Amber Dailey-Hebert
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Transformative Perspectives and Processes in Higher Education

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in Higher Education

Advances in Business Education and Training

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Scope of the series

Advances in Business Education & Training is a Book Series to foster advancement in in the field of Business Education and Training. It serves as an international forum for scholarly and state-of-the-art research and development into all aspects of Business Education and Training. It will not only publish empirical studies but also stimulate theoretical discussions and address practical implications. Also reviews of important developments in the field are encouraged. The editors welcome contributions in which a line of reasoning is illustrated with experiments, design-based studies, best practices, and theory development. In addition, the editors encourage submission of new ideas for business education and training, papers that are not necessarily empirical in nature, but describe interesting new educational tools, approaches or solutions.
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Transformative Perspectives and Processes in Higher Education

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The collection is dedicated to lifelong learners and practitioners everywhere who are working to challenge the status quo, seeking to shape the future, and creating new pathways to innovate together.

Preface

As learning opportunities today reflect a more interdisciplinary, interconnected, and collaborative approach, this collection is geared for those interested in innovating higher education. Innovators may include educators, faculty, administrators, university leaders, lifelong learners or external partners. Whatever 'label' you choose for yourself, if you are interested in innovating higher education, this collection has something to offer you.

For those interested in emerging trends that redefine and reshape higher education, Part I provides an overview of such developments and presents a reconceptualization of higher education as it is occurring in the 21st century university – particularly in light of transformations induced by technological advances, economic constraints, and increased mobility of learners. We explore the challenges, solutions and potential futures. Trends discussed include proprietary learning establishments, entrepreneurial universities, technology-based pedagogies, and organizational structures to support innovation. Part I provides a conceptual look at changes occurring and opportunities awaiting higher education.

For those interested in more practitioner-based application and empirical research of innovation in the classroom, Part II offers case studies for course-based integration of emergent technologies and unique facilitation strategies. Part II chronicles the events of one university's 3-year initiative to innovate teaching and learning and shares the results of the pilot courses/programs offered. Part II provides practice-situated examples of curricular transformation based on changes presented in Part I, and shares course integrations from doctoral, undergraduate, and professional programs, all of which can inform one another.

For those seeking a forward-thinking, inspirational outlook on the future of higher education, Part III engages in a conversation that will allow you to think more meaningfully and deeply on the questions we should consider while moving into the uncertain future before us.

While this series is focused on business education and training, this particular text seeks to extend beyond the business school sector to embrace learning across the disciplines in higher education, to integrate views from psychology, science, business, social sciences and health, and to include views of learning from experts

in Europe, the United States and Australia. This collection also aims to share diverse perspectives (which may contradict one another at times). This work is not a prescription for learning, but rather an array of possibilities for you to use based on your own needs. Therefore, we leave it to you the reader to draw connections that are relevant and appropriate to your specific context and environment. As with every phenomenon, readers will differ on how they perceive and describe those circumstances; consequently we expect and appreciate a variety of perspectives to be adopted and decisions made based upon diverse needs. This book is offered as an assortment of fresh viewpoints on contemporary higher education and its impact, rather than a collection of research studies alone.

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Chapter 1
Introduction: New Opportunities for Development?

Amber Dailey-Hebert and Kay S. Dennis

What might our future look like if higher education focused on the needs of humankind and the enablers for meeting those needs? How might our reality change if we *embraced* the complexity and uncertainty surrounding us and *leveraged* them to the advantage of the learner (and society as a whole)? We begin this chapter with questions that have helped to shape a growing conversation on the need for higher education to shift dramatically from its traditional paradigm. It has been said that higher education is broken, that we have fallen behind the emerging trends of our time. It has also been said that higher education is the indispensible cornerstone of culture and society. We assert that revolutions in education have already occurred worldwide and will continue to shape the face of learning as we know it. As lines blur across all forms of learning – be it informal, formal, traditional, professional, networked or otherwise – shifts in our perspectives and understanding are necessary to accompany such change. This chapter outlines concepts for consideration as we challenge ourselves to participate in innovating the future of learning.

1.1 Reality Check

Hypercomplex, hyperconnected, globalized: these words characterize the environment we now inhabit. Companies, organizations, schools and higher education all struggle to adapt to the new reality. Despite the escalating need for contextualized learning and workforce training (Berman 2010; Friedman 2005; Kanes 2010),

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higher education is producing ill-prepared, dissatisfied graduates who emerge from outdated curricula (Fischer 2013; Frenk et al. 2010; Hacker and Dreifus 2011; Bennis and O'Toole 2005). Steeped in outdated tradition and infrastructures that fail to support innovation, higher education as we have known it is no longer viable. Part of the struggle for higher education, a struggle experienced for centuries, is the need to expand from elitist to mass higher education, with universal access (Selingo 2013; Owens 2011; Trow 1973). In Westernized and European societies, traditional higher education is being assailed by competition from newer forms of 'learning institutions' (such as corporate universities, online universities, research institutes, and employer-provided training and development programs) – a trend which calls into question the value of a formalized degree, the changing role of the university, and a shift in employer perspectives on workplace learning (Christensen and Eyring 2011; Horn 2012; Kanes 2010). This shift also affects academia's traditional undergraduate audience, which now must consider its role in workforce training, professionalization, and lifelong learning on the global scale (Altbach et al. 2010). These changes are producing a shift of responsibility on the part of the university from conserving and transmitting knowledge to creating knowledge. However, the shortened shelf life of knowledge, innumerable modes for creating knowledge, and multiple outlets for transmitting knowledge further accelerate this new reality (Blaschke 2012; Friedman 2005). Therefore, the solution to the problem must evolve continuously as the environment, in which the learner and the university are embedded, changes.

Universities and business schools are challenged to tackle interconnected, ill-defined problems in urgent need of innovative solutions. Yet higher education has difficulty organizing initiatives to address such issues, and continues to structure solutions in traditional, hierarchical, and restrictive ways (Christensen and Eyring 2011; Bore and Wright 2009; DeMillo 2011). In order to confront these changes and remain a relevant part of society, higher education must re-examine the present and future needs of those it would serve and the manner in which it should do so (Bohle-Carbonell et al. 2013; Taylor 2012).

Furthermore, as we consider the needs and enablers for meeting them and as we explore ways to embrace complexity and uncertainty, we should challenge ourselves to gauge the actual value we add to the learning landscape, and the embodied values needed in today's global society, which education can (potentially) help to promote. To achieve this goal, alternative structures, processes, and perspectives are needed to redefine the roles of teacher and learner, broaden the scope of both formal and informal learning, acknowledge the modalities available to connect learning and life, and establish beneficent environments that support learning for the greater good of society.

Rather than trying to 'fix' or adapt the traditional model of higher education with its lectures, face-to-face classrooms, faculty-centered methods, and a hierarchical tenure system (Jackson-Weaver et al. 2010), many innovators have moved to support learning in new ways (Smith 2011, 2012). As you will discover in various chapters of this collection, we explore several "opportunity areas" to meet the changing needs of humankind for learning. They include: innovating the ecosystem of academia; networked learning as an enabler; and individualized learning pathways.

1.2   Innovating the Ecosystem of Academia

As high ranking and tenured professors ourselves, we might be tempted to support the status quo that has brought us rank, autonomy, and job security. It would be easy enough to teach our courses and conduct our research as we have done for the past 20 years. It would be easy to maintain curriculum based on what benchmark studies suggest employers want. For administrators and academic leadership of an institution, it might be easier to maintain the status quo as well – to keep traditional programs and tenure systems in place throughout an institution, and to cater to traditional student populations. For learners, it might be easy to memorize material and focus on earning the grade to get the degree. It would be *easier* to maintain this status quo. Yet it would not be *sustainable*, not anymore. Those who continue to ignore or refute this assertion are kindly reminded of the wicked problems which await – wicked problems, which are exponentially more complex and ill-defined, lacking any definitive solution or conclusive end, and which have already shaped our learning reality today (Spanier 2010; Taylor 2009; Carr 2012; Dew 2012; Rittel and Webber 1973; McFadden et al. 2010). Universities are faced with wicked problems on two fronts: we must prepare graduates for a world beset by wicked problems, and we must find our place in society using new systems and methods that are agile and capable of supporting innovation.

1.2.1   Innovating from Within

In the past, we have turned to the hallowed Ivy League institutions or sought 'best practices' to implement on our campuses. However, this strategy may no longer be realistic; it cannot endure. At this juncture, in order for your organization to survive and thrive in such transformative times, you must have the capacity to answer this question – *what is our institution's dream?* It may seem like a simple question, yet the answer is not so easily reached. While we have been conditioned to create strategic plans, organize shared governance structures, and invest in frameworks to meet required standards or accreditation criteria (Dooris et al. 2004), we rarely have time to think about our dream and vision for the future, let alone how we might restructure our organizational culture to get there. Such deep and significant change requires an entrepreneurial spirit (on all levels of institutional hierarchy) which supports experimentation and has the capacity to view failures as learning experiences (Schulz 2010; Carmeli et al. 2010). The paradox is that we need a dream or vision (which is difficult to develop), and then we must allow people to experiment with that vision, (which is messy, difficult to accept, inherently risky, and cannot be learned from a book). This paradox has prevented countless institutions from moving forward, and continues to plague traditional learning infrastructures today (Altbach et al. 2010; Spanier 2010; Christensen and Eyring 2011).

In recent years, universities and learning institutes (such as the Open University, University of Phoenix, Khan Academy, or Codecademy), have experienced significant growth, due largely to their entrepreneurial efforts, adaptive learning models, and ability to fill a growing gap in higher education (Douglass 2012; Shaarples et al. 2013; Miller et al. 2000; Allen and Seaman 2011). These organizations have broadened the scope of higher education to include professional, part-time, and lifelong learners; they have expanded their modalities to better facilitate learning across time and space; and they have redefined the roles of the learner, faculty, and organization to support a shifting landscape in higher education (Staley and Trinkle 2011). A note of importance, particularly for business schools in the academy, is the connection these learning institutes have made between learning and working (Niall 2013). They have invested in connecting learners with practitioner-based learning environments – 'educative scenarios' – which extend beyond the traditional classroom (Hodge et al. 2011). Inherent in such an entrepreneurial spirit is an environment that supports risk-taking, establishes a psychologically safe communication climate (Edmondson 2012), and promotes innovation through collaboration at all levels (Harris 2011). And while their growth has redefined how we learn today, we have no guarantee that their models will work in five years. It is not their organizational model that we should try to replicate, but rather the entrepreneurial spirit, which generated their innovative solutions for learning. It is only through a continued state of innovation, a dissatisfaction with comfort in the status quo, and a vision for the future, that higher education can move forward and remain relevant. So we caution against looking to these organizations, or any other organizations, as 'examples' for your institution to emulate. Instead, we would encourage each institution to define its unique dream and allow employees the freedom to explore and invent in new ways to support it. Thus, moving forward, it will be essential to *innovate from within* your institution and to seek ways to create an entrepreneurial mindset. Such a mindset is evident with institutions of higher education which have taken this risk to innovate such as Quest University in Canada, Western Governor's University in the United States, the Open University in the UK, the Knowmad Business School in Amsterdam, and no doubt many more worldwide. They have each created their own unique brand of education that redefined a traditional element of higher education – from modality offerings, to multidisciplinary curriculum, to reshaping faculty roles or redefining the meaning of a degree – each institution innovated from within their vision for the future of higher education.

1.2.2 *Establishing a Hub to Empower and Create*

The new ecosystem of academia will need to focus on cross-institutional, cross-geographical, cross-disciplinary collaborations, which expand relationships beyond the traditional four-walled classroom and beyond the traditional campus. Such collaborations take advantage of our globalized world and the tools that enable us to create a shared learning experience. Such an ecosystem eliminates disciplinary

boundaries to promote a more connected approach to learning, and empowers students in co-constructing, co-branding, and co-developing curriculum with their instructors and external partners (Scardamalia and Bereiter 2006). It is based on problem-solving and collaboration (Di Blas and Paolini 2014) rather than content and independent study. Furthermore, it attains sustainability by capitalizing on the ideas of individuals rather than relying primarily on organizational leadership. For too long we have looked to the organization to provide the answers to our questions in times of uncertainty. However, today, one person's innovative idea might serve as the catalyst to shape or save the organization; one person's ideas could lead to organizational learning and advancement (Senge 2006). Yet we rarely empower employees to share or 'scale up' such ideas; and even if such ideas are realized, we tend to move at a snail's pace toward implementation. We need to dedicate more time and resources to scaling up successes in our organizations (Dede et al. 2005). The individual employee rarely is rewarded or given any incentive to experiment or take a risk with unorthodox methods. Therefore, the new ecosystem of academia reconsiders the review, tenure and promotion process (Boyer 1990; Trower 2009) and identifies ways to integrate and affirm multiple forms of contributions from the student, institution, and society as a whole. The new academic ecosystem should be a hub of innovation, exchange, and collaborative knowledge building.

Consequently, we can anticipate a role reversal among students, educators, administrators, and external partners. Rather than having guest speakers present to students about industry, students are now working on real-world problem-, project-, design-, or service-based learning activities where they offer fresh insights and solutions to external organizations. Students are engaged in participatory course redesign (Cook-Sather 2002; Könings et al. 2010) in which they provide direct feedback on how to restructure their course to better meet their needs. The roles have reversed in our new ecosystem, as described by Sergio (2012, par. 16):

> In other words, imagine kids who are raised with programming and video-production knowledge from very early ages creating educational materials for their peers, or even to teach adults, exposing them to very young people's points of view of the world. Imagine a 12-year-old boy explaining how (effectively) to communicate health information to him as a tutorial for nurses, physicians, and parents.

As we think about innovating the ecosystem of academia, we might consider taking a 'sky's the limit' orientation, for in today's kinetic galaxy, that which can be *conceived* will be *achieved*, and much sooner than most of us can imagine. Best of all there is room for everyone at the table, and each stakeholder group has a unique role and service to offer. The new ecosystem's primary role in establishing a hub is to *create an environment to connect* – to establish connections in which we bring all valued stakeholder groups together as never before. We hold immense potential and possibility to create hubs for learning that involve the global community and which can contribute to the greater good for society. Imagine studies in which learners around the globe are connected with experts in the field who work together to solve a global challenge facing society today (be it global warming, AIDS, unemployment, etc.). The learning is not structured by course number or

discipline, but rather by topic or challenge. The new ecosystem of academia can be the global learning hub of the future if we leverage our challenges to become our advantage and if we create opportunities for connection.

1.3 Networked Learning as an Enabler

Networked learning has allowed us to progress from social nets (such as Facebook™, Twitter™, etc.) to professional nets (such as LinkedIn™, etc.) to learning nets (such as MOOC's, EdX™, and Khan Academy). These new forms of community have created opportunities for learning and redefined the environment, learner, peer and instructor. Rather than having students attend school 'to get information from the instructor', we can harness such learning networks to create opportunities for exchange and collaborative knowledge production and sharing. Furthermore, traditional institutions are particularly well positioned to scale up networked learning quickly by leveraging their vast and established networks of students, faculty, alumni, peers, and external partners (Sergio 2012).

1.3.1 Ubiquitous, Ageless, Boundless

Ubiquitous learning represents learning that can be accessed in various situations and contexts – it is omnipresent (Yahya et al. 2010). U-learning, as it is known, surrounds the learner, enabled by a constant connection and interaction with an adaptive environment. It extends beyond distance education, mobile learning, and e-learning philosophies, to acknowledge the importance of context and the ability to learn and apply information in various settings, in essence, everywhere (Cope and Kalantzis 2009). Such ubiquitous learning has been possible largely due to the expansive networks and tools which connect us with accessible information and exchange.

Learners are connected as never before and gain information from multiple sources through multiple modalities, which has led to an evolution of content they are involved in creating. For example, consider the historic 20-volume encyclopedia sets as 'traditional education', and Wikipedia as the 'networked' form of such content. From serious gaming to mobile and ubiquitous learning, people are utilizing these networks to collaborate and learn across time and space and to co-create and produce ideas. Consequently, we are able to establish knowledge-creating cultures that encourage world citizenship, co-creation, co-branding, and co-development in innovative ways.

> It (knowledge building) involves students not only developing knowledge-building competencies but also coming to see themselves and their work as part of the civilization-wide effort to advance knowledge frontiers. In this context, the Internet becomes more than a desktop library and a rapid mail-delivery system. It becomes the first realistic means for

students to connect with civilization-wide knowledge building and to make their classroom work part of it (Scardamalia and Bereiter 2006, p. 98).

In a French university, students and teachers are co-branding and co-designing serious games with major companies, as part of their curriculum (Michel and Steiler 2013). Elsewhere in Europe we see curricula that integrate customized apps to help working professionals connect learning and their work experience (Könings et al. 2013). We see simulated learning environments used to teach brand management and marketing to learners in Europe (Noteborn et al. 2013). In China, cloud computing is used to design and apply continuing education network training (Zhang 2012). We see partnerships involving MOOC providers, World Bank, and organizations in Africa which aim to educate the masses in resource-challenged areas that have previously had no access to quality education (Lee 2013). All of these opportunities, in addition to so many more, are made possible through the networked learning available to us today. Furthermore, they are connecting multiple groups (learners, faculty, industry, non-profits, etc.). Yet the question remains, how can we utilize such networks effectively (which will be illuminated in the forthcoming chapters) and why have we not witnessed their integration in higher education to a greater degree?

1.4 Individualized Learning Pathways

The manner in which education has been structured was based on the assumption that everyone learns in the same way, at the same pace, and in the same place – and it was done so in a way that made poor use of our talents (Robinson 2010). For decades, research confirmed this fact and showed us the importance of considering the uniqueness and multiple capacities of each individual learner (Bloom et al. 1956; Gardner 1983; Brookfield 1987; Pink 1998; Knowles et al. 2011). In recent times, we find not only do students defy the mold that we have tried to place upon them, but also they are sidestepping traditional education altogether to create their own customized learning path to meet their unique needs. Kamenetz (2010) refers to these learners as 'edupunks' and highlights the vast opportunities (and cost effective strategies) by which learners today can 'hack' their own education to create the customized learning experience they seek. The rather unfortunate reality is that they are working around higher education rather than being supported by it. While some see this as the end of the academy, such indicators suggest a significant opportunity for higher education to organize informal learning, to help centralize resources, and to offer credentialing for these learned experiences. Whether via diplomas, degrees, certifications, digital badges, or other credentialing that has yet to be created, higher education is positioned to certify learning that is connected through an educational hub, in which learners participate and find value throughout their lifetime. Although lifelong learning is not a new term, it could become policy priority among all countries around the world that are dealing with issues of unemployment, skills deficits, and shifting labor markets, and the need to focus on developing human capital and

capacity building (Istance and Kools 2013). Business schools could easily seize this opportunity to connect learning in the workplace and university-based credentialing. Furthermore, lifelong learning is inclusive and accommodates heterogeneity – and we seem to be missing our opportunity to coordinate and formalize informal learning. Therefore, the future of learning in higher education relies heavily on our ability to create environments for collaboration, customization, and informalization of learning.

One consequence of such networked and lifelong learning is the obliteration of the typical, age-defined learning environment. We now have 8-year-olds and 88-year-olds who can access the same information and connect or collaborate with one another from different parts of the world, based on their interest in the topic (Pappa et al. 2011). Therefore a byproduct of this continuous and truly lifelong learning journey emphasizes an intergenerational approach to all learning based on interest, curiosity, passion or need. The expanded population of learners also includes those parts of the world whose residents have been denied access to education based on gender, location, physical ability, or socioeconomic status. Networked learning opportunities have lowered the barriers to education for such groups, and have helped shape an entire generation of people for whom access typically was limited (Chatti et al. 2010). And the key to successful channeling of the networked learning movement will not simply involve digitizing current educational systems: the beauty lies in a new freedom to select one's own life path, leverage talents, and pursue passions, dreams, and callings (Sergio 2012).

While emergent technologies may be viewed as mere instruments to support learning and interaction, the weight of their impact cannot be underestimated. However, part of the wickedness we face today is the tendency to focus on the *instrument* or technology itself (learning networks) rather than the *need* which the instrument could help address (access and individualized learning pathways). If we shift our paradigm, we have the opportunity to enable setting up communities and certifying the learning pathway.

1.5   Engage in Shaping the Future

Despite popular belief, change is not something that merely 'happens to us' – it is something we can embrace and shape. And while uncertainty and an unknown future can create anxiety, they can also create opportunity. Innovation can flourish when faculty members are given the autonomy, money and time to experiment and explore unorthodox methods. Similarly, we need to reconsider our views of the learner as a self-regulating, autonomous being who deserves individualized learning pathways in the lifelong journey of growth and development. Innovative approaches that offer contextualized learning through real-life industry and workforce challenges should be explored in order to create meaningful connections and transfer among learning, working, and living. Furthermore, strategies should be devised to enable collaborative knowledge building and meaningful dissemination

so that the creative ideas of one person can ultimately translate into organizational learning and adaptation. Our focus must be on our future and the needs of human-kind, and we should utilize the enablers for meeting those needs.

Today, catalytic conversations are needed – those which have the potential to change the face of higher education and which already have been occurring world-wide. Perhaps you are involved in such conversations, or perhaps you are even leading such conversations at your institution; perhaps you are new to the conversation. Hence, we conclude this chapter not with generalized answers to guide you, but rather with questions that we hope will challenge you and shape your thinking:

- How can these changes and opportunities be harnessed to our collective advantage?
- What is the future you see?
- What will invoke your next learning innovation?

What might our future look like if higher education focused on the needs of human-kind and the enablers for meeting those needs? How might our reality change if we *embraced* the complexity and uncertainty surrounding us and *leveraged* them to the advantage of the learner (and society as a whole)? These questions will be explored in the chapters ahead.

References

Allen, I. E., & Seaman, J. (2011). *Going the distance: Online education in the United States, 2011*. Newburyport: Sloan Consortium.

Altbach, P. H., Reisberg, L. & Rumbley, L. E. (2010). *Trends in global higher education: Tracking an academic revolution*. A report prepared for the UNESCO 2009 world conference on higher education. Paris: UNESCO, 2009. http://www.unesco.org/tools/fileretrieve/2844977e.pdf

Bennis, W. G., & O'Toole, J. (2005). How business schools lost their way. *Harvard Business Review,* (May issue), 1–10.

Berman, S. (2010). *Capitalizing on complexity*. IBM Global Business Services, Somers, USA.

Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *The International Review of Research in Open and Distance Learning, 13*(1), 56–71. http://www.irrodl.org/index.php/irrodl/article/view/1076/2087

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (Eds.). (1956). *Taxonomy of educational objectives – The classification of educational goals – Handbook 1: Cognitive domain*. London: Longmans, Green & Co. Ltd.

Bohle-Carbonell, K., Dailey-Hebert, A., & Gijselaers, W. (2013). Unleashing the creative potential of faculty to create blended learning. *The Internet and Higher Education, 18*, 29–37. doi:10.1016/j.iheduc.2012.10.004.

Bore, A., & Wright, N. (2009). The wicked and complex in education: Developing a transdisci-plinary perspective for policy formulation, implementation and professional practice. *Journal of Education for Teaching, 35*(3), 241–256. doi:10.1080/02607470903091286.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. New York: The Carnegie Foundation for the Advancement of Teaching.

Brookfield, S. D. (1987). *Developing critical thinkers: Challenging adults to explore alternative ways of thinking and acting*. San Francisco: Jossey-Bass.

Carmeli, A., Reiter-Palmon, R., & Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Psychology Faculty Publications*. Paper 30. http://digitalcommons.unomaha.edu/psychfacpub/30

Carr, N. (2012). The crisis in higher education. *MIT Technology Review*. Retrieved December 18, 2013, from http://www.technologyreview.com/featuredstory/429376/the-crisis-in-higher-education/

Chatti, M. A., Jarke, M., & Specht, M. (2010). The 3P Learning Model. *Educational Technology & Society, 13*(4), 74–85.

Christensen, A., & Eyring, H. J. (2011). *The innovative university: Changing the DNA of higher education from the inside out*. San Francisco: Jossey-Bass.

Cook-Sather, A. (2002). Authorizing students' perspectives: Toward trust, dialogue, and change in education. *Educational Researcher, 31*, 3–14.

Cope, B., & Kalantzis, M. (Eds.). (2009). *Ubiquitous learning*. Champaign: University of Illinois Press.

Dede, C., Honan, J. P., & Peters, L. C. (2005). *Scaling up success: Lessons from technology-based educational improvement*. San Francisco: Jossey-Bass.

DeMillo, R. A. (2011). *Abelard to apple: The fate of American colleges and universities*. Cambridge, MA: MIT Press.

Dew, J. R. (2012). The future of American higher education. *World Future Review, 4*(4), 7–13.

Di Blas, N., & Paolini, P. (2014). Multi-user virtual environments fostering collaboration in formal education. *Educational Technology & Society, 17*(1), 54–69.

Dooris, M. J., Kelley, J. M., & Trainer, J. F. (2004). Strategic planning in higher education. *New Directions for Institutional Research, 123*, 5–11.

Douglass, J. A. (2012). *Money, politics and the rise of for-profit higher education in the US: A story of supply, demand and the Brazilian effect. Research & occasional paper series: CSHE. 2.12*. Berkeley: Center for Studies in Higher Education.

Edmondson, A. C. (2012). *Teaming: How organizations learn, innovate, and compete in the knowledge economy*. San Francisco: Jossey-Bass.

Fischer, K. (2013). The employment mismatch: A college degree sorts applicants, but employers wish it meant more. *The Chronicle of Higher Education*. http://chronicle.com/article/The-Employment-Mismatch/137625/#id=overview

Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Ke, Y., Kelly, P., Kistnasamy, B., Meleis, A., Naylor, D., Pablos-Mendez, A., Reddy, S., Scrimshaw, S., Sepulveda, J., Serwadda, D., & Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *Lancet, 376*(9756), 1923–1958. doi:10.1016/S0140-6736(10)61854-5.

Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar, Straus, and Giroux.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

Hacker, A., & Dreifus, C. (2011). *Higher education? How colleges are wasting our money and failing our kids – And what we can do about it*. New York: St. Martin's Griffin.

Harris, A. (2011). System improvement through collective capacity building. *Journal of Educational Administration, 49*(6), 624–636.

Hodge, P., Wright, S., Barraket, J., Scott, M., Melville, R., & Richardson, S. (2011). Revisiting 'how we learn' in academia: Practice-based learning exchanges in three Australian universities. *Studies in Higher Education, 36*(2), 167–183.

Horn, M. (2012, April 12). Yes, University of Phoenix is disruptive; No, that doesn't make it the end-all. *Forbes*. http://www.forbes.com/sites/michaelhorn/2012/04/12/yes-university-of-phoenix-is-disruptive-no-that-doesnt-make-it-the-end-all/

Istance, D., & Kools, M. (2013). OECD work on technology and education: Innovative learning environments as an integrating framework. *European Journal of Education, 48*(1), 43–57. doi:10.1111/ejed.12017.

Jackson-Weaver, K., Baker, E. B., Gillespie, M. C., Ramos Bellido, C. G., & Watts, A. (2010). Recruiting the next generation of the professoriate. *Peer Review, 12*(3), 11–14.

Kamenetz, A. (2010). *DIY U: Edupunks, edupreneurs, and the coming transformation of higher education*. White River Junction: Chelsea Green Publishing.

Kanes, C. (Ed.). (2010). *Elaborating professionalism. Studies in practice and theory* (Innovation and change in professional education, Vol. 5). Dordrecht/London/Boston: Springer.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2011). *The adult learner: The definitive classic in adult education and human resource development* (7th ed.). Oxford: Elsevier Inc.

Könings, K. D., Brand-Gruwel, S., & van Merriënboer, J. J. G. (2010). An approach to participatory instructional design in secondary education: An exploratory study. *Educational Research, 52*, 45–59.

Könings, K. D., Koopmans, R., Van Berlo, J., Van Merriënboer, J. J. G., & Van der Vleuten, C. (2013, August). *The smartphone as a mobile reflection tool for learning at the workplace.* Paper presented at the 15th Biennial conference of the European Association for Research on Learning and Instruction (EARLI), Münich, Germany.

Lee, P. (2013, October 18). World Bank, Coursera to take MOOCs to developing world. *University World News*, Issue 292. http://www.universityworldnews.com/article.php?story=20131017131951244

McFadden, K., Chen, S., Munroe, D., Naftzger, J., & Selinger, E. (2010). Creating an innovative interdisciplinary graduate certificate program. *Innovative Higher Education, 36*, 161–176. doi:10.1007/s10755-010-9164-6.

Michel, H., & Steiler, D. (2013). Do it yourself: Why and how teachers are going to create their own serious games. In P. Daly, K. Reid, & S. Reeb-Gruber (Eds.), *Proceedings of the 20th EDINEB conference: Future skills for competitive business education*. Haarlem: EDINEB Association.

Miller, J. W., Martineau, L. P., & Clark, R. C. (2000). Technology infusion and higher education: Changing teaching and learning. *Innovative Higher Education, 24*(3), 227–241.

Niall, P. (2013). Evaluating experiential learning in the business context: Contributions to group-based and cross-functional working. *Innovations in Education & Teaching International, 50*(2), 202–213.

Noteborn, G., Dailey-Hebert, A., Carbonell, K. B., & Gijselaers, W. (2014). Essential knowledge for academic performance: Educating in the virtual world to promote active learning. *Teaching and Teacher Education, 37*, 217–234.

Owens, J. (2011). Enlightenment and education in eighteenth century America: A platform for further study in higher education and the colonial shift. *Educational Studies, 47*, 527–544.

Pappa, D., Dunwell, I., Protopsaltis, A., Pannese, L., Hetzner, S., de Freitas, S., & Rebolledo-Mendez, G. (2011). Game-based learning for knowledge sharing and transfer: The e-VITA approach for intergenerational learning. In P. Felicia (Ed.), *The handbook of research on improving learning and motivation through educational games: Multidisciplinary approaches*. Hershey: IGI Global, Information Science Reference. 10.4018/978-1-60960-495-0.ch045.

Pink, D. H. (1998). *A whole new mind: Why right-brainers will rule the future*. London: Marshall Cavendish.

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*(2), 155–169.

Robinson, K. (2010). Bring on the learning revolution! *Ted Talks*. http://www.ted.com/talks/sir_ken_robinson_bring_on_the_revolution.html

Scardamalia, M., & Bereiter, C. (2006). Knowledge building: Theory, pedagogy, and technology. In K. Sawyer (Ed.), *Cambridge handbook of the learning sciences* (pp. 97–118). New York: Cambridge University Press.

Schulz, K. (2010). *Being wrong: Adventures in the margin of error*. New York: Harper Collins Publishers.

Selingo, J. (2013). *College (un)bound: The future of higher education and what it means for students*. New York: Houghton Mifflin Harcourt Publishing Company.

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.

Sergio, F. (2012). mLearning: Revolutionizing education. *DesignMind*. http://designmind. frogdesign.com/blog/mlearning-revolutionizing-education.html

Shaarples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., Gaved, M. (2013). *Innovating pedagogy 2013: Explore new forms of teaching, learning and assessment, to guide educators and policy makers.* Milton Keynes: The Open University. http://www.open. ac.uk/personalpages/mike.sharples/Reports/Innovating_Pedagogy_report_2013.pdf

Smith, K. (2011). Cultivating innovative learning and teaching cultures: A question of garden design. *Teaching in Higher Education, 16*(4), 427–438.

Smith, K. (2012). Lessons learnt from literature on the diffusion of innovative learning and teaching practices in higher education. *Innovations in Education and Teaching International, 49*(2), 173–182.

Spanier, G. B. (2010). Creating adaptable universities. *Innovative Higher Education, 35*, 91–99.

Staley, D. J., & Trinkle, D. A. (2011). The changing landscape of higher education. *Educause Review, 46*(1), 16–33.

Taylor, M. C. (2009, April 27). End the university as we know it. *The New York Times*. Retrieved December 18, 2013, from http://www.nytimes.com/2009/04/27/opinion/27taylor.html

Taylor, M. P. (2012). The entrepreneurial university in the twenty-first century. *London Review of Education, 10*(3), 289–305.

Trow, M. (1973). *Problems in the transition from elite to mass higher education* (Carnegie Commission on Higher Education 57). Berkeley: Carnegie Commission on Higher Education.

Trower, C. (2009, September 7). Rethinking tenure for the next generation. *Chronicle of Higher Education.* http://advance.cornell.edu/documents/Rethinking-Tenure-for-the-Next-Generation.pdf

Yahya, S., Ahmad, E. A., & Jalil, K. A. (2010). The definition and characteristics of ubiquitous learning: A discussion. *International Journal of Education and Development using Information and Communication Technology, 6*(1), 117–127.

Zhang, T. (2012). Design and application of continuing education network training platform based on cloud computer. In *Proceedings of the 2012 international conference on cybernetics and information*. New York: Springer. http://link.springer.com/chapter/10.1007/978-1-4614-3872-4_154#page-1

Part I
Higher Education Redefined and Broadened

We are in a constant state of flux, and higher education needs to respond in more proactive, intentional, and innovative ways to remain a relevant cornerstone to society and culture. The purpose of this edited collection is to provide insight into the complexities confronting higher education today and to highlight tangible opportunities that exist to address such issues. The chapters are arranged to inform the reader seeking knowledge on how to (1) reshape and redefine the 21st century university, with its evolving role in these transformative times; (2) design and implement courses that address the changing needs of the university and the non-traditional student; and (3) utilize research on innovative strategies with processes that promote organizational learning. The chapters profile the fluid nature of learning as it evolves in higher education and the workplace, often with a blurred line separating the two environments. Exciting ideas related to heutagogy, problem-based learning, innovative constructivist strategies, authentic learning, and self-regulated learning all converge in this volume. The editors begin by asking how our collective reality might change if the complexity and uncertainty surrounding us were embraced and leveraged to serve the learner and society as a whole. They invite the reader to explore collaborative approaches to individualized learning pathways, networked learning, and a reimagined ecosystem of academia in the section ahead.

Part I opens with Richard Milter's insightful perspective on the need for educational institutions to become more entrepreneurial and the value in doing so. Notably, he highlights the way such entrepreneurial institutions challenge students to develop the knowledge and skills to confront complexities in the world of technology-mediated collaboration, and the ways in which they embrace innovation to meet the future ahead. Building upon Milter's idea of the entrepreneurial university, in Chap. 3, B. Jean Mandernach, Hank Radda, Scott Greenberger and Krista Forrest explain a proprietary model for educational entrepreneurship which can assist colleges and universities in meeting the expanding needs of lifelong learners by opening access to a broader community of students. They explore strategies to create efficient, profitable, and student-centric learning that has filled a growing gap in higher education in recent years. In an effort to provide an example of an entrepreneurial university

aimed at innovating for the non-traditional learner, Katerina Bohle-Carbonell and Amber Dailey-Hebert describe a multifaceted bottom-up project structure which afforded lower-level faculty members the autonomy, money and time to experiment and explore unorthodox methods. They discuss the capacities necessary to promote and infuse innovation at the individual, group, and organizational levels. Finally, as the focus shifts from organization to learner, with emphasis on the impact of emerging technologies, in Chap. 5 the strategies and philosophical approach to the needs of lifelong learners is addressed by Lisa Marie Blaschke and Stewart Hase. They showcase heutagogy, a framework for self-determined learning that can be deployed using the latest technological developments and implemented in pedagogically meaningful ways to serve the 21st century learner.

Chapter 2
The Impetus for Change: Why Entrepreneurial Universities Will Transform the Future (While Others Will Cease to Exist)

Richard G. Milter

As leaders and innovators in educational institutions attempt to meet future learning needs, it is paramount that they reconsider both the structure and processes that have become legacy models in their academic infrastructure. One key challenge for higher education leadership (and those within the institution seeking to innovate for the future) is to incorporate the spirit and drive exhibited by entrepreneurs. Entrepreneurial spirit has driven much development in the economic annals and is key to future societal expansion. Universities can play a vital role in such expansion but only if they align internal structures and manage risk and ambiguity to support mechanisms for learner-centered approaches and leverage technology in the learning process. University leaders must challenge the status quo and address the urgency to balance forces involved in the creation of knowledge and processes for the dissemination of knowledge. Therefore, this chapter focuses on entrepreneurial leadership, organizing structures for reward and risk management, tolerance for ambiguity, leading change efforts that include adjusting to more learner-centered approaches, and leveraging technology to transform higher education.

2.1 What Is an Entrepreneur?

An entrepreneur is someone who has strong passion for a particular activity that has the potential to create value for others. Successful entrepreneurs are able to sell that value proposition to others and reap benefits by doing so. The term,

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initially used in academic circles in the early 18th century by Irish-French economist Richard Cantillon, was introduced in the early 13th century using the French word "entreprendre" which means "to undertake" or "do something." Cantillon used it to connote an individual who puts their personal fortune at risk for the benefit of the enterprise (Tarascio 1985). The risk to which he referred pertained to both finances and career, as these persons put their future reputation on the line.

Entrepreneurs appear to have thick skin, or as psychologists proffer, "high internal locus of control," such that what others think about them is rather insignificant and where risk of failure is accepted and sometimes even cherished. The point is that if entrepreneurs are not stretching beyond their known limits or the limits proclaimed by others, they are not doing enough or learning enough. Entrepreneurship has been more recently described as the process whereby one or more persons use concerted efforts and means to pursue opportunities to create value, and grow by fulfilling wants and needs through innovation and uniqueness, no matter what resources are currently controlled (Coulter 2001).

People who tend to exhibit these behaviors on repeated occasions are known as serial entrepreneurs. They possess high tolerance for ambiguity, adapt easily, and display an ability to take risks, putting everything on the line in order to pursue their goals. Probably the most important element is that they sustain a genuine passion for their mission that appears to grow as obstacles present themselves. Perhaps the simplest and most salient expression of the value of an entrepreneur was provided by Peter Drucker (1985) when he exerted that "entrepreneurs innovate."

Although they are not typecast in one personality or set of skills, entrepreneurs do tend to exhibit a common set of attributes. They are continuous, lifelong learners; unafraid of failure; willing to venture outside their comfort zone and to take risks in highly unpredictable environments; comfortable with ambiguity; and skillful improvisers. The fact that there is no right answer is reassuring to them (Thorp and Goldstein 2010).

Drucker also claims that entrepreneurship is neither an art nor a science but a practice. This concept of practice is perhaps the driver of much of what we see today as new business start-ups evolve into fully appreciated engines of social value and/or wealth creation. Research suggests that entrepreneurial leadership has become a requirement for success (Oosthuizen 2009). Many of the policy-making formulations around the globe today call for evidence-based accountability. Combining the wisdom of entrepreneurs with evidence-based knowledge, Baron (2012) advocates this orientation toward the use of metrics to provide success criteria for future use. A plethora of examples demonstrates the value of an entrepreneurial orientation for businesses and other organizations.

Entrepreneurs know the difference between leading and managing. They also know that both skills are necessary to build and sustain a successful organization. Most entrepreneurs find themselves often uncomfortably positioned in leadership roles as they begin to craft their organizational pathways toward the realization of their dream. They soon discover that leadership alone is not sufficient and seek managers who can help to connect the dots between their dreams and the practice of

the organizational operations. It has been proposed that "entrepreneurs don't usually have an MBA, but they hire as many of them as they can" (Krogue 2013, n.p.).

Leaders and managers differ in their orientation. Leaders spend much time in the recruitment and nurturing of other leaders to help them in realizing their mission. Similarly, entrepreneurs attempt to build a cadre of individuals (often in a team) who can help to further expand their thinking on the vision. Managers, on the other hand, focus on getting the details right and making sure tasks are accomplished in the attainment of mission-related goals and objectives.

Although the root meaning of the word connects enterprise with action, common opinion places entrepreneurs outside corporate structures and labels their counterparts within corporations as intrapreneurs. Corporate leaders held in high esteem for their entrepreneurial ability include Richard Branson and Jack Welch, both of whom have demonstrated success in charting innovative terrain for their corporations. These men also exhibited high capabilities in leadership, management, and team building – all considered key abilities for entrepreneurs.

Entrepreneurial activity is thus characterized by actions that demonstrate individuals, or groups of individuals, who take risks to achieve something that they value. Leadership, management ability, and teamwork enhance such activity. Other qualities associated with entrepreneurial leadership include: (1) dissatisfaction with the present, (2) recognizing and taking advantage of unfair advantages, (3) vision, (4) ability to get people on board and expand the vision, (5) flexibility and adaptability, (6) receptivity to feedback; (7) willingness and ability to learn, and (8) persistence and execution (Warren 2012, n.p.). The successful entrepreneurial leader is one who either possesses these attributes or recruits others who have them. Acknowledging the value of each quality to the success of the venture is what initially separates entrepreneurs and managers.

2.2 Why Should Universities Be Entrepreneurial?

The missions of most universities lay claim to discovery, knowledge creation and dissemination, teaching, and service to the greater community. Briefly, the main mission is to seek and promote change. Such change behavior aligns with the key characteristics of entrepreneurs. Most universities today contain entrepreneurship in their curriculum, typically in engineering or business schools. Listening to university presidents, one hears proclamations of their schools' attempts to lead into the future, typically with selective targets as their key differentiators.

But those platitudes appear more often as words and less frequently as actions. Most university leaders continue to "toe the line" or "follow the leader" than assume a genuine leadership stance moving toward an uncertain future. It has recently been suggested that academic leadership become more entrepreneurial and responsive by advancing to an evidence-based approach or developing an "accountability culture" that reinforces actions to truly educate students rather than "preparing them to look good on a resume" (Buller 2013, p. 30). A similar sentiment was expressed as a

desire to "see universities as a public good once more instead of as a finishing school for tadpoles" (Smith 2013, p. 157). A colleague once observed, "You don't become number one by following number one." Yet most processes in place at that institution were poised to emulate the top-ranked schools. A push toward following the examples set by the top schools clearly is not entrepreneurial. Attempting to clone certain processes or structures used elsewhere by top-ranked schools is not the best approach to build a genuine entrepreneurial culture. In fact, the more time and energy spent "playing by the rules," the less likely the university is to develop new approaches toward competitive differentiation. Christensen's (1997) model of disruptive innovation suggests that leaders are often in a quandary about future action due to the very nature of their inability to see beyond the current state. This is frequently due to the failure of education leaders to confront the reality of the impending change in their industry.

