacher is not replaced by students within a student-determined paradigm (heutagogy), but the role of the teacher is reconceptualized as the designer and facilitator of authentic learning experiences becoming a mentor and co-learner alongside the students within a unique learning community. The teacher effectively takes on the role of a technology steward, modeling the educational use of mobile social media, and brokering student participation within professional communities. Two examples of this course redesign include the redesign of a journalism curriculum (Cochrane et al. 2013e), and the

Table 27.2 Departmental lecturer CoP framework

Lecturer CoP stages	Timeframe	Process and outcome
Establish weekly CoP with lecturers and technology steward	Semester 1	Lecturers reflect upon their prior pedagogical beliefs and practice
Establish support requirements		Lecturers share their current course outlines and assessment strategies for collaborative editing via Google Docs
Completion of an initial survey that explores participants' prior pedagogical beliefs and practice		Lecturers develop competency with m-learning
Establish lecturer eportfolios		Lecturers explore mlearning pedagogies
Establish a collaborative research agenda and research questions, and establish ethics consent procedures		Lecturers develop pedagogical mlearning activities based on social constructivist pedagogies
Mlearning projects with staff and students	Semester 2	Students establish mlearning eportfolios
Implementation of the mlearning activities within each course and assessment		Increased student engagement
		Flexible delivery
		Facilitating social constructivist pedagogies and bridging learning contexts
Lecturers publish and present case studies based on project implementations, these then inform the design of the following iteration of the project	End of Semester 2 and beginning of following semester	Collaborative engagement with SOTL based on prior and redeveloped course outlines and outcomes via Google Docs
		Conference, journal publications and symposia presentations

development of a mobile social media minor within graphic design (Cochrane and Antonczak 2014). The integration of mobile social media within these course contexts provides a catalyst and framework for moving away from a reliance upon an institutional learning management system (LMS) for content delivery, and observational case studies, towards the use of mobile social media based student owned eportfolios and collaborative communities enabling student determined authentic learning experiences (Narayan and Herrington 2014). In the redesigned courses we invite students to form authentic team-based projects in which they are included as active negotiators of the project outcomes (heutagogy). Graduates of these redesigned courses will then be prepared to become active members of collaborative professional teams, both nationally and internationally. Table 27.3 provides an example of the design of a 6 week elective course framed as student participation within a CoP (Cochrane et al. 2014a).

Table 27.3 Overview of the communication design mobile social media elective course

Topic	Triggering event	Activity design	Conceptual shift	SAMR
Week 1: introduction to mobile social media	International guest (UK) via Hangout: "The power of social media and curation"	Students create the following mobile social media accounts: G+, Google Hangouts, Google Drive, YouTube, Vimeo, Twitter, Storify, Bambuser, Behance, and are invited to join a G+ community for the course	Teacher modelled educational use of mobile social media and G+ community participation	Redefinition of course LMS as a collection of student owned mobile social media—building a learning community
Week 2: brand yourself	Guest speaker from Journalism Department: "The power of an online profile"	Students showcase their creativity via a 6 s Vine video	Teacher guided exploration of digital identity	Redefinition of social media as an educational platform
Week 3: contextual affordances of mobile social media	International guest (Colombia) via Hangout: "The power of mobile video"	Students explore geolocation by creating a collaborative interactive Google Map with embedded video	Teacher guided exploration of contextual affordances of mobile	Augmentation of mobile video
Week 4: creating an mPortfolio	Guest speaker (NZ): "The power of an ePortfolio"	Students establish their own Behance portfolios as hubs for their mobile social media platforms of choice (e.g. Flickr, Instagram, Vimeo)	Student negotiated	Modification of student portfolios
Week 5: collaborative video production	International industry guest from Vyclone (USA) via Hangout: "The power of collaborative production"	Students create and share a short form collaborative video using Vyclone	Student negotiated	Modification of collaborative video production

Table 27.3 (continued)

Topic	Triggering event	Activity design	Conceptual shift	SAMR
Week 6: student presentations and reflections	International guest (Ireland) via Hangout: "The power of a shared journey"	Students record a reflective statement via Vyclone or Bambuser—10 min max, shared via Twitter for peer feedback	Active student participation within a learning community	Augmentation of student reflections

In this model classroom interaction is reframed as interactive triggering events that are mediated by participants of the lecturers' professional community. Students are then invited to create projects based upon reflecting on these experiences.