The impetus for taking an entrepreneurial path involves awareness that change is needed. The ability to remain cognizant of the state of the industry and the competitive forces within it is a requirement for leadership (Porter 1980). Unfortunately, universities tend to exhibit little effort at such external scanning (except for watching the top-ranked schools). In a recent report on the future of higher education in England (Huisman et al. 2012), for example, little acknowledgement was made of what is today the largest university in that country. To the authors' credit, they do not point to any specific institution. But the study is based on a Delphi method-based survey of experts and senior practitioners concerning developments in English higher education. The emergence and rapid growth of The Open University's (United Kingdom) impact in the industry appears to be unsuspected. [For more on The Open University's impact, see Rix and Twining 2007.] With over a quarter million students, The Open University ranks first in enrollment in the United Kingdom. Topping the list in the United States are The University of Phoenix with an enrollment of over 300,000 followed by Kaplan University with close to 80,000 enrolled students (this ranking does not include state university systems) (MatchCollege.com 2013).

This lack of awareness is mirrored in the United States, where for years traditional institutions of higher education ignored the emergence of Phoenix, Kaplan, Capella, Western Governors, and others. The conventional wisdom on college campuses held that these for-profit, non-traditional, and typically online operations were not the stuff that higher education should be made of, and such models would never pose a real threat to the high quality, rigorous traditions of the established and hallowed ivory towers. One of the most glaring differences between the two approaches is that the for-profits target the learner and emphasize this learner-centered approach in program and course design. Many of the traditional institutions also emphasize the learner-centered approach, but unfortunately implementation of it is limited to their advertising.

The traditional institutions are steeped in a culture supportive of a faculty-centered approach that harbors faculty who become "protective, rigid, and inevitably irrelevant" (Demillo 2011, p. 21). Although an argument has been made that for the elite US universities and colleges, a faculty-centered culture may be extended well into the future, for those institutions not carrying "elite" status their value to students will continue to erode, putting them at a competitive disadvantage. This

places university leaders caught in what Christensen describes as the "innovator's dilemma" where targeting success strategies of the past leads to failure to perform in a future that does not resemble the past (Christensen 1997).

Not only should universities act in entrepreneurial ways, but they should also provide a springboard for learners to (1) develop and enrich the skills sets and attitudes required for inculcating a genuine entrepreneurial drive (Rosenberg 2009; Florin et al. 2007) and (2) enhance their ability to meet the challenges of the future in innovative ways (Sanchez 2011). In much the same manner that universities have been challenged to take a leadership role as hubs for next-generation networks (Lennett et al. 2012), it is time that universities help learners prepare to construct innovative approaches to face societal challenges. Examples of successful programs that incorporate student entrepreneurship have been demonstrated at the Aspen Institute and Net Impact in the United States, at Oikos in Switzerland, and at AIESEC (Association Internationale des Etudiants en Sciences Economiques et Commericales) – originated in France but is now an international student-run association that provides entrepreneurial and leadership opportunities around the globe (Herrndorf et al. 2011). These programs provide social, economic, institutional, and environmental challenges with change and sustainability issues blended in pragmatic applications where students learn to fully appreciate and promote such initiatives in their universities.

Entrepreneurship may well be the key driver needed to support the transfer of new knowledge to tools for addressing these societal challenges. As Eric Schmidt (former CEO of Google) suggested following the 2008 financial collapse, "We are going to have to innovate our way out of this thing and our great research universities will have to lead the way" (Ryssdal 2009, n.p.). In fact, only a handful of "great" research universities exist in the US, amid approximately 200 "research universities" in the US. Most of the 4,500 institutions of higher education in the US are categorized as comprehensive universities, 4-year colleges, community colleges, and for-profit institutions (Bok 2013). Schmidt's position on the source of leadership may have been somewhat myopic, as other institutions of higher learning can and should participate in targeting our socio-economic challenges. Many of the middle ground (non-elite) institutions were founded as a result of a "partnership between an academic, often a humanist, and an entrepreneur" (Thorp and Goldstein 2010, p. 6). It is time for academics to come to terms with the entrepreneurial orientation and seize the opportunity to bring more relevance into their practice.

Due to the multi-disciplinary collective nature of an entrepreneurial orientation, it should assimilate well into the multifaceted approach that is the supposed grounding of most universities. As suggested by Howard Gardner, a diversity of strengths, or "minds," is needed to attack the most complex issues today. Pursuing such issues single-mindedly is ineffectual. An entrepreneurial orientation at the university level would support Gardner's five tenets – disciplined, synthesizing, creating, respectful, and ethical (Gardner 2006). The leadership and faculty at most universities are comprised of individuals who excel at using a disciplined mind that is very good at solving traditional problems but less adept at targeting the permanent whitewater conditions displayed in today's tough challenges. And, due to the departmental structure, universities rarely support the type of multifaceted approach needed to fully address these challenges.

2.3   How Do Universities Structure Their Reward Systems?

Largely because of the departmental and discipline-specific boundaries, most universities are steeped in a culture that directly opposes the entrepreneurial spirit. Faculty reward systems typically emphasize individual output or research that is published in top tier journals. At most research universities, teaching assumes a lesser importance. The author's experience across dozens of research universities concludes that research seminars tend to outweigh faculty discussions on teaching by about ten to one. Research universities have been encouraged to redefine the metrics used to assess scholarship to include companies founded, public service, and impact on societal problems (Thorp and Goldstein 2010).

Leaders who move in this direction will expand the value proposition for their institutions to provide greater benefits to their communities and the broader society. The concept of taking knowledge gained via academic research and applying it to a real issue typically is not included in the design of the research life cycle. Yet it should be. This longstanding debate first surfaced during the founding of the very first university, the University of Padua, in 1222. Many research faculty members are fully convinced that performing work to be applied to existing world problems is of less value than the pure pursuit of knowledge.

Traditional universities charge fees and compensate faculty based on seat hours of students. One metric that is used for accreditation of business schools, for example, is the number of seat hours of instruction assigned to full-time faculty – greater value is ascribed to classes conducted by full-timers than is credited to part-time adjunct faculty members (frequently represented by professionals in the field who provide insights into the workings of theoretical constructs as they are applied in practice). Yet many business school faculty members, particularly at elite institutions, do not consider theirs a professional school like medicine, engineering, and law, but prefer to view them as more akin to the ephemeral appeal of economics or other "hard" sciences. Such faculty members believe they must defend the august nature of their disciplines and protect against a "training and development" approach to teaching business skills. Unless universities and their departments begin to value the development of applied skills as much as they value pure and applied research, they will remain limited in their drive toward impacting the future.

2.4   How Do Universities Handle Risk?

The old adage – that the only institutions that resist change more than government agencies are universities – tends to be true. At most universities, persons occupying tenured and/or chaired positions are quite comfortable. Professional schools such as business and engineering attract adjunct faculty and executives in residence, many of whom are retired or nearing retirement, having made their mark in industry. One executive-in-residence faculty member commented that although he really enjoyed teaching, "it is clearly a much slower-paced existence than my time in industry."

Adjunct faculty members are not encumbered with research and publication requirements, their sole focus being their classes and their students. Although the majority of US research universities require faculty to demonstrate excellence in teaching, research, and service, most of them place premium value on the research (and publication) output. The greatest uncertainty and risk for junior faculty members concerns tenure status, which, although sometimes shrouded in legitimacy, is most often a highly political decision. Junior faculty members in the US typically have between 6 and 10 years, depending on the institution, to prove their worth on the tenure track. As one scholar related, progressing beyond the tenure gate is important because after that point you can "begin to do more meaningful work."

Much of the risk at universities is experienced initially at the individual full-time faculty member level. In order to meet the tenure requirements a young scholar must develop a productive research platform and publish in the top tier academic journals. A junior faculty member is often provided with a light teaching load of one or two courses each year with little expectation for significant time spent in university service. It is believed that the faculty member will be more productive with research if unencumbered otherwise. Once tenure is within reach these faculty members typically become more engaged in governance and service activities. Once tenure is received some of them devote time to enhance the teaching performance of themselves and others. But the main focus of most senior faculty remains on their research; and often they invite junior faculty and often they invite junior faculty members in order to elevate their publication potential.

2.5 Why Is Tolerance for Ambiguity Important?

The focus of entrepreneurial activity, as with most leadership activity, is on making judgments with incomplete, imperfect, and often inconsistent information. Mintzberg (1973) refers to this leadership activity as dealing with "messy" problems. Leaders at universities face similar challenges as they grapple with budget shortfalls, enrollment declines, unproductive faculty (especially post-tenure), demanding students, and accreditation reviews. But one of the differences between businesses and universities is that whereas businesses attempt to meet challenges head-on, universities support a veil of correctness and a tyranny of expertise. Universities use the veil and tyranny with grounding in theoretical constructs and a timeline that frequently extends beyond the lifespan of the challenge. Businesses, in a solution-seeking mode, tend to apply a logical pragmatism in search of a timely response.

Rather than seek the "right answer" to the presenting dilemma, entrepreneurs often seek information from a variety of resources. The objective for an entrepreneur is frequently not to find the correct answer but to ask enough questions. One of the academic programs facilitated by this author used the following quote (attributed to John Steinbeck) as the program motto: "We are often searching for better answers, when we should be developing better questions" (Stinson 1994, n.p.). The value of

the motto was to raise awareness that our graduate students were entering a world of permanent whitewater – not a world in which everything could be placed in a proper row and column.

This quote provided an introduction to the reality awaiting these students once they left their "safe" zones on campus. We used that statement to encourage an inquisitive and unrelenting quest for better questions, rather than a search for quick-fix answers. Students grappled with experts who would not provide them with definite answers. No one was pushing everyone to acquire the same values. The "teacher" nurtured greater inquisitiveness rather than providing more answers. Vague assignments were handed to students with insufficient information, making the complexity of the problem somewhat unbearable. Although support mechanisms were in place, students soon learned to seek resources and to adopt a problem-based approach by pursuing answers to their questions on their own (Savery and Duffy 1995; Stinson and Milter 1996; Duffy and Raymer 2010; Milter 2002).

Now is the time for university leaders to practice what at least some faculty members are teaching with regard to preparing professionals for the organizations of the future. The ability to tolerate ambiguity plays a large role in successfully navigating new business development. Such tolerance is required for university leaders as they attempt to take their institutions to the next level in providing relevant learning experiences.

2.6 How Should Leaders Navigate for Change When Prevailing Winds Support the Status Quo?

> It must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in those who would profit by the new order…This arises partly from the incredulity of mankind who do not truly believe in anything new until they have an actual experience of it. (Niccolo Machiavelli, *The Prince*)

Leadership at a university has been compared to herding cats and described as the practice of authority without power. As a former provost once exclaimed, "my job is one of ultimate persuasion; there is not much I can expect from demands." Most deans and chairs have similar experiences. Yet change without support from leadership is rarely realized; and there lies the conundrum. Universities need leaders with the vision and passion to move the needle forward on the innovation dial in order to keep pace with the rapidly expanding learning landscape.

But in order to truly lead toward innovation, leaders in higher education are required to push against the very systems and structures that elevated them to their leadership positions. This paradox calls for new approaches from leadership as well as an openness to support new practices by faculty. One direction involves the recruitment, composition, and direction of governing boards, with members who must support key visionary and administrative leadership at universities (Mitchell 2013). A related element pertains to the ability of leadership to maintain open lines

of communication with the board members so that their support remains visible (Puglisi 2012).

This picture differs from the experience enjoyed by leaders in corporate settings where many top-down change initiatives, when introduced in an open and inviting manner, are taken on by delegates who share the passion for the change. Not all corporate leaders position themselves to enjoy this process; unfortunately, some are "protected" from reality by their "handlers" who serve in subordinate roles with the unwritten goal of making the Chief Executive Officer (CEO) look good. Such tactics are aptly reported by Michael Roberto's 2005 book, *Why Great Leaders Don't Take Yes for an Answer*.

Other leaders make a push for innovation but are met with apathy or resistance by subordinates still in protectionist mode while seeking to climb the corporate ladder. This author recalls an experience in which a CEO made an evening presentation to business students with the message that their organization was seeking to hire creative thinkers who challenge the status quo in order to continually update the company's ability to compete by remaining adaptive. The same day recruiters from the company reveal that their objective is to hire employees who will "fit in" with the organization. This "fitting in" runs quite contrary to the composite profiled by the CEO. However, most recruiters are fairly new to the organization and their experience includes attempts to "fit in." This anecdote demonstrates that most companies have a split personality regarding organizational culture. The cultural norms established at executive levels are often different from those that are exhibited in the ranks below.

Part of the strategic emphasis for university leaders is aided by the fact that the faculty carries most university innovation forward, although administrative leadership may introduce it. The cultural norms at universities are typically shared throughout the organization. This makes implementation of innovation more readily achievable, at least on the surface.

2.7 Does "Adapt or Die" Hold for Universities?

In a word, yes. It is of vital importance that universities, especially those in the middle ranks (not among the "elite" group), take immediate action to make substantial adjustments to their strategy and operations or plan to begin boarding doors and windows.

Targeting business schools in particular, Robert Strand makes "a plea to business schools: tear down your walls" (2011, p. 213). He warns against teaching that focuses solely on shareholder value and ignores the larger dimensions of a greater pool of stakeholders and the good that can be contributed to society. There is a clear cognitive push against the traditional capitalism platform suggested by Adam Smith and Milton Friedman that bases most economic actions on the profit target. One response is to provide much more emphasis on the principles of humanism. In fact, the Humanistic Management Network provides a set of

articles that address the question, "How can business schools reposition themselves to produce the education needed to deal with the current financial crisis, preventing further economic mayhem, while successfully engaging with the challenge of social and environmental sustainability?" (Amann et al. 2011, p. 4). The answers offered by the contributors are grounded in a humanistic approach to management education that advocates an economic system demonstrating wealth and value creation for human flourishing.

When university presidents in Canada were asked what key issues face their university over the next 10 years, they responded overwhelmingly that besides enrollment and student participation, one of the most urgent issues was the relationship and relevance of the university to society and to the local community (Wright 2009). At Johns Hopkins University the president takes great strides to consistently acknowledge the institution's commitment to the community by promoting increased connectedness with the local community and expanding programs that foster positive growth in the city of Baltimore and beyond.

Along with providing more bridges connecting universities to communities, academic leaders must enhance their adaptability as they perform across three major action targets: (1) push for learner-centered approaches, (2) leverage technology in the learning process, and (3) accept the leadership challenge. Each of these action targets will be more fully described below.

2.8 Push for Learner-Centered Approaches

In the United Kingdom in the mid-1980s business leaders and educators developed a plan to reform education that resulted in a report titled "Education 2000." Out of that report, a project was created to shift the balance of teaching to learning; to provide a greater variety of learning experiences, and to make clear the responsibility of the learner for active participation in the learning process and for achieving successful outcomes (Milter 2000).

With this shift comes acknowledgment that it is the individual learner who must claim responsibility for his or her own learning. No longer should institutions take on the claim for learning behavior in others. Innovative educational programs attempt to provide an environment where a learning community (Knowles 1995) can thrive – an environment where answers are not as important as questions; where getting to the answers is more important than the answers themselves; where the concern for learning outweighs the desire to imbed specific facts into the brains of others.

When the Education 2000 report mentioned above was published, knowledge was calculated to be doubling every five years. Today, experts suggest knowledge is doubling every 13 months (Schilling 2013). It seems silly to claim we as educators can provide the requisite information for an individual's future needs as a professional or as an aware citizen. Innovative educational programs push for knowledge discovery, but not without also pushing for recognition of ways to apply knowledge

and the importance of continually seeking ways of updating the knowledge specific to the types of challenges facing the individual.

Although there exist pockets of learner-centered approaches at most universities, rarely is the method found in the majority of the classrooms on their campuses. We have witnessed the popularity of the Kahn Academy and flipped classrooms, but these innovations seem to have more traction in the Kindergarten-12th grade (K-12) movement than in institutions of higher education. This may be because in the K-12 world, the primary content focus is on subjects targeted at more base levels; and it may be easier to construct online learning tools for these content areas. But it may also be the case for an entirely different reason. There tends to be more innovation at the K-12 level because those educators are focusing on students and learning – not research and publishing. What gets rewarded gets done. The "main event" at research universities is not classroom instruction, but research and publication. Such values are reinforced throughout the life-cycle of a university professor, so that the message is clear. Faculty members often speak of their teaching "load" and research "opportunities."

While attending the 2013 American Educational Research Association (AERA) conference in San Francisco, the author located a special section of *Science* that featured an interview with a Nobel Prize-winning physicist-turned-educator, who claimed that, "The way most research universities across North America teach science to undergraduates is worse than ineffective, it's unscientific" (Mervis 2013, p. 292). The article describes how Carl Wieman, "doesn't understand why institutions of higher education would disregard decades of research showing the superiority of student-centered, active learning over the traditional 50-minute lecture." The article goes on to detail the strides Professor Wieman has taken to raise awareness for the need to change the way classes are managed and "giving reform a chance" (Mervis 2013, p. 293). If leaders and educators at universities were to place some emphasis on learning models and facilitation methods, perhaps they would not be guilty of using unscientific approaches in their classrooms.

2.9   Leverage Technology in the Learning Process

Although universities have often led the way to development of new technologies, they have frequently lagged in response to their full utilization. This is, unfortunately, the case as well in the use of new learning technologies. According to Botkin (1996), the most promising action in reforming education and modernizing learning is to be found not in universities but in the international business community. He attributes much of the reason to the fact that schools and universities still do not have the financial or innovative human resources to carry out the fundamental changes required by the challenges of the future.

Learning for the future requires an ability to incorporate technology-enhanced learning methods. The growing popularity of online learning platforms as both complementary and as product substitutes to more traditional learning formats

("heads in seats"), is another leverage point for using technology to extend learning capacities. Educators can clearly do more with less when aided by technology. Here again, the issue is one of awareness and acceptance on the part of leadership and their ability to move the message through the ranks.

Technology clearly has impacted learning for the general population, but there exist college classrooms in which the use of such tools is prohibited. This author is not suggesting that use of the latest, greatest technology is always appropriate in the learning process. The learning practice should, however, mirror the living practice whenever possible. When engineers began to use electronic instruments to perform sophisticated calculations, schools ceased teaching how to use slide rules. Most schools discontinued teaching the slide rule following the adoption of later technology (TI-30) by practicing engineers. Bottom line here is that today's universities must assume a leadership role in the development and application of new technologies; and that role should clearly carry over into the learning space.

2.10   Accept the Leadership Challenge

Universities, steeped in bureaucracy, tend to be one of the last organisms to experience needed change and often get dragged kicking and screaming into the future. Leaders in universities often become defensive, or non-responsive, in relationships with business people, even though it is business that awaits the products of university programs. The business world is experiencing rapid and constant change. Organizations in both for profit and non-profit industries are learning to cope, or are disappearing. University leaders must realize this fact and take responsibility for the future of either coping to survive or helping to lead our students into the world that is becoming.

Leaders in university settings must begin to appreciate the fact that they do not have a corner on the education market of the future. It comes as a surprise to traditional educators to learn that a growing number of professional educators are at work not in universities but in corporate institutes of education or learning centers (Botkin 1996). It is time (in fact it may soon be too late) for university leaders to seek new ways to bridge learning relationships with educators in these different segments.

By "university leaders" is meant anyone associated with a university setting who is involved in adding value to the delivery of learning programs in the future. By definition, therefore, this would not include administrators busy about the job of keeping the university on a steady state, following outdated mechanisms and teaching methods. It is time that professional educators in university settings act like professionals. It is time to take the mission seriously.

Developing lifelong learners involves programs to insure that they not only know things but that they are also able to act using their intelligence. Being intelligent no longer means scoring high on some quantified psychometric. Being intelligent connotes that an individual has "the ability to learn and to apply what has been learned to adapt to the environment, or to modify the environment, or to seek out or

create new environments" (Sternberg 1997, p. 91). University leaders need to act intelligently as they prepare for their futures and help develop others for theirs.

It is time to question, develop and test new ideas, and reflect on the processes that are used to assist others to learn. It is time to heed the challenge of Don Schön, author of *Beyond the Stable State,* in that "we must become able not only to transform our institutions in response to changing situations and requirements, we must invent and develop institutions that are 'learning systems,' that is to say, systems capable of bringing about their own continuing transformation" (1973, p. 23). In this way educators must realize the importance of the age-old adage to "practice what (they) preach." But first they must reconsider what it is and how it is they are preaching. Only in this way will they be able to truly assist others in their search for learning.

2.11   Conclusion

In conclusion, consider the paradox between the words of William Shakespeare and Nobel Prize-winning Herbert Simon…

> What a piece of work is man! How noble in reason! How infinite in faculties! In form and moving how express and admirable! In action how like an angel! In apprehension how like a god! The beauty of the world! The paragon of animals! (*Hamlet* Act 2 Scene 2)
>
>   The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world – or even for a reasonable approximation to such objective rationality. (*Models of Man* (1957))

If university leaders were to adopt the perspective shared by Shakespeare, our students would need only to watch and learn. There is no cause for alarm, for the mere proximity of great faculty surely would provide them with the knowledge and parlance to move with repose into the world and solve problems. If, on the other hand, we adopt the view of Simon, then our plight as educators becomes more serious. Given the limitations of the human predicament, students must be challenged to develop the knowledge and skills to confront the complexity of the world in technology-mediated collaboration with others. Albert Einstein advised against using the same mental logic to solve a problem that was used in its creation. Helping learners to adopt new mental capacities, changing the way people think, and expanding their skill sets becomes paramount for educators.

There is a plethora of examples across various industries where an upstart institution served to recreate the main value proposition within the industry. Quest University is an example of an upstart in the higher education industry. This is an institution that has placed innovation in education as the main event. As a small university located in Squamish, British Columbia, the faculty began with a clean slate approach in 2007. The course structure is fully integrated in blocks or series, rather than courses in parallel. Students are challenged to develop a key question, find mentors, perform meaningful background research, investigate the specific

industry by going out to that environment, and compose a final report that rivals a graduate thesis.

A similar approach has for over 20 years been the basis for the education platform at Maastricht University in the Netherlands. This approach has also been implemented with success in an MBA program that was recognized as a benchmark for technology-mediated learning in the United States (Milter 2002). The key to these innovative programs is deliberate and consistent attention to the details of learner-centered practice, appropriate use of technology, and leading into the future. When leaders target these factors as pertinent to the learning environment we can envision a future that offers room for both Shakespeare and Simon. In fact, the world is a better place when we can celebrate both views in open collaboration.

The ability to sustain the value of diverse viewpoints and work in collaborative efforts to address key issues should be of paramount importance to educational leaders. The time is not ripe for digging trenches to stabilize current structures and methods of higher education. It is only via entrepreneurial approaches that leaders in higher education will enable their organizations to remain on a path toward sustainable relevance. It is clearly a time for such leaders to practice what they preach and to preach what they practice.

References

Amann, W., Pirson, M., Spitzeck, H., Dierksmeier, C., Von Kimakowitz, E., & Shiban, K. (2011). Humanistic management education – Academic responsibility for the 21st century. In W. Amann, M. Pirson, C. Dierksmeier, E. Von Kimakowitz, & H. Spitzeck (Eds.), *Business schools under fire: Humanistic management education as the way forward* (pp. 3–18). Hampshire: Palgrave Macmillan.

Baron, R. A. (2012). *Entrepreneurship: An evidence-based guide*. Northampton: Edward Elgar Publishing.

Bok, D. (2013). *Higher education in America*. Princeton: Princeton University Press.

Botkin, J. W. (1996). Creating the future: Perspectives on educational change. *New Horizons for Learning*. http://www.newhorizons.org

Buller, J. L. (2013, May–June). Academic leadership 2.0. *Academe, 99*(3), 28.

Christensen, C. (1997). *The innovator's dilemma*. New York: HarperCollins Publishers.

Coulter, M. (2001). *Entrepreneurship in action*. Upper Saddle River: Prentice Hall.

DeMillo, R. A. (2011). *Abelard to Apple: The fate of American colleges and universities*. Cambridge, MA: Massachusetts Institute of Technology.

Drucker, P. F. (1985). *Innovation and entrepreneurship*. New York: Harper Business.

Duffy, T., & Raymer, P. (2010, July–August). A practical guide and a constructivist rationale for inquiry based learning. *Educational Technology, 50*(4), 3–15.

Florin, J., Karri, R., & Rossiter, N. (2007, February). Fostering entrepreneurial drive in business education: An attitudinal approach. *Journal of Management Education, 31*(1), 17–42.

Gardner, H. (2006). *Five minds for the future*. Boston: Harvard Business School Press.

Herrndorf, M., Mesquita, P., & Beck, K. (2011). Exploring student entrepreneurship – The oikos experience of promoting sustainability at faculties of economics and management. In W. Amann, M. Pirson, C. Dierksmeier, E. Von Kimakowitz, & H. Spitzeck (Eds.), *Business schools under fire: Humanistic management education as the way forward* (pp. 397–409). Hampshire: Palgrave Macmillan.

Huisman, J., de Boer, H., Botas, P., & Pimentel, C. (2012). Where do we go from here? The future of English higher education. *Higher Education Quarterly, 66*(4), 341.

Knowles, M. (1995). The making of an adult educator. *Teaching and Learning, 68*, 33–42.

Krogue, K. (2013). What is an entrepreneur? Entrepreneurs. *Forbes*. Retrieved July 3, 2013, from http://www.forbes.com/sites/kenkrogue/2013/07/03/what-is-an-entrepreneur/

Lennett, B., Morris, S. J., & Byrum, G. (2012, April 1–20) Universities as hubs for next-generation networks. In *New America Foundation, Open Technology Initiative*. Washington, DC: New America Foundation. www.newamerica.net

Match College. (2013). http://www.matchcollege.com/top-colleges

Mervis, J. (2013, April 19). Transformation is possible if a university really cares. *Science, 340*(6130), 292–296. doi:10.1126/science.340.6130.292.

Milter, R. G. (2000). Innovation in learning methodologies for adult learners: Implications for theory and practice. *Virtual University Journal, 3*(6), 228–236.

Milter, R. G. (2002). Developing an MBA online degree program: Expanding knowledge and skills via technology-mediated learning communities. In P. Comeaux (Ed.), *Communication and collaboration in the online classroom* (pp. 3–22). Bolton: Anker Publishing.

Mintzberg, H. (1973). *The nature of managerial work*. New York: Harper & Row.

Mitchell, B. C. (2013, May/June). The new rules of engagement. *Academe, 99*(3), 19–24.

Oosthuizen, C. (2009). It takes entrepreneurial leadership to succeed. *Management Today, 25*(7), 30.

Porter, M. (1980). *Competitive strategy*. New York: The Free Press.

Puglisi, M. J. (2012). Advice to presidents of struggling colleges. In A. Brown & S. Ballard (Eds.), *Changing course: Reinventing colleges, avoiding closure* (New directions for higher education (156), pp. 83–92). San Francisco: Jossey-Bass.

Rix, J., & Twining, P. (2007). Exploring education systems: Towards a typology for future learning? *Educational Research, 49*(4), 329–341. doi:10.1080/00131880701717180, http://dx.doi.org/10.1080/00131880701717180

Roberto, M. A. (2005). *Why great leaders don't take yes for an answer*. Upper Saddle River: Prentice Hall.

Rosenberg, N. (2009). America's entrepreneurial universities. In D. M. Hart (Ed.), *The emergence of entrepreneurship policy: Governance, start-ups, and growth in the U.S. knowledge economy* (pp. 113–140). Cambridge: Cambridge University Press.

Ryssdal, K. (2009, July 7). Marketplace. Interview with Eric Schmidt, CEO of Google. *American Public Media*.

Sanchez, J. (2011). University training for entrepreneurial competencies: Its impact on intention of venture creation. *International Entrepreneurship and Management Journal, 7*, 239–254. doi:10.1007/s11365-010-0156-x. Springer Publishers.

Savery, J., & Duffy, T. (1995). Problem based learning: An instructional model and its constructivist framework. In B. G. Wilson (Ed.), *Constructivist learning environments: Case studies in instructional design* (pp. 135–148). Englewood Cliffs: Educational Technology.

Schilling, D. R. (2013, April 19). Knowledge doubling every 12 months, soon to be every 12 hours. *Industry Tap*. http://www.industrytap.com/knowledge-doubling-every-12-months-soon-to-be-every-12-hours/3950

Schön, D. A. (1973). *Beyond the stable state*. New York: Norton Publishing.

Smith, R. D. (2013). University futures. In R. D. Smith (Ed.), *Education policy: Philosophical critique* (pp. 147–159). Oxford: Wiley Blackwell.

Sternberg, R. (1997). *Successful intelligence*. New York: Simon & Schuster.

Stinson, J. E. (1994, July 22). *Improving the quality of thinking in a changing world*. Paper presented at the sixth international conference on thinking, MIT, Boston.

Stinson, J. E., & Milter, R. G. (1996). Problem-based learning in business education: Curriculum design and implementation issues. In *New directions in teaching and learning in higher education* (Vol. 68, pp. 33–42). San Francisco: Jossey-Bass.

Strand, R. (2011). A plea to business schools: Tear down your walls. In M. Morsing & A. S. Rovira (Eds.), *Business schools and their contribution to society* (pp. 213–222). London: Sage.

Tarascio, V. J. (1985, Fall). Cantillon's Essai: A current perspective. *Journal of Libertarian Studies, 7*(2), 249–257.

Thorp, H., & Goldstein, B. (2010). *Engines of innovation: The entrepreneurial university in the twenty-first century*. Chapel Hill: The University of North Carolina Press.

Warren, T. (2012, June 8). 5 essential qualities for entrepreneurial leadership. *Forbes*. http://www.forbes.com/sites/startupviews/2012/06/08/5-essential-qualities-for-entrepreneurial-leadership/2/

Wright, T. (2009). University presidents' conceptualizations of sustainability in higher education. *International Journal of Sustainability in Higher Education, 11*(1), 61.

Chapter 3
Challenging the Status Quo: The Influence of Proprietary Learning Institutions on the Shifting Landscape of Higher Education

B. Jean Mandernach, Hank Radda, Scott Greenberger, and Krista Forrest

Social, historical and economic forces are challenging the viability of traditional models of higher education; postsecondary institutions must examine alternative strategies and approaches in order to effectively adapt to the demands of a knowledge economy. Proprietary models provide insight to assist colleges and universities striving to address changes necessary to achieve (and sustain) success in meeting the growing needs of lifelong learners via: (1) opening access to a broader community of students; and (2) cutting costs through increased efficiency in structure and operation. Implementation of sound educational practices aligned with efficient processes and cost-effective structures is essential for colleges and universities striving to meet the needs of an increasing number of students. This chapter examines the impact of for-profit universities on the transformation of higher education via the emergence of alternative financial, academic and structural systems to stimulate institutional growth and support student learning.

3.1 Rise of Proprietary Learning Institutions

Historically, for-profit and nonprofit institutions have been viewed as diametrical opposites with an emphasis on the vast differences between the two approaches to higher education and with little recognition of areas of overlap or similarity. However, the desire of *all* institutions to be more effective has led both for-profits

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and traditional institutions to scrutinize the successful innovations and approaches of one another. The result is a clear shift, among all institutions of higher education, to re-examine organizational structure, philosophy and services to be more inclusive, innovative, responsive and efficient.

The last decade has seen a dramatic increase in the role of proprietary institutions in higher education, and the entrepreneurial orientation that led to their growth. Enrollments in for-profit colleges and universities grew by 225 % from 2001 to 2008; this compared to the 31 % growth rate reported by private and public institutions during the same time frame (APSCU 2013). The existing 1,215 for-profit educational entities comprise 26.2 % of all institutions of higher education and serve more than 1.9 million students (Carnegie Foundation 2010). This growth has been accompanied by a range of commentaries debating the benefits and challenges inherent in a for-profit approach to higher education (for an overview of relevant literature, see Hentschke et al. 2010; Tierney and Hentschke 2007; or Weisbrod et al. 2008). In this chapter, we challenge the false dichotomy separating for-profit and nonprofit institutions that is inherent in these debates and examine strategies born from the proprietary model that foster effective and efficient innovation relevant to all sectors of higher education.

To understand the influence of proprietary universities, it is important to examine the forces driving their growth. For-profit institutions did not simply open their doors and wait for students to come; rather, they emerged to fill a void in higher education created by an increasing need to support ongoing educational opportunities for adult learners (Breneman et al. 2006; Douglass 2012). The recession of the early 21st century left over 197 million people unemployed globally (International Labour Organization 2013). Many of these individuals sought education as a means of increasing their marketability to secure (or maintain) employment. The employment value of increased schooling is evident in an analysis of job ads from January 2013 which found that 55 % of posted positions required some postsecondary education (APSCU 2013). Likewise, the role of education as an unemployment buffer is clear with an unemployment rate of 3.7 % for college graduates compared to 8.1 % for individuals with a high school diploma and 12.0 % for those lacking a high school degree (APSCU 2013). Yet despite the clear motivation to seek additional education, barriers in the lack of physical and temporal mobility to attend brick and mortar colleges offered limited educational opportunities for many.

Compounding the unemployment issue, our technology-driven, knowledge economy decreased the number of manual-labor positions while increasing demand for an educated workforce. As a function of the shifting workplace environment, it is estimated that over 90 million employed individuals are currently undereducated for the modern labor market (APSCU 2013). Critics assert that the curriculum, mentality and policies of traditional universities have failed to keep pace with the shifting workplace; thus, many individuals who do receive postgraduate education may still lack the knowledge and skills to be productive contributors to the modern workplace (Carnevale and Rose 2011; Graham and Stacey 2002).

These social, technological and economic conditions created a surge in adult learners seeking additional education; however, the same recession that spurred

increased interest in higher education also dampened the economy that supports traditional colleges and universities. Despite increased student interest in higher education, budget cuts forced many public and private institutions to increase tuition, limit services and restrict access. The increasing demand for more education clashed with limited flexibility and access needed for adult learners to do so. Compounding the issue further, adult learners bring with them a host of unique needs and considerations; institutions operating on reduced budgets were not equipped to provide the necessary curriculum, structure and support to ensure access and success of more diversified student populations. As highlighted by the Edvance Foundation, "fewer than half of Americans hold bachelor's degrees due to an inability of many colleges and universities to provide the financial, cultural, academic, and personal support that students need" (2013, para. 1); the global trends are even less promising with only Norway reporting a higher percentage of citizens with a bachelor's degree (Organization for Economic Cooperation and Development 2013). The result is a simple issue of supply and demand; for-profit institutions emerged to "help fill the existing education and skills gap and meet capacity demands that cannot be satisfied by public and private nonprofit colleges alone" (APSCU 2013, p. 1).

3.2   Influence of the Organizational Model on Education

While traditional and proprietary institutions share the academic mission of providing a high quality education, proprietary models are uniquely motivated to deliver educational services that open higher education access to a broader student demographic via an organizational model that is responsive to the needs, demands, and expectations of students. Despite the dichotomous classification system differentiating for-profit and nonprofit institutions, the reality is that all institutions of higher education are operating with the goal of educating learners in a financially responsible manner (Jarvis 2001). The defining difference between institutional models lies simply in the extent to which these two simultaneous goals (i.e., quality education and fiscal responsibility) are interwoven. As explained by Kinser and Levy (2005),

> Sectors overlap. Sectors blur. Sectoral labels partly deceive. The general legal delineation suggests that only for-profit institutions may distribute profits to owners… we must be careful about when and how much to treat for-profit higher education institutions as distinctive regarding fundamental missions and purposes (p. 6).

The false dichotomy suggesting vast differences between for-profit and nonprofit institutions skews perceptions and impedes inter-institutional collaboration, growth and development.

The reality is that both for-profit and nonprofit institutions evolved around a consistent, shared mission dedicated to enhancing student learning; the difference lies in how the organizational and financial model of each influences choices and philosophies within that mission. In a proprietary model, financial and academic decisions are integrated due to their interdependence. Because for-profit institutions rely on student tuition for financial support, they have developed an agile, adaptable

organizational model that is keenly responsive to the needs, interests and demands of the learners. The infrastructure underlying a proprietary organizational model is able to adopt innovation more readily and efficiently. Recognizing that students who do not receive a satisfactory education are at risk to leave and spend their tuition dollars elsewhere, proprietary institutions are uniquely motivated to produce an educational environment that efficiently adjusts to accommodate the changing needs of students and to tailor learning experiences as a function of shifting expectations. Similarly because proprietary models mandate amalgamation of financial and academic components, they focus not only on sustaining (and growing) enrollments but also on simultaneously implementing cost-efficient structures to support an effective learning environment.

In contrast, the financial and academic choices of traditional institutions are not necessarily interdependent. Traditional institutions do not rely solely on tuition for sustained existence, and academic decisions do not directly impact the receipt of state funding or private endowments. In this environment, academic decisions are driven by an administrative hierarchy comprised of academic faculty, a tenure-based system, and established guidelines for faculty governance (Carpenter and Bach 2011). This type of traditional organizational structure for decision-making is integral for ensuring an emphasis on research, intellectual property and academic freedom; but it may or may not align with financial decisions that "support institutional foresight and agile responsiveness to change" (Carpenter and Bach 2011, p. 1).

Inherent in an analysis of organizational frameworks is an appreciation of the unique value, relevance and purpose of both proprietary and nonprofit models. This common understanding provides the basis for a knowledge exchange that benefits *all* institutions of higher education. Recognizing the social, economic and technological forces challenging higher education, DeMillo (2011) offers ten guidelines to help institutions of higher education survive the paradigm shift into the 21st century: (1) Forget about who is above you; (2) Focus on what differentiates you; (3) Establish your own brand; (4) Don't romanticize your weaknesses; (5) Be open; (6) Balance faculty-centrism and student-centrism; (7) Use technology; (8) Cut costs in half; (9) Focus on your own measures of success; and (10) Adopt the New Wisconsin Idea (i.e., requiring universities to tie indicators of success to their impact in society). Relevant to this chapter are two central recommendations in which the proprietary model provides insight to assist colleges and universities striving to address changes necessary to achieve (and sustain) success in meeting the growing needs of lifelong learners: (1) open access to a broader community of students; and (2) cut costs through increased efficiency in structure and operation.

3.3   Increased Student Access to Higher Education

The rise of the research university in the 19th century changed the focus of traditional higher education; teaching, as a result, emerged as a means of mentoring the next generation of scholars (Clark 2008). Inherent in this foundation, access to

higher education was limited to the academically elite and students entered postsecondary institutions with limited knowledge and experience. Consequently, the educational experience was driven primarily by individual faculty members in response to their own specialty areas and research topics. While higher education has evolved considerably from these roots, the traditional model still drives the structure, curriculum and organization of most modern postsecondary institutions. The majority of these institutions are built around the schedules of a typical 18- to 24-year-old residential student, with a curriculum that assumes limited professional experience and a primary dedication to the academic culture with all other aspects of life (i.e., employment, family obligations, etc.) secondary (Chao et al. 2008). Within this structure, faculty have dedicated teaching time, but are also allotted ample time for research creation and dissemination.

In contrast, proprietary colleges and universities are not influenced by the legacy of historical standards in institutional structure or function. Rather, for-profit institutions emerged as business ventures to capitalize on the fulfillment of unmet educational needs (Breneman et al. 2006; Douglass 2012). The resulting organizational structure developed in an entrepreneurial manner that allowed academic programming to be continuously modified in response to the demands of the education marketplace. As such, for-profit institutions are uniquely structured and motivated to create learning environments that efficiently adapt to the needs, desires, and preferences of students. This agile organizational approach underlies innovations in institutional policies, practices and systems that have emerged as a function of for-profit education; specifically: (1) education of nontraditional students; (2) alternative models of education; (3) responsiveness to the knowledge economy; and (4) faculty and student support services.

3.3.1   Education of Nontraditional Students

As previously highlighted, postsecondary education has become the optimal solution for displaced and under-employed workers seeking to enhance their credentials, experience and employability. In addition, the evolving job market needs workers across the spectrum to pursue additional education to remain competitive and receive increased compensation. These forces create a host of nontraditional students who are entering (or re-entering) postsecondary institutions with unique expectations, needs and challenges. While these students may select from a range of postsecondary options, traditional colleges and universities have been largely inflexible and slow to adapt to workforce demands (Judy and D'Amico 1997). Rather than attempting to force nontraditional students into a traditional academic environment, for-profit institutions have actively adapted educational policies and practices to meet the specialized needs of this student population.

Current estimates report that up to 75 % of undergraduate students are nontraditional learners, with a disproportionate number of these students enrolled at for-profit institutions (Giancola et al. 2008; Jaschik 2010; Miller-Brown 2002; National

Center for Education Statistics 2011; Paulson and Boeke 2006). Nontraditional students elect to attend for-profit institutions due to the need for a more flexible, responsive educational structure. In contrast to conventional, full-time college students, nontraditional students tend to be over 24 years old, are financially independent, work more than 35 hours per week, have time delays in their educational activity, live off-campus, and/or have substantial family obligations (CAEL 2000). As a function of these characteristics, nontraditional students often attend college on a part-time basis (Munro 2011; Tight 1991), approach their education with a clear career objective and bring greater experience to their educational endeavors (Chao et al. 2008). In addition, due to a lack of recent experience with formal education, as well as competing time demands, nontraditional students are at a greater risk for failure to complete their educational degree programs (Lane 2004; Miller-Brown 2002; Patterson et al. 2010; Wlodkowski et al. 2002).

Systematically embracing the needs of nontraditional students is the historical hallmark of proprietary education. Rather than force the students to adapt to the existing structure typical of colleges and universities, proprietary institutions adapted their structure, programming and organization in response to students' needs. This adaptive, responsive organizational structure demands that for-profit institutions engage in a continuous assessment cycle examining the impact of their programming and structure in relation to the ever-changing needs of students. The result of this ongoing feedback-reflection-adjustment loop is continuous innovation - innovation that challenges traditional approaches and spurs alternative models of education.

3.3.2   Alternative Models of Education

Nontraditional students - by the nature of their availability, experience and maturity - require an applied curriculum that takes their professional experience into consideration, flexibility in course offerings that accommodate family and work schedules, and timeframes that align with personal and professional goals (Chao et al. 2008). In order to effectively serve nontraditional student populations, proprietary institutions have been innovators in alternative models of higher education including: distance education, online learning, hybrid instruction, accelerated programming, competency-based credit, military/veteran education, increased global interaction and interconnectedness (Wildavsky 2011).

Perhaps the area where for-profit institutions have had the greatest impact on higher education is in effective use of technology for the development and delivery of online education (Klor de Alva 2011). Due to their willingness to adapt the structure and delivery of education in response to student needs, for-profit institutions were early adopters of alternative modes of delivery and have continued to serve as leaders in this arena (Dew 2012). The data-driven approach to curriculum, program and andragogical development, combined with the vast pool of available data, has established for-profit institutions as innovators in developing effective delivery

methods, instructional technologies and pedagogy to support enhanced student learning. Beyond the confines of each proprietary institution, these innovations have contributed significantly to an overall understanding of effective online teaching and learning. Traditional online programs have benefited from the effective practices pioneered by their for-profit counterparts; through increasing engagement in scholarly conferences, institutions from all sectors are collaborating to improve the processes, procedures and support services to maximize student learning and retention in the online classroom.

3.3.3 Responsiveness to the Knowledge Economy

Higher education has a long history of restricted access to colleges and universities, with an emphasis on admission for the academic elite. Beyond practical limitations related to budget, facilities and availability, the philosophy underlying higher education has been that a postsecondary education is a privilege, not a right (Clark 2008). Consequently, access to higher education has been restricted by high admission requirements, costly tuition, and limited delivery methods. Each of these restrictions has kept access narrowed to a limited demographic of students (Carnevale and Rose 2011; Tierney and Hentschke 2011). But societal shifts to a technology-driven, knowledge economy are forcing workers from a broader demographic to seek postsecondary degrees in order to remain competitive in the modern workforce.

The need for increased educational opportunities extends beyond personal employment to impact social and economic inequalities. Reflecting this concern, Carnevale and Rose (2011) highlight:

> The undersupply of postsecondary-educated workers has led to two distinct problems: a problem of efficiency and a problem of equity. Without enough talent to meet demand, we are losing out on the productivity that more postsecondary-educated workers contribute to our economy. Moreover, scarcity has driven up the cost of postsecondary talent precipitously, exacerbating inequality. (p. 8)

The resulting disparity increases the income gap between those with and without a college education; it is estimated that those with a postsecondary education earn on average $30,000 more per year compared to their high school educated counterparts (Isaacs et al. 2008).

Rather than limit access, for-profit universities have expanded the opportunity to seek higher education to a broader student demographic (Wang 2013). Traditional colleges and universities restrict access to individuals with a proven record of success; in contrast, for-profit institutions expand initial access to include those with less competitive academic credentials. But, as highlighted by Carpenter and Bach (2011), "access in and of itself is not sufficient to be considered an opportunity; opportunity is driven by both access and the likelihood of success" (p. 2). With admission of a broader range of students, for-profit institutions simultaneously enhance support services necessary to promote learning across a diversely-prepared

student body. The student-centric nature of proprietary institutions makes them uniquely able to adapt in response to the needs of at-risk students; data indicate that at-risk students at for-profit institutions are more likely to receive their postsecondary degree than their counterparts at traditional institutions (Rosen 2012).

3.3.4 Faculty and Student Support Services

The willingness of for-profit institutions to extend access to a wider range of students with more varied levels of college-readiness mandates simultaneous attention to providing increased support to help ensure the success of both faculty and students. It is not simply a matter of allowing more students to enroll; effectiveness of the institution relies on meeting the needs of each student to promote their effective engagement in the learning process (Ague 2013). This emphasis has led to a number of innovations designed specifically to nurture, motivate and support students' holistic educational experience.

In addition to standard academic advising, for-profit institutions provide more comprehensive student support services designed to accommodate the needs of both traditional and nontraditional students. While most students require guidance and support with enrollment, career counseling, and academic planning, specialized student populations (i.e., nontraditional, at-risk, military, veteran, etc.) may seek additional support to help navigate the nuances of higher education. With an explicit goal of supporting and retaining students, the organizational model of proprietary institutions promotes a comprehensive support system that goes beyond strict academics to provide personalized guidance concerning university processes, language, culture, and expectations (Ague 2013; Miller-Brown 2002). In addition, nontraditional and at-risk students may require explicit emotional and motivational support to reduce anxieties about returning to school (Giancola et al. 2008; Miller-Brown 2002; Peters et al. 2010; Redfern 2008).

Similarly, it is equally vital to provide dedicated support to faculty to ensure their ability to be effective teachers. Although faculty development is common in most institutions of higher learning, it is integral to the mission of for-profit institutions due to the increased diversity in students' academic preparation; effectively serving a broad demographic requires an adaptable, well-prepared, responsive faculty. Likewise, within the proprietary model, it is essential that educational services are delivered consistently, with a level of quality that does not vary among individual faculty members. This emphasis mandates an integrated faculty training and development program aligned with best practices, peer review, and accountability to learning outcomes. Due to the increased emphasis on student learning (with limited research or service obligations), faculty at proprietary institutions are selected exclusively as content experts to teach and mentor students. Regardless of institutional type, faculty development programming at both for-profit and nonprofit institutions highlights specific pedagogies, technologies and approaches necessary to transfer content knowledge to students across a wide range of abilities and backgrounds. Unique to the proprietary model is the link between high-quality

teaching and institutional success; this relationship ensures ongoing support and dedication for teaching support, training and development as effective teaching has clear economic value for the university. In contrast, many nonprofit institutions place funding priority on research agendas (or programs that have the potential to bring in external grant funding) and have, in recent times, been forced to cut or limit teaching support due to budget restrictions.

3.3.5 Impact of Increased Access to Higher Education

The academic mission driving proprietary colleges and universities mirrors its traditional counterparts; regardless of institutional type, the goal is to provide students with a high-quality education. The accrediting agencies overseeing both for-profit and nonprofit institutions apply the same standards of academic excellence, rigor and support to ensure that colleges and universities provide students with knowledge, skills and abilities appropriate to their academic degree. Therefore the academic model adopted by proprietary institutions does not differ in outcome; the difference lies in the target of the education and the process by which the outcome is achieved. For-profit institutions are increasing access to higher education for a wider range of students by being responsive and innovative in the development of programs, approaches, support systems and philosophies that align with students' needs. These innovations have not gone unnoticed by traditional institutions; higher education is evolving to become more agile and flexible in supporting the success of an increasingly diverse body of learners. Key to effectively increasing access for students is the ability of institutions to develop structures and systems that promote responsiveness in a cost efficient manner.

3.4 A Cost-Efficient Organizational Structure

Approaching higher education from a proprietary model creates opportunities unseen in many traditional university structures. The organizational structure and philosophy underlying for-profit models simultaneously works to increase the value of educational offerings while reducing associated costs. As highlighted by Collins and Porras (1997), companies with clear values, core principles and a long-term vision are able to build organizations with extended value for all involved. Integral to any successful educational organization is the understanding that it is not a decision between quality education *or* revenue, but rather on how to simultaneously achieve *both*. As a function of these synergistic goals, proprietary institutions have developed structures and policies that frequently allow for the delivery of quality education in a more cost-effective manner. The strategies of effective for-profit institutions are based on several key factors: (1) centralized and collaborative processes; (2) holistic, integrated services; (3) data-driven decision-making; and (4) assessment and accountability for student learning.

3.4.1   Centralized and Collaborative Processes

While traditional higher education institutions are steeped in tradition, their inefficient infrastructure is segmented by departments with a replication of systems and services throughout the institution, further separated through multiple levels of bureaucratic approval. This department-driven silo structure decreases the efficiency with which decisions can be made and implemented (Kolowich 2010). In contrast, for-profit institutions often rely upon a centralized model in which both academic and administrative functions are integrated to more efficiently and effectively serve students. The value of this type of centralized structure is outlined by Carpenter and Bach (2011):

> From the perspective of strategic higher education management, promoting effective lateral, inter-unit interaction that maximizes the benefits of these type of interactions can produce more effective collaboration and coordination, increased generation of social capital, and new opportunities for organizational learning (p. 5).

As an example of an integrated approach to academic services, for-profit institutions have been innovators in the utilization of a team-based curriculum development process (Millora 2010; Ruch 2001; Tierney et al. 2010). In contrast to a system of individual faculty members working in isolation to develop and teach their course content, the for-profit model posits that it is a more effective, consistent and cost-efficient strategy to separate the process of curriculum development from teaching. As such, core curriculum is developed by teams comprised of faculty content experts, instructional designers, librarians, and technology specialists; through this process, the expertise of each team member is integrated to maximize the educational value of the course content (Edmondson 2012). Curriculum development is structured as an ongoing cycle in that faculty-driven content is continually enhanced with respect to student success data, pedagogical tools, and relevant technologies. As a result, students take courses with team-built curricula designed by the best content experts and taught consistently by the best instructors. The goal of integrated, team-based curriculum development is to support increased performance and learning for students in a manner that is most effective and efficient for faculty. As highlighted by Carpenter and Bach (2011), "there is a range of models that can be used to develop a centralized curriculum that meets quality assurance goals while at the same time promoting faculty engagement, creativity and scholarship" (p. 9). Essentially, the outcome is to have one curriculum supported in a transparent, coordinated and collaborated way by all involved in the day-to-day life of students.

3.4.2   Holistic, Integrated Services

Complementing a centralized administration and curriculum is an acknowledged need among for-profit institutions that students benefit from a holistic educational experience. The means to achieving this holistic experience is aligned with a

customer-service mentality that embraces the need to ensure student satisfaction across all interactions at the university. From initial inquiry about the institution, through enrollment, financial aid, student services, and graduation, the consumer service-driven approach recognizes that students' continued enrollment and academic success is a function of their holistic experience with all interactions, within and beyond the classroom. Trend data analysis builds and binds the complementary parts of the students' holistic experience. Trend data (from initial engagement through end-of-course surveys), student input, and faculty experiences combine to create a coordinated effort across departments; this integration allows for coordinated services between academic affairs, enrollment, finance, and student services (Campbell and Oblinger 2007).

3.4.3 Data-Driven Decision-Making

Due to the increased accountability to external stakeholders and an emphasis on documenting student learning, for-profit institutions must be able to defend choices in programming and services utilizing data clearly tied to target outcomes. This data-driven approach aligns well with the administrative structure of most proprietary institutions because their administrative leaders possess a background in business and industry, with extensive experience using analytic data for decision-making (Carpenter and Bach 2011). Because external stakeholders require documentation of effectiveness (a necessary precursor for continued financial support), it is essential that for-profit colleges and universities clearly assess and document the impact of the institution's academic choices on student learning. Within this realm, analytic data are vital for decision-making related to predicting outcome achievement, course dashboarding, curricular evaluation and setting course or instructional policies (Carpenter and Bach 2011).

While this type of data-driven decision-making is not unique to for-profit institutions, proprietary colleges and universities were among the first institutions to prioritize a reliance on measurable outcomes in order to direct future academic planning. Student performance data were first used comprehensively to study engagement and retention of students; within this realm, the main focus has been on the impact of supportive interventions to increase students' persistence and success (Bach 2010). The use of these data to identify trends, apply interventions and study student performance continues to be developed; these developments, in turn, foster more informative data, better analytic tools and more advanced student support systems (Bach and Carpenter 2010; Campbell and Oblinger 2007).

In addition, data analysis, intervention development and outcome evaluation are widespread across the for-profit sector due to the availability of larger data sets on which to base decisions. For example, while traditional campus-based programs are restricted in size due to limitations in physical classroom space, most for-profit institutions have a substantial online presence that allows for scalable growth in response to student demand. The increased size of online programs provides a

plethora of data for making more informed decisions; rather than examining impacts or trends in a handful of courses, for-profit institutions offer multiple, simultaneous sections, enabling the examination of curricular changes or support services across instructors and classes. The availability of large data sets allows proprietary institutions to tap into the benefits available via learning analytics. As highlighted by Hoel (2013), learning analytics can:

1. *Adaptively test, track and report on individual student learning.* By tracking information such as time spent on resources, frequency of interaction and patterns of resource exploration, instructors (and curriculum developers) can create learning environments that personalize learning for each student. For example, analyzing the time students spend on a particular resource may provide insight into concepts that need additional content support.
2. *Foster early alert, intervention and collaboration.* Via advanced tracking functionality, learning analytics can be used to integrate data from multiple sources to allow institutions to make more holistic decisions in relation to student support and intervention. For example, integrating data from course participation, grade book and login patterns across multiple courses may help an institution identify students at risk for dropping out.
3. *Evaluate projects for institutional efficiency and effectiveness.* Learning analytics provide a plethora of data allowing administrators to tailor business decisions concerning the effectiveness and efficiency of university operations. For example, data on students' engagement in early courses can be used to assess the effectiveness of admissions and enrollment programs to enhance student retention.

These are just a few examples of how proprietary institutions are innovating in response to available data on the effectiveness of programming and initiatives. Essential is the emphasis on clear accountability; proprietary institutions must be able to provide clear data to justify to justify the investment of resources. Not only must they be able to document the impact of academic choices but also the for-profit model mandates active use of data to drive ongoing decisions to enhance the process and product of learning (Campbell and Oblinger 2007).

3.4.4   Accountability for Student Learning

Regardless of an institution's financial model, every college and university is responsible for the assessment of student learning (Dew 2012). The external accreditation process requires that institutions demonstrate their ability to foster, produce and document student learning. Within this established system of academic oversight, there is no differentiation of educational standards or learning expectations based on an institution's financial model. However, beyond adherence to accreditation standards, proprietary institutions have increased accountability for documenting student learning to a range of both internal and external stakeholders (Barringer 2010; Rosen 2012).

In a traditional college or university, curriculum decisions are often driven by the preferences and rights of individual professors or departmental committees. With a basis in academic freedom, secured by the process of tenure and backed by a faculty union (or bargaining agreement), faculty hold increased power to make decisions about the content and processes of teaching within their assigned courses. In this environment, faculty choose the content of their courses, the methods by which they will teach them and the scope of the assessments. While this traditional model does not preclude accountability for student learning, it is the faculty member, not student outcome data, that drives curricular decisions. In contrast, under a proprietary model of education it is the quality of the product (i.e., student learning) and not solely a function of the producer (i.e., faculty) that drives on-going decision-making. In for-profit education, accountability is aligned with student outcomes because the financial viability of an institution is an immediate by-product of its ability to deliver a high-quality education. Accountability for student learning takes priority over faculty preferences or choices in the consumer-driven philosophy of proprietary education, as the ability to demonstrate student learning is essential to maintaining student enrollments. In addition, proprietary institutions face increased accountability to external agencies; for example, publicly traded institutions must adhere to disclosure rules, submit to external financial audits, and ensure financial accountably to shareholders. The increased scrutiny of the for-profit industry requires proprietary institutions to clearly document learning gains to fulfill requirements of state agencies and regional accreditors (in addition to the alignment with financial laws and regulations imposed on publicly traded organizations).

3.4.5 Impact of Cost Efficient Organizational Structures

In the proprietary model of higher education, financial decisions work in tandem with academic decisions to maximize student learning. It is not a matter of choosing between student learning and revenue but rather prioritizing both simultaneously. The synergy between the academic and financial decision-making occurs in direct response to the changing economic, social and technological climate. The financial success of the institution rests in its ability to deliver high-quality education in a manner desired by students via the most cost-efficient means possible. If the quality of the education is low, enrollments drop and revenue decreases; in this scenario, the efficiency of the organization is a non-issue as business will cease to exist. Conversely, a high-quality education that meets students' needs ensures ongoing enrollment; any financial choices to maintain this quality in a more cost-efficient manner maximizes revenue for the institution. The goals of academic excellence and financial profitability are inextricably linked; there is no revenue without quality education. Thus, central to the success of proprietary institutions is reliance on an adaptable, responsive organizational model that meets the diverse needs of a varied student population in the most cost-efficient means possible (Harris 2013).

3.5 Impact on the Current Academic Climate

Principles underlying the success of for-profit institutions offer valuable insights for enhancing institutional effectiveness and efficiency regardless of the mode of learning or student population served. The for-profit approach has spurred colleges and universities across the higher education landscape to: (1) enhance access and support for students; (2) foster responsive innovation; and (3) develop more efficient structures and processes. In turn, as for-profit institutions gain prominence in higher education, they are adapting best practices from traditional institutions related to: (1) increased scholarly contribution; (2) integration of research and teaching; and (3) shared governance.

One outcome of this dynamic is the emergence of a trend that is not unique to a specific mode of instruction or student population. Effective institutions, regardless of organizational or financial model, must provide high-quality education that adapts in response to student needs in an efficient manner. Consequently, more traditional institutions are offering distance, hybrid and accelerated classes to address the needs (and sometimes wants) of both traditional and nontraditional students. The impact of this shift in philosophy is apparent across higher education, with 63 % of institutions indicating that online learning is a critical part of their long-term strategy (Allen and Seaman 2010). But as institutions increase access, they must simultaneously increase support to ensure that students have the necessary resources to be successful. Both the proprietary and traditional settings have gleaned the benefits of providing tutors, study-skill courses, writing support and individualized mentoring for students. These are *not* for-profit or not-for-profit solutions; these are student-centric strategies with an explicit emphasis on improving student support and success.

The success of the proprietary model is not limited to online or adult education; the same guiding principles emphasizing the value of a consistent, high-quality education delivered in a responsive, efficient manner are relevant to all sectors and modes of education. Not surprising, the for-profit model has proven equally effective for campus-based environments serving traditional students as well as graduate programs with an emphasis on research. As the proprietary model has been applied to more research-aligned institutional missions and goals, for-profit institutions are evolving to embrace the values and priorities of research-oriented institutions.

As is the case with all vibrant fixtures in society, higher education has evolved considerably from its early roots. The historic focus of proprietary institutions on the adult learner mirrors the historic emphasis of public and private institutions on traditional students. Though stemming from different historical philosophies and focus, modern colleges and universities no longer narrowly tailor their processes and services to provide education in a singular modality to predefined student types. Rather, as a natural by-product of growth, innovation and competition, institutions are leaning on the experiences and successes of one another to more effectively serve their mission; the best practices from each are reshaping the landscape of higher education. While for-profit higher education has been met with resistance in many countries outside the United States due to dominance of existing public

education systems and concerns about the quality of education offered via private institutions (Council for Higher Education Accreditation 2011; Labi 2010), proprietary learning models continue to shape the American learning model and have become a force which influences policy, accreditation, and social perspectives on the role of higher education in our modern society (Council for Higher Education Accreditation 2011; Douglass 2012). The proprietary model is changing the face of higher education in westernized countries and, consequently, will likely affect higher education from a global perspective in the future.

Reflecting this shift, faculty and administrators from a range of institutional types now sit together at academic conferences examining, sharing and debating best practice. From enhanced pedagogies for engaging students, to improving student support throughout the academic life cycle, to the utilization of data to improve engagement and retention, the focus of discussion is not on the funding model; rather, the emphasis is on integrating innovations and strategies with a proven record of success to promote institutional effectiveness. Within this framework is recognition that the strategies, structures and processes emerging from each institution often received impetus as a function of the organizational and financial model, but that it does not preclude their effectiveness or applicability for others with a different structure.

The emergence of proprietary education increased access to higher education for a range of students not targeted by traditional institutions. Responding to the needs of these unique student groups, for-profit institutions explored innovative, alternative educational approaches (i.e., online, accelerated, competency-based, hybrid, etc.). The emergence of additional alternatives led, in turn, to an increase in students for whom higher education became a viable option. This cycle of responsive innovation fueled rapid growth; to handle this rapid growth, for-profit institutions were forced to develop efficient, scalable support structures and processes. As traditional institutions face budget cuts and enrollment challenges sparked by the economic recession, they are increasingly seeking economic efficiencies that allow for streamlining of structures and services while maintaining quality education (Carpenter and Bach 2011).

3.6 Conclusion

Higher education faces perilous times. As highlighted by DeMillo (2011), countless social, historical and economic forces are challenging longstanding models of higher education; institutions that fail to adapt are at risk:

> Higher education is, suddenly, a rapidly growing marketplace with many alternatives. There are thousands more institutions of higher learning in the United States than can be supported. Many will not be able to compete with cheaper, nimbler, and frequently more effective alternatives (p. 271).

This reality is forcing a paradigm shift in which traditional institutions are looking to the growth sectors for guidance on how to compete more effectively.

Colleges and universities must adapt to provide increased value for students and society in a more cost effective manner (Christensen and Eyring 2011).

There has been, and will continue to be, tremendous innovation emerging from the proprietary sector. The philosophy behind proprietary education mandates ongoing reflection with continuous improvement; static educational processes are simply not competitive in the modern higher education landscape. To remain viable, traditional colleges and universities must evolve as well. Sound educational practices aligned with efficient processes and cost-effective structures are essential for *all* colleges and universities as they strive to meet the educational needs of an increasing number of students.

References

Ague, L. (2013, January 28). Academic advising for the non-traditional learner. *Christian Adult Higher Education Association (CAHEA)*. http://www.cahea.org/blog.html?entry=academic-advising-for-the-non. Accessed 13 Nov 2013.

Allen, I. E., & Seaman, J. (2010). *Class differences: Online education in the United States*. Needham: Sloan Consortium.

Association of Private Sector Colleges and Universities (APSCU). (2013). *Knowledge center: Sector facts*. http://www.career.org/knowledge-center/facts/sector/. Accessed 13 Nov 2013.

Bach, C. (2010). Learning analytics: Targeting instruction, curricula and student support. In *Conference proceedings from the 8th international conference on education and information systems, technologies and applications*, Orlando, FL.

Bach, C., & Carpenter, A. (2010). Learning assessment: Hyperbolic doubts versus deflated critiques. *Analytic Teaching and Philosophical Praxis, 30*(1), 1–11.

Barringer, S. (2010). The evolving stakeholders of higher education. *Third Sector Network*. http://thirdsectornetwork.org/2010/08/31/the-evolving-stakeholders-of-higher-education/. Accessed 13 Nov 2013.

Breneman, D., Pusser, B., & Turner, S. (Eds.). (2006). *Earnings from learning: The rise of for-profit universities*. New York: State University of New York Press.

Campbell, J., & Oblinger, D. (2007). Academic analytics. *Educause Quarterly, 75*,1–20.

Carnegie Foundation. (2010). *Carnegie Foundation for the advancement of teaching: Classifications*. http://classifications.carnegiefoundation.org/resources/. Accessed 13 Nov 2013.

Carnevale, A. P., & Rose, S. J. (2011). *The undereducated American*. http://education.agu.org/files/2012/04/undereducated_american.pdf. Accessed 13 Nov 2013.

Carpenter, A. N., & Bach, C. N. (2011). Administrative and academic structures: For-profit and not-for-profit. In H. Kazeroony (Ed.), *The strategic management of higher education*. Addison: Business Express Press.

Chao, E., DeRocco, E., & Flynn, M. (2008). Adult learners in higher education: Barriers to success and strategies to improve results. In A. H. Tomlin & P. N. Blakely (Eds.), *Adult education: Issues and developments* (pp. 271–354). New York: Nova.

Christensen, C. M., & Eyring, H. J. (2011). *The innovative university: Changing the DNS of higher education from the inside out*. San Francisco: Jossey-Bass.

Clark, W. (2008). *Academic charisma and the origins of the research university*. Chicago: University of Chicago Press.

Collins, J., & Porras, J. (1997). *Built to last*. New York: HarperCollins Publishers.

Council for Adult and Experiential Learning (CAEL). (2000). *Serving adult learners in higher education: Principles of effectiveness*. Chicago: Council for Adult and Experiential Learning.

Council for Higher Education Accreditation (CHEA). (2011). *Exploring the future of international for-profit higher education and quality assurance: Where are we now and where do we go from here?* Washington, DC: Council for Higher Education Accreditation and United Nations Educational, Scientific and Cultural Organization.

DeMillo, R. A. (2011). *Abelard to Apple: The fate of American colleges and universities*. Cambridge, MA: The MIT Press.

Dew, J. R. (2012). The future of American higher education. *World Future Review, 4*(4), 7–13.

Douglass, J. (2012)*. Money, politics and the rise of for-profit higher education in the US: A story of supply, demand and the Brazilian Effect*. In Center for Studies in Higher Education (Ed.), (Research & Occasional Paper Series). Berkeley: University of California*. http://cshe.berkeley. edu/publications/docs/ROPS.JAD.ForProfitsUS.2.15.2012.pdf*. Accessed 13 Nov 2013.

Edmondson, A. C. (2012). *Teaming: How organizations learn, innovate, and compete in the knowledge economy*. San Francisco: Jossey-Bass.

Edvance Foundation. (2013). *Edvance Foundation: Why it matters*. http://edvancefoundation.org/ why-it-matters/. Accessed 13 Nov 2013.

Giancola, J., Munz, D. C., & Trares, S. (2008). First vs. continuing generation adult students on college perceptions: Are differences actually because of demographic variance? *Adult Education Quarterly, 58*(3), 214–228. doi:10.1177/0741713608314088.

Graham, P. A., & Stacey, N. G. (2002). *The knowledge economy and postsecondary education*. Washington, DC: National Academy Press.

Harris, D. (2013). Addressing the declining productivity of higher education using cost-effectiveness analysis. *American Enterprise Institute*. http://www.aei.org/papers/education/ higher-education/costs/addressing-the-declining-productivity-of-higher-education-using-cost-effectiveness-analysis/. Accessed 13 Nov 2013.

Hentschke, G. C., Lechuga, V. M., & Tierney, W. G. (2010). *For-profit colleges and universities: Their markets, regulation, performance, and place in higher education*. Sterling: Stylus.

Hoel, T. (2013). Will analytics transform education? A critical view on the data we gather about the learners. *Learning Frontiers: Helping You Shape Technology Enhanced Learning Futures*. http://www.learningfrontiers.eu/?q=story/will-analytics-transform-education. Accessed 13 Nov 2013.

International Labour Organization. (2013). *Global employment trends 2013*. http://www.ilo.org/ wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_202326. pdf. Accessed 13 Nov 2013.

Isaacs, J., Sawhill, I., & Haskins, R. (2008). *Getting ahead or losing ground: Economic mobility in America* (Economic Mobility Project). Washington, DC: The Pew Charitable Trusts and the Brookings Institution.

Jarvis, P. (2001). *Universities and corporate universities*. London: Kogan Page Limited.

Jaschik, S. (2010, March 9). Moving to scale. *Inside Higher Education. http://www.insidehigh-ered.com/news/2010/03/09/gates*. Accessed 13 Nov 2013.

Judy, R., & D'Amico, C. (1997). *Workforce 2020: Work and workers in the 21st century*. Indianapolis: Hudson Institute.

Kinser, K., & Levy, D. C. (2005). *The for-profit sector: U.S. Patterns and International Echoes in Higher Education*. In working paper series of the National Center on Privatization, Teacher's College. http://www.ncspe.org/list-papers.php. Accessed 13 Nov 2013.

Klor de Alva, J. (2011). Advances in online education at for-profit colleges and universities. *Journal of Asynchronous Learning Networks, 15*(2), 3–5.

Kolowich, S. (2010, January 18). Blasting academic silos. *Inside Higher Education*. http://www. insidehighered.com/news/2010/01/18/silos. Accessed 13 Nov 2013.

Labi, A. (2010). A for-profit college is the first of its kind to gain special government status in Britain. *Chronicle of Higher Education*. http://chronicle.com/article/A-For-Profit-College-Gains/124097/. Accessed 16 Apr 2014.

Lane, K. (2004). Sen. Clinton unveils plan to help nontraditional students. *Black Issues in Higher Education, 21*(2), 6.

Miller-Brown, S. (2002). Strategies that contribute to nontraditional/adult student development and persistence. *PAACE Journal of Lifelong Learning, 11*, 67–76.

Millora, M. L. (2010). Market values in higher education: A review of the for-profit sector. *Interactions: UCLA Journal of Education & Information Studies, 6*(2), 1–20.

Munro, L. (2011). 'Go boldly, dream large!': The challenges confronting nontraditional students at university. *Australian Journal of Education (ACER Press), 55*(2), 115–131.

National Center for Education Statistics. (2011). *The condition of education 2011*. http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011033. Accessed 13 Nov 2013.

Organization for Economic Cooperation and Development. (2013). *Education at a glance 2013, OECD indicators*. http://www.oecd.org/edu/eag2013%20%28eng%2--INAL%2020%20June%202013.pdf. Accessed 13 Nov 2013.

Patterson, M., Zhang, J., Song, W., & Guison-Dowdy, A. (2010). *Crossing the bridge: GED credentials and postsecondary educational outcomes, year one report of a three-year research project*. Washington, DC: American Council on Education.

Paulson, K., & Boeke, M. (2006). *Adult learners in the United States: A national profile*. Washington, DC: American Council on Education.

Peters, L., Hyun, M., Taylor, S., & Varney, J. (2010). Advising non-traditional students: Beyond class schedules and degree requirements. *Academic Advising Today, 33*(3). http://www.nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/September-2010-Vol-333-Complete-Edition.aspx. Accessed 13 Nov 2013.

Redfern, K. (2008). Appreciative advising and the nontraditional student. *The Mentor: An Academic Advising Journal.* www.dus.psu.edu/mentor. Accessed 13 Nov 2013

Rosen, A. S. (2012). *Change.edu: Rebooting for the new talent economy*. New York: Kaplan Publishing.

Ruch, R. S. (2001). *Higher Ed, Inc.: The rise of the for-profit university*. Baltimore: The Johns Hopkins University Press.

Tierney, W. G., & Hentschke, G. C. (2007). *New players, different game: Understanding the rise of for-profit colleges and universities*. Baltimore: Johns Hopkins University Press.

Tierney, W. G., & Hentschke, G. C. (2011) *Making it happen: Increasing college access in California higher education: The role of private postsecondary providers*. La Jolla: National University System Institute for Policy Research. http://www.nusinstitute.org/assets/resources/pageResources/NUSIPRMakingItHappen.pdf. Accessed 13 Nov 2013.

Tierney, W. G., Lechuga, V. M., & Hentschke, G. C. (2010). *For-profit colleges and universities: Their markets, regulation, performance, and place in higher education*. Sterling: Stylus.

Tight, M. (1991). Part-time higher education in western developed countries. *European Journal of Education, 26*(1), 63. doi:10.2307/1502872.

Wang, M. (2013). Public colleges' quest for revenue and prestige squeezes needy students. *The Chronicle of Higher Education*. http://chronicle.com/article/Public-Colleges-Quest-for/141541/?cid=at&utm_source=at&utm_medium=en. Accessed 13 Nov 2013.

Weisbrod, B. A., Ballou, J. P., & Asch, E. D. (2008). *Mission and money: Understanding the university*. Cambridge: Cambridge University Press.

Wildavsky, B. (2011). For-profits on the move. *Continuing Higher Education Review, 75*, 9–27.

Wlodkowski, R. J., Mauldin, J. E., & Campbell, S. (2002). Early exit: Understanding adult attrition in accelerated and traditional postsecondary programs. In *Synopsis: Higher education research highlights.* Indianapolis: Lumina Foundation for Education.

Chapter 4
From Envisioning to Managing Educational Development and Organizational Innovation

Katerina Bohle-Carbonell and Amber Dailey-Hebert

In light of growing complexity worldwide, universities are challenged to tackle ill-defined problems in need of innovative solutions. Yet higher education finds difficulty in organizing initiatives to address such issues and continues to structure solutions in traditional, hierarchical, and restrictive ways. To address such issues, a mid-sized European university has started to challenge itself, the manner in which it conducts education and the group of people to whom it offers education. To achieve this goal, a bottom-up project structure was adopted, giving lower-level faculty members the autonomy, money and time to experiment and explore unorthodox methods. The research presented in this chapter details the perspectives and experiences of this unique project team, and outlines capacities needed and relevant questions to consider in dealing with wicked problems.

Where there is no vision, the people perish. (Proverbs 29:18a)

4.1 Introduction

We face an unscripted future characterized by dynamic and unpredictable changes in the global, economic, and technological context of our lives (DiPadova-Stocks 2008) Therefore, it is no surprise that 79 % of managers worldwide anticipate

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greater complexity ahead, while over half doubt their ability to manage the increasing complexity (IBM 2010). Employers today seek professionals who can manage complexity and who can increase dexterity in the way they work (IBM 2010). Friedman (2005) identifies fundamental, transferable cross-disciplinary skills necessary for work in the increasingly connected 'flat world' of our changing global environment. These skills suggest a need for non-linear paths to learning, creativity, passion, and collaboration (Friedman 2005). However, tertiary and professional education remain static, using antiquated models for learning, development and overall infrastructure, which produce ill-equipped graduates for the volatile and uncertain workplace (Frenk et al. 2010). Universities experience problems creating a curriculum that suits the needs of the labor market and thus develops graduates capable of excelling in the workplace. The reason for this slow change is that this problem is 'wicked'. In contrast to the usual 'tame problems', which offer a direct solution or remedy, 'wicked problems' are problems that are essentially unique yet related to other ill-defined issues, with significant consequences for each action but with no definitive formulation nor conclusive end (Rittel and Webber 1973). Therefore, formulating the problem *is* the problem and requires a social process to address it (Conklin and Weil 2007; Rittel and Webber 1973).

The wicked problem faced by universities relates to their place in society and their need to find new ways that are more agile and which better accommodate innovation. During times of turbulence higher education as an ecosystem has been steeped in tradition, slow to adapt (Murray 2008). With an environment characterized by hierarchy, bureaucracy, professional rank and academic specialists who are more concerned with their own career and field study than with the organization (Harris 2005; TEDx 2013), universities typically do not serve as a venue for cross-disciplinary collaboration. Silos of disciplines, specialties and domains dominate higher education and fail to promote the type of collaborative knowledge building and knowledge sharing needed for fertile, innovative knowledge communities.

This chapter will review a university-wide innovation project in which a unique project team approach was used to tackle an institution-level wicked problem. The focus lies on project management and capacities of individuals. Furthermore, the chapter explicates the capacities needed to tackle wicked problems and identifies possibilities for business and academia to address the massive set of related changes which require us to better prepare for uncertain futures and increasing complexity.

4.2 Conceptual Framework

4.2.1 Wicked Problems

Wicked problems are a subset of ill-structured problems, as the problem space is not clearly defined, the pool of solutions is unclear, and neither the constraints nor application of the solutions is given (Bruggen and Kirschner 2003). They differ

from standard ill-structured problems in that the potential solution cannot be tested prior to implementation (Bruggen and Kirschner 2003) and that the description of the problem itself is tainted by the perspective and assumptions of the person defining it (Bruggen and Kirschner 2003; Cronin and Weingart 2007). Every stakeholder in the problem thus will have a different problem representation: he or she will define the problem differently, according to his/her own criteria, and will perceive different constraints and goals to evaluate the chosen solution (Bruggen and Kirschner 2003; Cronin and Weingart 2007). Problem representation is thus the manner in which stakeholders conceptualize the problem.

Wicked problems have been studied in university settings. Watson (2000) identified wicked problems facing universities, such as the evolving nature of student experience and the challenges with the various positions students can have in the university system (i.e. members of the institution, clients, customers). Bore and Wright (2009) conceptualized wicked problems in various aspects relevant for universities, ranging from pedagogy to student achievement. Not every aspect is relevant for all stakeholders of the university, but changes in one aspect (e.g., pedagogy) affect other aspects (e.g.. assessment and accreditation) and have related outcomes.

Wicked problems involve many stakeholder groups because the problem boundaries and solution space are fuzzy (Bruggen and Kirschner 2003). Given the blurry boundaries, any solution can impact different groups. For example, changing the dominant pedagogy of an institution can impact the teacher, the learner, and support centers, and may also require changes in assessment which can affect accrediting bodies. Further, alteration of the pedagogical paradigm may influence the marketing of the university to prospective students and can affect the reputation. Thus addressing a wicked problem is not a one-shot case; rather, collaboration among stakeholders is vital (Conklin and Weil 2007). The first step in this collaboration is to determine the problem boundary (Bruggen and Kirschner 2003). Collaborative exchange by experts from diverse fields enable the clarification of each party's other's problem representation, thus eliminating differences in how stakeholders perceive the problem (Cronin and Weingart 2007). A teacher will have a different view on teaching quality than students, external partners or accrediting bodies. The result of this collaboration is a shared mental model (Decuyper et al. 2010), allowing stakeholders to agree on a direction for the solution. Only through the process of collaboration do stakeholders have the opportunity to recognize one another's perspectives on the problem.

4.2.2   The Wicked Problem of Universities

Universities face the challenge of a diverse learning population whose demands on instructional formats are constantly evolving (Allen and Seaman 2010; Oblinger and Oblinger 2005). These changes result in a shift of university responsibility toward society from conserving and transmitting knowledge to creating knowledge. This problem is exacerbated by the increased volatility of knowledge

(Howard 1995; Tannenbaum 2001) with multiple outlets for creating knowledge and various modes for transmitting as a result, traditional universities must compete against other forms of "learning institutes" such as corporate universities, online universities, research institutes and workplace learning. While some of those institutes adopt the static "knowledge transmission" model (Wink 2000) employed by universities, others offer a far more dynamic approach to learning and knowledge creation, and thus can better serve the needs of society. Attempts to implement a solution which suits the learner pose consequences for stakeholders within the university, and can be characterized as a wicked problem.

This description of the wicked problem is pertinent, known and visible to higher education. However, higher education remains fairly static, particularly in structure and function. Consequently, the rigid hierarchical model of higher education (organized by rank and discipline) makes it challenging to adopt a forward-thinking mindset or to implement innovative initiatives (Gapp et al. 2007). Furthermore, inasmuch as faculty rewards are directed toward tangible research, service, and teaching, faculty are offered no incentive to invest their time and effort heavily in innovation (Williams and Peters 2004). Higher education has traditionally created a system of content ownership and rewarded the single-authored monograph and intellectual property, practices which discourage collaborative or cross-disciplinary exchange. Yet today's world demands competencies in collaborative knowledge building and knowledge sharing (Friedman 2005; DiPadova-Stocks 2008; Edmondson and Nembhard 2009). We find a stagnant lag in higher education that fails to support a structure for innovation and adaptation, particularly in the presence of wicked problems.

4.2.3   How to Tackle the Wicked Problem

Our increasingly networked world is more connected and collaborative, chiefly as a result of recent technological advances that allow for agile ways to communicate. And as wicked problems continue to emerge, "highly specialized professionals find themselves needing to collaborate to carry out integrative development projects" (Edmondson and Nembhard 2009, p. 123). The traditional silo approach in universities, confining people to their own specialty, must evolve to support cross-functional, interdisciplinary project work. In the corporate sector, new product development teams exemplify a team structure comprised of professionals from different functions, working collaboratively to create a sound product in a short time (Edmondson and Nembhard 2009). These teams encounter various challenges that overlap those of tackling wicked problems. These challenges include: project complexity, cross-functionality, temporary membership, fluid team boundaries, and embeddedness in organizational structures (2009). Yet such challenges are also shown to build new capabilities and team member resilience (2009), which are central to addressing wicked problems. If universities are seeking strategies to tackle wicked problems, modeling the new product development team approach could be helpful.

Academia must also reconsider how it views project management. While traditional project management strategies are efficient, they rely heavily on a hierarchical chain of command for the division of work and decision-making (Davis et al. 2010). Typically, each person has a clearly defined role with specific task(s), with little need for learning new skillsets or exchanging ideas with others. Project management also implies more oversight and direction for managing project details and the employees/staff completing the tasks. While these methods may work for 'tame problems' with direct solutions and easily identifiable action steps, other models should be explored to tackle wicked problems. Collaborative models that promote freedom to experiment are needed. The element of collaboration is important for stakeholders to create a shared mental model of the problem and solution space (Conklin and Weil 2007; Cronin and Weingart 2007). Freedom to experiment is necessary, particularly since wicked problems by their nature preclude testing a solution before implementing it (Bruggen and Kirschner 2003). Thus individuals dealing with wicked problems need to feel secure in taking risks and to be assured that they will not suffer negative if their chosen solution does not work as planned.

To achieve this goal in this project, a bottom-up project structure was adopted, giving baseline faculty members the autonomy, money and time to experiment and explore unorthodox methods. The research presented in this chapter details the challenges, successes, and processes relevant for dealing with wicked problems experienced by the team members. Our research question, "What elements are needed to promote innovation toward solving wicked problems," led to recommendations for a number of characteristics and capacities which serve to navigate these complexities optimally.

4.3 A Case for Solving Wicked Problems

The wicked problem in this study was addressed through three stages of innovation development: the planning stage, the initiation stage, and the institutionalizing stage (Bland et al. 2000). The following section describes how the problem was defined by the university, how the solution pool was reduced, and how the stakeholder groups were involved in each of the three stages. It is important to note, given the change drivers described above, that the key characteristics of the wicked problem as defined by Dietz and Stern (1998) addressed in this case study are as follows:

1. Multidimensionality: The effect of a changing student population and role of the university in the society exerts different effects on faculty, students, government and the society. Each stakeholder bears a different amount of risk, cost, and benefit given any applied solution.
2. Risk and Uncertainty: It is not possible to determine what form of university will best serve the society in the future. Demographic trends may change and new innovations may disrupt the current tools faculty use. Nevertheless, universities do not have the luxury to wait until a clear(er) trend emerges. The changes

experienced now relate to the university's day-to-day activity (needs of student population, needs of the labor market, learning and assessment tools, government policies, etc.) and require a swift start for change.