27.2.5 Facilitating International Collaborative Curriculum Design

An outcome of presenting our CoP formation and implementation experiences at various international conferences has been the establishment of a global CoP of like-minded lecturers exploring the impact of mobile social media within their own pedagogical practice. The embedded use of mobile social media by the CoP participants has been critical in enabling and sustaining these geographically disperse CoPs that must overcome geographic, language, cultural and time zone differences. We have used a variety of mobile social media tools for synchronous and asynchronous communication and collaboration, as well as nurturing these CoPs by developing a sense of social connectivity and reciprocal trust (Cronin and Cochrane 2014; Cochrane et al. 2011, 2013c; Cochrane and Keegan 2012a; Buchem et al. 2012). The iCollab (international collaboration) CoP began in 2011 and has been reified in several international collaborative student projects, and reflective practice publications (Cochrane et al. 2013b). iCollab consists of lecturers from New Zealand, Australia, Germany, Spain, UK, and Ireland. The ELVSS (eLearning lab for the very small screen) CoP began in 2010 (Cochrane et al. 2013a), and morphed into the MoCo360 CoP in 2014 (Cochrane et al. 2014b). MoCo360 consists of lecturers from New Zealand, Colombia, France, and the UK. The shared interest or domain of each of these CoPs has been similar—exploring mobile social media for innovative pedagogies, however the educational contexts have been different. iCollab has explored international collaborative curriculum design within the crossover between education, public relations, psychology and computer science disciplines, while ELVSS and MoCo360 have had a specific focus upon mobile film production and sharing. The two CoPs have shared ideas and concepts via the brokering of the authors as members of both CoPs. The uniqueness of these two CoPs is that they are sustained out of common belief in the need to reinvigorate or

transform higher education with new pedagogies, rather than being externally funded projects that cease to exist after the funding has expired (Cronin and Cochrane 2014; Cochrane and Keegan 2012b; Gunn 2011).

27.2.6 Enabling International Student-Generated Collaborative Projects

A result of the development of two global lecturer CoPs exploring collaborative curriculum design has been the design and implementation of several international collaborative student projects. One example of using a CoP framework for facilitating international student collaborative projects is the MoCo360 (Mobile Collaboration around the world) project (Cochrane et al. 2014a, b). The MoCo360 project involved participation of six institutions across the globe (based in New Zealand, France, UK, and Colombia) in a 6-week project to explore collaborative mobile video production and sharing. The MoCo360 lecturers effectively invited their students to become part of the CoP that they had established, modeling and brokering the concept of international collaboration. The project began by introducing a series of short timeframe mobile video creation and sharing activities and culminated in inviting students to form global mobile video production teams around their own project ideas. An outline of the MoCo360 project is provided in Table 27.4.

While the MoCo360 project was a short 6-week experience, it was modelled upon active participation within an existing professional CoP, giving students an authentic collaborative experience. A show reel of resulting student-generated projects is available at http://bit.ly/1my5OZi.

27.2.7 Up Scaling Our CoP Framework

In 2015 we are exploring the crossover of CoPs with connectivist massive open online courses (cMOOCs) as a framework for linking departmental CoPs into a wider shared community experience. Cormier (2008) characterises cMOOCs as collaborative learning communities that have a decentralized structure similar to the root system of a rhizome. The role of the teacher in a cMOOC is to create ecology of resources that facilitate triggering events designed to stimulate participant discussion and exploration. Thus in contrast to the online content delivery approach of xMOOCs, a cMOOC is designed as a series of triggering events to encourage participant critical and creative thinking, collaboration and sharing of participant-generated content within a potentially global community. By embedding several CoPs within a cMOOC framework we hope to maintain the unique and organic context of each CoP while also providing the participants with the richness

Table 27.4 Overview of the MoCo360 project

Topic	Triggering event	Activity design	Conceptual shift	SAMR
Week 1: introduction to the MoCo360 community	All students invited to become members of a G+ Community	A G+ community was established as the support and announcement channel for the class	Teacher modelled participation within a learning community	Modification of prior use of course LMS to active community participation
Week 2: personal introduction	Students create and share a 6 s Vine video, and a Behance profile (France)	Students establish an online digital identity using a range of mobile social media	Teacher guided	Augmenting an online profile
Week 3: global hangout	Synchronous video conference of all project teams	Lecturers invite their students to participate in a global G+ hangout	Teacher modelled community participation	Substitution of face to face presence
Week 4: collaborative content creation	All participants record content for a shared Vyclone video	Collaboration in a global team-based project as content creators	Teacher as participant	Redefinition of collaborative production
Week 5: Negotiate student directed projects via a Facebook page	Students invite peer participation into an original mobile video production project, shared via Twitter	Establishment of international student team projects	Student negotiated	Redefinition of learning as project negotiation
Week 6: Collaborative video production	Student directed collaborative mobile video production project	Active participation within a global professional community	Student directed	Redefinition of learning community on a global scale