3. Value conflict: The stakeholder groups all attach different values to the various possible solutions of this wicked problem. In addition, once a solution has been applied, values may change after stakeholders experience the solution. This value conflict between stakeholders, and the possible change involved in it, creates a feeling of mistrust and uncertainty regarding each party's perception of the problem and solution at a later stage.

4.3.1   The Planning Stage

In the first stage of the project, upper level administration and management of the university were the key stakeholders involved in the process. Their primary aim was to define the problem and create a vision for a project initiative to address the problem (Kotter 1995). This group of administrators, representing different disciplines and all being involved in teaching and research activities, is referred to as 'project initiators' throughout the chapter. Because every wicked problem has more than one solution, which is not easily developed nor measured on a scale of good or bad (Murgatroyd 2010), the initiators were responsible for defining the problem to help narrow the scope and create an environment for potential solutions to emerge. The uncertainty of the university's future position, and the changing learner population, were identified early on as the wicked problem facing the university. However, previous attempts focused on continuous renewal were implemented through a series of rather unsuccessful, top-down managed projects. These projects failed because (1) they were developed by university employees who were unfamiliar with the situation and uninvolved in teaching (Kotter 1995) and (2), such solutions offered one universal solution which disregarded unique needs and the differences among the various schools/departments (Gibbert et al. 2011). Whereas top-down management of innovation projects creates resistance to change and fails to utilize the creative potential within the organization (Bohle Carbonell et al. 2013), a bottom-up approach to innovation can create commitment and unleash creativity inherent in the organization and its members (Gijselaers and Harendza 2006).

In this stage, project initiators highlighted the need for solving the wicked problem and created a sense of urgency needed to solve the wicked problem (Dietz and Stern 1998; Golding et al. 2009), which prompted solution development throughout all hierarchical levels of the university (Bland et al. 2000; Kotter and Schlesinger 2008). Hence the project initiators identified the need to bring learning into work and work into learning, and set forth a vision for a cross-disciplinary, cross-functional bottom-up project team for the project they named "Learning and Working". They sought to work in online and hybrid formats to integrate innovative curricula to connect learning and working. The members of this project initiator

team met periodically to discuss the aims and potential structure of the project. And while this type of open-ended, ill-defined, cross-disciplinary project was uncommon in higher education, such entrepreneurial ventures and cross-functional teams have proven successful in creating innovation in industry (Edmondson and Nembhard 2009). As the project initiators moved forward, they outlined three project requirements: First, the gap between teachers and technological experts had to be bridged. The university library assumed the role of leading the effort to update the technological infrastructure and connect teachers and technological experts. Second, whatever courses were created, research had to be conducted on the course design and learning outcomes. Third, the funding allocated for faculty to participate in the project had to be sufficient to buy out their teaching load, yet without covering the full salary costs of the involved faculty. This decision was made to ensure that (1) schools are also investing in the project by covering salary costs and (2) the faculty involved were not doing it "for the money", but for the "passion to experiment" with new teaching formats. Project initiators believed it was important for individual schools to have a minor financial stake in the project to increase the feeling of ownership by schools and thus reduce possible resistance to change.

The transition from the vision (of the solution) to the tangible project was influenced by (1) the translation of the vision into a manageable idea (Bland et al. 2000), (2) the project structure needed to implement the innovation (Edmondson and Nembhard 2009) and (3) the context in which this innovation would be implemented (Bland et al. 2000). Collaboration between project initiators and project team members (i.e. those implementing the new courses/programs) was thus needed to develop a shared understanding of the vision (Cronin and Weingart 2007). Innovative projects require team members with different expertise, a willingness to experiment and an ability to deal and learn from failure (Edmondson and Nembhard 2009). The context – thus the organizational culture and structure – in which the innovation was implemented needed to allow its employees to experiment. This implies that the organizational structure had to support change through the communication channels, but also through the type of leadership and funding (Dede and Honan 2005). Next to this, faculty needed to identify with the innovation. This means that they should see it as part of 'their' way of work instead of an external change process enforced upon them (Edmondson 2008). Therefore, the intent of the "Learning and Working" project initiators was to create a bottom-up project structure, with every faculty group/department represented, and to establish pilots that would explore and experiment via innovative curriculum to connect learning and working.

4.3.2   The Initiation Stage

At this stage of the process, key stakeholder groups included the faculty project members, the project initiators (to a lesser degree) and a student assistant. Once the board accepted the preliminary project plan, the initiator team sought faculty willing

to work on this project. They were looking for faculty who were passionate about the topic and inherently motivated to innovate in their courses. Through the connections between project initiators and the faculty within their school, potential project members were made aware of this project and joined the project by self-selection. The direction outlined in the preliminary project plan was translated into concrete small-scale pilots. Each pilot worked towards a solution to address the wicked problem. The pilots were connected via an overarching goal. The project members defined the primary goal of this project:

> to explore innovative teaching and learning strategies which aligned to the university's overarching teaching philosophy of problem-based learning and to focus on attracting part-time learners, such as working professionals, PhD candidates and undergraduates studying abroad, via online and hybrid learning modalities.

Thus the project members translated the vision of the project initiators into a more concrete direction. The project goal emerged as the outcome of the process of creating a shared mental model and provided the linchpin for all project members, regardless of their role and expertise.

During this stage it was important that project members collaborate to create a shared mental model of the project and the outcome (Decuyper et al. 2010). A shared mental model is necessary particularly for dealing with a wicked problem, as collaboration is crucial for specifying the problem and the solution path the team will follow (Rittel and Webber 1973). It was at this stage that a community of practice among team members was formed to transmit knowledge and create a common bond (Etienne et al. 2002).

Collaboration also had to occur with the project initiators in order to ensure a smooth transition from the vision to the tangible outcomes. Project team members met regularly, approximately monthly, to discuss the progress of their individual pilots. The project initiators stayed in contact with the faculty project members but moved into the background, thus giving faculty the space to develop and implement their own ideas. A 'central team' of faculty guided the research effort and a project manager took care of guiding the project participants. The project implementation began September 2009 and concluded in August 2012. Interaction developed and emerged differently during each year of the project: In the first year, project members focused their effort on creating and implementing their pilots. The second year was marked by increased collaboration to share best practices and overcome shared obstacles. In the third year, project members focused their effort on scaling up pilots and addressing university-wide bottlenecks that hampered the speed of innovation. During the three year span, the project created more than twice the offerings outlined in the original project plan – largely as a result of project members' commitment, flexibility, and response to problems encountered. Of course the project was not free from failures. However, the aim of the project was not for each pilot to be successful. The main reason for failure was a lack of inclusion of all stakeholder groups. For example, not included the content developers early enough or only doing superficial needs assessment and thus not knowing the needs and wishes of the target group. (for more information on the outcomes of the project, please visit http://learningandworking.maastrichtuniversity.nl)

4.3.3 The Institutionalization Stage

During the process of institutionalization, the project once again involved upper level administration, with faculty taking a less active role to serve as expert advisors and disseminate their work. The third stage called for the practices ensuing from the small-scale pilots to be routinized throughout the institution as a solution to the wicked problem. The third stage also included adaptation of the solution (which had been created in the second stage) to better accommodate the needs of each school (Fishman 2005), to advance professional development to prepare additional faculty for the new teaching methods or tools (Dede and Honan 2005), and ongoing support from management for the innovation (Dede and Honan 2005). The project team strategically disseminated their practices, research, experiences, and findings in several venues. For example, to engage additional faculty, they hosted annual symposia open to the entire university community to engage other interested faculty in their work. They also created virtual multimedia training modules for on-demand development for any interested instructors in the larger academic community, and presented their collective work through 19 peer-reviewed publications and 13 conference presentations. They prepared an interactive flipbook and report complete with recommendations to the university board. The report included an executive summary of the university-wide bottlenecks experienced, proposed solutions, and actions needed prior to expanding the project. This stage proved to be problematic for the project members because control over the progress had to be given back to the central administration office. The project team created ways to innovate curriculum in an effort to bridge work and learning and continued their efforts within their schools upon conclusion of the project. However, large-scale implementation of these solutions required the effort of central offices (e.g., Information Technology (IT), Human Resources (HR)) to remove bottlenecks such as an outdated technological infrastructure and human resources policies. Such change takes time and requires multiple levels of approval and bureaucracy, highlighting the need to rethink academic infrastructure, which unfortunately slowed the innovation process drastically. Unfortunately, the momentum of innovation came to a halt as central offices did not perceive the need to change policies in order to scale up the innovations created by the pilots. As a result of this, change remained local. At the same time, changes in university leadership resulted in a rupture of the previous support project members received from upper level of administration. Dissemination thus had to continue by word-of-mouth without the financial and explicit support of upper management.

4.4 Methodology

4.4.1 Setting and Sample

The case described above provides the research context to analyze the project member and management characteristics that are most conductive for dealing with wicked problems. Fifteen persons, holding key project roles and representing various

disciplines, functions, and domains, were interviewed individually. Interviewees occupied at least one of the following roles: project leader, pilot leader, researcher or support. As membership fluctuated throughout the project, faculties were not represented equally. In total, four people from the business faculty, two from law, one from arts and social sciences, one from humanities, one from psychology, one from medicine and life science, one from the communication office and one from the library served as members of the project. Project team members included: educational scientists (5), economists (2), e-learning experts (2), psychologists (2), and communication and strategy expert (1). They held the following positions: : Junior researchers (3), project managers (3), post-doc (1), e-learning and IT coordinator (1), digital communication manager (1), assistant professors (2) and associate professors (2). The mean length of tenure was 10.9 years and the mean duration of membership on the project was 23.9 months.

The interviews were semi-structured and lasted 20–45 minutes. Questions focused on three levels from the perspective of the project members: the project (macro), the pilots in which each project member was involved (micro), and the knowledge created for the university through this project (meta). On the macro level interviewees were questioned about their perspective of the goal, the team's process, and characteristics of team members and leaders. The second level examined the goal of their pilots and the process of implementing the pilot. The third level asked for success factors and lessons learned from the project. The results presented here focus on the first and third levels, for they provide insight into how wicked problems can be addressed from a university perspective by capitalizing on the expertise and motivation of faculty.

4.4.2 Data Collection and Analysis

The interviews were transcribed and coded using Atlast T.I. analysis software. One of the researchers coded all the interviews and discussed the coding schema with the other researcher. The message was chosen as the unit of analysis (Minichiello et al. 1990). A constant comparative analysis was used to code the interviews. As a starting point, the framework described above about how to deal with wicked problems was used to create a list of codes. This list was elaborated on by concepts which emerged during the interviews. All interviews were analyzed a second time to ensure that codes which emerged during the coding process were checked in all interviews (Boeije 2002). The researchers subsequently discussed how the emergent themes connected to the conceptual framework of wicked problems. Based on the data collected, we offer recommendations and considerations for implementing an innovative project across various disciplines while tackling a wicked problem.

4.5 Results

The interviews unearthed four overarching themes: (1) Horizontal Management, (2) Cross-pollination, (3) Fluid Processes and (4) Entrepreneurial Spirit. Each theme provides insight into the competencies and elements needed to address wicked problems and shares considerations for the individuals involved, team, and institutional perspective. Therefore, the ideas presented are based on needs at an organizational level, characteristics needed at an individual level for those involved in such projects, and also the environment needed for a dynamic team process. Figure 4.1 depicts the model, descriptions, and participant quotes intended to provide recommendations and considerations when addressing wicked problems.

4.5.1 Horizontal Management

To address wicked problems, creativity and adaptation are essential, and this type of working environment calls for a unique approach to project work that is more horizontal and collaborative in nature, rather than vertical or hierarchical. Horizontal management can be very effective for innovation-based project work, yet it relies heavily on personal relationships among the project team members and may take more time to establish initially. The horizontal management approach promotes faculty involvement through a decentralized decision-making process, which elevates the level of responsibility of baseline employees/faculty and eliminates layers of middle management or upper level administration. Using a horizontal management model, the people who make the decisions related to funding, implementation, and outcomes, are the
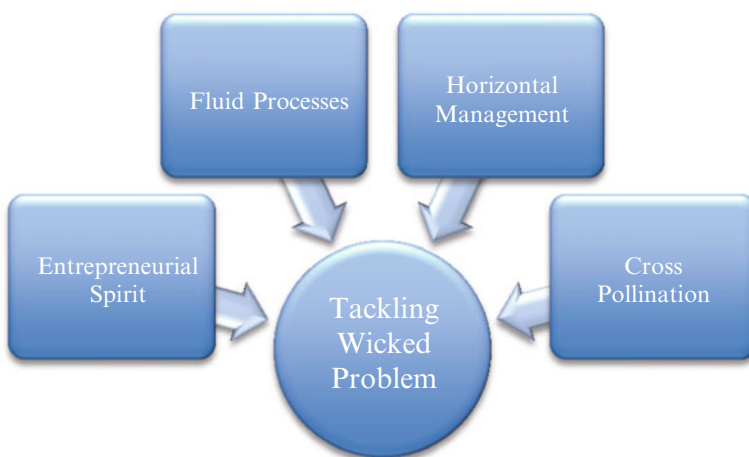

Fig. 4.1 Capacities needed for tackling wicked problems

same individuals at the 'ground level' implementing the project. In other words, those most impacted by the decisions are the ones making the decisions. As a result, the communication and feedback reach all people involved in decisions more quickly and incite more frequent interactions between these people. As one interviewee stated,

> If you want to innovate, it's difficult to do that top down because the board doesn't necessarily know where to go. You need the people at the workplace who see possibilities to innovate and that fit into the curriculum in that [school/department] and with the colleagues in that [school/department]. So you look for opportunities that are really there instead of forcing people to do new things. It requires effort and you need people who are motivated to do that.

In this project, one overarching goal was identified and a group of base-line faculty worked to concretize the project in terms of specific courses to be created. This group of faculty was known for their enthusiasm for experimenting with new teaching formats. Some of the faculty had worked together in the past, whereas others were new. The initial budgetary resources were appropriated for each pilot during the three year period. Hence, each project member was given a fixed amount of money and was responsible for maintaining their funding use. A system of checks and balances existed within the project team in the form of monthly timesheets (to record hours worked on the project) and regular reporting by financial controllers to share the percentage of existing funds spent for each pilot. To inform institutional stakeholders of progress, bi-annual reports were also shared with the university board that funded the project.

The only predefined components for the project team included the overarching project goal, the assigned team leader, and the amount of money each pilot had to spend. However, once selected, the project team was responsible for defining the path to achieve the goal, identifying how each pilot would work, how the money would be allocated, where resources could be shared, and what the anticipated results would be. Moreover, each of these areas continued to change and was adjusted throughout the process. Therefore, a significant amount of autonomy and freedom was given to the project team. At the *individual* level, with freedom and autonomy came significant responsibility. Each project member had the opportunity (and burden) of managing his/her own pilot goals, outcomes, and research, in addition to connecting to the overarching project goal. They had freedom to select their electronic platform and tools, (re)design courses in the pilot, and manage the enrollment and payment of new student groups. The team members invested above and beyond their allotted time for the project, yet their passion for this work, and the autonomy and trust given to them, infused a higher level of commitment. Throughout the interviews, participants reiterated the importance of having the freedom to experiment. They expressed a need for the project leader to encourage this autonomy and to navigate bureaucratic bodies to support the team:

> A good leader (for this project) is somebody who gives the collaborators enough freedom to go ahead with their own task and does not interfere too much. Who trusts the ones who are involved, who are part of the team, who trusts all team members that they do their job well. And a good leader is somebody who's able to tackle problems that cannot be solved by individual team members and can bring them under attention on a higher level.

From the high level, *institutional* perspective, the management of such a project necessitated not only the entrepreneurial spirit to pursue (and financially invest in) innovation, but also the ability to patiently support and demonstrate trust in the project team. The role of the team leader and administration, therefore, was to focus on supporting and advocating for the project team and their needs to focus on encouraging the people in the project rather than merely managing the details of the process. It was important for the institutional leaders to create opportunities for the project team to share recommendations and solutions and to respond in a timely manner. During the project, challenges were encountered that ultimately were controlled at an organizational and infrastructural level. For example, the university-wide contract with a technology vendor expired while many of the pilots were using the technology. This obviously created significant problems for the pilots and the project team had to quickly create a plan to fund the vendor contract using project funds. On a larger scale, issues with enrollment, payment, and registration of a new learner population also required a centralized solution. The project team recognized the importance and value of having institutional support. As one interviewee stated,

> It is a bottom up project…those projects are possible, that every faculty has a few key people who are willing and able to work in such projects. But without commitment and support from the center, the chances that it fails are big. And after a period of experimentation the central level needs to come in, step in and solve all the bottlenecks which the different faculties encounter. Because those bottlenecks are all at a central level. So you can't leave it up to every faculty to find their own solution. It needs to start bottom up, maybe it can continue to be bottom up, but at the center there needs…the center needs to start moving.

Therefore, scaling up the success of innovation projects and finding solutions to the institutional bottlenecks was needed at the organizational level. Based on the financial investment made in the project, the institution had a responsibility to create the conditions needed for scaling up the many project successes in order to fully benefit from its investment.

4.5.2 Cross-Pollination

Cross-pollination suggests a melding of many areas to create something new or special. Such cross-pollination occurred in this project team on two levels through: (1) composition of the project team members and (2) exchange of knowledge. The project team in this study was unique in the way it integrated team members from across various sectors of the university. The project team involved all stakeholder groups with varying expertise and from different domains. Project members from each faculty (discipline) were represented on the team, in addition to experts in educational research, internet and communication technology ICT, web design, and eLearning. The cross-functional, cross-disciplinary team adopted a structure similar to new product development teams (Edmondson and Nembhard 2009) in which fluid boundaries allow members to float in and out of the team as their

expertise is needed (you're describing how fluid boundaries function, right?). One individual expressed the importance of involvement from various stakeholder groups and team members thus:

> People who want to take risks, who are creative, innovative and dedicated, who are willing to spend more time than is actually required on paper. And of course they have to come from several groups. Not only teaching staff but also support staff and students. From every, let's say, blood group within the university we should have such people who contribute.

However, the most significant evidence of cross-pollination occurred in the sharing of ideas, strategies, and development of their competencies related to eLearning tools used in the pilots. They coached and mentored each other individually, as one participant describes:

> …A fellow project member well, showed me the how to do this…how to work with the equipment and of course he shared his experiences with me on how to get the best results. So in that way doing this, well he was really of great importance to me.

The project team self-organized to offer training sessions for one another and dedicated time to ensure that all members of the core team shared their knowledge and expertise. For example, one team member became proficient in using videoconferencing software, and hosted a workshop for all project members, tutors and students to educate them on this tool and its potential application to their pilots. Another faculty member became an expert in web design, created a project team website, and taught the project team members how to maintain and update the project website together. They also fueled the spark for new ideas and innovations through conversations and idea exploration together. As an interviewee explains,

> I was impressed by a fellow project member's idea of working with the mobile devices and having doctors at the end of the day exchanging experiences. Well I thought immediately: 'How can we use these kinds of ideas within our pilot?'

Hence, it is not only a cross-pollination of team members from various functions and domains, but also an environment that supports a cross-pollination of ideas to be explored and shared as a collective group, to improve all pilots. As stated simply,

> You need others, colleagues who are motivated too and want to collaborate with you. It requests a lot of effort to initiate innovations. And you cannot do it alone.

4.5.3 Fluid Processes

Typically, project-related grants or significant financial allocations are accompanied by requirements for clearly defined outcomes and stringent deadlines, conditions which offer little room for deviation or creativity. As indicated earlier, wicked problems are unique, challenging, and infinite, and typically are linked to other ill-defined, challenging problems. Therefore, it is imperative that the project team, leaders, and institution maintain a capacity to evolve, and the stamina and

perseverance for adaptation to (and with) those changes. Engaging in such a fluid process requires the capacity to support shifting circumstances.

Accommodating such fluid processes also means embracing failures as part of a learning experience, which will help to improve all future processes. For example, one pilot went through three different pilot leaders and attempted several projects. However, the funding was not cut, nor penalties made, but simply new team members and ideas were introduced, to continue with new innovations and tactics. Therefore, project participants need the capacity for managing change and the ability to see problems as part of an educational journey. They also need to develop a capacity to accommodate the frequent roadblocks. As two participants shared,

> I think some of the things that we have learned most significantly from where the obstacles and speed bumps we encountered and how we can make recommendations university wide to improve those.
>
> I think you need friction. Look for things that don't fit. That enables, it enables you to learn…to look for the roads less travelled. And then you probably run into obstacles and these obstacles are probably interesting.

The project produced many successful pilots, recommendations, and practices which will benefit the university for years to come, yet it also faced significant volatility and periods of transition. Transitions included: new upper level administrators, new project leaders, turnover of team members, technological challenges, issues with contract renewals, and project resistance within the faculties. Yet despite such transitions, the project team demonstrated significant resilience:

> If something is created at a certain place then you have to meet resistance before it is seriously considered. And of course there are differences between faculties and there are things like signature pedagogies…but that shouldn't keep people at the work floor from interacting and trying to do things together.

In addition to volatility within the project, personal situations (such as maternity leave, illness, and member relocations) also impacted the momentum of the team. For example, one instrumental pilot leader suffered a serious health condition requiring a leave of absence. Yet other team members continued the leader's efforts until his return. This type of response by the project team demonstrated their adaptive, supportive, and collaborative nature and how their processes were impacted positively as a result. The fluid nature of the team and their adaptive processes allowed the project to maintain momentum and optimism through collegial support. In addition to supporting one another, the team also indicated the importance of having an organic and naturally flowing process that focused on forward movement and new learning:

> What we tried to do is have regular meetings at the beginning between people teaching and the pilot leader to discuss: what is the aim of the project? What do we want to achieve? How do we try to achieve this?....and then in the meantime always have regular meetings with them to see whether there is something that is going wrong or something that is going very well.
>
> In the beginning we were all searching for how to formulate pilots, to implement pilots. In the beginning I think everyone was more busy with his own project and there was not as much exchange….We are moving away from the specific pilots to more organizational broad problems and also organizational broad opportunities for innovation. So I think from everyone (working on their own) we are growing to be a real team with a shared vision, sharing results, sharing wishes for the future.

4.5.4 Entrepreneurial Sprit

Entrepreneurial spirit implies a state of energy and enthusiasm, in addition to an aptitude for innovation and dealing with failure, and presented itself as a capacity needed at the individual, team, and institutional levels. At the *individual level*, there was a strong need to possess collaborative skills, the ability to innovate and stimulate ideas, to maintain an openness to feedback and paradigm shifting, and to demonstrate enthusiasm and perseverance for the project (particularly when facing obstacles and challenges within their pilots). Below, two interviewees highlight the importance of motivation, critical thinking and problem-solving skills for an entrepreneurial spirit:

> You need people who are really motivated to invest and don't give up if it's going a bit difficult and encounters problems. People who are able to collaborate; social skills to contact people, to try to convince people. You cannot work with people who want to sit in their office.
>
>   I would say people working on this project would need an aptitude for innovation and creative thinking and problem-solving as well. Many of the pilot leaders, despite facing several obstacles (even just technology wise), were always able to find solutions and workarounds. So being able to think critically, to problem solve, but also to do it in a very creative and innovative way is something that I feel is really critical for this type of project.

At the *team level*, the interviews revealed the need for collaborative knowledge sharing and knowledge building. Members of the project team needed to be very open and collaborative to experiment on their own, but also to share their expertise, to exchange their positive and negative experiences, and to do so in a non-threatening environment. Since part of the entrepreneurial spirit involved creating innovation and learning from one's failures, the data highlighted the importance of creating a psychologically safe communication climate (Edmondson 1999) built on trust, mutual respect, and open communication. Members of the team had to focus not only on their own innovation, but also in collaboratively working with others across different disciplines and functions to create resources and recommendations collectively. They needed to be able to make connections between the successes and failures occurring in all parts of the project, and to draw conclusions and recommendations based on those connections. Furthermore, the interviews addressed the need to promote and market their work (successes and failures) to others outside the project team. As one participant shared,

> I think it's important to look beyond one's disciplinary boundaries and the people in this project team were able to do that. They were able to collaborate and share knowledge and build knowledge together. In a way that is not typically done in academia….for that to happen you have to have people who are willing to be open (to be able) to learn from failures as well as from successes and to be able to share that.
>
>   Not only do the pilot leaders have their own individual expertise on research ideas and experiences, they also bring those back to the group so we can all learn from one another and build that knowledge collectively and share it with others.

From an *institutional perspective*, an entrepreneurial spirit was needed to invest the time, money, and resources into a project team focused on unorthodox and

innovative strategies. The university had to support a significant investment and level of trust and autonomy to allow the team to function for three years, with little direction or pressure from upper level administration. Two participants expressed their sentiments about the importance of having support from above,

> There needs to be clear support from the top that people are allowed to experiment even if there is not immediate return visible. And it should be with people who like to experiment and who like to engage in new things.
>
>   That required quite a bit of commitment from the organization because you have to be willing for instance to do a 'needs analysis' and to focus on the environment and see where opportunities lie and what kind of programs are feasible or viable. And that requires this entrepreneurial attitude.

As with every project, the challenges faced provide an excellent source for future learning. During this three year project, the most common challenges occurred as the result of two areas: (1) Dissemination toward scaling up success and (2) institutional adoption of innovations (including infrastructure and policies needed). Furthermore, given the dedicated and enthusiastic group of project team members, it was always a challenge to remember that lasting change takes time and to allow the process to develop organically from the bottom up.

In the future, it will be increasingly important to create opportunities for cross-disciplinary collaborative knowledge building, while learning to embrace ambiguity and uncertainty through adaptive expertise development. To deal with complex issues and wicked problems, we need to explore new models for teaching, learning, and organizational infrastructure (particularly for innovation projects) that extend beyond traditional boundaries and which promote networked knowledge creation. Furthermore, organizational administrations will need to consider ways to create an environment that promotes and rewards these types of creative and laborious efforts and promote the scaling up of successful results.

4.6   Discussion

As this chapter is designed to offer practical and applicable options to consider when dealing with wicked problems, using bottom-up project structures, the following heuristic provides guiding questions to consider as you undertake such an initiative from the following roles: (1) management or upper level administration, (2) project leaders and initiators, and (3) project team members.

4.6.1   Institutional Considerations: Management or Senior Level Administration

Significant change in higher education can begin with upper level administrators and managers. However, it is imperative that such leaders reconsider their vision of 'project management' and seek alternative ways to structure projects that support

innovation and capitalize upon faculty expertise. While traditional project management strategies rely heavily upon a hierarchical chain of command for the division of work and decision-making (Davis et al. 2010), the bottom-up project structure described in this study used horizontal management and enabled baseline faculty to lead decision-making processes. Thereby, the opportunity to leverage the characteristics inherent in knowledge workers of the academy, (such as faculty professionalism, academic autonomy and freedom), should be taken into account and materialized through support, empowerment, and freedom granted by leaders (Harris 2005; Mintzberg 1998; Winter 2009). Furthermore, as higher education continues to face the need to become more agile and adaptable, administrators should consider ways to focus on entrepreneurial activity through innovation and to create environments to support and reward it (Kenny 2009). Academics, as professionals, respond better to support and protection than direction and supervision (Mintzberg 1998; Mumford et al. 2002). Involving team members in the decision process has been shown to positively impact motivation (de Jong and den Hartog 2007) and project success (Amabile et al. 2004). Engagement of low(er) level staff, such as faculty, in decision making stimulates motivation and involvement for creating and implementing new ideas (Ruigrok et al. 2000). Engagement can be further stimulated by giving faculty the freedom to define the problem (Mumford et al. 2002).

However, institutional leaders must not only consider how to facilitate an empowering project structure, but also identify the vision or direction. If the vision is communicated properly, the faculty can start to believe in the renewal. In a bottom-up innovation process a properly communicated vision can ensure that actions taken by team members will be in line with the overall vision of the organization (Harris et al. 2003; Kotter 1995). The following list provides guiding questions for administrators to consider as they seek to promote horizontal management, establish an entrepreneurial spirit (at all levels of the institution), facilitate cross-pollination of ideas and people, and accommodate for fluid processes (Table 4.1).

4.6.2   Project Team Considerations: Project Leaders

It is not surprising, in an environment characterized by hierarchy, bureaucracy, and an individualistic professorial system (Harris 2005), that universities typically do not serve as a venue for cross-disciplinary collaboration. Silos of disciplines, specialties and domains dominate higher education and fail to promote the type of collaborative knowledge building and knowledge sharing needed for fertile innovative knowledge communities (TEDx 2013). Furthermore, as rewards are directed toward tangible research, service, and teaching, faculty are offered no incentives to invest in instructional innovation heavily (Williams and Peters 2004). Consequently, those charged with leading or initiating such innovative project structures to tackle wicked problems must take into account several considerations. First, one must consider the importance of engaging faculty who are intrinsically motivated and passionate about the topic at hand, and who seek ways to create collaborative

Table 4.1 Guiding questions for administrators

The institutional perspective	Horizontal management	1. How can we empower those who (want to) implement innovation within our organization?
		2. What infrastructure is possible and necessary to promote faculty involvement through a decentralized decision-making process? How can it be implemented?
		3. What rewards, incentives, and evaluation process criteria could be used to support innovation projects and team members at the institution?
		4. How can we demonstrate support and trust and promote an environment of risk-taking among baseline faculty and staff?
		5. What financial resources can be used to promote innovation? In what formats and venues?
Guiding questions for administrators	Entrepreneurial spirit	1. What time, money, and other resources can we invest into a project team focused on unorthodox and innovative strategies?
		2. How can the organization capitalize on the creativity of its faculty/staff?
		3. What structures, policies and procedures are necessary to support innovation?
		4. How can we structure projects around the challenges and complexities we face (to be seen as opportunities rather than obstacles)?
		5. What policies are hindering entrepreneurs in their work?
		6. How can we profess a message that people are allowed to experiment even if there is not a visible, immediate return?
	Cross-pollination	1. How can the 'lessons learned' from the project be institutionalized to scale-up successes?
		2. What current policies will slow down or even stop innovations to be scaled up at the institutional level?
		3. In what ways should the project team results be shared with the institutional/academic community?
		4. How can the project be represented as an honorable distinction that will propel the university forward?
	Fluid processes	1. How can the institution create a culture which embraces failures as part of the organizational learning experience?

knowledge building communities through the project team. While such a strategy relies heavily on personal relationships among the project team members, it may take more time to establish initially. The horizontal management approach promotes faculty involvement through a decentralized decision-making process, which elevates the level of responsibility of baseline employees/faculty and eliminates layers of middle management or upper level administration, thus allowing the communication and feedback to reach everyone involved. Yet of utmost importance is the environment within which such collaboration can evolve. The uncertainty inherent in a wicked problem (Dietz and Stern 1998; Golding et al. 2009; Rittel and Webber 1973) creates risk for the involved project members: defining the problem, solution space, and possible constraints is a daunting task as multiple representational gaps must be closed (Cronin and Weingart 2007). Even if this is achieved, the solution may not succeed; and there is no way of testing it before implementation (Bruggen and Kirschner 2003). Consequently, failures can occur and must be addressed. The role of the leader here is crucial for reducing the risk perceived by project members, particularly by stressing the need to communicate new ideas (Carmeli et al. 2010; Collins 2001). A safe environment can be created by leaders who are open to new ideas and who listen to the ideas of project members (Nembhard and Edmondson 2006). Only when project members perceive that their leader listens to them and is open and willing to discuss their ideas and concerns will they take the risk needed to deal with a wicked problem (Carmeli et al. 2010). Therefore, creating an environment in which collaborative knowledge sharing and psychological safety can occur, in which risk-taking is encouraged, and in which lessons can be learned from both failures and successes, can aid those leading such project teams (Edmondson 1999). The following questions are designed to help guide such efforts (Table 4.2).

Table 4.2 Guiding questions for project leaders

The team perspective	Horizontal management	1. How can I attract individuals across all disciplines who are willing to deal with the wicked problems and who are interested in the same overarching goal of the project?
		2. How will the project aim(s) be communicated, and funding allocated, to empower all team members?
		3. How can we elevate the level of responsibility of baseline employees/faculty and eliminate layers of middle management or upper level administration?
		4. How can we support and advocate for the project team and their needs (particularly in navigating bureaucratic bodies)?
		5. What opportunities can we create to share recommendations and solutions in a timely manner?

Table 4.2 (continued)

Guiding questions for project leaders	Entrepreneurial spirit	1. How can we create a non-threatening environment where members can experiment on their own, but also to share their experiences (the successes and failures)?
		2. In what ways can the team work collaboratively with others across different disciplines and functions to create resources and recommendations collectively?
	Cross-pollination	1. How can we facilitate opportunities to exchange ideas and share successes/failures among team members?
		2. How can we promote a knowledge-creating culture?
		3. In what ways can fluid boundaries allow members to float in and out of the team as their expertise is needed (without disrupting the team)?
		4. How can we promote and market their work to others outside the project team?
	Fluid processes	1. When failures occur, how can we redirect the team efforts and maintain momentum?
		2. When membership and leadership change, how can we promote continuity and purpose?

4.6.3 Individual Participant Considerations: Faculty

The ability to innovate lies in the ability to experiment. And as our dynamic and shifting world requires a new capacity to deal with complexity and become more adaptable (DiPadova-Stocks 2008; Friedman 2005), the contributions made by individuals cannot be undervalued. Innovation occurs when the tacit ideas of one person become explicit, refined, and renewed (Nahapiet and Ghoshal 1998). Team members on innovation projects need a psychologically safe communication climate in which to experiment and explore (Edmondson 1999). They need to feel safe in environments in which risk-taking and autonomy can be promoted. Yet with great freedom and autonomy comes significant responsibility. For project members, several factors led to their successes, failures, and collaborative learning. All project members had the opportunity (and burden) of managing his/her own pilot goals, outcomes, and research; they were also afforded the freedom to select their electronic platform and to (re)design their pilot courses as they deemed appropriate. Therefore, passion in innovating curricula were was evident; to make their pilots successful, team members invested beyond their allotted time for the project. Their passion for this work, and the autonomy and trust given to them, sparked a higher level of commitment (Collins 2001). Therefore, individuals who wish to engage in this work must make sure they commit to innovation projects which truly invigorate and intrinsically motivate them to action. Collaboration was also imperative for achieving individual, team, and organizational success in this project as only through collaboration could

the team develop the shared mental model required to accomplish the overarching goal (Cronin and Weingart 2007). Each team member possessed strong collaborative skills, the ability to innovate and stimulate ideas, and an openness to feedback and paradigm shifting. The dynamic nature of having a moving target can be overwhelming for many; therefore the collaboration and exchange among team members helped to create a haven of new ideas to address emerging challenges. Individual team members must have a capacity to demonstrate enthusiasm and perseverance for the project (particularly when facing obstacles and challenges with their pilots). Adaptability was necessary for team members in this type of cross-functional, cross-disciplinary team (Lewis et al. 2007) in which fluid boundaries allowed members to float in and out of the team as their expertise was needed. The setting required each team member to seek the expertise of peers and to offer their own expertise to others. Above all, members who wish to pursue this path need to possess a capacity for managing change and the ability to see problems as part of an educational journey (Pulakos et al. 2000). They also need the capacity to accommodate the frequent roadblocks that will be encountered when tackling wicked problems (Table 4.3).

Closing the chapter we would like to point your attention to the potential challenges you might encounter. These challenges exist at the three levels (administrators, project manager, and project members). At the upper two levels the most important challenge is to lead the involved project members without managing them. At the project member level finding support is the biggest challenge. This refers to technical support, but more importantly support from other faculty who are not directly involved in the project. Seeking and staying connected to external faculty is important for the scaling up of the project (Table 4.4).

Table 4.3 Guiding questions for individual participants

The individual perspective	Horizontal management	1. Is this a project I am passionate about?
		2. How will I manage my own pilot goals, outcomes, and research, while connecting to the overarching project goal?
		3. What political factors must I consider while pursing the project aims?
		4. Which collaborators will help me to learn and grow?
		5. What connections and collaborative knowledge sharing could best support my efforts? And how can such sharing be facilitated?
Guiding questions for faculty	Entrepreneurial spirit	1. In what ways can I innovate and stimulate ideas?
		2. In what ways can I maintain an openness to feedback and paradigm shifting?
		3. How do I demonstrate enthusiasm and perseverance for a project (particularly when facing obstacles and challenges)?
		4. What is motivating me to pursue this project?
		5. How can I draw conclusions and recommendations based on the connections I see?

Table 4.3 (continued)

	Cross – pollination	1. What is my role within the project team? How can I best communicate my expertise to others on the team?
		2. In what ways can I share my newfound knowledge and ideas?
		3. What competencies do I need to develop and whom can I ask for assistance in this development? Whom can I assist, given my own expertise?
	Fluid processes	1. What capacities will help me to continually accommodate roadblocks as they are encountered?

Table 4.4 Potential challenges

Challenges for administrators	Taking strategic risk: As administrators it is important that you set the vision, but give freedom to the project members to experiment. You have to be patient and wait for the results.
	Have the right people in the project.
	Find the necessary funding.
	If this form of project goes against previous ways of working, faculty need to believe that management is serious
Challenges for project manager	Give freedom to project members. Don't micro-manage
	Move people to action
	Keep an overview of what the different project members are doing
	Serve as the buffer between project members and administrators
Challenges for project members	Find (technical) support
	Integrate new tasks into existing task

4.7 Conclusion

Given the complexities we face today, typical analytical problem solving approaches fail to address wicked problems (Conklin and Weil 2007), particularly since the challenge with a wicked problem is to define the problem itself – as the constraints, stake holders, and direction of the solution can change depending on the specification of the problem (Rittel and Webber 1973). The highly complex nature of wicked problems demands innovation because wicked problems require new ways of thinking. Such extreme ambiguity and complexity require an innovative project team structure with a diversity of expertise, fluid team membership and a safe learning climate within the team. This chapter demonstrates how one project used horizontal management, cross-pollination, fluid processes, and an entrepreneurial spirit to create university-wide innovation. A heuristic with guiding questions for stake-holder groups is provided to help other individuals and institutions embark on their own innovative learning pathway.

References

Allen, I. E., & Seaman, J. (2010). Class differences: Online education in the United States. *Sloan Consortium*. Retrieved from http://sloanconsortium.org/sites/default/files/class_differences.pdf

Amabile, T. M., Schatzel, E. A., Moneta, G. B., & Kramer, S. J. (2004). Leader behaviors and the work environment for creativity: Perceived leader support. *The Leadership Quarterly, 15*(1), 5–32. doi:10.1016/j.leaqua.2003.12.003.

Bland, C. J., Starnaman, S., Wersal, L., Moorhead-Rosenberg, L., Zonia, S., & Henry, R. (2000). Curricular change in medical schools: How to succeed. *Academic Medicine, 75*(6), 575–594.

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality & Quantity, 36*(4), 391–409.

Bohle Carbonell, K., Dailey-Hebert, A., & Gijselaers, W. (2013). Unleashing the creative potential of faculty to create blended learning. *The Internet and Higher Education, 18*, 29–37. doi:10.1016/j.iheduc.2012.10.004.

Bore, A., & Wright, N. (2009). The wicked and complex in education: Developing a transdisciplinary perspective for policy formulation, implementation and professional practice. *Journal of Education for Teaching, 35*(3), 241–256. doi:10.1080/02607470903091286.

Bruggen, J., & Kirschner, P. (2003). Designing external representations to support solving wicked problems. In J. Andriessen, M. Baker, & D. Suthers (Eds.), *Arguing to learn: Confronting cognitions in computer-supported collaborative learning environments* (Vol. 1, pp. 177–203). Dordrecht: Springer. doi:10.1007/978-94-017-0781-7_7.

Carmeli, A., Reiter-Palmon, R., & Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creativity Research Journal, 22*(3), 250–260. doi:10.1080/10400419.2010.504654.

Collins, J. (2001). Confronting the brutal facts (yet never lose faith). In J. Collins (Ed.), *Good to great: Why some companies make the leap… and others don't* (pp. 65–89). New York: Harper Collins Publishers.

Conklin, E. J., & Weil, W. (2007). *Wicked problems: Naming the pain in organizations*. Touchstone Tools and Resources http://kodu.ut.ee/~maarjakr/creative/wicked.pdf.

Cronin, M. A., & Weingart, L. R. (2007). Representational gaps, information processing, and conflict in functionally diverse teams. *Academy of Management Review, 32*(3), 761–773.

Davis, J., MacDonald, A., & White, L. (2010). Problem-structuring methods and project management: An example of stakeholder involvement using hierarchical process modelling methodology. *Journal of the Operational Research Society, 61*(6), 893–904. doi:10.1057/jors.2010.12.

De Jong, J. P. J., & den Hartog, D. N. (2007). How leaders influence employees' innovative behaviour. *European Journal of Innovation Management, 10*(1), 41–64. doi:10.1108/14601060710720546.

Decuyper, S., Dochy, F., & Van Den Bossche, P. (2010). Grasping the dynamic complexity of team learning: An integrative model for effective team learning in organisations. *Educational Research Review, 5*(2), 111–133. doi:10.1016/j.edurev.2010.02.002.

Dede, C., & Honan, J. P. (2005). Scaling up success: A synthesis of themes and insights. In C. Dede, J. P. Honan, & L. H. Peters (Eds.), *Scaling up success: Lessons from technology-based educational improvement* (pp. 227–239). San Francisco: Jossey-Bass.

Dietz, T., & Stern, P. (1998). Science, values, and biodiversity. *BioScience, 48*, 441–444.

DiPadova-Stocks, L. N. (2008). Fostering social and civic responsibility by organizations and their people. In C. Wankel (Ed.), *Handbook of 21st century management*. Thousand Oaks: Sage.

Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*, 350–383.

Edmondson, A. C. (2008, July–August). The competitive imperative of learning. *Harvard Business Review, 86*, 60–68.

Edmondson, A. C., & Nembhard, I. M. (2009). Product development and learning in project teams: The challenges are the benefits. *Journal of Product Innovation Management, 26*(2), 123–138. doi:10.1111/j.1540-5885.2009.00341.x.

Etienne, W., MacDermott, R. A., & Snyder, W. M. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Boston: Harvard Business Press.

Fishman, B. J. (2005). Adapting innovations to particular contexts of use. In D. Chris, J. P. Honan, & L. C. Peters (Eds.), *Scaling up success: Lessons from technology-based educational improvement* (pp. 48–66). San Francisco: Jossey-Bass.

Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Ke, Y., Kelly, P., Kistnasamy, B., Meleis, A., Naylor, D., Pablos-Mendez, A., Reddy, S., Scrimshaw, S., Sepulveda, J., Serwadda, D., & Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *Lancet, 376*(9756), 1923–1958. doi:10.1016/S0140-6736(10)61854-5.

Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century. World* (Vol. 5). New York: Farrar, Straus, and Giroux.

Gapp, J. M., Austin, A. E., & Trice, A. G. (2007). *Rethinking faculty work: Higher education's strategic imperative*. San Francisco: Jossey-Bass.

Gibbert, M., Probst, G. J. B., & Davenport, T. H. (2011). Sidestepping implementation traps when implementing knowledge management: Lessons learned from Siemens. *Behaviour & Information Technology, 30*(1), 63–75. doi:10.1080/01449291003650753.

Gijselaers, W., & Harendza, S. (2006). Dynamics of planned change: When participants talk back. In L. Hunt, A. Bromage, & B. Tomkinson (Eds.), *The realities of change in higher education: Interventions to promote learning and teaching* (pp. 101–114). Oxon: Routledge.

Golding, B., Brown, M., Foley, A., Smith, E., Campbell, C., Schulz, C., Angwin, J., & Grace, D. (2009). Wicked learning: Reflecting on learning to be drier. *Australian Journal of Adult Learning, 49*(3), 544–566.

Harris, S. (2005). Rethinking academic identities in neo-liberal times. *Teaching in Higher Education, 10*(4), 421–433. doi:10.1080/13562510500238986.

Harris, D. L., DaRosa, D. A., Liu, P. L., & Hash, R. B. (2003). Facilitating academic institutional change: Redefining scholarship. *Family Medicine, 35*(3), 187–194. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12670112.

Howard, A. (1995). *The changing nature of work* (A. Howard, Ed.). San Francisco: Jossey-Bass.

IBM. (2010). *Capitalizing on complexity: Insights from the Global Chief Executive Officer study*. Retrieved from http://public.dhe.ibm.com/common/ssi/ecm/en/gbe03297usen/GBE03297USEN.PDF

Kenny, J. D. (2009). Managing a modern university: Is it time for a rethink? *Higher Education Research & Development, 28*(6), 629–642. doi:10.1080/07294360903206934.

Kotter, J. P. (1995). Leading change: Why transformation efforts fail. *Harvard Business Review, 73*, 59.

Kotter, J. P., & Schlesinger, L. A. (2008). Choosing strategies for change. *Harvard Business Review, 86*, 130.

Lewis, K., Belliveau, M., Herndon, B., & Keller, J. (2007). Group cognition, membership change, and performance: Investigating the benefits and detriments of collective knowledge. *Organizational Behavior and Human Decision Processes, 103*(2), 159–178. doi:10.1016/j.obhdp.2007.01.005.

Minichiello, V., Aroni, R., Timewell, E., & Alexander, L. (1990). *In-depth interviewing: Researching people*. Hong Kong: Longman Cheshire.

Mintzberg, H. (1998). Covert leadership: Notes on managing professionals. Knowledge workers respond to inspiration, not supervision. *Harvard Business Review, 76*, 140–147. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10187244

Mumford, M. D., Scott, G. M., Gaddis, B., & Strange, J. M. (2002). Leading creative people: Orchestrating expertise and relationships. *The Leadership Quarterly, 13*(6), 705–750. doi:10.1016/S1048-9843(02)00158-3.

Murgatroyd, S. (2010). "Wicked Problems" and the work of the school. *European Journal of Education, 45*(2), 259–279. doi:10.1111/j.1465-3435.2010.01428.x.

Murray, G. (2008). On the cutting edge (of Torpor): Innovation and the pace of change in American higher education. *AACE Journal, 16*, 47–61.

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *The Academy of Management Review, 23*(2), 242–266. doi:10.1016/B978-0-7506-7222-1.50009-X.

Nembhard, I. M., & Edmondson, A. C. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior, 27*(7), 941–966. doi:10.1002/job.413.

Oblinger, D., & Oblinger, J. L. (2005). *Educating the net generation* (Vol. 264). Washington, DC: Educause. Retrieved from http://www.educause.edu/educatingthenetgen.

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology, 85*(4), 612–624. doi:10.1037//0021-9010.85.4.612.

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*, 155–160.

Ruigrok, W., Achtenhagen, L., Rüegg-Stürm, J., & Wagner, M. (2000). Hilti AG: Shared leadership and the rise of the communication organization. In A. M. Pettigrew & E. M. Fenton (Eds.), *The innovating organization*. London: Sage. doi:10.4135/9781446219379.

Tannenbaum, S. I. (2001). A strategic view of organizational training and development. In K. Kraiger (Ed.), *Creating, implementing, and managing effective training and development: State-of-the-art lessons for practice* (pp. 10–52). San Francisco: Jossey-Bass.

TEDx. (2013). *Designing a University for the new millennium: David Helfand at Tedx WestVancouverED*. Retrieved from http://www.youtube.com/watch?v=DZQe73IXZtU&feature=share&list=PL98356CD352B01730

Watson, D. (2000). Managing in higher education: The "wicked issues.". *Higher Education Quarterly, 54*(1), 5–21.

Williams, V., & Peters, K. (2004). Faculty incentives for the preparation for web-based instruction. In B. H. Kahn (Ed.), *Web-based instruction* (pp. 108–110). Englewood Cliffs: Educational Technology.

Wink, J. (2000). *Critical pedagogy: Notes from the real world*. New York: Addison Wesley Longman.

Winter, R. (2009). Academic manager or managed academic? Academic identity schisms in higher education. *Journal of Higher Education Policy and Management, 31*(2), 121–131. doi:10.1080/13600800902825835.

Chapter 5
Heutagogy, Technology, and Lifelong Learning for Professional and Part-Time Learners

Lisa Marie Blaschke and Stewart Hase

A variety of economic, social, political, and technological factors have come together to create a perfect storm of change in higher education: skyrocketing educational costs, the demand for skill- and competency-based education, the rise of the knowledge economy. People are now lifelong learners, learning their profession throughout life, in chunks and when they need it. Added to that, the explosive advancement of technology in the last decade has made learning readily accessible at any time, everywhere, and in any form. The convergence of these factors has left higher education institutions scrambling and institutional, teacher, and learner roles in a state of flux. Heutagogy, also called self-determined learning, offers a teaching and learning framework for navigating the oncoming storm. The theory draws on established learning theories – humanism, constructivism, andragogy, transformative learning, and complexity theory – and the latest neuroscience to create a composite map for institutional leaders, teachers, and learners alike to apply to professional and lifelong learning. This chapter explores the tenets of heutagogy and how a heutagogical learning approach can be supported using the latest technological developments and be implemented in pedagogically meaningful ways in order to develop learners who are able to excel in today's complex, global workforce.

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5.1   The Winds of Change

There are the first stirrings of a Russian Spring in higher education. Unfortunately, like Nicholas II and the nobility, there is little to show that the education elite and the policy makers are taking any notice. What is even more interesting is that despite being the harbingers of scholarship and research, they do not appear to be recognizing the evidence from some within their ranks who are responding to the need for change. This evidence, firstly, consists of a long history of theory development that has largely been ignored, except for small pockets of innovation. This thinking, outlined below, has argued that the way in which we think about education is problematic. Secondly, and perhaps more compelling, an increasing body of neuroscience research, described in Sect. 5.2, suggests that many of the assumptions underpinning learning and, ergo, education, are flawed. We shall return to argue this point more fully in a moment.

From a less heuristic point of view, the Internet and social networking are best described as game changers for the knowledge industry. The simple fact that students now have as equal an access to information as their teachers is evidence enough that we need to rethink how people now learn. They have the opportunity to learn what, where and when they want, and throughout life in response to need: something they have not had before. Rather, they have been dependent on a 'guru' to deliver information from a lectern, organise what they need to learn and point the way to the reserved section of the library. They have had to undertake whole courses, in one chunk and defined by the institution, in order to obtain accreditation. Add to this that students have more interaction with their fellow students about course material, facts, assessments and other learning issues than their teachers, and we have a revolution in the air. That teachers now no longer need to concentrate on delivering content is an obvious first step and the lecture is going the way of the dodo. If that does not whet the innovative appetite then surely the advent of the massive open online course (MOOC) should send a shiver of anticipation down the spines of every education policy maker in the world. But, we are getting ahead of ourselves and need to go back a little in time first before moving into the future if we are to salvage higher education or at least play a part in its remodeling.

While it could be argued that Socrates had a good grasp of how people learn given his so called 'method', the winds of change really began with the humanists and then the constructivists in the 19th. In the first instance, humanism places the person at the centre of activity, and the learner at the centre of learning. Building on John Dewey's concept of experiential learning, Vygotsky, Freire, and others developed the concept of constructivism and realised that people make sense of what they learn themselves, irrespective of the teacher. Both these ways of understanding were incorporated into much of mainstream teaching about education. The school system and corporate trainers borrowed from these concepts fairly widely.

We also saw attempts at different methods of schooling with A.S. Neil's Summerhill, Montessori and Steiner that have all focused on learner-centric and

holistic learning rather than teacher-centric approaches. It is interesting to note that despite the success of Steiner schools (Woods et al. 2005) little change has occurred in mainstream education approaches, particularly in secondary (college) schools and higher education.

More recently, there has been the advent of complexity theory, action learning, capability, andragogy and learner-managed learning, all of which have contributed to seeking ways to better understand how people learn best.

There is also evidence that most learning does not occur in the classroom. Most people do most of their learning during their normal activities of daily living, not in a formal setting (Merriam et al. 2007). The most often cited estimate of informal learning is taken from a US report by Kim et al. (2004) that found that about 70 % of learning at work is informal. Young children, before they go to school, are very effective learners but their natural ability is curtailed by teacher-directed approaches, the need to pass tests and the constraints of the curriculum. This in an age when they need to maintain their ability to learn and access the content that is now freely available on the Internet.

Emery (1974), Kozol (1975), and Ackoff and Greenberg (2008) have provided perhaps the most scathing critiques of education systems in attempting to rattle the cage of the policy makers. Similarly dissatisfied with what they saw as poor educational practices in higher education, Hase and Kenyon (2000) developed the concept of heutagogy, the study of self-determined learning. We think that the educational principles derived from heutagogy provide a positive way forward and some opportunities for higher education given the winds of change that are blowing.

5.2 Heutagogy or Self-Determined Learning

Heutagogy (Hase and Kenyon 2000, 2003, 2007, 2013; Hase 2009, 2010; Kenyon and Hase 2010) is the study of self-determined learning. It is a learner-centred approach that builds on the foundation provided by constructivism and humanism, which has been described elsewhere (Hase and Kenyon 2000, 2013), and seeks to redefine how we think about how people learn most effectively. Since the first paper was published in 2000, we have seen some innovative practice, particularly in the area of e-learning (Blaschke 2012; Chapnick and Meloy 2005; Cochrane et al. 2012). The notion of learner generated contexts (Whitworth 2008); the Pedagogy, Andragogy, Heutagogy (PAH) Continuum (Garnett and O' Beirne 2013; Tay and Hase 2004); personal empowerment (Canning and Callan 2010); nurse training (Ramsay et al. 2013); changes in Assessment (Eberle 2009); lifelong learning (Eberle 2013); health and well-being (Foskey 2013); and designing learner-centric training programs (Hase 2010, 2013) provide some examples of interesting applications of heutagogy.

Heutagogy has also been built on the concept of capability (Stephenson and Weil 1992) in which people apply competencies to novel as well as familiar situations, have a high degree of self-efficacy for learning and know how to learn (Hase and

Kenyon 2000, 2007). Deeper learning, with which heutagogy is interested, involves self-reflection, action learning (Revans 2011), and double-loop learning (Argyris and Schön 1996; Blaschke 2012) in which core values and assumptions are challenged. Heutagogy is focused on learner managed learning (Long 1990) which facilitates the capacity to learn throughout life.

What heutagogy seeks to do is to move from teacher-centric or pedagogical and andragogical learning approaches towards more learner-centric learning. Heutagogy recognizes that people are, in fact, very adept learners. They learn continuously, outside of educational systems. Given the present technology, their emancipation from the need for a teacher, at least in a formal sense, is even more obvious. Certainly, the idea of the content-driven course, curriculum and lesson, is fading the way of the dinosaur. Heutagogy draws many of its principles from how people learn in everyday life. People learn when they are ready, not when teachers think they are ready.

One of the authors, Stewart, was recently in Europe and wrote a blog about using his smart phone while walking through museums and art galleries rather than going on the structured tour. The learning was totally self-guided. Colleagues and others agreed that they too tended to conduct their learning in this way.

Imagine, for example, that rural fire fighters need to learn how to use a new fire appliance. The facilitator could use a pedagogical or andragogical approach in which the learners sit in a classroom, listen to some theory, watch some slides, discuss the safety issues and other matters, watch a demonstration and then practice using the machine. Or a heutagogical approach could be used in which the manual is placed on the seat of the vehicle and the group is left to work it out. Some participants will use the manual and others will explore and discover. The group members can be encouraged to work together. The teacher's role is to ensure all is safe, act as a resource as necessary, encourage and evaluate competence when people are ready.

This apparently disorganized approach does not mean that basic competence (knowledge and skills) is not essential: the curriculum is not discarded. Heutagogy is concerned with process. It challenges the idea that content is king, the organizing core, especially in an age when knowledge or content is easily accessible to everyone. In fact, as mentioned in the opening section, heutagogy challenges many of the assumptions underpinning formal education.

Hase (2009) and Hase and Kenyon (2013) have suggested that the current definition of learning, as a change of behavior, needs a rethink. They suggest that the acquisition of knowledge and skills (competencies) should be differentiated from learning. Obviously both involve the laying down of new neuronal pathways. However, they think that learning is a more advanced state that involves a different understanding of the world at a conceptual level, perhaps an 'Ah-ha!' experience. More importantly, there is no way a teacher can know what sorts of changes have occurred in a person's brain when they have actually learned something. As described below, the learner will want to ask a whole new set of questions. The set curriculum is at risk of becoming largely irrelevant to the new needs of the learner. Certainly the lesson can quickly become redundant and demotivating. However, teaching mostly involves covering the curriculum no matter what, universal assessment, and no room at all for negotiated learning.

The notion that humans know how to learn and control their own learning underpins heutagogy and also intuitively inspired these and other innovations in education. However, there is substantial evidence from neuroscience to support self-determined learning and the criticism of current education practice. Over the past three decades research into the workings of the brain has become more sophisticated due to advances in technology and research methods. This evidence, provided below, is damning for many of the assumptions that underpin current teaching methods, particularly in higher education, vocational education and training, and corporate training.

As John Medina so eloquently puts it in *Brain Rules* (2008a), every brain is different. Medina cites research looking at the development of areas of the cerebral cortex to reinforce what is rather intuitive. That is, the more we use certain parts of the brain the more those parts will 'grow' brain cells, and information becomes easier to access and recall. For example, the area of the cerebral cortex responsible for the actions of the left hand of a right-handed violinist or guitarist, is much denser than that for non-violin or guitar players. Presumably it is the practice that develops these areas.

People come to learning experiences with different brains. What they actually learn from the experience will vary, as will the moment when the learning occurs. It may take years for learning to take place and may depend on a further experience to make the link, the ah-ha moment. The linkages they make will be governed by unconscious selection and thus the experience is different for each individual. More critical is that learners will be asking their own questions, making and testing their own hypotheses, and drawing their own conclusions. Learning is not a group activity even if the experience is. This all suggests that the fixed curriculum, various forms of testing or assessment, didactic teaching, and teacher-directed learning do not make much sense. This is particularly true in an age when subject content is readily available to people and we can be far more flexible with the potential learning experience. It is this notion that all brains are different and develop differently that is at the heart of heutagogy.

So, from a learning (and heutagogical) perspective it is vital to keep asking questions of learners to see what insights they have now developed, and how future learning needs to be nurtured. We are not all the same and will not end up with the same conclusions necessarily, and we will have different perspectives. Some of the most important questions need to be asked at the beginning of a learning experience, which is why heutagogy advocates involvement of the learner in program design.

Other lines of evidence suggest that we need to rethink what we do when we purport to be providing a learning experience. It is clear that the human attention span, in the absence of new stimulation, a change of direction and, particularly, action, is less than ten minutes (Johnstone and Percival 1976; Middendorf and Kalish 1996). After that time the brain starts to wander. This is seen in lecture situations and Stewart has observed it in psychotherapy sessions and coaching. It is quite easy to send someone into a light trance when talking to them if the conversation is one-sided and not very animated, and doesn't involve the other person in doing anything.

Thus, what Stewart calls the eight-minute rule – speak only for eight minutes and then have the 'audience' do something – is critical to learning. Doing something also offers the advantage of repeating the concept, idea or piece of information. We know that human memory is enormously fragile without repetition and the opportunity to check the accuracy of our recall. However, this phenomenon is more complex than most teachers might imagine and requires some thought (Hintzman 2010). Recall may, for example, be specifically enhanced by specially planned methods such as spaced repetition (Greene 2008).

It is also important to remember that our brains work better when information is provided in small bytes: we just can't take in and, therefore, recall lots of information. Memory is essential to learning, after all. Our short-term memory has limited capacity and moving new information/concepts/ideas into long-term memory can take a long time and repetition (Medina 2008b). It also takes effort to call up memories and stored information in what Kahneman (2011) calls 'thinking slow.' We are much more likely to use less effort initially by thinking fast but we take in less detail and jump to conclusions based on insufficient information. Again repetition, using different senses, application or doing, frequently, providing context (Grant et al. 1998) as a counter to just gathering information are vital for learning (Craik and Tulving 1975; Gabrielli et al. 1996; Hasher and Zacks 1984; LeDoux 2002; Medina 2008b; Palmere et al. 1983). The more elaborately we learn something, the more likely it is to be stored. We need to involve as many senses as possible and have the learner engaged in doing as well as absorbing.

It is also clear that we remember things better when they have an emotional tag (Davidson et al. 2000; Dolcos et al. 2004; McGaugh 2004; Medina 2008a). The example of post-traumatic memories being difficult to resolve illustrates this point. Emotion in the right dose can also be highly motivating. This is where the constructivists come in with relevant, perhaps confronting, experiences that consolidate learning and enable the learner to make sense of the concept, idea or information. Stewart takes to his workshops a relative battery of activities that have an emotional content, and selects those that are relevant to the agenda that the participants design (Hase 2010).

Children are effective learners (Gopnik et al. 2000). They explore, watch others, try things out (test hypotheses, in other words) and draw their conclusions, sometimes after careful analysis (Gopnik 1996). Studies of brain-injured persons show that there are parts of the brain specifically involved in these activities, which makes sense from a survival perspective at least. Commentators such as Ackoff and Greenberg (2008), Emery (1974), and Kozol (1975), mentioned in the introduction to this chapter, have suggested that school in fact interferes with this natural process due to its emphasis on the curricula, and as others would say, teacher-centric approaches to learning. Our education and training enable this natural tendency to be reinvigorated. Even more important is how we harness informal learning in workplaces, for example, because that is where the real action takes place.

The work on what has become known as brain plasticity (Benfenati 2007; Doidge 2007), the capacity for the brain to rewire itself, suggests that this capacity for learning continues throughout our lives, even into old age and after quite catastrophic brain damage. It is the way that we then access the 'wires' that becomes important.

Therapists, for example, have developed effective and innovative ways to help people relearn that involve more than just telling. Teachers and trainers can learn much from their approaches.

The condition of state-dependent learning has been recognized as having an important role in retention and recall (e.g., Schulz et al. 2000). It suggests that we tend to recall a piece of learning under the same conditions that we acquired it. If you want someone to effectively learn and transfer a skill, then they need conditions similar to those under which they will apply it. Simulators are very cleverly designed to recreate real life conditions. It stands to reason that if we want people to be problem solvers, creative, innovative, self-efficacious, confident, and active as learners, then we need to design our learning experiences accordingly. Teacher-centric approaches are likely to develop dependent learners.

Underpinned by this account of how we learn physiologically, and by the tenets of constructivism and humanism, a number of principles lie at the heart of heutagogy. These are summarized below:

- Involve the learner in designing their own learning content and process as a partner;
- Make the curriculum flexible so that new questions and understanding can be explored as new neuronal pathways are explored;
- Individualize learning as much as possible;
- Provide flexible or negotiated assessment;
- Enable the learner to contextualise concepts, knowledge and new understanding;
- Provide numerous resources and let the learner explore;
- Differentiate between knowledge and skill acquisition (competencies) and deep learning;
- Recognize the importance of informal learning and that we need only to enable it rather than control it;
- Have confidence in the learner;
- Recognize that teaching can become a block to learning.

We need to facilitate rather than teach, to step back and guide, and provide a compass rather than a map.

5.3 Challenges Facing Institutions Today

Today's educational system is firmly rooted in industrialization, and the assembly line production of learned students. The focus is on the teacher as the fundamental source of learning with the learner as a passive receptacle of knowledge. Meanwhile, the institution determines whether learning actually occurs according to requirements set by the institution. This framework of teaching and learning has functioned for decades, but the current system is beginning to show ruptures throughout.

Fueled by developments such as the Edupunk movement (Kamenetz 2010) and MOOCs (Friedman 2013) and overwhelmed by the costly price tag of higher education, learners have struck out in search of their own learning experiences, cobbling

together experience and education where they can find it. According to the latest HORIZON report (Johnson et al. 2013), demand is rising "for education that is customized to each student's unique needs is driving the development of new technologies that provide more learner choice and control and allow for differentiated instruction…." (p. 10). Adult learners are starting to see higher education not as an event that occurs within four to six years, but as a lifelong endeavor. Sir Michael Barber as quoted by Parr (2013) says:

> If you're a student…it is no longer a question of choosing a degree course you want to do at a university…It's a question of thinking…'How will I keep learning through my life, how do I combine a range of educational experiences not just from one university but also from a range of universities – potentially around the world?' (para. 4)

Fischer (2013) states that employers find that students are "woefully unprepared" for the workforce, with 31 % of employers finding that colleges do a fair or poor job in preparing graduates: "Employers say that recent graduates often don't know how to communicate effectively, and struggle with adapting, problem-solving, and making decisions…[T]ension may lie partly in changes in the world of work: technological transformation and evolving expectations that employees be ready to handle everything straightaway" (paras. 2, 6). Arum and Roksa's (2011) highly publicized research in *Academically Adrift* found that students acquire and develop minimal higher-order cognitive thinking skills while attending institutions of higher education. Students are channeled through the system, but they are not learning important skills – specifically, how to learn to learn – which are essential for survival and success in the complexity of today's workplace (Hart Research Associates 2013). Calls for change are erupting across the educational, industrial, and political sectors (Barber et al. 2013; Robinson 2010).

Stirring things further are the forces of technology and globalization that are making education available to everyone, anytime and anywhere. Technology adoption has become ubiquitous, offering learners more avenues to learning. The rise of technology has put to rest the question of *if* technology influences learning (Clark 1983; Kozma 1994; Carter 1996; Hastings and Tracey 2005; Akyol and Cagiltay 2007; Becker 2010). The question has become: *How* will technology influence learning?

5.4 Technology Driving Change and Innovation in Education: Web 2.0, Social Media, and Online Learning

The latest technologies offer specific affordances that further empower today's learners to become more self-directed and self-determined in their learning, able to create and construct new knowledge, and collaborate with other learners. These affordances include the ability to: independently find new information; collect and adapt information to individual needs; develop new paths of acquiring information

and learning, thus becoming more self-determined in learning; to connect and create dialogues, collaborate, and construct knowledge with others; and to reflect (McLoughlin and Lee 2007; Conole 2012). Each of the technologies and instructional approaches described below supports the active as opposed to passive involvement of learners in the learning process, as learners move out of the physical classroom to connect with others around the world to create new knowledge (Crompton 2012; Harris and Rea 2009). These technologies and approaches also align with heutagogical elements of self-determined and learner-centered learning, self-reflection, group collaboration, and learning how to learn (Cochrane et al. 2012; Rahimi et al. 2013; Blaschke 2013).

5.4.1 Social Media

Social media – blogs, wikis, social networks – are Web 2.0 tools that make it easy for learners to create, collaborate, and connect on the internet. These new tools not only provide learners with access to information and a vast array of connections and resources, but also give learners continuous access to the classroom (Keegan 2012). Learners can use blogs and wikis to create new content through self-publishing on the Internet, to reflect on new knowledge and their individual learning processes, and to collaborate with others in building new knowledge (Blaschke and Brindley 2011; Blaschke et al. 2011). Facebook groups, Google+ hangouts, and Skype calling further promote learner-learner interaction and collaboration (Glance in Barber et al. 2013). With social networks, learners can extend the reach of their knowledge, easily connecting with other learners, teachers and gurus, and other networks, in essence making the world their classroom.

5.4.2 Massive Open Online Courses (MOOCs)

The most widely-publicized technology influencing higher education today is the MOOC, which has shaken the pillars of education's ivory towers by providing free Ivy League education to thousands of learners around the world (Friedman 2013). The MOOC first originated in 2008 with Stephen Downes and George Siemens, who used the MOOC to test their theory of *connectivism*, a networked approach to teaching and learning (Siemens 2004). These online courses are open to any learner with access to the necessary technology. Learners can choose to learn for credit (for a fee) or not (no fee). Instructor involvement in the MOOC is usually limited to content design and delivery, as well as some assessment. Learners connect with one another to explore course content and to collaborate on group projects. From the connectivism MOOC, or cMOOC, the xMOOC emerged, in which scholars record and post lectures for learners to view, a development which is promoted by courseware firms such as Udacity and Coursera. A major drawback of the MOOC is its

high dropout rate, with completion rates less than 10 % (Jordan 2013). Viewpoints are mixed on how MOOCs can be used effectively – and profitably – within higher education – and business models for MOOCs remain elusive.

5.4.3   Personal Learning Environments (PLEs)

Personal learning environments, or PLES, are "comprised of all the different tools we use in our everyday life for learning" and allow learners to self-organize and create an individualized learning ecology, thus making PLEs highly learner-centered (Attwell 2007, p. 4). Any number of Web 2.0 tools, including social media, can be used to create a PLE – Twitter, Facebook, Google Reader, Instagram, Pinterest, Diigo, and Evernote to name only a few. In the networked classroom, the tools support collaboration, communication, problem-solving, and inquiry-based learning and learner-centered learning; they can be used to connect with other learners and teachers outside of the classroom on a global scale (Richardson and Mancabelli 2011). The PLE provides learners with opportunities to socialize, produce knowledge, and solve problems, as well as empowers them "to become self-directed learners by equipping them with the relevant digital skills and competencies" (Rahimi et al. 2013, para. 9).

5.4.4   Prior Learning Assessment (PLA)

Outside of social media, the MOOC, and PLEs, other developments are occurring in the teaching and learning space within higher education that are in line with heutagogical practice. Prior learning assessment (PLA), although not a new approach, offers opportunities for learners to receive credit for knowledge and skills acquired outside of the classroom. Through PLA, self-determined learners can receive academic credit and recognition for their experience and skills. Learners then define their learning path – and later receive credit for what they have learned. Research has found that PLA learners, "compared to their classroom counterparts, demonstrated a greater ability to develop intricate solutions to a problem" (LeGrow et al. 2002, p. 8).

5.4.5   Competency-Based Curriculum and E-Portfolios

An increasing number of institutions in the U.S. are incorporating competency-based curricula in order to better meet industry workplace needs, an approach that focuses on developing learner skills in preparation for the workplace. A counterpart to this form of curriculum is the online competency-based e-portfolio, which

learners can use to demonstrate their competency in a certain area or skill and showcase their talents and accomplishments. E-portfolios allow students to show how they can learn intentionally, while at the same time "tell their individual stories, take ownership of their learning, and [serve] as a bridge connecting inquiry into individual and organizational practice" (Cambridge 2008, p. 55).

5.4.6 Digital Badges

Using digital badges – for example, as part of a competency-based e-portfolio – learners can demonstrate acquired skills and competencies, as well as the learning path they followed to develop them. Badges can be posted to a professional social networking site such as LinkedIn, thereby demonstrating to prospective employers what learners have accomplished (Raths 2013). Through scaffolding badge acquisition, learners are motivated to move from one level to the next in obtaining a badge. They can learn from one another's learning path, as well as seek advice (from other learners) as they earn new badges (Raths 2013; Everhart 2013). Digital badges have been shown to engage and motivate learners to continue learning (Everhart 2013). Universities with competency-based curricula have found it easier to move more quickly to a badge system, but the transition still requires negotiation to implement (Everhart 2013).

5.4.7 Flipped Classrooms

The flipped classroom is another movement within education that is changing the traditional chalk-and-talk classroom (EDUCAUSE 2012; Hamden et al. 2013). In a flipped classroom, learners study content and watch course lectures outside of the classroom, and then use classroom time for discussion about course content and for meeting and engaging with content experts (Nagel 2013). Flipped classrooms not only are learner-centered; they also encourage active learning in the classroom and support collaboration.

5.5 Creating Lifelong Learners

To equip our students for lifelong learning, we must enable them to acquire specific twenty-first century skills. These skills include the ability to learn and use technology proficiently; demonstrate digital literacy skills; connect with others in a collaborative way for different purposes; multi-task and process information multi-laterally; critically analyze text; adapt to the complexity inherent in the work environment; demonstrate flexibility and self-direction in learning; and exhibit creativity and the ability

to learn to learn (Lepi 2013; Trilling and Fadel 2009). Today's work environment also requires workers to be more collaborative – and to do so using the latest in technological tools such as Google Docs and Skype (Johnson et al. 2012).

A heutagogical approach to teaching and learning, combined with Web 2.0 tools, can help students become more competent and capable in their skill development – and better prepare them for the twenty-first century workforce. With heutagogy, learners are at the center of the learning experience and are allowed to be self-determined in their learning, given the opportunity to reflect on what is learned and how it is learned, to develop competencies and capabilities, and to assess their individual development and progress in learning. The paths to learning are not linear, but divergent with an array of connections to new guides, new gurus, new learning resources, and other learners.

As learning becomes more learner-centered, the role of the teacher moves to the background. The teacher is no longer the sage on the stage or the learning guru, but instead is guide and facilitator along the path of learning (the compass), providing support and resources as needed, working together with learners to define their individual learning path (road map). Institutions must also redefine their role, and work toward providing the platforms, networks, and support for learning and helping learners define their individual learning paths and make connections with guides.

Benefits to the learner of a heutagogical approach are numerous: improved critical thinking and reflection; increased learner engagement and motivation; more control over learning (learner-centered); improved ability to investigate and question ideas – and apply knowledge in practical situations; support of the development of independent ideas and self-confidence; and more capable learners who are able to adapt to new environments (Canning and Callan 2010; Ashton and Elliott 2007; Ashton and Newman 2006). Most importantly, a heutagogical approach can better prepare learners for the complexities of the workforce by giving them a better understanding of how they learn.

5.5.1   Reconstructing Frameworks for the Changes Ahead

To implement heutagogy, change must occur amongst stakeholders and at all levels within the institution. It requires not just the commitment of students, who must become more self-determined in their learning, and teachers, who must relinquish control of the learning process and allow students to determine their own path of learning. The commitment also must come from the policy makers.

5.5.1.1   Policy Makers

Change is coming, and as the landscape shifts, institutions are already beginning to respond to that change, some hesitantly, some quickly and on a large scale. Ivy League schools such as Harvard, Stanford, and MIT are fully embracing MOOCs,

partnering with leading MOOC content providers, such as Coursera, Udacity, and edX. Other schools, choosing not to align as closely with technology and courseware providers, are forming independent networks in order to consider possible models for realizing innovation using the latest technologies, such as the provosts from the Big 10 (Rivard 2013). One possible model is that of the State University of New York, which recently announced strategies to incorporate "prior-learning assessment (PLA), competency-based programs, and massive open online courses to help students finish their degrees in less time, for less money" (Kolowich 2013, para. 1).

Historically, institutions have resisted the tenets of heutagogy, primarily due to issues of control: curriculum, standards, even control of the learners themselves. With its learner-centered approach to teaching and learning, heutagogy gives full control of the learning process to learners – and a freewheeling environment where everyone is learning what they want to learn can be uncomfortable for an academic institution. In addition, institutions are also driven by government regulators and accrediting agencies that play an influential role in dictating institutional policy. What then can institutions do to move toward adopting heutagogic practice?

Here are a few starting points:

- Be open to newer and non-traditional forms of assessment such as PLA, competency-based e-portfolios, and digital badges.
- Give teachers and learners the network of support they need to realize heutagogy in the classroom.
- Help learners find their individual learning paths and make connections with guides.
- Provide open technology platforms that include Web 2.0 and social media: Choose a learning environment that supports free and open learning, e.g., MOOC, personal learning environment (PLE), communities of practice (CoPs), and community networks – and use this environment to support informal learning.
- Support flexible learning and variable curricula that can adapt to learners' current needs, for example, individual learning contracts together with learners (Peters 2010).

5.5.1.2 Teachers

At the next level of this framework of change stands the teacher. Teachers have also been wary of heutagogy, as it requires them to let go – of lesson plans, lectures, classroom control, and assessment. Due to its learner-centeredness, heutagogy requires that teachers be ready and willing to relinquish the responsibility of learning to the learners, which can be a difficult adjustment for teachers.

In addition to their changing role, teachers also need to be prepared for major curriculum design changes. Heutagogy shifts the learning approach to one of active learning, engagement, and collaboration. Anderson (in Veletsianos 2010) writes: "Instructional design for heutagogy learning veers away from prescriptive content to an exploration of problems that are relevant to learners' lives" (p. 33). Heutagogy

requires more work from the teacher; learning is no longer standardized, and assessment must be learner-specific.

Tips for implementing heutagogy in the classroom:

- Consider learners' level of autonomy and adjust accordingly: Incorporate learner questionnaires, learner contracts, and learner-directed questions and discussions.
- Encourage reflection: Build learner skills while allowing them to determine and reflect on their learning path, scaffold learning activities to create frameworks for learning/discovery, use learner-directed questions, action research, double-loop learning – leading to transformative learning (Mezirow and Associates 1990).
- Let learners create and play: Incorporate activities for self-reflection, self- and information-discovery, experimentation, and collaborative information creation; make use of learning journals, collaborative group work, and communities of practice.
- Empower learners to collaborate and create: Incorporate group exercises and collaborative assessment (Albon 2006).
- Build skills and competencies: Support development of personal knowledge management, digital literacy, and social collaboration skills; incorporate skill building activities and social networking and collaboration tools (building competencies to lead to capabilities, in particular through the use of social media); use badges to indicate accomplished competencies and learning outcomes.
- Allow learners to define success: Assess learner achievement by negotiating the assessment process and making curriculum flexible, using formative assessment, learning contracts, learner-defined learning, self-assessment, and collaborative assessment. The ability of learners to self-assess their success can depend on learner maturity and autonomy and will often require guidance by the teacher.
- Align activities with the technology being used: Certain technologies support certain learning activities better than others. Identify your learning outcomes, then the skills that learners should acquire during the learning process (e.g., design, collaborate, co-create), and finally choose the tool that supports that learning activity.
- Connect with others: Create networks, join groups on learning, and learn from other teachers on how they are using technology and realizing innovation in the classroom.
- Know the tools your learners use so that you are able to incorporate technology in ways that support self-determined learning and guide learners in using networks to learn.
- Be ready and willing to let go of being in control of the classroom.

5.5.1.3 Learners

Not only the institution and teacher must deal with control issues. Learners also can be resistant to heutagogical approaches to teaching, as they are accustomed to the passive form of learning (Haymes 2013), possibly due to an inbred fear of taking

control of the learning process. To a great extent, learners still want to be spoon-fed their education and do not always see the potential benefits for adopting a more self-determined approach to learning.

Some guidance for learners:

- Map your personal learning environment: How do you learn best? Where do you learn best? Test and then incorporate tools that support your individual learning style and learning process.
- Create a blog or learning journal for reflecting on new knowledge gained (your learning path) and how you learned it (your learning practice) (Blaschke and Brindley 2011).
- Use social networks to meet, follow, and connect with people in whom you are interested and who share your learning interests.
- Keep a list of topics you would like to learn more about and create your own learning map – then activate it by participating in a MOOC, online community of practice, or social network.
- Establish an online presence, for example, as a blog, website, or e-portfolio, that demonstrates your talents and competencies and establishes your professional digital identity.
- Learn more about and gather digital badges such as those supported by the Mozilla Open Badges project (http://openbadges.org/), and post them online to showcase your skills and knowledge.
- Take control of and engage in your learning.
- Explore.

5.6   Conclusion

The context of learning has changed. The classroom is taking on a multitude of forms and is accessed when needed rather than at the demand of an educational institution, course structures, and curricula – all of which are increasingly being defined by the learner. We live in a complex, rapidly changing environment in which people must adapt quickly. They need to access competence and capability on demand as determined by circumstance. The learner is now positioned at the center of the education enterprise. Providers must grasp the meaning of this power shift so that they can recognize what this shift of power means and they can embrace and adapt their changing roles accordingly.

At the same time the neuroscientific evidence and established practices found in constructivism and humanism encourage a reconceptualization of learning. Thus we must challenge how we function in educational settings such as the training room, the classroom, and with e-learning. We must create a much closer relationship with our learners as partners, shifting to a more learner-centric approach – and not one that is either teacher-centered or institutionally driven. The ease of content access in this internet age, and the ready access to people via social media, is a game

changer for education and training. The technological framework is now in place for teachers to shift from guru to guide, if we choose to apply what neuroscience is telling us about how we learn. We need to give learners the freedom – and the guidance and support – to become self-determined learners. The latest tools and technologies help us to do both.

References

Ackoff, R. L., & Greenberg, D. (2008). *Turning learning right side up: Putting education back on track*. Upper Saddle River, New Jersey, USA: Wharton School.

Akyol, Z., & Cagiltay, K. (2007). The media-method debate revisited. In C. Montgomerie, & J. Seale (Eds.), *Proceedings of world conference on educational multimedia, hypermedia, and telecommunications, Chesapeake, 2007* (pp. 4576–4583). Virginia: AACE. http://www.editlib.org/p/26041. Accessed 1 June 2013.

Albon, R. (2006, July 17–19). Motivation, dialogue, and heutagogy: Driving collaborative assessment online. In *Proceedings of the second IASTED international conference, education and technology* (pp. 273–279). Calgary, AB, Canada.

Anderson, T. (2010). Theories for learning with emerging technologies. In G. Veletsianos (Ed.), *Emerging technologies in distance education*. Edmonton, AB, Canada: Athabasca University Press. http://www.aupress.ca/books/120177/ebook/02_Veletsianos_2010-Emerging_Technologies_in_Distance_Education.pdf. Accessed 1 Mar 2013.

Argyris, C., & Schön, D. (1996). *Organisational learning II*. Reading: Addison-Wesley.

Arum, R., & Roksa, J. (2011). *Academically adrift: Limited learning on college campuses*. Chicago/London: University of Chicago Press.

Ashton, J., & Elliott, R. (2007). Juggling the balls – Study, work, family and play: Student perspectives on flexible and blended heutagogy. *European Early Childhood Education Research Journal, 15*(2), 167–181.

Ashton, J., & Newman, L. (2006). An unfinished symphony: 21st century teacher education using knowledge creating heutagogies. *British Journal of Educational Technology, 37*(6), 825–840. doi:10.1111/j.1467-8535.2006.00662.x.

Attwell, G. (2007). Personal learning environments: The future of e-learning? *eLearning Papers, 2*(1). http://www.elearningeuropa.info/files/media/media11561.pdf. Accessed 15 July 2013.

Barber, M., Donnelly, K., & Rizvi, S. (2013). *An avalanche is coming: Higher education and the revolution ahead*. Institute for Public Policy Research. http://www.ippr.org/images/media/files/publication/2013/04/avalanche-is-coming_Mar2013_10432.pdf. Accessed 15 Mar 2013.

Becker, K. (2010, May 16–19). The Clark-Kozma debate in the 21st century. In *Proceedings from CNIE conference 2010, "Heritage Matters: Inspiring Tomorrow"*, Saint John, NB. http://mtroyal.academia.edu/KatrinBecker. Accessed 15 July 2013.

Benfenati, F. (2007). Synaptic plasticity and the neurobiology of learning and memory. *Acta Bio-Medica, 78*, 58–66.

Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *The International Review of Research in Open and Distance Learning, 13*(1), 56–71. http://www.irrodl.org/index.php/irrodl/article/view/1076/2087. Accessed 1 Mar 2013.

Blaschke, L. M. (2013). E-learning and self-determined learning skills. In S. Hase & C. Kenyon (Eds.), *Self-Determined learning: Heutagogy in action*. London: Bloomsbury.

Blaschke, L., & Brindley, J. (2011). Establishing a foundation for reflective practice: A case study of learning journal use. *European Journal of Open, Distance, and E-Learning, Special Issue*. http://www.eurodl.org/materials/special/2011/Blaschke_Brindley.pdf. Accessed 1 June 2013.