of sharing their experiences with not only other CoPs within the institution, but potentially with a global network of lecturer CoPs exploring the integration of mobile social media within their curricula for pedagogical transformation. We have designed the MOSOMELT, http://mosomelt.wordpress.com) cMOOC as a framework for our CoPs to follow throughout 2015, through participation within a schedule of 12 weeks of exploration and sharing of mobile social media, followed by the implementation and evaluation of new assessment designs for their students within the following 12 weeks. The second 12 weeks will also provide the optional development of a lecturer professional development portfolio for submission and accreditation under the certified member of the association of learning technologies (CMALT, http://ascilite.org/get-involved/cmalt/) scheme. We have leveraged some of Cormier's (2008) rhizomatic learning principles in the design of the MOSOMELT cMOOC (Table 27.5).

Table 27.5 Overview of the MOSOMELT cMOOC design

Timeframe	Triggering events	Activity design	Conceptual shift	SAMR
Weeks 1–6 introduction to mobile social media	A series of international guest lecturers share their experiences via live-streamed hangouts	Participants create a mobile social media eportfolio from a range of mobile social media tools: G+, Google Hangouts, Google Drive, YouTube, Vimeo, Twitter, Storify, Wordpress, Researchgate, and are invited to join a G+ community for the course	Teacher modelled educational use of mobile social media and G+ Community participation	Redefinition of course LMS as a collection of student owned mobile social media—building a learning community
Weeks 7–12	Team based collaborative projects over 6 weeks	Participants explore mobile collaboration and co-production, forming project teams using Google Maps, Vine, Vyclone, Wikitude. Projects are shared for peer feedback via a "project bank"	Beyond content delivery to exploration of contextual and collaborative affordances of mobile	Redefinition of social media as a new pedagogical enabler
Weeks 13–18	CMALT accreditation process begins. Participants design a mobile social media activity for their own curriculum	Participants choose a social learning theory to inform the redesign of a course project for their own students. Feedback is given through the G+ community	Collaborative curriculum redesign	Modification of curriculum
Week 19–24	Participants implement and evaluate their pedagogical innovation	Participants use the SOTL as a framework to evaluate their course redesign	Explicit reflection on pedagogical practice	Redefinition of research as reflective practice

Table 27.5 (continued)

Timeframe	Triggering events	Activity design	Conceptual shift	SAMR
End of the cMOOC	Portfolio submission for CMALT accreditation	Participants prepare and submit their eportfolios for CMALT accreditation	Participation within a global educator network	Redefinition of professional development

The MOSOMELT cMOOC aims to take our lecturer CoP framework to a larger, potentially global scale.

27.3   Discussion

One of the significant outcomes of each CoP has been the sharing of the experience via collaborative reflective research publications, so that the authors have not only guided the CoPs with regards to technology adoption but also mentored the participants within a framework of developing the SOTL. This has resulted in a body of literature that spans 95 conference contributions, 18 book chapters, and 35 journal articles. From these experiences we have identified several key principles across the variety of community of practice implementations outlined in the previous section that are discussed in depth in this section, including:

- Guidance by technology stewards.
- Reproduction via brokering.
- Building trust.
- Sustaining collaboration.
- Fostering uniqueness.
- Cultivating creative pedagogies.
- Addressing the fear factors.
- Critical peer-reviewed reflection informed by a focus upon an updated SOTL (Boyer 1990; Garnett and Ecclesfield 2011; Greenhow and Gleason 2014; Haigh 2010).

27.3.1   Guidance by Technology Stewards

A critical factor in all of our CoP variations has been the identification of the role of a technology steward in guiding each CoP in the appropriate choices of educational technologies for each specific context. The authors realized that their roles as academic advisors within our initial collaborative CoPs aligned with Wenger's

conception of the role of a technology steward. Our experiences shaped how we implemented the technology steward role, including learning from our mistakes when CoPs failed to be established or sustained (Cochrane 2012b). As the availability of technology stewards within an institution is a limited resource we have explored various strategies for developing technology stewards within departments across institutions (Garnett et al. 2011). Modeling the role of technology steward within CoPs designed to develop technology stewards has proven to be one of the most effective strategies—as demonstrated by the outcomes of the development and implementation of the SLT course (Cochrane and Narayan 2012), and our development of an institutional eLearning strategy based upon facilitating the development of departmental CoPs (Cochrane et al. 2012). We are now exploring taking this development model to a larger scale via the MOSOMELT cMOOC.