Blaschke, L., Porto, S., & Kurtz, G. (2011). Online teaching and learning with social media: The MDE perspective. *Distance Education Quarterly, 8*(11), 2–3. http://issuu.com/dehub/docs/dehub-newsletter-no-8-winter-2011. Accessed 1 June 2013.

Cambridge, D. (2008). Universities as responsive learning organizations through competency-based assessment with electronic portfolios. *JGE: The Journal of General Education, 57*(1), 51–64.

Canning, N., & Callan, S. (2010). Heutagogy: Spirals of reflection to empower learners in higher education. *Reflective Practice, 11*(1), 71–82.

Carter, V. (1996). Do media influence learning? Revisiting the debate in the context of distance education. *Open Learning, 11*(1), 31–40.

Chapnick, S., & Meloy, J. (2005). *Renaissance elearning: Creating dramatic and unconventional learning experiences: Essential resources for training and HR professionals*. San Francisco: Wiley.

Clark, R. E. (1983). Reconsidering research on learning from media. *Journal of Educational Computing Research, 1*(2), 137–148.

Cochrane, T., Antonczak, L., Gordon, A., Sissons, H., & Withell, A. (2012, November 25–28). Heutagogy and mobile social media: Post Web 2.0 pedagogy. In *Proceedings ascilite* (pp. 204–214). Wellington, New Zealand.

Conole, G. (2012). *Designing for learning in an open world: Explorations in the learning sciences, instructional systems and performance technologies*. New York/Heidelberg: Springer.

Craik, F. I. M., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology: General, 104*, 268–294.

Crompton, H. (2012). How Web 2.0 is changing the way students learn: The Darwikinism and folksonomy revolution. *eleed,* 8. http://eleed.campussource.de/archive/8/3240. Accessed 1 June 2013.

Davidson, R. J., Jackson, D. C., & Kalin, N. H. (2000). Emotion, plasticity, context, and regulation: Perspectives from affective neuroscience. *Psychological Bulletin, 126*(6), 890–909.

Doidge, N. (2007). *The brain that changes itself: Stories of personal triumph from the frontiers of brain science*. London: Penguin.

Dolcos, F., Labar, K. S., & Cabeza, R. (2004). Interaction between the amygdala and the medial temporal lobe memory system predicts better memory for emotional events. *Neuron, 42*, 855–863.

Eberle, J. (2009). Heutagogy: What your mother didn't tell you about pedagogy and the conceptual age. In *Proceedings from the 8th annual European conference on e-learning* (pp. 181–188). Bari, Italy.

Eberle, J. H. (2013). Lifelong learning. In S. Hase & C. Kenyon (Eds.), *Self-determined learning: Heutagogy in action*. London: Bloomsbury.

EDUCAUSE. (2012). *Seven things you should know about flipped classrooms*. http://net.educause.edu/ir/library/pdf/eli7081.pdf. Accessed 1 Aug 2013.

Emery, F. (1974). *Educational paradigms.* Unpublished Paper.

Everhart, D. (2013). Put a badge on it [Online column]. *EdTech Digest*. http://edtechdigest.wordpress.com/2013/06/28/put-a-badge-on-it/. Accessed 1 Aug 2013.

Fischer, K. (2013). The employment mismatch: A college degree sorts applicants, but employers wish it meant more. *The Chronicle of Higher Education*. http://chronicle.com/article/The-Employment-Mismatch/137625/#id=overview. Accessed 15 July 2013.

Foskey, R. (2013). Innovations in community education. In S. Hase & C. Kenyon (Eds.), *Self-determined learning: Heutagogy in action* (pp. 193–206). London: Continuum Press.

Friedman, T. (2013). Revolution hits the universities. [Opinion.] *New York Times*. http://www.nytimes.com/2013/01/27/opinion/sunday/friedman-revolution-hits-the-universities.html. Accessed 16 July 2013.

Gabrielli, J. D. E., Desmond, J. E., Demb, J. B., Wagner, A. D., Stone, M. V., Vaidya, C. J., & Glover, G. (1996). Functional magnetic resonance imaging of semantic memory processes in the frontal lobes. *Psychological Science, 7*, 278–283.

Garnett, F., & O' Beirne, R. (2013). Putting heutagogy into learning. In S. Hase & C. Kenyon (Eds.), *Self-determined learning: Heutagogy in action*. London: Bloomsbury.

Gopnik, A. (1996). The scientist as child. *Philosophy of Science, 63*, 485–514.

Gopnik, A., Meltzoff, A. N., & Kuhl, P. K. (2000). *The scientist in the crib*. New York: William Morrow.

Grant, H. M., Bredahl, L. C., Clay, J., Ferrie, J., Groves, J. E., McDorman, T. A., & Dark, V. J. (1998). Context-dependent memory of meaningful material: Information for students. *Applied Cognitive Psychology, 12*, 617–623.

Greene, R. L. (2008). Repetition and spacing effects. In H. L. Roediger III (Ed.), *Learning and memory: A comprehensive reference* (Vol. 2, pp. 65–78). Oxford: Elsevier.

Hamden, N., McKnight, P., McKnight, K., & Artstrom, K. M. (2013). A review of flipped learning. *Flipped Learning Network*. http://www.flippedlearning.org/cms/lib07/VA01923112/Centricity/Domain/41/LitReview_FlippedLearning.pdf. Accessed 1 Aug 2013.

Harris, A., & Rea, A. (2009). Web 2.0 and virtual world technologies: A growing impact on IS education. *Journal of Information Systems Education*, *20*(2), 137–144. http://www.unf.edu/uploadedFiles/aa/acadaffairs/provost/VirtualWorld_Technologies.pdf. Accessed 15 July 2013.

Hart Research Associates. (2013). It takes more than a major: Employer priorities for college learning and student success. *Association of American Colleges and Universities (AACU), 99*, 2. http://www.aacu.org/liberaleducation/le-sp13/hartresearchassociates.cfm. Accessed 1 Sept 2013.

Hase, S. (2009). Heutagogy and e-learning in the workplace: Some challenges and opportunities. *Impact: Journal of Applied Research in Workplace E-learning, 1*(1), 43–52.

Hase, S. (2010). Learner defined curriculum: Heutagogy and action learning in vocational training. *Southern Institute of Technology Journal of Applied Research, Special Edition on Action Research*. http://sitjar.sit.ac.nz/Publications/SITJAR%20AR%20edition%20A.pdf. Accessed 15 July 2013.

Hase, S. (2013). Learner defined learning. In S. Hase & C. Kenyon (Eds.), *Self-determined learning: Heutagogy in action*. London: Bloomsbury.

Hase, S., & Kenyon, C. (2000). From andragogy to heutagogy. *5*(3). http://ultibase.rmit.edu.au/Articles/dec00/hase1.pdf. Accessed 12 June 2013.

Hase, S., & Kenyon, C. (2003). Heutagogy and developing capable people and capable workplaces: Strategies for dealing with complexity. In *Proceedings of the changing face of work and learning conference.* Edmonton: University of Alberta. http://www.wln.ualberta.ca/papers/pdf/17.pdf. Accessed 1 July 2013.

Hase, S., & Kenyon, C. (2007). Heutagogy: A child of complexity theory. *Complicity, 4*(1), 111–118. http://www.complexityandeducation.ualberta.ca/COMPLICITY4/documents/Complicity_41k_HaseKenyon.pdf. Accessed 15 July 2013.

Hase, S., & Kenyon, C. (2013). *Self-determined learning: Heutagogy in action*. London: Bloomsbury.

Hasher, L., & Zacks, R. T. (1984). Automatic and effortful processes in memory. *Journal of Experimental Psychology: General, 198*, 356–388.

Hastings, N. B., & Tracey, M. W. (2005). Does media affect learning: Where are we now? *TechTrends Linking Research and Practice to Improve Learning, 49*(2), 28–30.

Haymes, T. (2013). Unbound: Observations on the structure of the class [Blog post.]. *New Media Consortium*. http://www.nmc.org/news/unbound-observations-structure-class. Accessed 20 May 2013.

Hintzman, D. L. (2010). How does repetition affect memory? Evidence from judgements of recency. *Memory and Cognition, 301*, 102–115.

Johnson, L., Adams, S., & Cummins, M. (2012). *NMC horizon report: 2012 higher education edition*. Austin: The New Media Consortium. http://www.nmc.org/publications/horizon-report-2012-higher-ed-edition. Accessed 20 May 2013.

Johnson, L., Adams, S., Cummins, M., Estrada, V., Freeman, A., & Ludgate, H. (2013). *NMC horizon report: 2013 higher education edition*. Austin: The New Media Consortium. http://www.nmc.org/system/files/pubs/1360189731/2013-horizon-report-HE.pdf. Accessed 20 May 2013.

Johnstone, A. H., & Percival, F. (1976). Attention breaks in lectures. *Education in Chemistry, 13*, 49–50.

Jordan, K. (2013). MOOC completion rates: The data. [Blog post.] http://www.katyjordan.com/MOOCproject.html. Accessed 15 July 2013.

Kahneman, D. (2011). *Thinking fast and slow*. New York: Allen Lane.

Kamenetz, A. (2010). *Edupunks, edupreneurs, and the coming transformation of higher education*. White River Junction, Vermont, USA: Chelsea Green Publishing Company.

Keegan, H. (2012, October 22–23). The creative and curious: When learners roam free. [Keynote Address]. Seventh European Distance Education and E-Learning Network (EDEN) Research workshop, Leuven, Belgium. http://www.slideshare.net/heloukee/the-creative-and-the-curious-when-learners-roam-free. Accessed 1 Aug 2013.

Kenyon, C., & Hase, S. (2010). Andragogy and heutagogy in postgraduate work. In T. Kerry (Ed.), *Meeting the challenges of change in postgraduate higher education*. London: Continuum Press.

Kim, K., Collins Hagedorn, M., Williamson, J., & Chapman, C. (2004). *Participation in adult education and lifelong learning*. Washington, DC: U.S. Department of Education National Center for Education Statistics.

Kolowich, S. (2013). SUNY signals major push toward MOOCs and other new educational models. *The Chronicle of Higher Education*. http://chronicle.com/blogs/wiredcampus/suny-signals-major-push-toward-moocs-and-other-new-educational-models/43079. Accessed 1 June 2013.

Kozma, R. (1994). Will media influence learning: Reframing the debate. *Educational Technology Research and Development, 42*(2), 7–19.

Kozol, J. (1975). *The night is dark and I am far from home*. Boston: Houghton Miflin.

LeDoux, J. (2002). *Synaptic self: How our brains become who we are* (pp. 108–109). New York: Viking.

LeGrow, M. R., Sheckley, B. G., & Kehrhahn, M. (2002). Comparison of problem-solving performance between adults receiving credit via assessment of prior learning and adults completing classroom courses. *The Journal of Continuing Higher Education, 50*(3), 2–13. doi:10.1080/07377366.2002.10401200.

Lepi, K. (2013). Do you have these 21st century skills? *Edudemic*. http://edudemic.com/2013/04/important-21st-century-skills/. Accessed 2 May 2013.

Long, D. (1990). *Learner managed learning: The key to life long learning and development*. New York: Kogan Page.

McGaugh, J. L. (2004). The amygdala modulates the consolidation of memories of emotionally arousing experiences. *Annual Review of Neuroscience, 27*, 1–28.

McLoughlin, C., & Lee, M. J. W. (2007, December 2–5). Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era. In *Proceedings from ascilite*, Singapore. check format/margins. http://www.ascilite.org.au/conferences/singapore07/procs/mcloughlin.pdf. Accessed 2 May 2013.

Medina, J. (2008a). *Brain rules*. Seattle: Pear Press.

Medina, J. (2008b). Why emotional memories are unforgettable. *Psychiatric Times, 25*(6), 14–17.

Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). San Francisco: Jossey-Bass.

Mezirow, J., & Associates. (1990). *A guide to transformative and emancipatory learning*. San Francisco: Jossey-Bass.

Middendorf, J., & Kalish, A. (1996). The changeup in lectures. *The National Teaching and Learning Forum, 5*(2), 1–5.

Nagel, D. (2013). *Report: The 4 pillars of the flipped classroom*. Campus Technology. http://campustechnology.com/articles/2013/06/18/report-the-4-pillars-of-the-flipped-classroom.aspx?=CTNU. Accessed 15 July 2013.

Palmere, M., Benton, S. L., Glover, J. A., & Ronning, R. R. (1983). Elaboration and recall of main ideas in prose. *Journal of Education Psychology, 75*, 898–907.

Parr, C. (2013). Fund 'pick-and-mix' MOOC generation, ex-wonk advises. *Times Higher Education*. http://www.timeshighereducation.co.uk/news/fund-pick-and-mix-mooc-generation-ex-wonk-advises/2002535.article. Accessed 2 May 2013.

Peters, O. (2010). The transformation of the university into an institution of independent learning. In O. Peters (Ed.), *Distance education in transition: Developments and issues* (pp. 231–242).

Oldenburg: BIS-Verlag der Carl von Ossietzky Universität Oldenburg. http://www. uni-oldenburg.de/en/c3l/master-programmes/mde/asf-series/volume-5/. Accessed 2 May 2013.

Rahimi, E., van der Berg, J., & Veen, W. (2013). A roadmap for building web 2.0-based personal learning environments in educational settings, eLearning Papers. In *PLE conference 2013*, Berlin, Germany. https://www.researchgate.net/publication/249003479_A_Roadmap_for_ Building_Web2.0-based_Personal_Learning_Environments_in_Educational_Settings. Accessed 1 Aug 2013.

Ramsay, M., Hurley, J., & Neilson, G. (2013). Workplace learning for nurses. In S. Hase & C. Kenyon (Eds.), *Self-determined learning: Heutagogy in action* (pp. 85–98). London: Continuum Press.

Raths, D. (2013). How badges really work in higher education. *Campus Technology News*. http:// campustechnology.com/articles/2013/06/20/how-badges-really-work-in-higher-education. aspx?=CTITTNL. Accessed 15 July 2013.

Revans, R. (2011). *The ABC of action learning*. Surray: Gower Publishing.

Richardson, W., & Mancabelli, R. (2011). *Personal learning networks: Using the power of connections to transform education*. Bloomington, IN, USA: Solution Tree Press.

Rivard, R. (2013). MOOC-Skeptical Provosts. *Insider Higher Education*. http://www.insidehigh-ered.com/news/2013/06/19/big-10-provosts-question-partnerships-ed-tech-companies. Accessed 1 July 2013.

Robinson, K. (2010). Sir Ken Robinson: Bring on the learning revolution! *TED Talk*. http://www. ted.com/talks/sir_ken_robinson_bring_on_the_revolution.html. Accessed 10 July 2013.

Schulz, D. E., Sosnik, R., Ego, V., Haidarliu, S., & Ahissar, E. (2000). A neuronal analogue of state-dependent learning. *Nature, 403*, 549–553.

Siemens, G. (2004). Connectivism: A learning theory for the digital age. elearnspace.com. http://www.elearnspace.org/Articles/connectivism.htm. Accessed 1 July 2013.

Stephenson, J., & Weil, S. (1992). *Quality in learning: A capability approach in higher education*. London: Kogan Page.

Tay, B. H., & Hase, S. (2004). The role of action research in workplace PhDs. *Research in Action Learning and Action Research Journal (ALAR), 9*(1), 81–92.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. San Francisco: Wiley.

Whitworth, A. (2008, September 25–28). *Learner generated contexts: Critical theory and ICT education*. Paper presented at the 6th panhellenic conference on information and communication technologies in education, Limassol, Cyprus.

Woods, P., Ashley, M., & Woods, G. (2005). *Steiner schools in England*. Bristol: Centre for Research in Education and Democracy, University of Western England.

Part II
Curricular Transformations

In Part II of the collection expands on the university-wide experiment described in Chap. 4, in which a mid-sized European university ventured into using a unique bottom up project structure to innovate across the curriculum and across the disciplines. This three year 'Learning and Working' project's central goal and purpose was to design new (and transform existing) teaching content using the problem-based learning philosophy of the institution, and using blended learning as the foundation to make it possible for (part) time students and professionals to study in a flexible educational environment. With this project, the university was reacting to the constantly changing target groups of higher education, as well as to the availability of new tools for learning. Thus, the project reflects the need for strategic change to maintain and further improve the teaching and learning quality at the institution and to remain a relevant contributor to society. Furthermore, the unorthodox and innovative strategies for implementing such university-wide change demonstrate the entrepreneurial spirit discussed in Part I. Therefore, in Part II of this collection we focus on innovation at the course level and will hear from pilot leaders involved in the three year project. We will share research-based examples, strategies and lessons learned from these instructors (across the disciplines of Business, Psychology, Medicine, Governance, and Social Science) that work with lifelong learners, utilizing a problem-based learning philosophy.

Part II opens with a chapter by Herco Fonteijn, who experiments with radical ideas of the tutorless classroom, student empowerment, and the impact on learning. He offers innovative suggestions by which student tutorial groups take advantage of information technology, accept responsibility for their learning, and thereby enhance their group work. In Chap. 7, Karen Könings and Wim Gijselaers describe a fascinating project in which a Smartphone™ application was adapted for use by medical residents, who captured significant clinical learning moments for subsequent discussion in moderated group meetings. They unearth concepts on the ways in which mobile devices can be harnessed as reflection tools to promote learning between the classroom and workplace. Extending the discussion of curricular transformation in Chap. 8, Natalia Timuş considers the role of collaborative learning within a blended

learning framework. She illustrates how innovative courses in a cross-institutional exchange contributed to curricular reforms and inter-university cooperation. Her work highlights the value of hosting a class in which learners from Turkey and Europe collaborate to better understand European Union (EU) Studies. In Chap. 9, Martin Rehm and Mindel van de Laar report empirical evidence in support of Communities of Learning as a new and more flexible way of facilitating PhD research – with an approach that takes into account the characteristics of the new type of PhD fellow. And to conclude this section, Maike Gerken and Therese Grohnert summarize the most common challenges and accompanying smart practices to consider when teaching online. They share instructor perspectives to guide those at the start of a path toward online learning integration.

Chapter 6
Making Students Responsible for Their Learning – Empowering Learners to Build Shared Mental Models

Herco Fonteijn

Previous chapters have focused on how higher education can prepare learners for an accelerating world in which workers need strongly developed self-regulatory competences. Helping learners to hone these competencies is one of the challenges of higher education. This chapter will describe attempts to empower students in a problem-based learning (PBL) environment using information communications technology (ICT) tools that support them as they take charge of their learning.

Traditionally, the task of motivating a learner has been associated with setting challenging goals. Although goal setting induces positive learning effects (Hattie 2009), recent meta-analyses (Burke and Hutchins 2007; Blume et al. 2010) suggest a myopic downside of goal setting – it can impede creativity, transfer and adaptive expertise (Ordóñez et al. 2009). Indeed, Bruns et al. (2013) showed that promoting a mastery orientation in learners who try to improve their performance in an area of weakness can lead to more transfer than goal setting. Results like these are in line with self-determination theory (Ryan and Deci 2000), which proposes that autonomy, relatedness and competence help motivate people to engage in (learning) tasks. Hence, by empowering learners an educator can hope to boost their intrinsic motivation.

Self-organizing learning environments (e.g., Mitra and Kulkarni 2010) provide a learner with maximal autonomy. However, providing autonomy by simply exposing students to learning resources does not imply they will know how to learn from them (e.g., Kirschner and Van Merrienboer 2013). When establishing a self-regulated learning environment, educators who value learner autonomy need to reflect on learning needs, learner competencies and balancing teacher- and student-centered learning activities. Yet, as Mitra's Hole in the Wall experiments

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illustrate (http://www.hole-in-the-wall.com), information technology can reward autonomous learners. Technology and the internet even change the nature of learning itself. For instance, Sparrow et al. (2011) showed that people become expert at remembering where to find information without being able to access that information in biological memory. The Internet extends into transactive memory, our shared store of knowledge.

This ever-expanding transactive memory system offers opportunities to learn continuously, both formally and informally, individually and in groups, synchronously and asynchronously. For instance, learners can use various tools (e.g., micro-blogging tools like Twitter™, bookmarking tools like Diigo™, FaceBook™, Google+™, LinkedIn™) to blend informal learning with formal training. Integrating informal learning into formal training activities is likely to increase training effectiveness (Salas et al. 2012; Sonnentag et al. 2004). Continuous learning is vital in many work settings, and knowing how to offer support for continuous learning will be a key priority for higher education institutions looking for new target groups, such as, for instance, groups of working professionals, whose time availability is fragmented and who therefore seek blended postgraduate learning opportunities.

Although technology has the potential to radically change learning spaces and empower learners, online education is more often teacher- than student-centered (e.g., Savin-Baden and Wilkie 2006). Standardized virtual learning environments tightly control teaching and learning. Participants in most MOOCs – on a diet of digital lectures and multiple choice quizzes – often testify to this. Recently, however, e-learning researchers have begun to address induction of confusion (Lehman et al. 2012) and self-directed information acquisition (Gureckis and Markant 2012). This development meshes with visions of future learners hanging out, messing around and geeking out in virtual collaborative study groups (Thomas and Brown 2011). Technology then would enable a culture of participation in which learners create new meaning by sharing contributions with a group of peers and seeing others build on these contributions. According to Thomas and Brown, the "collective indwelling" which can be observed among participants in games like World of Warcraft, forebodes the future of learning. Such a culture of participation in which learners are productively confused in order to trigger self-directed information acquisition also happens to lie at the heart of many student-centered learning methods like problem-based learning.

6.1 Problem-Based Learning

Problem-based learning (PBL) allows students to learn from each other while they co-construct meaning. Active, constructivist, and interactive learning approaches like PBL are believed to yield important cognitive and motivational benefits (Chi 2009). PBL motivates students to integrate new information with prior knowledge and personal experience that is activated by discussing authentic problems in small groups. Ideally, students should find positive value in learning

materials, they should have a sense of achieving a worthwhile purpose, and they should feel confident about their ability to study or solve the authentic problem. Students would build new knowledge on prior knowledge, cued by an authentic problem. Assuming that prior knowledge is accurate and activated at the right moment, students would be able to form knowledge structures that they can later retrieve and apply effectively in real world settings. During a typical PBL tutorial group session (cf. Dolmans and Schmidt 2010), students clarify unknown concepts in the problem description, formulate a problem definition, and engage in problem analysis by brainstorming and then elaborating on and organizing the results of the brainstorm. Next, learning goals are formulated and students start their individual study. On returning, students report their findings and try to synthesize and integrate new information. Positive effects of PBL on graduation rate, study duration and practical and interpersonal skill development have been reported (Schmidt et al. 2009; Schmidt 2010).

It would seem that tutorial groups in PBL offer a safe and challenging environment in which students can debate and critically analyze contributions of fellow students and writings of experts. Task-related cultural or cognitive learner differences introduce heterogeneity, which can enrich the exchange of ideas and may stimulate creativity. Finally, by stressing constructive interaction either with experts or with peers, participative learning methods empower students to take control of their learning and to self-regulate, thereby fostering the growth mindset (Dweck 2006) that many believe to be a key quality of tomorrow's lifelong learners.

Unfortunately, conditions for group work and cooperative learning in a PBL environment are often suboptimal (e.g., Dolmans et al. 2001). Groups are less effective than they could be, for many reasons. For instance, when groups are large, free riders may fake active involvement. Information exchange is often biased towards common knowledge (cf. Mesmer-Magnus and DeChurch 2009). Information can be omitted from group products, because individuals choose to withhold it or because groups fail to incorporate it (Ekeocha and Brennan 2008; Stone et al. 2012). In diverse PBL groups, students often do not interact fluently, especially when they have low verbal ability or when group diversity creates tensions. Group members are less willing to share information with members they perceive to be different (cf. Van Knippenberg et al. 2004). Problem analysis in small groups can be frustrated because taking turns (production blocking) interferes with knowledge activation and idea generation. The resulting cognitive failures affect brainstorming persistence, enjoyment and productivity (Nijstad and Stroebe 2006). Perceived learner control may not be conducive for a mastery orientation: although in theory students have ample freedom to select learning goals, student expectations regarding assessment and restrictive curricular and module goals can induce a performance orientation. Students then may "game the system", especially if they lack a sufficient self-drive or if they dislike the subject matter (Baker et al. 2008). Finally, being graded not only seems to reduce autonomous motivation and promote performance goals, but also seems to trigger performance-avoidance goals (that make learners try to avoid incompetence) rather than

performance-approach goals (that make learners try to attain competence; Pulfrey et al. 2012). Not surprisingly, problem analysis and group discussions in problem-based learning are often superficial or incoherent (e.g., Visschers-Pleijers et al. 2006). To summarize, a student-centered learning environment does not guarantee effective, active, self-regulated learning.

6.2   Blending Problem-Based Learning

ICT tools can improve group work and its outputs. For instance, blogs or wikis can facilitate knowledge sharing (cf. Wenger et al. 2009). Online learning environments allow students to exploit all that the Internet affords during self-directed information acquisition. Such tools can be utilized in blended PBL, which combines online delivery of content with face-to-face activities. By blending PBL one can contextualize learning problems.

Although PBL is believed to motivate students by asking them to work on authentic problems, students rarely explore how problems relate to current events. Web 2.0 tools may entice students to discover relations between teacher designed PBL problems (i.e., content that is designed to trigger reflection on either professional practice or current developments in research) and the 'nowness' (Gelernter 2010) students are immersed in when they use micro-blogging tools like Twitter™. PBL arrangements might include both asynchronous and synchronous tools for communication and collaboration. Asynchronous tools allow team members to contribute anytime and anyplace to an ongoing search for answers to learning objectives. Thus, more feedback can be given by peers, tutors and teachers than during synchronous (i.e. simultaneous or collocated) exchanges. Tools supporting synchronous communication can support collaboration in virtual learning environments. Synchronous communication seems to benefit from a whiteboard and/or visual organizer to record group discussion, to focus negotiation and to ensure common ground. Ideally, synchronous and asynchronous tools help students collaborate within and beyond specific time slots that are reserved for face-to-face or virtual tutorial group meetings.

Several tools could improve the outcomes of tutorial groups. At first glance, idea browsers or creativity support tools might be deployed to enrich problem analysis (DeRosa et al. 2007). However, one should not confuse the problems that students face in PBL with the hard, wicked problems for which idea browsers seem to pay off nor should one confuse students in PBL groups with members of intense problem solving teams (cf. Rentsch et al. 2010). A pilot using a creativity support tool during brainstorming confirmed that first year psychology students who used idea browsers considered the problems they analysed to be less interesting than students in control groups, who participated in regular PBL brainstorm sessions. Here limited time resources, the tensions between divergent perspectives and shared knowledge building (cf. Puntambekar 2006), and the absence of creativity requirements in PBL appeared to preclude a satisfactory use of idea browsers (cf. Unsworth and Clegg 2010).

6.3   Visualizing Group Output: Mind Mapping

Several factors support the assumption that visual organizers can improve outcomes of PBL group work. Mapping can prevent a group discussion from becoming superficial, incoherent, or biased towards common knowledge. Concept maps (Novak 1998) have been shown to contribute to student achievement and yield valuable insights into group knowledge representations (Hattie 2009; Mohammed et al. 2010). Maps invite a learner to relate new information to prior knowledge and to determine whether and how concepts relate; to determine the relevance of each new addition to the map before adding a concept; and to become more aware of knowledge gaps when constructing maps (Hilbert and Renkl 2008). Maps could also facilitate exchange of ideas in groups: they can challenge perceptions and help negotiate meaning. Visual representations offer continuous (visual) access to products of other team members, which can serve as memory cues or competitive stimuli. When a group member explicates a concept in a map, mental models of other team members are changed, which in turn can trigger novel ideas and further enrich the map (Rentsch et al. 2010; Van Gelder 2003).

Maps can be constructed when learning activities are initiated (e.g., during idea generation and problem elaboration) and when group members synthesize and integrate newly found information. For individual students, maps may also provide directions for self study and serve as an advance organizer for the reporting session, and facilitate the subsequent reporting of findings. Finally, group maps can provide teachers with detailed feedback on learning processes and outcomes. In a previous study (Fonteijn and Frerejean 2010), mind map construction and manipulation in a collocated group were compared to traditional note taking by a scribe. In the mapping condition, a scribe controlled a digital whiteboard, entered concepts during brainstorming, manipulated map nodes during clustering and revised the map or created a new one during problem synthesis. Students in tutorial groups using mapping tools were significantly more satisfied with problem analysis and synthesis than students in control groups. Overall, a large majority of students indicated they would like to continue using maps during the reporting phase of PBL sessions. According to students, discussion content was better organised and more structured, and more focussed on relationships between concepts. In addition, students reported that group members were more active and contributed more to discussions. Meetings with tutors confirmed student perceptions, and most tutors were pleased with the PBL process in the mapping condition. Unfortunately, most students did not use maps during individual study. Some students felt that mapping slowed the group and that the scribe was sometimes too preoccupied with the map. Mapping software that allows for multi-user interaction may ease the note-taking task.

Thus, ICT tools can help support PBL group work, either online or face-to-face, helping learners to develop (virtual) collaboration competences in the process. However, educators balancing virtual and collocated group work need to be aware of the different requirements of different modes of collaboration, as research on virtual teams shows.

6.4 Virtuality

Recent literature points to trade-offs related to the level of virtuality of team collaboration (i.e., the extent to which we cannot physically experience actions of team members). In a meta-analysis Mesmer-Magnus et al. (2011) concluded that high levels of virtuality hinder information sharing, while low levels improve it. Virtuality also improves sharing of unique information, but hinders openness of information sharing. Ortiz de Guinea et al. (2012) found that virtuality can relate positively to conflict, and negatively to communication frequency, knowledge sharing, team satisfaction and team performance. However, Ortiz de Guinea et al. showed that negative effects of virtuality held for short-term teams. These effects weakened or disappeared in long-term teams.

Martins et al. (2004) also demonstrated that time moderated the effect of virtuality on team performance. Social information exchange disappeared and satisfaction rose as time passed. Other moderators identified by Martins et al. included type of task and social context. For instance, virtual teams outperformed face-to-face teams on idea generation tasks. Face-to-face (F2F) teams outperformed virtual teams on negotiation and intellective tasks, although this effect was weaker in long-term teams. Regarding social context, cooperation and communication, openness improved virtual team performance. Liking a team member impacted evaluation of team member contributions in F2F groups, but not in virtual groups (cf. Ren et al. 2012).

Media richness (Daft and Lengel 1984) can affect team effectiveness, communication, team commitment, levels of trust and social climate. Furthermore, virtual groups often need more time to reach a decision, but virtuality may help a group to develop better goals. Data on team performance measures are mixed. Virtual teams are often less satisfied with team performance (except all female teams, or teams engaging in brainstorming). Finally, group composition tends to be less salient in virtual groups. For instance, Sproull and Kiesler (1986) showed that groups with reduced social context cues (i.e., virtual groups) reported fewer status inequalities. This finding suggests that tutors in virtual PBL tutorial groups might be less inclined to assume authority. Mixed results have been found regarding effects of gender, national culture and personality on virtual team performance. Martins et al. (2004) noted that national culture can negatively impact coordination and communication; extraverts are more likely to participate in virtual teams; technical expertise in a group can affect team success and group member trust; and female members of virtual teams perceived their teams as more inclusive and were more satisfied with the team.

Regarding virtual collaboration competencies, Hertel et al. (2005) stressed the importance of certain taskwork skills (e.g., conscientiousness), teamwork skills (collaboration), telecooperation skills, self-management skills, intercultural skills and interpersonal trust. Finally, Krumm and Hertel (2013) suggested that supporting other team members is less important in virtual teams than in F2F teams, while working conscientiously, as well as leadership, analysis, interaction and

presentation skills seem more important in virtual teams than in face-to-face teams. The above results suggest constraints on successful implementation of online and blended PBL and inform the development of evaluation instruments for online PBL sessions.

6.5   PBL Online

In a second year module on cognitive science and a third year module on persuasion in a bachelor course in psychology, 36 students engaged in synchronous online PBL sessions. Students were familiarized with a webconferencing tool, (Elluminate™), that offers presence information of participants, a chat window, and a digital whiteboard. Third-year students ($N=14$) also used wikis and blogs to facilitate knowledge sharing. Second-year students ($N=12$) who volunteered to participate simultaneously logged contents of their discussions in mind maps (using a mind mapping tool that supports multi-user interaction and that has record/playback functionality. Evaluation results of both pilots showed students were generally very satisfied with the experience, most notably with the quality of group work, communication climate, and quality of feedback. Students indicated that the virtual learning environment improved their learning (all evaluation item means were 4.0 or greater on a 5-point Likert scale). Students spontaneously noticed various differences between online and traditional PBL, including an increased use of visual aids.

In a follow-up experiment, 24 second year psychology students volunteered to engage in online PBL. They again used various tools to facilitate information sharing (including Elluminate™ and MindMeister™), both synchronously (during online tutorial group meetings) and asynchronously. Questionnaires probed how online teamwork differed from F2F tutorial group interactions and how the various tools (digital whiteboard, chat, audio channel, presence information, mind maps, etc.) supported cooperation. Questionnaires mostly contained items that had been validated in the literature. Students in the two online groups were compared with controls who were matched on gender and nationality. All students were asked to answer questions on age, gender, nationality, distance between home address and university, ICT skill, confidence to work with ICT, personality characteristics (Van Emmerik et al. 2004), need for structure (Thompson et al. 2001), Core Self-Evaluation (Judge et al. 2003), importance of group goals (Jackson et al. 2006), and trust (Staples and Webster 2008).

The first tutorial group session occurred face-to-face. This allowed tutor and students to get familiar with each other, provided opportunities to train the participants in the use of the tools, and enabled detection of technical imperfections (e.g. poor audio equipment). After each of the nine subsequent tutorial group meetings scheduled over the course of seven weeks, students answered a questionnaire gauging self-reported cognitive functioning and motivational impact of the tutorial group (Singaram et al. 2010), perceived contribution to tutorial groups of self and others, perceived quality of the tutorial group, satisfaction with interventions by chair and

tutor, and quality of preparation. In addition, students were asked to mention incidents that had a positive or negative influence on group outcomes.

Tutors graded participation of each student and the quality of problem analysis and synthesis. Earlier studies (e.g., Hofgaard Lycke et al. 2006) suggest that tutors in online asynchronous PBL settings pay more attention to work organization and less to content or subject matter. Note that content-related tutor interventions seem more likely to occur when tutors construct a teacher identity and act as authority figures in online space. Tutors were asked to log their experiences after each session in order to shed light on when tutors feel they need to intervene or direct the discussion as opposed to remaining silent and merely providing hints. In addition, data allowed comparison between tutoring in a collocated group and tutoring in a synchronous online group.

After the course ended, another questionnaire probed confidence and skill at working online, team coherence (Wendt et al. 2009), satisfaction with the (online) group work and process, and trust. Open questions probed what students valued, what was difficult, the quality of communication in the group, reasons for (dis) continuing online PBL, and suggestions for blended learning set-ups. In addition, exam scores were collected.

6.6   Student Data

Hardly any significant differences emerged between students in online and face-to-face groups. Hence there seems to be no reason to assume student volunteers in experimental groups and students in the control groups differed strongly in personality, importance of group goals, ICT skills, etc. One item suggested a difference: students in the online groups gave a slightly lower score on *I trust other group members* ($m=2.3$, $sd=0.77$, $N=19$) than students in the face-to-face groups ($m=2.9$, $sd=0.84$, $N=22$; $t(39)=-2,22$, $p=0.032$). Trust-related items in the post-test, however, showed no significant differences between conditions. Students in the online groups scored slightly lower on the item *I am positive about working in a group* ($m=2.9$, $sd=1.16$ vs $m=3.5$, $sd=0.81$; $t(39)=-1,93$, $p=0.062$). This finding seems to suggest that dissatisfaction with tutorial groups may have triggered some students to volunteer. Students in the virtual condition did not perform better or worse on the final exam, nor did they give higher or lower ratings to the tutor.

A few significant interactions were found. First, in the face-to-face (F2F) condition trust in other members was positively related to the grade, yet trust did not affect grades in the virtual condition. This could be due to the fact that in the virtual conditions groups have members with lower trust in other members. Next, Core Self-Evaluation and student participation seemed to have a stronger effect on student perception of group quality in the F2F group than in the virtual group (cf. Sproull and Kiesler 1986, for findings on reduced inequality within groups in which social context cues are attenuated).

After completion of the module, 15 students in the online groups commented on their experiences. Almost all students appreciated the travel time they saved by participating from home. Acquiring new skills, learning to communicate and to share information more effectively in groups, using mind maps and whiteboards to discuss visual materials, and the opportunity to review recorded sessions were listed most often as advantages. Several students mentioned getting a fresh perspective on learning in groups:

#4 I guess that this experience is really interesting and helpful for future situations, work-places and possibly for considerations how to design future workplaces.
     #16 you learn what is necessary (and maybe underestimated) for a group working efficiently

Other perceived benefits were more directly related to the PBL process:

#10 sharing of information is easier – there are notes of the discussion – you can playback a recorded session
     #12 if questions arise, using google speeds up the process and saves a lot of time.

Five students felt online tutorial groups were more demanding:

#9 it is quite chaotic balancing both the elluminate program, your notes, the slides, the whiteboard etc. at the same time
     #4 another aspect which was difficult for me was the ability to concentrate on the spo-ken words because during the first meetings I realized that visual contact really can be helpful for this. Gestures, mimics and so on are important cues which help you to keep on the task continuously.

A few students felt it was easier to concentrate in online groups, however. Similarly opposing comments were heard after online lectures. Some students felt they were distracted more easily, while others said they could focus better without typical background noise in a lecture hall.
     Five students felt alarmed by uncertainty about what others were doing:

#1 You cannot see what others are busy with: if no one is talking, why is it the case? Are they checking their notes or are they not attending?
     #7 it was not possible to use nonverbal feedback from group members to evaluate if they understood what I tried to explain or if I talked to much about unimportant stuff. (..) Often I was not sure if my contribution was important enough or if someone else could better talk about the stuff. With nonverbal feedback it would be easier to evaluate this.
     #11 Sometimes I felt it was a shame that if I had just posed a question or had told some-thing, a long silence was heard. Then I wondered if anyone was actually listening, or if I was just talking to my laptop. (..) It is very easy to say absolutely nothing during a group meeting or even to just walk away, that is not how it is supposed to be.

Some were more relaxed:

#4 I guess communication could be more fluent. (..) But you always need time to find the important notes when a question is asked f.e. and this takes time, of course.

Half of the students mentioned they experienced a higher threshold for participating in a virtual group than in a F2F group. They typically attributed this to

lack of nonverbal feedback. One student felt her shyness was getting in the way of participating:

#9 [This was a] confirmation that online peer anxiety is bigger than real life peer anxiety. (..) My reasons were that I'm quite shy as it is to speak up in a group I do not know, and this became even harder online. (..) It could be lowered by chatting, I never had any problems with that, only the speaking part.

Three students suggested the content of the module inhibited their participation, e.g.:

#16 I also felt a higher threshold for participation, but I cannot say that it is only due to the online meeting. I think a reason for me was the topic of the course and the feeling that I did not understand the texts that well so I could report them to others.

#5 It was interesting, and should be used in more courses, but preferably in more easy ones:)

Several students mentioned the above problems lessened over time:

#5 At first it was a threshold to press the button, but it got better so the explicit communication was in the last meetings quite the same as in a normal group

#8 [Interaction] was okay and improved during the weeks

#2 The threshold to speak lowered as I began to feel more at ease in the group, so this may be a solution: taking care that there is a nice group dynamic (so) nobody needs to feel shy.

A few students experienced production blocking, e.g.

#11 When someone explained something, it was not easy to ask a question. You (..) had to wait more often until someone was completely done talking. Then the question often was not relevant anymore.

And a few comments focused on participation, e.g.

#2 some students refuse to collaborate in an online meeting, because there is no social pressure

Answering the question what was difficult, someone mentioned:

#1 How to motivate other members to participate. Asking for feedback.

Two students suggested using Skype or webcams to enable participants to see each other. Other suggestions for improvements focused on social climate:

#3 having everything online would necessitate more social gatherings of other sorts for (making up the) lack of real-life contact with other students.

#5 maybe knowing the people better, you are talking to would help, and starting in small groups, where everybody has to say something to practice and then melt these small groups together (like in the 2nd prediscussion).

Students were also asked to indicate whether and how to blend virtual and F2F activities. A large minority preferred a mix of online and face to face meetings. A few students preferred to have all meetings online; one student did not want any further online meetings. Those who preferred a combination either opted for one or more F2F sessions, or a team building session to kick off, followed by online meetings, or they preferred an intermittent schedule, e.g.:

#15 I would alternate two online group meetings and one face-to-face meeting. So we could clarify things in the face-to-face group that did not become clear during the past two meetings.

Overall, most students noticed positive and negative aspects of online experience.

#1 I think it is a great opportunity but its success depends a lot on its group members (even more than in "normal" groups).
　　#13 You have to weigh advantages and disadvantages. When people learn to deal with it better, I think it works better than a regular tutorial group.

6.7 Tutor Data

Following each session tutors rated the quality of individual students' contributions. In addition, they estimated the number of times they intervened, regarding either process or content of the discussion. They also rated liveliness of interaction, performance quality of the chair, and quality of problem analysis and final discussion. No significant differences occurred between conditions, except for two items. First, students in online groups provided lower ratings for *How lively was the interaction in your group*? (online condition: $m=7.4$, $sd=0.98$; F2F condition: $m=8.2$, $sd=0.62$; $t(34)=2.85$, $p<0.01$). Additional tutor comments suggest that this lower score was related to lack of fluency (silences, poor use of feedback icons, technical problems) and unbalanced participation. The second item was *Estimate how many times you contributed to the session by commenting on group process or procedures* (online condition: $m=2.8$, $sd=1.5$; F2F condition: $m=7.2$, $sd=5.6$; $t(34)=3.28$, $p<0.01$; by comparison, tutors intervened by explicating content 2.9 times in the collocated group, and 2.2 times in the online group). Thus, tutors in virtual groups intervened less often than tutors in F2F groups. Tutor comments below are in line with this result, and suggest students were relying less on tutors in virtual groups.

AS1 (tutor A, Session 1) I was a lot quieter than in a face-to-face group; it was easier to let silences last and let them solve it themselves
　　AS2 like last time, I did not feel the need to intervene. I was able to think ahead and prepare pictures they needed later on.
　　AS5 This time, the group worked very autonomously so I did not have to do much. I gave feedback via icons and via chat; that was convenient because you do not disturb anyone (talking) but still give confirmation
　　AS8 today, I let them be and only intervened when they really got lost, which is easier in an online-group because no-one stares at you (to provide an answer)

Tutors had to adapt to the lack of nonverbal signals as well:

BS8 questions more often need a YES/NO reply to be able to get a more fluent discussion – this goes against the grain of a group discussion among psychologists
　　BS7 remarks from three students on being busy with another assignment and having prepared only one text, make me a bit more skeptical in the online group (without visual feedback in the form of notes on the table) than in a F2F group

> AS6 it is more difficult to see if someone really understands or not. In the control group I can judge from the faces if someone really gets it or not, so in the online group I have to ask if they really understand.

The last comment meshes with two significant interactions. First, in the F2F condition, tutor ratings of student participation dropped more sharply with increasing student shyness than in the virtual condition. Similarly, in the F2F condition, participation ratings rose more sharply with student Core Self-Evaluation (CSE) than in the virtual condition. The dampening of the effects of shyness and CSE on participation ratings in virtual groups is in line with studies that suggest removal of social cues reduces within-group differences (e.g., Sproull and Kiesler 1986).

Technical problems were minor. Tutors noticed a few brief episodes of compressed speech and sometimes a connection with a group member was lost for a short time. These technical difficulties sometimes had unexpected effects, e.g.:

> BS2 when a complaint on audio quality made the group temporarily switch from audio to chat, the result was that students who until then were invisible during the discussion suddenly started to contribute

In one instance, a participant could not use her microphone in Elluminate™, and compensated by participating via chat and the online mind mapping software. At another time, a server failure temporarily ended the webconferencing session, yet within minutes students autonomously reconvened on FaceBook™ and continued their discussion until the server was up again.

Quality of the mind maps varied. Sometimes students forgot about the map and needed explicit reminders from the scribe or the tutor. At other times the map was built by a small number of students or it consisted of a number of incoherent summary statements. It took some time for one of the groups to adjust to the situation:

> AS2 this time they figured out how to make a mind map; when someone was talking, another group member added material to the map. It was very complete and comprehensive
> AS4 today they kind of forgot there was a map, hardly anything was added, and little use was made of it
> AS5 a very good map, that was largely constructed before the group discussion started (..) they used it to check if everything was covered in the discussion
> AS8 the last couple of problems they clearly know how to work with the map, building it before the group meeting, then let the map guide the discussion and then add things that are not yet in there

In sum, the tutor took a backseat and students became more responsible for staying on track. Tutors noted that absence of F2F interaction affected their role. It felt easier to let the group take control, and to affect the discussion indirectly by pressing feedback buttons, asking questions via chat, or injecting visual materials into the discussion. Tutors of virtual groups intervened significantly fewer times on non-content-related matters than tutors of collocated groups. Tutors need to be aware that certain student characteristics (shyness, CSE) can seem less important in online groups than in F2F groups, and that they may find it more difficult to detect these differences. Tutors did make use of visual aids, unlike many students. Few students searched for additional materials. It is not clear whether motivation, high workload or poor digital literacy is to blame.

6.8   Tutorless PBL

As expected, diminished visibility of the tutor in online PBL did not bother students (physical presence of a teacher has not been known to produce great learning effects, cf. Hattie 2009). Removing the tutor from the tutorial group is the logical next step to empower students in PBL. In a system that compels students to acquire self-regulatory skills, one could argue that at the end of a three year PBL curriculum students no longer need a tutor. To test this assumption, 13 groups of 10–12 third year psychology students took a class in Decision Making without a tutor. Increased autonomy should motivate students, especially if they feel competent at what they do (i.e., exercising their PBL skills) and if the social climate favors collaboration and recognition of their performance (cf. Ryan and Deci 2000).

Nevertheless, the educational set-up required attention, since an earlier pilot had shown that having second year students work on a regular PBL problem in a tutorial group without a tutor can cause great uncertainty. Afterwards, these students strongly agreed with the 5-point Likert-scale item *A tutor should always be present during tutorial group meetings* ($m=4.3$, $sd=0.9$, $N=144$). In a similar pilot involving third year students who worked on a tailor-made problem, students responses were more moderate ($m=3.1$, $sd=1.0$, $N=35$). The tutorless module presented below further improved student sentiment, in that most students neither agreed nor disagreed with the statement ($m=2.9$, $sd=1.2$, $N=120$).

To make sure students paid attention to team processes, each group of students was required to prepare a team charter. Students had to agree on a name for their group, on how the group would cope with the absence of the tutor, how to divide roles (scribe, chair), how to punish free riders, etc. During the module, brief weekly meetings were convened for teaching staff and group representatives to monitor and discuss the group meetings and to share insights. Several activities were planned to keep the group on point during sessions. Group members were asked to present specific texts, but no other literature suggestions were given. Problem descriptions contained references to video fragments, which the groups watched before or during problem analysis. All groups were asked to produce a mind map showing the contents of the group discussion. After each session, the best two maps were selected by teachers and shared with all other groups. Thus, teachers indirectly provided (peer) feedback on the quality of group discussions. In addition, all groups were in direct contact with teachers through Elluminate™. Group representatives could ask questions via chat, or ask for comments on their current mind map. Finally, groups could share information via a blog and on a virtual group space.

Testifying to the fact that students in a PBL environment were able to work autonomously, teachers on call rarely needed to intervene. During 104 two-hour group sessions teachers received 52 chat messages. They were asked to help explain content on six occasions. There were 24 chat messages asking to confirm whether a learning goal was appropriate. The remaining 22 questions involved administrative or logistical details. Many groups did not feel the need to ask for any kind of confirmation.

Compared to the previous (tutored) edition of the course, exam and evaluation results were similar, as was the duration of tutorial group sessions. Self-reported individual study time increased. Evaluation results did not differ from those of a (tutored) course which all students were taking simultaneously.

Most students were pleased with increased participation ("more people contribute"), with their increased responsibility ("now students help each other when someone does not understand something; usually we look at the tutor"; "most students felt more responsible for the group"), and with the changed social climate ("you have to solve it as a group, trust on knowledge of other students"; "more cohesiveness, felt more like a team").

Mind maps were considered useful (5 point Likert scale item, $m=3.7$, $sd=0.92$, $N=116$) and students were satisfied with the quality of the maps they produced ($m=3.9$; $sd=0.82$, $N=116$). Students mentioned "mind maps provided structure". Students appreciated selection and distribution of the best two mind maps after each session. These maps typically reconfirmed that group discussions were on the mark and helped ease concerns of performance-oriented students. The quality of the maps themselves improved after one or two sessions: most groups easily adapted their maps so they more closely resembled the "best examples" from previous sessions. Subjectively, several students felt that constructing maps slowed the group down. Absence of the tutor also made students more aware of the importance of using PBL skills.

Overall, 65 % of the students would like to have participated more often in a tutorless group during their bachelor years ($N=113$). On the other hand, 27 % of the students would not like to repeat the experience. These students did not perform better or worse at the test, but they were less satisfied with the outcomes of the group sessions. As expected, a major inconvenience of the tutorless set-up was subjective uncertainty: "*not sure whether we discussed the right things, or kept on going on minor issues for too long*"; "*need more guidelines regarding literature*". Apparently, a large minority of PBL students had come to rely on tutors to reduce uncertainty. Although a few students noticed the possibility of intergroup collaboration, groups typically worked in isolation. A competitive reward for the groups that sent in the best maps may have prevented intergroup collaboration. Incidentally, several students complained about this reward mechanism: "*giving points for best mind maps demotivates when other groups repeatedly produce best maps*". The social value orientation of psychology students may indeed make them less sensitive to competitive reward mechanisms than other students (Van Lange et al. 2010).

6.9   Conclusion

This chapter presented examples showing how students might be empowered by diminished tutor presence and tools to support (virtual) collaboration. Results are encouraging. Tutorial groups under study performed as well as groups with more (visible) tutor support. The arrangements made students more aware of the importance of collaborative and PBL skills. Students were forced to rethink modes of

collaboration they had previously taken for granted. The arrangements allowed students to build additional (virtual) collaboration competences. Students could contribute to group work in various ways, and most students did. The learning curve for webconferencing and visualization tools was not steep, although students did need time to learn (from peers) how to insert Internet resources, to balance the use of the various tools, use interaction buttons effectively, share an application in order to deliver a presentation, and find more efficient ways to communicate as a group (e.g., by using yes/no questions). Therefore, it is interesting to investigate how students will develop after prolonged virtual group work (cf. Ortiz de Guinea et al. 2012). Instructional sessions should focus on how participants can experience silence, how interaction icons can in part compensate for the lack of nonverbal feedback, and how chairing a virtual tutorial session changes from chairing a F2F group session.

Surprisingly, online groups and F2F groups were equally satisfied with team outcomes and team process. The number of women in each group, and the fact that psychology students were involved (cf. Martins et al. 2004; Van Lange et al. 2010) may help explain this finding. In addition, having been part of an experiment may have stimulated team spirit and strengthened social identity.

Social climate appeared to be an important variable. Many students in the virtual groups initially struggled with the lack of nonverbal feedback, and some asked for richer media (webcams) or F2F mix-and-mingle activities. Lack of social context cues did seem to reduce differences between tutor and student. In the tutorless arrangement, the team charter and the mild intergroup competition may have contributed to a positive social climate. Ren et al. (2012) found that interaction improved when group members were given tools for interpersonal communication and information about interpersonal similarity and activities of peers. However, interaction improved even more when tools for group-level communication and information about group activities and intergroup competition were made available. Interaction is likely to improve further when students trust each other and feel safe (see also Chai and Kim 2010; Gagne 2009; Yu et al. 2010). These factors merit closer attention, especially given the fact that students in the virtual groups may have been less trusting than students in the control groups.

Students in virtual groups also referred to topic motivation and the type of problems or learning tasks best suited for virtual or tutorless PBL as a potential moderator (cf. Baker et al. 2008; Lehman et al. 2012; Martins et al. 2004). Students may need more time to discuss some problems in interdependent groups. Time limitations may also vary from module to module, since the improvement in competence per unit time spent is likely to vary as well (Son and Seti 2010). The module selected for the online PBL pilot might not have supplied a good test environment. Student interdependence was higher than in most modules, and many psychology students feel underwhelmed by cognitive science. Not surprisingly, discussions in the module on social influence and persuasion were more vivid than discussions in the cognitive science module.

Mind maps provided a rich source of information to study team output. They could also be used to provide feedback to other groups as example models of group discussion content. In the tutorless arrangement, such feedback helped reassure

students who were worried the group might be heading in the wrong direction. A recording function made individual contributions visible. Multi-user interaction helped the group to manage workload for scribes. Content and structure of the maps left room for improvement in the online groups, although one group gravitated toward an adequate performance level. Typically, this group also worked on their maps before scheduled meetings. For second year students, information exchange may have suffered from greater informational interdependence (Mesmer-Magnus and DeChurch 2009) or from high coordination requirements at the group level (Ekeocha and Brennan 2008). Coordinating the group product or resolving disputes or disseminating inferences takes time, which explains why some students felt mapping was rather time-consuming. Nevertheless, students were satisfied with the usefulness and quality of their maps.

Asynchronous communication (e.g. off-line construction of team mind maps) was uncommon in most groups. Some groups also communicated via FaceBook™, illustrating they felt a need for an extra group communication channel. Follow-up studies may focus on incentives for stretching learning beyond designated time slots.

As expected, online groups discussed visual materials more often than face-to-face groups. Working in an online learning environment stimulated students to browse the internet. In general, students seem more likely to reap benefits of self-directedness, if they are information literate (or learn to become so by watching their peers). Flipped classrooms and the growing number of open educational resources combined with tools for sharing and commenting and keeping records of team deliberations can further support self-directed learning and discovery. Even if such support does not boost traditional learning outcomes (knowledge, skills), it can increase motivation and epistemic curiosity.

The educational arrangements can be used to reach new target groups. Virtual environments may appeal to students in international tracks or virtual mobility classes. For instance, in the spring of 2013, a group of undergraduate exchange students were trying to discover how they would sell their psychological knowledge and skills and find a profession in a country where local languages do not even have a word for psychology. In doing so, they collaborated with psychology students in Mozambique via Google+, who in turn were pleased with the new outsider perspectives on their futures. Blended educational set-ups can also be used in postgraduate course offerings for working professionals. Testing blended PBL in a population of students who are well-versed in face-to-face PBL can guide the design of educational formats for novel populations of learners. Most students indicated they prefer a blended arrangement over a virtual PBL. Limited virtuality does seem to bring the best of both worlds (e.g., Mesmer-Magnus et al. 2011). How to strike a balance between online and face-to-face activities will need further study, but students have presented suggestions on which to build.

Additional outstanding issues can be addressed. For instance, how long do PBL students need a tutor? Do PBL groups need a single scribe? Should students consult their transactive memory (and Google) during group sessions or exams? What meta-cognitive support is needed to help students deal with simultaneous use of various communication and knowledge sharing tools (cf. Schwonke et al. 2013)? Do these

set-ups harm certain students because they lack prior knowledge or skills or because they have certain personality characteristics? How much practice is needed to develop and hone (virtual) collaborative routines (like using interaction buttons efficiently)? The small number of groups (and tutors) involved in some the pilots and our student sample (psychology students from The Netherlands and Germany, who were familiar with PBL) obviously limit generalizability and preclude answers to the above questions. Replications with larger number of groups are needed.

Finally, self-regulating students affect tutor and teacher behaviour. For instance, tutors in virtual groups noticed that the number of direct appeals from students declined. They adapted by spending time anticipating impasses and looking for materials that could help solve them, while keeping a low profile in group discussions. In a tutorless set-up, reduced staff involvement releases teacher resources that can be invested elsewhere (e.g., providing feedback on student (group) assignments, preparing richer content). Teachers in the tutorless set-up, for instance, spent more time assessing the quality of group products. Still, it remains to be seen whether a tutor can be replaced by a cheering "granny in the cloud", or whether tutor competencies like detecting impasses and modeling the required depth of processing are key to high learning performance. Either way, if students are expected to perceive a need for self-directed information acquisition, teachers must design or mine educational resources that create conditions for productive confusion (cf. Lehman et al. 2012). While groups of learners must come to terms with interdependence, teachers can regulate emotions, provide metacognitive support, and make "gaming the system" less attractive by looking creatively at assessment practices. Signature pedagogies and differences between learners will require specific modifications. Few simple, one-size-fits-all guidelines can be presented here. For instance, awarding extra credit to the best group maps may have reduced autonomous motivation in some groups in the tutorless arrangement (cf. Pulfrey et al. 2012). On the other hand, competition among groups may boost social identity, which would stimulate collaboration (Ren et al. 2012). Although these examples may not bring one-size-fits all recipes, let alone contribute to fundamental debates on learner motivation, they may instill enough productive confusion in self-directed teachers and tutors to start appropriating their favorite educational arrangements. In today's changing educational landscape, teaching means creatively tweaking educational contexts to fit self-driven learner needs. Teacher identity will change along the way. Instead of filling vessels and lighting fires, they build firebreaks and backfires, enjoy the heat and occasionally put another log on the fire.

References

Baker, R., Walonoski, J., Heffernan, N., Roll, I., Corbett, A., & Koedinger, K. (2008). Why students engage in "gaming the system" behavior in interactive learning environments. *Journal of Interactive Learning Research, 19*, 185–224.

Blume, B., Ford, J., Baldwin, T., & Huang, J. (2010). Transfer of training: A meta-analytic review. *Journal of Management, 36*, 1065–1105.

Bruns, A., Keith, N., & Mueller, S. (2013). *Self-regulated performance improvement through deliberate practice in organizations: The case of female employees and skills to career advancement*. Paper presented at 16th European Association of Work and Organizational Psychology Congress, Muenster, Germany.

Burke, L., & Hutchins, H. (2007). A study of best practices in training transfer and proposed model of transfer. *Human Resource Development Quarterly, 19*, 107–128.

Chai, S., & Kim, M. (2010). What makes bloggers share knowledge? An investigation on the role of trust. *International Journal of Information Management, 30*, 408–415.

Chi, M. (2009). Active-constructive-interactive: A conceptual framework for differentiating learning activities. *Trends in Cognitive Science, 1*, 73–105.

Daft, R., & Lengel, R. (1984). Information richness: A new approach to managerial behavior and organizational design. *Research in Organizational Behavior, 6*, 191–233.

DeRosa, D., Smith, C., & Hantula, D. (2007). The medium matters: Mining the long-promised merit of group interaction in creative idea generation tasks in a meta-analysis of the electronic brainstorming literature. *Computers in Human Behavior, 23*, 1549–1581.

Dolmans, D., & Schmidt, H. (2010). The problem-based learning process. In H. van Berkel, A. Scherpbier, H. Hillen, & C. Van der Vleuten (Eds.), *Lessons from problem-based learning*. Oxford: Oxford University Press.

Dolmans, D., Wolfhagen, I., van der Vleuten, C., & Wijnen, W. (2001). Solving problems with group work in problem-based learning: Hold on to the philosophy. *Medical Education, 35*, 884–889.

Dweck, C. (2006). *Mindset: The new psychology of success*. New York: Random House.

Ekeocha, J., & Brennan, S. (2008). Collaborative recall in face-to-face and electronic groups. *Memory, 16*, 245–261.

Fonteijn, H., & Frerejean, J. (2010, December). Enhancing small group functioning in problem based learning using a visual organiser. In *Proceedings international conference on enhancing learning experiences in higher education.* Hong Kong: Hong Kong University. http://www.cetl. hku.hk/conference2010/conf_proc.htm. Accessed 29 July 2013.

Gagne, M. (2009). A model of knowledge sharing motivation. *Human Resource Management, 48*, 571–589.

Gelernter, D. (2010). *Time to start taking the Internet seriously*. http://www.edge.org/3rd_culture/gelernter10/gelernter10_index.html. Accessed 20 Apr 2010.

Gureckis, T., & Markant, D. (2012). Self-directed learning: A cognitive and computational perspective. *Perspectives on Psychological Science, 7*, 464–481.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York: Routledge.

Hertel, G., Geister, S., & Konradt, U. (2005). Managing virtual teams: A review of current empirical research. *Human Resource Management Review, 15*, 69–95.

Hilbert, T., & Renkl, A. (2008). Concept mapping as a follow-up strategy to learning from texts: What characterizes good and poor mappers? *Instructional Science, 36*, 53–73.

Hofgaard Lycke, K., Stromso, H., & Grottum, P. (2006). Tracing the tutor role in problem-based learning and PBLonline. In M. Savin-Baden & K. Wilkie (Eds.), *Problem-based learning online*. New York: Open University Press.

Jackson, C., Colquitt, J., Wesson, M., & Zapata-Phelan, C. (2006). Psychological collectivism: A measurement validation and linkage to group member performance. *Journal of Applied Psychology, 91*, 884–899.

Judge, T., Erez, A., Bono, J., & Thoresen, C. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology, 56*, 303–331.

Kirschner, P. A., & van Merriënboer, J. J. (2013). Do learners really know best? Urban legends in education. *Educational Psychologist, 48*(3), 169–183.

Krumm, S., & Hertel, G. (2013). *Knowledge, skills, abilities and other characteristics (KSAOs) for virtual teamwork*. Paper presented at 16th European Association of Work and Organizational Psychology Congress, Muenster, Germany.

Lehman, B., D'Mello, S., & Graesser, A. (2012). Confusion and complex learning during interactions with computer learning environments. *The Internet and Higher Education, 15*, 184–194.

Martins, L., Gilson, L., & Maynard, M. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management, 30*, 805–835.

Mesmer-Magnus, J., & DeChurch, L. (2009). Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology, 94*, 535–546.

Mesmer-Magnus, J., DeChurch, L., Jimenez-Rodriguez, M., Wildman, J., & Shuffler, M. (2011). A meta-analytic investigation of virtuality and information sharing in teams. *Organizational Behavior and Human Decision Processes, 115*, 214–225.

Mitra, S., & Kulkarni, S. (2010). Access and quality in self organized learning environments. *British Journal of Educational Psychology*. Wiley Online Library, at http://wikieducator.org/images/c/cb/Suneeta_Kulkarni.pdf. Accessed 29 July 2013.

Mohammed, S., Ferzandi, L., & Hamilton, K. (2010). Metaphor no more: A 15-year review of the team mental model construct. *Journal of Management, 36*, 876–910.

Nijstad, B., & Stroebe, W. (2006). How the group affects the mind: A cognitive model of idea generation in groups. *Personality and Social Psychology Review, 10*, 186–213.

Novak, J. (1998). *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations*. Mahwah: Lawrence Erlbaum Associates.

Ordóñez, L., Schweitzer, M., Galinsky, A., & Bazerman, M. (2009). Goals gone wild: The systematic side effects of overprescribing goal setting. *Academy of Management Perspectives, 23*, 82–87.

Ortiz de Guinea, A., Webster, J., & Staples, D. (2012). A meta-analysis of the consequences of virtualness on team functioning. *Information and Management, 49*, 301–308.

Pulfrey, C., Darnon, C., & Butera, F. (2012). Autonomy and task performance: Examining the impact of grades on intrinsic motivation. *Journal of Educational Psychology, 103*, 683–700.

Puntambekar, S. (2006). Analyzing collaborative interactions: Divergence, shared understanding and construction of knowledge. *Computers & Education, 47*, 332–351.

Ren, Y., Harper, F. M., Drenner, S., Terveen, L. G., Kiesler, S. B., Riedl, J., & Kraut, R. E. (2012). Building member attachment in online communities: Applying theories of group identity and interpersonal bonds. *MIS Quarterly, 36*(3), 841–864.

Rentsch, J., Mello, A., & Delise, L. (2010). Collaboration and meaning analysis process in intense problem solving teams. *Theoretical Issues in Ergonomics Science, 11*, 287–303.

Ryan, R., & Deci, E. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.

Salas, E., Tannenbaum, S., Kraiger, K., & Smith-Jentsch, K. (2012). The science of training and development in organizations. What matters in practice. *Psychological Science in the Public Interest, 13*, 74–101.

Savin-Baden, M., & Wilkie, K. (2006). *Problem-based learning online*. McGraw-Hill International.

Schmidt, H. (2010). A review of the evidence: Effects of problem-based learning on students and graduates of Maastricht medical school. In H. van Berkel, A. Scherpbier, H. Hillen, & C. van der Vleuten (Eds.), *Lessons from problem-based learning*. Oxford: Oxford University Press.

Schmidt, H., van der Molen, H., te Winkel, W., & Wijnen, W. (2009). Constructivist, problem-based learning does work: A meta-analysis of curricular comparisons involving a single medical school. *Educational Psychologist, 44*, 227–249.

Schwonke, R., Ertelt, A., Otieno, C., Renkl, A., Aleven, V., & Salden, R. (2013). Metacognitive support promotes an effective use of instructional resources in intelligent tutoring. *Learning and Instruction, 23*, 136–150.

Singaram, V. S., Van Der Vleuten, C. P., Van Berkel, H., & Dolmans, D. H. (2010). Reliability and validity of a tutorial group effectiveness instrument. *Medical Teacher, 32*(3), e133–e137.

Son, L., & Seti, R. (2010). Adaptive learning and the allocation of time. *Adaptive Behavior, 18*, 132–140.

Sonnentag, S., Niessen, C., & Ohly, S. (2004). Learning at work: Training and development. In C. Cooper & I. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 249–289). Chichester: Wiley.

Sparrow, B., Liu, J., & Wegner, D. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. *Science, 333*, 776–778.

Sproull, L., & Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communications. *Management Science, 32*, 1492–1512.

Staples, D., & Webster, J. (2008). Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams. *Information Systems, 18*, 617–640.

Stone, C., Coman, A., Brown, A., Koppel, J., & Hirst, W. (2012). Conversational silence and memory. *Perspectives on Psychological Science, 7*, 39–53.

Thomas, D., & Brown, J. S. (2011). *A new culture of learning: Cultivating the imagination for a world of constant change* (Vol. 219). Lexington: CreateSpace.

Thompson, M., Naccarato, M., Parker, K., & Moskowitz, G. (2001). The Personal Need for Structure (PNS) and Personal Fear of Invalidity (PFI) scales. In G. Moskowitz (Ed.), *Cognitive social psychology* (pp. 19–39). Mahwah: Erlbaum.

Unsworth, K., & Clegg, C. (2010). Why do employees undertake creative action? *Journal of Occupational and Organizational Psychology, 83*, 77–99.

Van Emmerik, I. J., Jawahar, J., & Stone, T. (2004). The relationship between personality and discretionary helping behaviors. *Psychological Reports, 95*, 355–365.

Van Gelder, T. (2003). Enhancing deliberation through computer supported argument visualisation. In P. Kirschner, S. Buckingham Shum, & C. Carr (Eds.), *Visualizing argumentation*. London: Springer.

van Knippenberg, D., de Dreu, C., & Homan, A. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology, 89*, 1008–1022.

Van Lange, P., Schippers, D., & Balliet, D. (2010). Who volunteers in psychology experiments? An empirical review of prosocial motivation in volunteering. *Personality and Individual Differences, 51*, 279–284.

Visschers-Pleijers, A., Dolmans, D., de Grave, W., Wolfhagen, I., Jacobs, J., & van der Vleuten, C. (2006). Student perceptions about the characteristics of an effective discussion during the reporting phase in problem-based learning. *Medical Education, 40*, 924–931.

Wendt, H., Euwema, M., & Van Emmerik, I. J. (2009). Leadership and team cohesiveness across cultures. *The Leadership Quarterly, 20*, 358–370.

Wenger, E., White, N., & Smith, J. D. (2009). *Digital habitats: Stewarding technology for communities*. Portland: CPsquare.

Yu, T., Lu, L., & Liu, T. (2010). Exploring factors that influence knowledge sharing behavior. *Computers in Human Behavior, 26*, 32–41.

Chapter 7
Bringing Learning to the Workplace: A Smartphone App for Reflection and Increased Authenticity of Learning

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Recent publications on professional education acknowledge the importance of academic knowledge when preparing students for professional practice. But they also seem to agree on the necessity of changing the pedagogy of professional education, suggesting an alternative to the traditional, content-based approach for learning and learning design. For example, Dall'Alba and Sandberg (2006 p. 404) argue that

> Pedagogy that focuses on promoting acquisition of decontextualized knowledge and skills fails to address issues concerning when it is appropriate to use such knowledge and skills, how to use them, and to what purpose. Furthermore, given the breadth and complexity of professional practice, no single pedagogical method can be a panacea.

In their view, it is no longer content which should serve as the guiding principle of program design, but understanding the nature of professional practice and its consequences for how to teach.

In general, many pleas have been made to include the learner experience as part of the learning process (Eraut 1994; Ericsson et al. 2006; Ericsson 2009). A particularly strong message was conveyed in a recent position paper in *the Lancet*, which voiced the importance of connecting learning experiences with formalized training and learning in health professions education (Frenk et al. 2010). The authors claim that learning systems should be developed to improve the professional skills of students, allowing students to acquire leadership capabilities to become change agents in their profession: people who are capable of shaping their own profession

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and professional practice. It is important to note that the acquisition of those new capabilities should not replace the acquisition of current core competences in health professions education, but rather should be developed in conjunction with them.

Our knowledge about designing curricula that facilitates student learning has increased substantially over the past few decades (e.g. Hattie and Timperley 2007). Next, our understanding of how we can transfer professional values and knowledge about professional practice has drastically improved due to the successful development of innovative educational practices such as problem-based learning (Van Berkel et al. 2010; Wilkerson and Gijselaers 1996). Authenticity is stressed as an important characteristic of effective tasks or problems (Azer 2007; Van Merriënboer and Kirschner 2013). However, what is missing is how the learning experiences of students can be integrated into formal education. Reflective practices are common in workplace learning, but integration of formal and informal learning is crucial for students to develop expertise to be prepared in a rapidly changing professional world (Tynjälä 2008). For example in teacher education, ample attention is given to reflection on own work, aiming to improve own teaching and support professional development (Avalos 2011; Marcos et al. 2011; Oner and Adadan 2011). However, reflection is disconnected from formal learning and too often it is limited to defining problems and does not support learning how to deal with them (Marcos et al. 2011). Surprisingly few practices seem to be capable of connecting students' learning experiences at the workplace with formal training and education (Hafler 2011). This is especially important in medical education, which requires students to spend a substantial amount of their time at the workplace to acquire professional competencies.

Medical schools have put a lot of efforts into developing programs which mirror professional practice, and pedagogies which facilitate student learning to acquire necessary skills and knowledge. In general, Problem-Based Learning (PBL) has been recognized as a valid approach, which relies strongly on the input of professional practice in its pedagogy and curriculum design (Schmidt et al. 2011). In PBL, small groups of students collaborate on analyzing and solving problems, which have been constructed and described by their teachers. Problem descriptions are intended to trigger intrinsic interest in the topic, activate prior knowledge and guide self-study in a process of constructive, self-directed, collaborative and contextual learning (Van Berkel et al. 2010). As depicted in Fig. 7.1a, typically all students are focused on a paper-based case or problem description. However, problems are often too well-structured, too closed-ended and not realistic enough (Dolmans et al. 2005). Initiatives have been taken to make the problems more realistic by using video cases (De Leng et al. 2007) or introducing real patients into the curriculum (Diemers et al. 2010). To optimize the perceived relevance and value of a problem and support the learner's ownership of the problem, however, it would be beneficial to "solicit problems from the learners and use those as the stimulus for learning activities" (Savery and Duffy 1995 p. 4). This is depicted in Fig. 7.1b.

The current chapter describes how mobile devices (smartphones) were used while students were attending clinical clerkships. We aimed to develop learning practices – through the use of mobile devices – which solicit problems or issues encountered in practice from students who were distributed at several teaching hospitals. Next, we
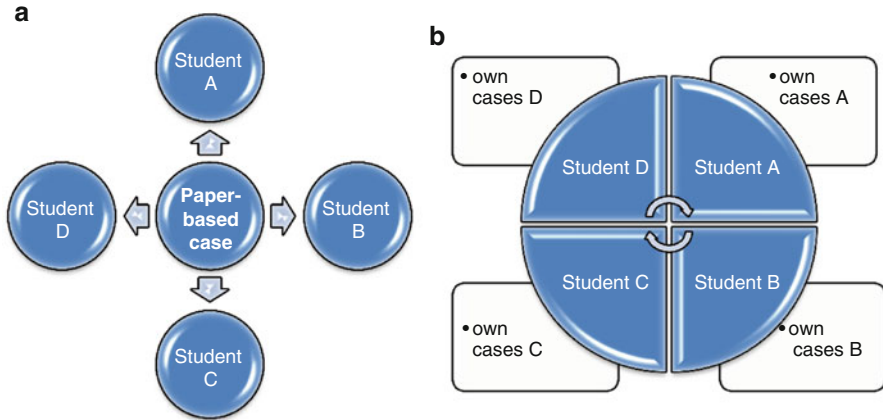
Fig. 7.1 (**a**) Situation in traditional Problem-Based Learning (**b**) Situation in a group meeting about cases from students

tried to collect their learning experiences, making them explicit and sharing them with students and medical teachers. It was our purpose that these learning experiences serve as the basis for formal education meetings, allowing medical staff and teachers to exchange authentic experiences acquired at the workplace.

7.1   Integrating a Mobile Device to Capture Learning Moments in the Workplace

7.1.1   Project Goals and Aims

Medical education supposedly should help students – in this particular case, residents in training – to make accurate diagnostic decisions, develop treatment plans, and monitor the progress of the patient's well-being. To that end, students undergo a vast amount of training, preparing them for various situations that may occur in practice. Despite all training situations, they may encounter situations which are perceived as completely new. For example, it is one thing to teach about non-compliance behavior of patients, it is quite another to encounter such a situation in practice. The following situation happened during our project, and demonstrates how a student struggles with non-compliance behavior:

> I have met a patient who requested an emergency consult. However, the records show that this patient hasn't been loyal to any therapy or proposed action. Patient only showed up whenever it seems to be convenient for him. I honored the current emergency request. But I have serious doubts whether I should do so again in the near future.

Was it really the best decision which was made? What is common practice in the medical profession or within this hospital? Suppose the student did not meet the

patient request; what are potential risks for the patient, resident and hospital in terms of patient well-being and liability issues?

These simple questions were raised by one of our students while our project was in progress. It shows that this student wanted to know if other students and staff had encountered similar cases and how they would have responded to the situation. Our project aimed to help residents, who are working as doctors in hospitals but are still in training, to learn more from their experiences at work. Their training is no longer structured in formal learning activities and they are expected to learn from work. But it may be questioned whether students learn from work situations as part of their natural learning process; reflection on practice and development of abstract knowledge based on practical experiences. Moreover, their formal learning activities consist of few mandatory courses, which are mostly decontextualized in the same way as described above with respect to regular PBL-courses. Often fictitious cases are used and residents are expected to transfer what they have learned from the cases to their own practice, which is not an easy job. Taken together, two challenges emerge from this learning context: (1) how can residents be better supported to learn more from work and (2) how can formal training be contextualized to make learning tasks more authentic.

The "Learn more from work" project aims to meet both challenges. To support learning from practice, residents need to be aware of moments at which they get in trouble, feel insecure, or experience lack of knowledge or skills. We recognize these "learning moments" as situations that could trigger learning. However, they occur through practice in hospital – a hectic environment. So, the first step is that residents must be alert to such learning moments (Boyd and Fales 1983; Schön 1984). By reflecting in action, these moments are recognized. Then, they must be set aside for a later, quiet moment suitable for reflecting on the situation and learning from it. In the meantime such learning moments must not become lost, which is a big challenge. To make learning more authentic, it is necessary to help residents to efficiently and effectively capture and store their learning moments for later study. Our solution was to develop a smartphone app with which moments can be easily registered at the workplace by making a short note, taking a picture, making a voice recording or video.

After the residents registered the learning moments, we wanted them to be used as cases for discussion in tutorial group meetings. Benefiting from learning moments is likely to increase through group discussions, as is the case in PBL. Reflection-on-action (Schön 1984) can be supported by tutorial group meetings, guided by a tutor. Tutorial group meetings are expected to improve learning from work, which occurs at the implicit level in the work setting. Moreover, by using the learner's own cases, the authenticity of learning during these meetings is likely to be higher than in typical formal training activities. Therefore, we studied the effects of both the implementation of the app and the tutorial group meetings on level and frequency of reflection within a 2×2 research design with 64 residents. In another empirical evaluation study we found – amongst others – that app users reflected more frequently and that tutorial group meetings contributed to more learning activities because of learning moments (Könings et al. 2013, 2014b). These results demonstrated that our app does indeed support development of reflection after experiences in clinical practice. The present chapter focuses on the experiences of those residents who used the app and

attended the tutorial group meetings. The next sections will describe how we developed the app and the steps taken in that process. The set-up and content of the tutorial group meetings are described in more detail. Furthermore, the residents' experiences with the app and the group meetings are presented.

7.1.2   Project Setup

7.1.2.1   Smartphone App Development

The development process started with defining the requirements of the app. We wanted to enable the use of different modes for registering: making short text notes, taking pictures, making audio memos in the form of voice recordings, and making short videos. Users can choose the most appropriate mode for a particular learning moment. Furthermore, we wanted the files to be synchronized with the university server, as this is a safe storage place and enables sharing of files in the electronic learning environment for educational purposes. Synchronizing must proceed in a safe manner (e.g., Webdav protocol) to ensure privacy for personal reflections and possibly personal information about patients and personnel at the workplace.

Having set these requirements, we searched for existing apps and found an app that appeared to contain most functionalities. We tested it and contacted the developer to request small adaptations to improve its usability. Although we were not able to meet the programmer, who resides in Australia, he was willing to contribute to our project from a distance and to improve his application. We took this as proof of the value of exploring technologies from around the world.

A pilot study was conducted with this app. Three residents used the app over a period of 2 months. They took a smartphone with them during work and registered moments that they considered important for their learning process as a medical specialist. As it was not routine to use an app at such moments, they were sent reminders by SMS once a week, asking, "Are you still using your smartphone app for registering your learning moments?" The residents tested technical aspects and usability of the app and evaluated the added value of its use for learning. We were interested in the spontaneous use of the app and did not give instruction about how to use it. After 1 month and at the end of the pilot their experiences were evaluated in interviews. They were enthusiastic about the ideas behind the app.

The following observations were based on the results from the pilot: first, the app was a "rendezvous" of experiences or topics to be addressed later. These can be skills that need to be developed more, difficult conversations with patients or the supervisor, situations that provoke emotions, missing knowledge that needs to be retrieved, and issues to be discussed with the supervisor or included in the personal portfolio. The app prevented learning moments to get lost because of forgetting them. With the app in place, a quick note captured learning moments.

> The app makes easier what you already did or should have been doing [monitoring your learning moments]. The app feels like a mini-portfolio with things you have to do for your learning on the job.

Second, residents perceived that the app increased their awareness of learning moments, because of the kickoff-meeting in which the app project was explained, the regular reminders by SMS, seeing the icon of the app on the home screen of the smartphone, and the commitment to the pilot.

Third, residents suggested the use of coaching or group meetings to discuss the challenges faced and to converse with experts on possible solutions. This need was especially experienced when solutions to problems cannot be found in books, for example in case of unpleasant experiences with a colleague or patient, or inadequate and frustrating conversations.

Technically, the residents had offered minor suggestions for improving ease of use. A major concern, however, involved the uploading of files to the server, particularly when Internet access was reduced or absent. Files were lost because they were not saved on the smartphone. Unfortunately, the app developer did not wish to modify the app, leaving us with no choice but to discontinue its use for our project. Our results prompted us to suggest these additional requirements: use as few steps as possible to save and upload; ensure local file storage; and include an automatic reminder to use the app. Additionally, the importance of an informative kick-off meeting was stressed and the need to schedule occasions for discussing the learning moments.

In the next step, a completely new app was developed which includes all requirements and is suitable for IOS and Android. During the development process at Maastricht University the app was tested extensively on various devices and by different users, and improved until it met our needs. The new version includes four large buttons for taking notes, making pictures, videos, and voice recordings. Files are automatically and safely uploaded via username and password and are stored in the personal electronic learning environment at the university server, and are also saved on the phone. A notification is sent as a reminder after 3 days of inactivity with the app (interval adjustable). Files are listed under the button labeled 'view files' and can also be opened in the app (Fig. 7.2).
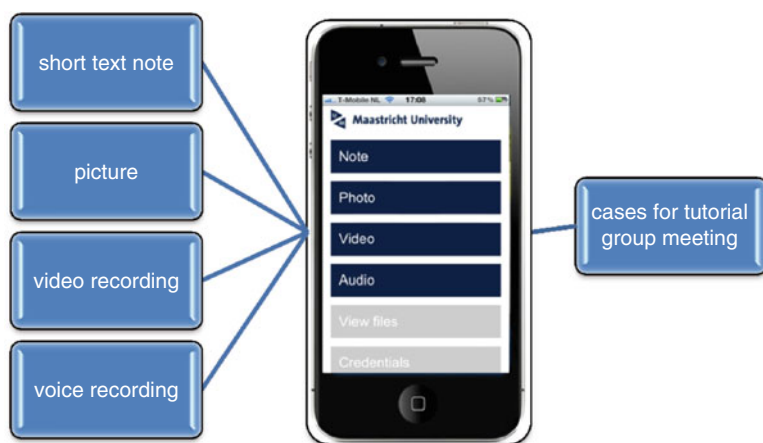

Fig. 7.2 Learning moments registered in the app are input for the tutorial group meeting

This final app was used in the current project, where it was offered to 14 who additionally attended tutorial group meetings. They were instructed to use the app for registering learning moments regarding general skills, such as communicating, collaborating, managing, and professionalism (CANMEDS; Frank 2005).

Additionally, residents must develop their medical skills, which are very specific for each specialty and less open for discussion. Learning moments on general skills, however, are most suitable for multidisciplinary group meetings, as reflection is conditional for learning.

7.1.2.2   Tutorial Group Meetings

Residents participated in tutorial group meetings to discuss their learning moments, as registered in the app. Every two weeks an obligatory tutorial group meeting was organized for about eight residents representing various disciplines and stages of their medical training. Discussions were guided by a tutor, a recently retired medical doctor who was very experienced in supervising and coaching students. A kickoff-meeting was organized to present the aims of the project. Participants were given instructions in the use of the app and the plans for tutorial group meetings were explained. The first group meeting was scheduled two weeks after the kickoff meeting. In total, three meetings were held over a period of six weeks. The topics discussed in each 2-h tutorial meeting addressed learning moments registered in the app since the former meeting (see timeline in Fig. 7.3).

As a preparation for the meeting every resident sent a description of one or several learning moments to the tutor beforehand. These learning moments formed the basic contents of the meeting, as these are the problem descriptions that guided the learning process in the group. The prompt registrations that residents made in the app could ideally be directly accessible for the tutor, but registrations often contained insufficient detail to be understood by anyone other than the resident himself. In the preparation assignment, residents described the learning moment(s) in a way that
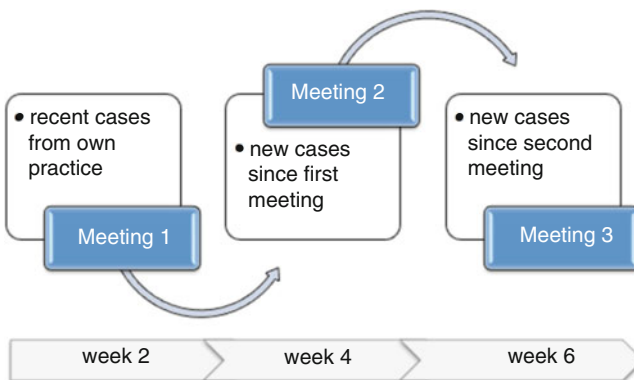

Fig. 7.3 Timeline of three tutorial group meetings over six weeks

enabled the tutor to imagine the situation, to prepare for the meeting and consider aspects of the case to discuss, to develop questions to ask the group and examples for adding a case, and to identify links between cases of different group members.