27.3.2 Reproduction via Brokering

A lesson we quickly learnt was that in contrast to the formation of work teams CoPs cannot be externally mandated—rather there must be a shared interest and mutual trust that forms the glue of CoPs, and a flat hierarchical structure within CoPs. Reproducing CoPs is therefore no easy task, as every CoP will by nature be unique, comprised of a unique set of creative participants. What can be achieved is the brokering of the ethos and reified activities of one CoP to another context, where a group of individuals are interested in forming their own CoP. The reified activities of a CoP include many artifacts that can be useful in brokering the concept, and in our cases the embedding of participant reflective eportfolios has provided rich data for reflective practice research outputs in the form of case studies and more lately meta analysis that can be shared with the global community of educational technology researchers and practitioners. Wenger (1998) emphasizes that the role of broker is most effective when the broker is a core member of a CoP rather than an external observer. This aligns with a participatory action research methodology rather than a pure research or comparative analysis approach. We have found that our role as technology stewards within CoPs also leads to enabling a collaborative approach to the SOTL based upon the experiences and outcomes of these CoPs.

27.3.3 Building Trust

CoPs are established out of a shared interest of a core group of participants. The core group quickly creates a shared way of interacting and collaborating, effectively building a culture that can either be explicit or implicit. This culture is built upon trust, and usually takes time to be tested and relied upon. The shared understandings of a CoP thus become not only an enabler for the core group, but also a barrier for participation from new members. Those who become interested in joining an

established CoP must navigate the established culture in order to build the level of trust required to become active members of the CoP. We have found that this trust can be mediated rather than requiring a new member to go through what can be a long initiation to build trust. Mediated trust is based upon a trusted member of the CoP recommending the inclusion or participation of a new member unknown personally by the other CoP participants, but known and trusted by them. This is a powerful form of brokering CoP participation, particularly with geographically disperse participants that meet predominantly virtually. This was the case with the iCollab and MoCo360 CoPs, that were both established based upon face to face meetings of the original core participants at international conferences. Interested peripheral participants were added to both CoPs through a process of mediated trust, based upon a member of the CoP recommending the invitation of a new participant into the CoP. We have found that a breakdown in the trust established within a CoP leads to the dissolution of the CoP, so being explicit about issues that are key to the trust of a CoP are critically important. In our cases this includes being explicit about issues surrounding research publications based upon the activity of the CoPs. The culture of publish or die in higher education creates pressure for timely research outputs (McKenney and Reeves 2012; Reeves et al. 2011), and CoP participation provides fertile ground for SOTL. We have experienced the breakdown of trust in CoPs when inclusion in research publications based on the activity of the CoP has not been openly negotiated. Another significant area of trust within CoPs based upon collaborative curriculum design is the invitation of one another into each other's classes—either as a virtual guest lecturer via synchronous or asynchronous video conferencing, or via expert feedback on student projects. Relying upon CoP members to engage and contribute to each other's student cohorts is a powerful model of professional community participation, and we have explicitly built this into several of our projects.

27.3.4   Sustaining Collaboration

Wenger has built up a significant body of work on how to nurture CoPs (Wenger et al. 2002). Within the context of CoPs exploring educational technology for pedagogical transformation we have found that the timeframe needed for pedagogical transformation involves a significantly long journey for many academics. Therefore sustained engagement of CoPs over a significant period of time (at least one academic year) is key to creating sustainable new pedagogical strategies and practices. It is therefore a time and resource intense model of professional development, but also a model that has demonstrable effectiveness and sustainability. Sustaining a CoP over such timeframes involves the integration of a social element that facilitates the building of trust between the participants. One way we attempt to foster this is through locating the face-to-face CoP meetings in social settings such as local cafes with Wi-Fi access for the participants to work using their mobile devices. Haigh (2005) argues that the conversations around coffee are often the

most productive for professional development. We have found that meeting in a neutral social venue also enables participants to think differently than when in their familiar day–day office spaces. Meeting at a social venue such as a café also provides participants with an authentic experience of using mobile devices and of being a mobile learner. For CoPs made up of geographically disperse participants (such as iCollab and MoCo360) virtually recreating social interaction is key to sustaining the CoP (Cochrane 2013). We have explored the use of a range of mobile social media to facilitate social interaction, and have found that a combination of synchronous (for example: Skype, or Google Plus Hangouts, live video streaming) and asynchronous tools (for example: Twitter, Google Docs) can help facilitate a sense of relationship and trust among remote participants.

27.3.5 Fostering Uniqueness

CoPs by their very nature are comprised of unique collaborations of participants with a specific shared interest. There is a creative power evidenced by unique small group collaborations, as epitomized by the creativity of music groups such as the Beatles. Garnett et al. (2011) makes a strong case for relating the creative power of the Beatles to a heutagogical model of learning. The authors own experiences also reflect the creative power of small group participation within a variety of contexts. This has informed the development of our CoP model of professional development and curriculum redesign. Our CoPs have generally been comprised of small numbers of lecturers (typically 4–6), or comprised of collections of small groups— such as in iCollab and MoCo360 where student courses of up to 200 are divided into collections of small student teams for collaborative projects.

27.3.6 Cultivating Creative Pedagogies

Our framework embeds the use of mobile social media as enabling tools to cultivate creative pedagogies. By explicitly moving away from a comparative substitutionary approach to the use of new technologies in educational praxis, we encourage participants to explore new assessment and activity design approaches that foster the development of graduate creativity. A CoP model provides the supportive environment for lecturers to experience, design, implement and evaluate new pedagogical strategies. We have also argued that mobile learning provides a powerful mediator of authentic learning (Cochrane et al. 2015b). Participation within a CoP exploring innovative pedagogies also provides an authentic experience and model for the participants—for lecturers to then apply their experience to curriculum design, and for students to then apply their experiences as a bridge into active participation within professional communities after graduation.

27.3.7 Addressing the Fear Factors

There are several fear factors that invariably rise at the beginning of establishing any new CoP in educational technology. The first surrounds the myth of the digital native. The second surrounds the ethical issues of mobile social media usage and sharing. The third surrounds the issues of intellectual property, copyright and open scholarship. Prensky (2001) popularized the concept of the digital native, that has subsequently received critical debunking (Helsper and Eynon 2010; Sheely 2008; White and Le Cornu 2011). However, we have found (through surveys and focus groups of our CoP participants) that the concept of digital natives has been widely taken for granted by both lecturers and students. We have observed that this has resulted in lecturers using the concept as an excuse not to engage with new educational technologies, and students assuming that they know more about the educational use of technology than their lecturers. Participant surveys indicated that students' predominant use of mobile social media is the social use of Facebook (Cochrane et al. 2014a), and participating lecturers reflected that they could quickly learn to use mobile social media at a higher more critical level than their students (Cochrane and Antonczak 2013a). Secondly there is a significant gap in the literature and practice around the digital literacies now required by students and lecturers when engaging with mobile social media (Littlejohn et al. 2012). This gap includes how to professionally deal with the ethical issues of the appropriate use of mobile images, text, video, audio, and location tracking. Rather than simply blocking the use of mobile social media on these grounds, we have found the best approach is to explicitly discuss these issues and model the appropriate and professional use of mobile social media within our CoPs. Thirdly, a sure way to destroy a CoP is for participants to publish research outputs from the activity of the CoP without including or consulting the other participants. Establishing an explicit research output plan and ground rules agreed upon by all of the participants mitigates such issues.

27.3.8 Critical Peer-Reviewed Reflection

We have attempted to embed a culture of critical peer reviewed reflection around the SOTL within all of our CoPs. We view the production of collaborative research publications as a key outcome of each CoP that can be used to broker strategies for creative pedagogies into other educational contexts. Making SOTL one of the explicit goals of our CoP framework aligns with the increasing demand for open scholarship within higher education. The rapid growth of open sharing and open scholarship via the establishment of social research sites such as researchgate.net, academia.edu, and LinkedIn provides a powerful platform for the development of an open and collaborative approach to SOTL (Garnett and Ecclesfield 2011). Increasingly high impact rated journals are providing social media metrics for

articles, indicating the power of social media to drive citations and the wider impact of research papers. SOTL provides academic rigor and a record of CoP participation and impact, justifying the investment of time and resources from the institution.

27.4 Conclusion

We have found that framing and modeling professional development and collaborative curriculum design around the principles of CoP to be a powerful foundation for enabling creative pedagogies. In particular we have leveraged the collaborative affordances of mobile social media to support identity formation around open and connected pedagogical practice as the domain of interest of these CoPs. The chapter provides examples of several contexts in which the authors have utilized the concept of CoPs within higher education. From these we have identified several key principles from our experiences that we hope will be of use to others exploring the potential of CoPs within their own educational contexts. These principles include: the critical role of the technology steward, reproduction via brokering the activity of CoPs, building trust, sustaining collaboration, fostering uniqueness, cultivating creative pedagogies, addressing the fear factors, and critical peer reviewed reflection.

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Jacquie McDonald and Aileen Cater-Steel

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