During the meetings, group members presented their case(s) to each other: they discussed their experiences, the circumstances, those involved, and how they (and others) reacted and behaved. The residents shared all information needed for others to have a clear idea of the problem. After that, the group members reflected on it, shared knowledge about the topic, asked one another questions, suggested alternative solutions, and shared earlier experiences with comparable problems and how these were solved. The tutor closely followed the discussion and intervened at moments when the discussion could be expanded. In the two hour meeting, the problems of all group members were discussed.

As residents were asked to select problems that did not focus on the medical or technical aspects of their work, the content of the problems discussed was rather broad, but recognizable for all group members. Problems they shared included themes such as communication, collaboration and ethics, which are considered general competences of medical doctors and highly relevant for their professional development. Textbox 7.1 includes examples of problem descriptions, which residents sent to the tutor for discussion in the tutorial group meetings.

As can be seen from the textbox, residents experienced difficult situations with respect to professional behavior and responsibility: where does the doctor's

Textbox 7.1: Case Descriptions Sent to the Tutor as Preparation for the Tutorial Group Meetings

- Trauma Care with abdominal pain. Is there evidence (or not) for skipping the thorax and pelvis X-ray before you directly proceed with a CT scan in case of evident abdominal pain? Resident of radiology was not amused that firstly x-rays were taken, while he was waiting. Bosses of trauma care generally first want X-rays. What is wisdom and what is defensible? How do you deal with "conservative" boss and "progressive" resident/radiologist? I don't want to get my head chopped off by any or both of them. But somehow it happens anyway.
- A 75-year-old patient was admitted due to pleural liquid without obvious cause. Extensive history. Already very comprehensive outpatient screening.... Patient lost patience and is admitted to do all investigations clinically.... At the first visit, the patient vents his frustration again about the duration of analysis, which he finds far too long and that nothing is happening … He makes himself more and more angry. No non-verbal aggression towards caregivers, but banging his fist on the table. After some time listening patiently to his account and try to break, this appears not to be working and my supervisor at one point expresses that he is getting angry (on a quiet tone) and that the patient should calm down or else better go home. But that it would also be finished then. After

(continued)

Textbox 7.1 (continued)

this, the patient eventually calms down and since then communication was a lot easier. *[Instructive observation of communication skills of supervisor]*
- Working at the clinic with a staff member who "immediately has to go away". He leaves you with his outpatients' clinical consultations. "You'll get there, don't you; you can always call me" *[Resident however does not at all feel comfortable with the situation]*
- Surgery in which the orthopedist and neurosurgeon have to collaborate. During timeout (i.e., procedure before starting the surgery) by the orthopedist there is said the neurosurgeon would be present. He finally appeared to be abroad and did not have settled replacement. In the meantime, the patient was asleep already. *[Question about own responsibility to participate in this surgery]*
- Eighty years old patient has a hip fracture and needs surgery. According to the family of patient, she is forgetful and would not be able to take the appropriate decisions. Patient refuses surgery, even after several doctors have discussed the possible consequences to her. The family requests surgery, since she would not be able to make a realistic decision because of her forgetfulness. What about this situation and how do you solve this in short order?
- Patients and family think they are our only patient and we have unlimited time available and want to hear their whole life story! I find it very difficult to deal with. I tried to make clear that it is about the problem of today and not the problems of years ago. So how could you subtly make clear to patients that you do not always have time to hear their whole life story? How do you decently cut short the story of your patients at a certain point?

responsibility stop when the patient is not constructively motivated? Also, dealing with conflicting opinions was a frequent topic. To what extent do you always have to follow your supervisor, particularly when you have a different opinion? And, dealing with ethically problematic situations: are you just following your colleagues? What about your own responsibility? Furthermore, communication issues were mentioned frequently, including experienced difficulties in conversations with patients and their families, or observations how the supervisor solves a conflict situation. Also, the communication with colleagues was a source of troubles. It is difficult to know how to handle such situations so that you are taken seriously by colleagues at all levels of the hierarchy. The different kinds of problems the residents encountered at their workplace are summarized in Fig. 7.4. What all these problems have in common is that there are no easy solutions to be found in the handbooks or scientific medical literature. This made the discussion during the tutorial group meetings very dynamic and practical. The next section will describe residents' experience with the app and participating in the meetings.
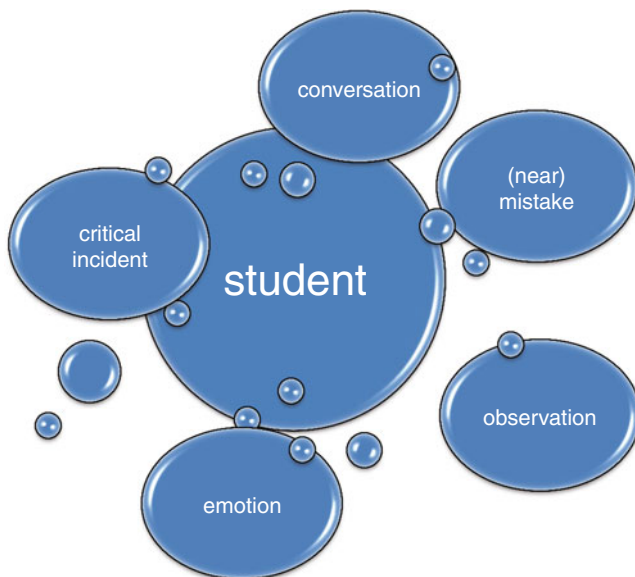
Fig. 7.4 Types of problems encountered at the workplace

7.2 Participant Perspectives and Experiences

7.2.1 Experiences with Smartphone App

The residents used the app in different situations: in the medical context when the resident encountered a case he did not understand or a disease about which he knew too little, or in a situation where the resident felt, "Gee, my own opinion is so different here. Is this because of me or why is this the case?" Medical-technical learning moments were more easily observable during work, as the resident was not able to proceed with work without looking up information. However, learning moments with respect to general skills were less easy to detect. "You can move on with your work, also when communication was perhaps not optimal…it doesn't cause that you cannot do your work." Often at the end of the day or in evening hours residents took time to think about what happened during the day and reflected on it. "Communication and that kind of issue are of course sometimes vague and difficult to catch in one sentence at that moment [when they happen]." "When you reflect, then at once you think: wait, that's not correct or should it really go like this?" It also required some distance taking: "You have to step back to see the problem." Such learning moments gave a dissatisfied feeling at the end of the day or caused one to wonder whether things should have gone the way they went. Already this first step of personal reflection was valuable for learning, as nicely summarized by a resident stressing the importance of reflection on his/her own behavior and thinking about alternatives or prevention of problematic situations, "as you know that you might not be able to change the others, but yourself."

The app appeared to be useful for quick registration of learning moments that needed an immediate solution. Learning moments that needed more reflection were vaguely noticed during work and were not registered at that moment, but rather at the end of the day after rethinking. This later reflection required a trigger. In this project there were two types of triggers: reminders sent by the app after 3 days of inactivity and the deadline to send in new cases for the tutorial group meetings.

The group meetings as such reminded for reflections. Residents knew that they had to send in cases for the next meeting, which increased alertness for learning moments. One resident mentioned that this was even enough for her to stay alert. The reminders sent by the app were valuable for most of the residents. "It does trigger you. It is an alert, yes, making you strongly aware. I think this is good." It raised alertness for learning moments. "I have to be attentive and think whether I encounter something. You're more alert with your work." Reminders were considered as beneficial, because otherwise they did not feel to be so attentive. "It's the ideal incentive, for sure, especially for things where you have to think about afterwards. A week passes so quickly; you have to do so many things… I think you register much less if you don't get reminders."

Some of the residents reported that reminders were not necessary for them, as they were already very alert. By consequence, they used the app regularly and did not receive many reminders. If they received one, their reaction to it was rather weak, like "Oh yes, I indeed just have to think about it again." Others felt slightly negative emotions after receiving a reminder: "stress, o gee, I have to write something down" and "I didn't like to receive a reminder, because you think, well, I have to take part [in the project] a bit serious". It also caused more intense reactions, like from the resident who said:

> How should I say this properly? Yes, then I think, shucks, why do I get this. As you did want to note something, but then you didn't do it that evening immediately… I thought, blast it [first name], be a bit more alert…. It's more slovenliness… I intended not to get reminders, but it still slips in.

7.2.2 Experiences with Tutorial Groups

Residents were very positive about the group meetings, which were especially valued because of their safe atmosphere for discussion, similarity of problems encountered, solutions from different perspectives, and the input by the tutor as an experienced practitioner. They will all be described in more detail below.

7.2.2.1 Safe Atmosphere

Residents valued the atmosphere in the meetings that enabled them to discuss cases, situations, or problems that they normally did not talk about. The setting was good and the atmosphere was relaxed and very open, with no pressure. "You didn't get the impression that there was anything you could not talk about." Residents pointed to the difference between tutorial group meetings and discussion with colleagues about difficult cases.

At the workplace "there is for sure a chance that you discuss it with your supervisor or colleagues, but still that's less intense than in such a meeting." Another resident said,

> I sometimes tell colleagues about things I encounter or don't know and then they tell what reaction they would have given. But that is different from when you are discussing it in a much more relaxed manner, thinking everyone has the same problem. So, why can't we talk about such problems as freely at the workplace, and also with your boss?

But residents even felt emotionally stressed by lacking the opportunity to share their troubles, as this resident indicated:

> I liked to just sit together, that you can spill out things that maybe bother you and that you just can spill out. I think this is good. If you make a note, it is bothering you, I think. Sometimes it is not that serious, but it can also be something serious that is really bothering you and you can spill out and everyone can react on it and perhaps that's nice and, yes that you then leave with a better feeling. Yes.

Taken together, the setting in which they were able to talk together about their learning moments was evaluated as very beneficial.

7.2.2.2 Similarity of Experienced Problems

Residents appreciated that the other group members experienced comparable problems during work. They found it interesting, but also mentioned, "It's nice to see that you are somehow struggling with the same problems." This caused feelings of relief:

> I found it indeed very strong to see that we all run into the same problems, only in different scenarios. Normally you don't talk very much about it and normally, formerly, well, things about which you feel uncertain, you don't want to always speak your mind. But then you realize that in fact almost everyone is the same in that sort of things and how they experience it… It is good to name them, also about work, in your team. I think this happens far too rarely.

Talking about troubles also might raise feelings of self-confidence, as it "has made you realize you're not the only one who is bothered by these kinds of things." And,

> It does make that you are a bit more sure of yourself, as, oh, I'm not the only one, everyone makes mistakes now and again and everyone runs into these things or is fed up with certain things or has heavy time at work sometimes. I'm not the only one.

7.2.2.3 Solutions from Different Perspectives

Discussing the cases in the tutorial group also helped the residents to find solutions for their problems and learn from the others' problems. By talking about your own problems,

> you realized, oh yes, indeed I didn't look at it this way or I could have done it that way. Therefore, you have to discuss with someone else, otherwise you keep reasoning in a circle for things that you cannot completely solve. I think it works better if you actively talk about it with others.

Group members represented different specialties and this multidisciplinarity was valuable, as new and differing views to the problem were appreciated:

> that people have a fresh view at it, because if you would do that with your own colleagues, they might easily say like 'never mind, it's just like that here'. You are looking more un-biased to situations than direct colleagues or if you know the whole situation.

New insights emerged by discussing the problems: "things were said where you make a connection in your thoughts that you didn't think about before… the penny has only dropped at the moment that you discuss it and that others contribute." This was also felt by another resident who experienced that it has finally clicked by telling about the case: "I have really learned it, as when I was telling it, the penny has dropped for myself, because I really was telling it once again." Preparing for the meeting had an effect, because presenting the case required more thorough analysis of it:

> You better think about what happened and what it did to you, what you could have changed and what you might do differently next time. If you have to tell some one else, you need a stronger story, a clearer clue than if you think for yourself.

If other group members agreed with the resident's opinion or action, it also increased self-confidence.

> It is also a confirmation. It's sometimes nice if they say, we agree with your thoughts on this case; that you feel strengthened in that. It does make you a bit stronger. You don't have the feeling that you're alone in that.

This was also mentioned by another resident who said, "it reassures a bit and you think, well, I'm not the sorehead of the group… it's not about me. So, that's nice."

Otherwise, residents learned much from listening to each other's problems. "How they solve it, you can try that strategy yourself. And you can share your own strategy or success stories to help the others." The tutorial group meetings offered the potential to learn about situations that residents might encounter in the future. "I hope that if I come in such a situation, I'll have tools, for sure from what the tutor sometimes said, to look at it from a different angle." Another resident even formulated it stronger:

> If you encounter a similar situation, you think back, what the problem situation was and how they thought to solve it…. I like that you can fall back on it at that moment. Because in fact it's an experience you had, that you in fact not yet had, as it was someone else's experience.

Thus, residents indicated that they learned from preparing for the meetings, presenting (and analyzing) their problems, discussing their own problems, and also imagining and discussing problems from other group members.

7.2.2.4   Role of the Tutor

Residents were very satisfied with their tutor and indicated several characteristics that made the tutor effective. His patience and openness were valued: "Very calm, but also his own contribution and his own experiences. He left people free in their

cases and sometimes he asked a challenging question about how you're dealing with it." It was also mentioned that he was a very good listener and was well able to empathize with the situation of the residents. His experience in the clinic was appreciated: "He is someone with a very good overview of everything…. He knows the tricks of the trade…. that he of course can think along on all fields and also experienced problems." "He is just an old hand in the profession, who valuably adds to it or that he just says things of which you think, 'Oh yes, you can look at it that way as well'" or as formulated by another resident "he took you along to that different viewpoint, by which you can better understand the situation too."

Next to the large value of his experience and expertise, safety was crucial for being a good tutor:

> He should not radiate too much authority. You shouldn't look up too much to him, as you then again become careful in how you tell your story. If the tutor is more down to earth and more open, you tell your story much more open and direct. If my professor would have sat there, I would have talked differently about some cases, than I did now.

Finally, general tutoring skills (such as leading the group, being able to tell stories, having a guiding role if necessary, being enthusiastic) were valued. It was good to realize that the role of the tutor was to stop the discussion at the right moment, as a resident mentioned,

> it was sometimes a bit long-winded, as everyone of course has once experienced something about the same topic and then everyone tells that. Then at a certain point I thought pff, now I do know, it's fine, it is discussed enough.

7.3   Utility of Mobile Devices in Educational Settings

From this project we have learned that it is very valuable to organize tutorial group meetings around cases as experienced by the residents or students. Several characteristics of the setting contribute to its success. First, the atmosphere during the meetings should be safe. Creating a positive climate is the responsibility of all group members, but the tutor plays a large role in this. Second, discussions should focus on problems that are recognizable for all group members, which make the presenting student feel understood by the others, and related to cases to which all members can connect. Next to the emotionally added value of being able to share troubles with peers, it enables effective discussion of the cases, solutions and alternative approaches. And third, the tutor should be an expert in the field, with an open attitude for all problems students want to discuss. His/her contributions should stimulate new ways of thinking and new insights, within a supportive and safe climate.

The smartphone app is an appropriate tool to bring the problems from the workplace to the tutorial group. "I think it can increase the efficiency of learning, it continuously reminds you that I indeed have to keep thinking about what I already know and what I don't know." The app and the tutorial group meetings complement

one another, as meetings stimulate awareness of learning moments at the workplace: "Meetings are an incentive to better use the app or use it more consciously." On the other hand the learning moments in the app improve quality of the meetings, "by the examples that you saved in the app, you can get more out of the coaching" and "If you don't actively discuss it, you do less with it and you learn less from it." If you consider organizing tutorial group meetings without the app, a resident remarked that, "you shouldn't go and sit there and just tell something, because then you perhaps cannot hit upon something."

The added value of the app and the tutorial group meeting is nicely summarized by one of the residents:

> The biggest added value of the app is that you always have it with you and you have these reminders, so you in fact are almost forced to register your learning moments when you encounter them. The added value of the meetings was for me especially the depth you went into the learning moments. Because by thinking about what am I registering as learning moments for the group meeting, by thinking that way, you automatically think much deeper about the things you have registered. And then you have the meetings where the learning moments of everyone are discussed.

7.4 Opportunities for Future Implementation

The aim of the current project was twofold: (1) to promote reflection during work by offering an app and (2) to scaffold their learning from these encountered learning moments by organizing tutorial group meetings. The content of reflecting and learning was focused specifically on general skills of medical doctors in training, but the idea of promoting reflection at the workplace – and learning more from work in general – is applicable to many domains. In our project, participants spontaneously used the app for medical-technical learning moments, although this was beyond our instruction, which shows that the app was useful for reflection on all medical competencies. But also in other contexts, learning at the workplace can be stimulated and supported by the app and the linked group meetings. It could for example be used in vocational training, to stimulate learning from practical experiences (see for example Mauroux et al. 2014). At the postgraduate level, the app could be used in other professional training programs, such as business education and training for working professionals. It is known from research in business education that acquisition of business expertise is highly dependent on workplace learning (Arts et al. 2006). However, the domain of business education lacks the instructional tools to connect informal learning experiences acquired at the workplace with formal education. The present app provides course developers in business education a strong tool to relate different learning experiences within the managerial workplace with formal theories about management and business. In professionalization programs, it can help to continue working on the topic of the training in between training days, to promote alertness of transfer of newly acquired skills to practice, and to organize the training around participant cases. Recent research in Professional

Training for Certified Public Accountants has demonstrated the importance of sharing knowledge and experiences acquired in different work situations which reflects common theoretical foundations in the field of Accounting and Auditing (Grohnert et al. 2014). In higher education, placement programs in any discipline could profit from improved learning during workplace experiences.

In addition to implementing the described approach at other levels of education and in other domains, it could also be extended by adding extra functionalities, such as sharing the learning moments in the app with the supervisor or tutor. It could also be valuable to directly share learning moments with peers (within the tutorial group or a selection of peers). This can intensify collaborative learning, as a continuous process. Group discussion could also take place online with videoconferencing or on a discussion board or blog. This is especially valuable when group members are working at different places or different institutions, which may hamper face-to-face contact. Skillful moderation of such an online discussion is of utmost importance as tutor input and a safe atmosphere are highly appreciated by participants. Moderated online discussion can also be an important element with regular face-to-face tutorial group meetings.

Another direction for further development relates to the integration of the app with the digital learning portfolio. By this linkage, the learning process becomes more visible both for the learner and the supervisor who must support and assess learning. One of the participants suggested using the app for 360-degree feedback:

> These are all assessment moments and if you register your learning moments, you can better show in which direction you have been studying and working, where you have run across. You can talk about that during your appraisal, but yes then three fourth of things are lost. Then you think afterwards, 'Oh yeah, I actually should have told this also.' But of course you then forgot it…

Therefore, coupling the app with a portfolio system could improve learning by saving more information *for* and *about* the learning process, which can be used for extended learning afterwards by the learner himself and for extra support by supervisors/tutors. Additionally, it could make learning more transparent and appraisals more informative.

7.5   Considerations and Challenges

When promoting the use of an app for registering learning moments at the workplace, confidentiality is a major topic at four different levels: the user, the app, the tutorial group, and the organization. First, the app should be a personal tool for the user to register his troubles, worries, weaknesses, disappointments, etc. The app should contain the option to keep learning moments private. The need for this might depend on the working context, but the app should enable learning from *all* experiences, and not be limited to those one is willing to share.

The app itself should be technically safe by using encrypted data communication with a secure server. However, 100 % safety is difficult to reach and users might lose

their smartphone. In our project, confidentiality of patient information had to be warranted and participants were instructed not to register any recognizable patient details in the app. The work context should determine the use of the app and whether it is necessary to make clear agreements with the users about confidentiality of information.

Additionally, a safe atmosphere during group meetings is of major importance. It should be stressed that the group members are expected to keep everything discussed confidential. A tutor who is not too closely linked to the daily workplace of the participants is likely to improve the safe atmosphere. This, however, also depends on the kind of learning moments that are discussed; in some contexts the group meetings could be tutored by a direct supervisor.

Another level on which psychological safety aspects should be considered is the organizational level. If it is known by all employees in a department that (confidential) group meetings are organized about (for them unknown) experiences at the workplace, this might create a psychologically unsafe working environment (Carmeli 2007): quality of relations and interactions at the workplace influences perception of safety and by consequence the openness to discuss errors. So, the atmosphere at the workplace helps or hinders failure-based learning behaviors. In case of large-scale implementation of the app and group meetings, openness to all colleagues about its aims is important. Additionally, ideally the initiative will enhance the learning orientation of a department or organization. However, the organizational atmosphere should be carefully considered when planning the implementation.

Next to accounting for these (psychological) safety issues, successfully scaling up this project or implementing it in a different context can be empowered by several factors (Dede et al. 2005; Dede and Rockman 2007): flexible, pro-active, and enthusiastic leaders working with intrinsically motivated participants in an environment in which a need for change is clear to all, will help to cope with the changes required for an innovation. Additionally, the innovation must be adapted and fine-tuned to the learning environment in which it is implemented. Innovation requires trying to understand the different perspectives of those involved, asking for feedback and using it in decision-making (Dede et al. 2005; Dede and Rockman 2007; Könings et al. 2014a). This also promotes feeling of ownership by all, which facilitates the change process. Collaboration among stakeholders improves mutual understanding and optimal use of expertise of all stakeholders, which is likely to result in optimally effective instructional designs and sustainable implementation plans.

7.6   Conclusion

This project shows that technology can be effectively used for scaffolding learning at the workplace. The development process itself can be characterized as a participatory process in which educational researchers, residents, and technical

staff collaborated and piloted the products and the implementation. The developed app connects learning experiences and formal education meetings. Easily saving important learning experiences at the busy workplace (instead of losing/forgetting them) and elaborating on these experiences in formal meetings (instead of being taught on decontextualized cases) made this project a valuable initiative for improving learning from work. Nothing more authentic than one's own learning experience!

References

Arts, J. A., Gijselaers, W. H., & Boshuizen, H. P. A. (2006). Understanding managerial problem-solving, knowledge use and information processing: Investigating stages from school to the workplace. *Contemporary Educational Psychology, 31*, 387–410.

Avalos, B. (2011). Teacher professional development in Teaching and Teacher Education over ten years. *Teaching and Teacher Education, 27*, 10–20.

Azer, S. A. (2007). Twelve tips for creating trigger images for problem-based learning cases. *Medical Teacher, 29*, 93–97.

Boyd, E. M., & Fales, A. W. (1983). Reflective learning: Key to learning from experience. *Journal of Humanistic Psychology, 23*, 99–117.

Carmeli, A. (2007). Social capital, psychological safety and learning behaviours from failure in organisations. *Long Range Planning, 40*, 30–44.

Dall'Alba, G., & Sandberg, J. (2006). Unveiling professional development: A critical review of stage models. *Review of Educational Research, 76*, 383–412.

De Leng, B. A., Dolmans, D. H., Van de Wiel, M. W., Muijtjens, A. M. M., & Van Der Vleuten, C. P. (2007). How video cases should be used as authentic stimuli in problem-based medical education. *Medical Education, 41*, 181–188.

Dede, C., & Rockman, S. (2007). Lessons learned from studying how innovations can achieve scale. *Threshold, 5*, 4–10.

Dede, C., Honan, J. P., & Peters, L. C. (2005). *Scaling up success: Lessons learned from technology-based educational improvement*. San Francisco: Jossey-Bass.

Diemers, A., Heineman, E., & Dolmans, D. (2010). The introduction of real (ambulatory) patients early in the curriculum. In H. Van Berkel, A. Scherpbier, H. Hillen, & C. Van der Vleuten (Eds.), *Lessons from problem-based learning* (pp. 67–74). Oxford: Oxford University Press.

Dolmans, D. H., De Grave, W., Wolfhagen, I. H., & Van Der Vleuten, C. P. (2005). Problem-based learning: Future challenges for educational practice and research. *Medical Education, 39*, 732–741.

Eraut, M. (1994). *Developing professional knowledge and competence*. London: RoutledgeFalmer.

Ericsson, K. A. (2009). *Development of professional expertise: Towards measurement of expert performance and design of optimal learning environments*. New York: Cambridge University Press.

Ericsson, K. A., Charness, N., Feltovich, P. J., & Hoffman, R. R. (2006). *The Cambridge handbook of expertise and expert performance*. Cambridge: Cambridge University Press.

Frank, J. R. (Ed.). (2005). *The CanMEDS 2005 physician competency framework: Better standards, better physicians, better care*. Ottawa: The Royal College of Physicians and Surgeons of Canada.

Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Ke, Y., Kelley, P., Kistnasamy, B., Meleis, A., Naylor, D., Pablos-Mendez, A., Reddy, S., Scrimshaw, S., Sepulveda, J., Serwadda, D., & Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *The Lancet, 376*, 1923–1958.

Grohnert, T., Meuwissen, R., & Gijselaers, W. H. (2014, April 3–7). *Supporting professional learning in low-validity environments: Lessons from deliberate practice*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA, USA.

Hafler, J. P. (Ed.). (2011). *Extraordinary learning in the workplace* (Innovation and change in professional education, Vol. 6). Dordrecht/London/Boston: Springer Science Publishers.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112.

Könings, K. D., Koopmans, R., Van Berlo, J., Van Merriënboer, J. J. G., & Van der Vleuten, C. (2013, August). *The smartphone as a mobile reflection tool for learning at the workplace.* Paper presented at the 15th biennial conference of the European Association for Research on Learning and Instruction (EARLI), Münich, Germany.

Könings, K. D., Seidel, T., & Van Merriënboer, J. J. G. (2014a). Editorial: Participatory design: Integrating perspectives of students, teachers, and designers. *Instructional Science, 42*, 1–9. doi:10.1007/s11251-013-9305-2.

Könings, K. D., Van Berlo, J., Spanjers, I. A. E., Koopmans, R., Hoogland, H., Ten Haaf, J., Van der Vleuten, C. P. M., & Van Merriënboer, J. J. G. (2014b). *Smartphone app as a mobile reflection tool for learning at the workplace and the added value of coaching.* Submitted for publication.

Marcos, J. M., Sanchez, E., & Tillema, H. H. (2011). Promoting teacher reflection: What is said to be done. *Journal of Education for Teaching, 37*, 21–36.

Mauroux, L., Könings, K. D., Dehler, J., & Gurtner, J. L. (2014). Mobile and online learning journal: Effects on apprentices' reflection in vocational education and training. *Vocations and Learning Studies in Vocational and Professional Education, 7*, 215–239. doi:10.1007/s12186-014-9113-0.

Oner, D., & Adadan, E. (2011). Use of web-based portfolios as tools for reflection in preservice teacher education. *Journal of Teacher Education, 62*, 477–492.

Savery, J. R., & Duffy, T. M. (1995). Problem based learning: An instructional model and its constructivist framework. *Educational Technology, 35*, 31–38.

Schmidt, H. G., Rotgans, J. I., & Yew, E. H. J. (2011). The process of problem-based learning: What works and why. *Medical Education, 45*, 792–806.

Schön, D. A. (1984). *The reflective practitioner*. New York: Basic Books.

Tynjälä, P. (2008). Perspectives into learning at the workplace. *Educational Research Review, 3*, 130–154.

Van Berkel, H., Scherpbier, A., Hillen, H., & Van der Vleuten, C. (2010). *Lessons from problem-based learning*. Oxford: Oxford University Press.

Van Merriënboer, J. J. G., & Kirschner, P. A. (2013). *Ten steps to complex learning: A systematic approach to four-component instructional design*. New York: Routledge.

Wilkerson, L., & Gijselaers, W. H. (Eds.). (1996). *Bringing problem-based learning to higher education: Theory and practice* (New directions in teaching and learning, Jossey-Bass quarterly sourcebooks, no. 68). San Francisco: Jossey-Bass Publishers.

Chapter 8
From Challenge to Advantage: Innovating the Curriculum Across Geographic Boundaries

Natalia Timuş

The attractiveness of higher education programmes in European Studies (ES) has grown significantly in recent decades. The constantly evolving European Union (EU) political system, EU enlargement, and the changing role of the EU in the international system are among the determinant factors of the increased interest in EU studies. The prospective students of ES programmes are not only youngsters interested in the European job market or in an academic career. The audience is broad and ranges from ordinary citizens interested in general EU knowledge to European and international actors seeking qualifications in EU studies. In order to answer the increased demand for EU studies, educational institutions must engage in the search for innovative teaching mechanisms that offer a high degree of flexibility and broader access to a heterogeneous audience.

Two sets of factors should be considered by university staff involved in teaching ES. The first group deals with the characteristics of the ES field. Emerging as an area studies field, it has evolved and has strengthened its place, becoming a "boom field" within social sciences (Keeler 2005, p. 551). Nowadays all the major social science disciplines have their own ES specialists, contributing to the amalgam of academic research on EU studies. Despite the significant development throughout the past two decades the nature of ES still poses serious limitations to its further consolidation. The interdisciplinary or multidisciplinary character of EU-focused studies (Cini 2006) leads to a diversity of ES curricula and pedagogical practices, which in turn present a significant obstacle in establishing a core ES curriculum

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(Umbach and Scholl 2003). In these circumstances, the exchange of best practices on teaching and researching EU studies and international university cooperation are of major importance (Timus 2013).

The second group of factors deals with the process of globalization and the present challenges that EU countries are facing. The internationalization of contemporary education systems and the new European Higher Education Area (EHEA) call for more flexibility and mobility of faculty and students in order to exchange best practices and learn from each other (European Commission 2010). The high number of education organizations offering ES programmes gives rise to the need to enhance the competitiveness of modern universities through the development of an innovative culture and an interactive learning environment that offers the faculty and learners valuable practical skills. The challenges that EU countries are facing as a result of European integration and globalization also call for new and innovative teaching approaches. For example, lifelong learning among EU states must become a policy priority dealing with the issues of skills deficit among the labor force and ageing societies. Making EU studies accessible for university students and professionals requires more flexibility in time and space. Also, there is a demand for teaching tools that can tackle the increasing size of the audience and the diversity of learners interested in EU studies (Timuş 2010). High immigration rates and international university cooperation call for a special attention to language and intercultural skills for overcoming the differences between various educational systems (Stigmar and Kornefors 2005).

This study *examines the role of collaborative learning within the blended learning framework in promoting innovative ES pedagogical practices*. It illustrates how innovative courses contribute to curricular reforms and inter-university cooperation through the case study of a blended learning course involving lecturers and students from Maastricht University (UM) and Bilkent University. The work investigates the advantages and limitations of blended learning – a mixture of face-to-face and online learning – in fostering collaborative learning among international groups of academics and learners.

The chapter starts with a brief presentation of scholarly debates on the advantages and drawbacks of e-learning and, more specifically, blended learning as a pedagogical tool for tackling the challenges of modern education. It engages in academic debates on e-learning, investigating the factors that can facilitate or hinder successful interaction within the collaborative blended learning process, stressing the importance of *instructor-instructor* interaction for collaborative learning and promoting innovative pedagogical practices within the blended learning framework. The study reports on the empirical findings from a pilot blended learning course on EU enlargement, focusing on the role of *instructor-instructor* interaction during course design and implementation for enhancing the learning process and promoting bottom-up innovative curricular reforms. The last section of the chapter highlights the lessons learned from the case study based on instructor and student evaluations. The chapter concludes by summarizing the major findings and pinpointing future directions regarding the collaborative learning within the blended learning format.

8.1 E-Learning: A Remedy or a (New) Problem for Modern Education?

Online learning has evolved significantly in the last decades, benefiting considerably from the new ICT tools. A major impact occurred with the altered notion of distance itself as modern ICT tools made it possible to offer online courses in any space at any time, crossing spatial and geographic boundaries. We are living in a complex knowledge-based society, which has led to the transition from traditional face-to-face *teaching* towards a different education paradigm, centered on the learning process and facilitated by the broad variety of ICT tools and the virtual learning environment, or e-learning (Baturay and Bay 2010).

The research comparing traditional, face-to-face classrooms with e-learning environments yields differing findings. Despite a lingering stereotype about online learning being inferior to traditional teaching tools, Russell's comprehensive research bibliography (based on 355 entries) and a large number of studies have found no significant difference between them.[1] Moreover, nowadays distance learning offers important advantages in promoting innovative approaches to teaching and learning, as well as increasing their quality and effectiveness (Kalpana 2008; Kolding et al. 2009; Mulligan and Geary 1999). Some studies even suggest that distance learning courses are held to notably higher standards than traditional courses (Spector 2005; Spector and Merrill 2008; Stigmar and Sundberg 2001). This argument is confirmed by the recent comprehensive review of distance learning education supplied by the U.S. Department of Education (USDOE 2010). Based on more than 1,000 empirical studies, USDOE proved that on average online learners performed slightly better than students following face-to-face instruction (USDOE 2010, p. ix).

Nevertheless, the numerous empirical studies on this subject have highlighted also the presence of several important concerns regarding the use of online learning within the modern educational system. A prevalent anxiety relates to the diminished role or even the lack of the human factor, which has led to a reconsideration of course design strategies with the aim of blending traditional, face-to-face methods, with e-learning tools.[2] Today e-learning offers various remedies to the lack of human touch, such as audio or video components and synchronous learning (e.g., webconferencing or skype™), which offers real-time interaction and a feeling of immediate contact and motivation (Ng 2007).

E-learning in its various forms is believed to enrich the diversity and types of interaction and provide broad access to "enticing learning opportunities" (Larreamendy-Joerns and Leinhardt 2006, p. 597). But e-learning should not be regarded as a substitute for formal teaching methods. Rather, it should be perceived

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[1] Russell (2001) confirms the 'No Significant Difference Phenomenon,' this claim being supported also by the more recent studies of Olson and Wisher (2002), Friday et al. (2006), Daymount and Blau (2008), Wilson and Allen (2011).

[2] See the special issue from 2008 on "Effective, Efficient, and Engaging (E^3) Learning in the Digital Era," *Distance Education* 29 (2).

as a continuum linking formal, non-formal, and informal learning that lies at the core of lifelong learning (Malcolm et al. 2003). Yet many unanswered questions remain regarding the relationship between pedagogy and ICT tools for achieving successful interactive learning (Timus 2013), particularly in the context of shifts in the European education discourse following the inception of the Bologna process (Lightfoot and Maurer 2013).

8.2 Collaborative Learning Within the Blended Learning Framework

The latest technological advances offer a broad diversity of asynchronous (e.g., email, discussion forum) and synchronous (real-time) tools facilitating communication and collaboration between communities of learners (Kern and Warschauer 2000; Beatty 2003). However, there is no one common recipe for applying various ICT tools aimed at improving the teaching and learning processes, as each tool has its own benefits and concerns. In this context, the key to success lies in a careful consideration of the technological advantages of e-learning instruments and their compatibility with the pedagogical strategies and learning objectives (Timus 2013; Mihai 2013). The task is to discover the best way of exploring the huge potential of e-learning and designing creative ways of interaction to increase the success of the learning process (Persell 2004).

While the term "collaborative learning" has been widely used in various forms within different fields of study, its broad understanding can be resumed to "a situation in which two or more people learn or attempt to learn something together" (Dillenbourg 1999, p. 1). The three core elements of collaborative learning are (a) the "group," which can be presented in different scales ("two or more"); (b) the learning process; and (c) the interaction mechanisms between the group, leading to learning ("together").

Analyses of the nature of interaction in virtual learning environments have relied largely on Moore's typology (1989): *learner-learner*; *learner-content*, and *learner-instructor* interaction (Moore 1989; Rourke et al. 2001; Garrison 2003; Grandzol and Grandzol 2010). The present study, however, advances the fourth type of interaction, *instructor-instructor*, which, it argues, represents an important element of the complex process of technology enhanced collaborative learning.

Most studies of the learning process are oriented toward student learners, assessing their needs and describing their experiences with technologically enhanced learning processes. But as this chapter argues, an important aspect remains overlooked. The learning process includes not only student learners; the instructors also are learners, and their learning must be recognized as part of the dynamic and broad learning enterprise. The ICT enhanced teaching demands a higher degree of continuous professional development than the traditional teaching methods. For example, instructors are often required to complete training by IT staff on the use of e-tools. They acquire new knowledge and skills from other instructors on matters like designing and implementing technologically enhanced courses. They compare

practices with colleagues within the same discipline or a different field of study. Moreover, teachers are constantly learning by doing and learning on the way, particularly when engaging with e-learning environments, often lacking previous personal experience with online or blended learning frameworks or encountering new challenges (e.g., technological problems) that require an immediate response during the course implementation. Overall, this makes the educator a *super-instructor*, whose expertise within his academic discipline must be supplemented by technical skills for the e-learning environment.

The changing role of the teacher represents one of the biggest challenges of using of e-learning tools as well as advancing innovative pedagogical methods, moving beyond the pilot basis and ensuring that creative course projects eventually translate into organizational learning and adaptation. The instructor plays a crucial role in defining the pedagogical strategy and designing creative ways of interaction, as well as selecting the optimal e-learning tools, taking into account their advantages but especially potential limitations in the learning process.

Research on instructor experience with e-learning environments highlights the complex and demanding tasks of teachers for adopting a thorough pedagogical strategy and working with online and blended learning courses (Finkelstein 2006; Anderson et al. 2006; Ng 2007; Rovai and Jordan 2004). Instructors stress the challenge of preparing course material, managing multiple communication and presentation tools, as well as greater effort in monitoring students' learning process (Ng 2007). Moreover, teachers require a sufficient technical background and readiness to offer technical mediation, particularly when synchronous communication tools are applied, as they require immediate response to the emerging problems. This is often perceived to be an awkward and uncomfortable role for instructors (Mihai 2013). Therefore, *instructor-instructor* interaction represents a key link in the chain of the learning process which has to be addressed by scholars while aiming at understanding the complex learning process in contemporary higher education.

8.2.1   Collaborative Learning and Inter-university Cooperation Within Blended Learning Framework

This section reports on the empirical findings from a pilot course implemented in the Department of Politics, Faculty of Arts and Social Sciences (FASoS), UM in the spring of 2011. It engages in scholarly debates on e-learning and examines the factors that can facilitate or hinder successful interaction within collaborative blended learning process and the role of collaborative learning in promoting innovative pedagogical practices within the blended learning framework. Particular attention is paid to the role of *instructor-instructor* interaction for a successful course design and implementation and faculty-led curricular innovation.

The case study approach allows a careful examination of the interplay between pedagogy and ICT and the process of course design and implementation. It also provides valuable insights for academic and policy-making audiences regarding pedagogical planning and academic staff development.

8.2.1.1 The Origins of the Course

The FASoS programme in ES offers a good example of the expansion of the ES field as the result of the increased demand for EU-focused knowledge. In 2002 the BA programme enrolled 244 students, approximately 300 in 2006; and in 2010 almost 400 students registered for the ES programme. Every year more and more Dutch and international students, attracted by the original UM teaching approach (problem-based learning, or PBL) as well as its strategic location in relation to the European capital, choose to pursue their MA degree in European Studies (at UM). UM is continuously seeking to improve its programmes through innovative teaching methods and achieving its objective – "Leading in Learning." It is also devoted to the process of internationalization, with a majority of its programmes being offered in English, making it one of the most internationalized universities in Europe (Maastricht University 2009). Since its establishment in 1976 the university has been devoted to student-centered learning by using PBL as its core teaching method.

The blended learning course on "The Long and Winding Road: The Process of EU Enlargement" was one of the components of a university-wide initiative to innovative curriculum. It was first taught as a 2-month elective course in the spring of 2011, in the final (3rd) year of the BA programme in European Studies. Now the course is a lasting component of the BA curriculum.

Although it was a pilot project, the course drew upon faculty experience with a previous pilot course involving distance learning and the use of PBL in the online environment (see Timus 2013). That pilot was implemented in 2009 within the MA programme of 'Analyzing Europe' at FASoS, UM, with a narrower focus on "EU-Turkey Relations." The main difference between the two courses is that the former has been merely relying on asynchronous methods of online learning, with the exception of one videoconference organized jointly with Bilkent University, while the latter aimed at providing an optimal blend of synchronous and asynchronous tools within a blended learning format. The 2011 pilot was perceived by faculty management as a mean of expanding the inter-university cooperation with Bilkent University and promoting greater *instructor-instructor* interaction between the UM and its Turkish counterpart.

8.2.1.2 Course Concept and Structure

The EU Enlargement course was a novel addition to the BA ES curriculum, aimed at addressing the major challenges of contemporary educational systems, such as how to provide flexibility in time and space for different types of learners, as well as exchanging knowledge and skills via online international inter-university cooperation. The administrative decision to offer it as an elective course in the spring semester of third BA year was intended to help students in the last phase of their studies to combine learning, research, internship, and job search. Another main objective was the use of e-learning technologies for promoting bottom-up inter-university cooperation with Bilkent University, by organizing three videoconferences

involving lecturers and students from both institutions. Enrolment in the pilot reached the capacity of 15 students.

The course design was based on a blended learning approach, which is one of the most successful approaches of modern pedagogy (Salmon 2000). The course featured multiple elements, such as a face-to-face introductory lecture, pre-recorded videolectures, online PBL sessions, group research, and inter-university videoconferences between UM and Bilkent University. The face-to-face introductory meeting provided detailed information on course concept and structure, roles of student and instructor and the use of e-learning tools and IT equipment (e.g. minimum IT requirements for remote course participation or the use of the faculty media lab). Six pre-recorded videolectures were made available online for students at a scheduled time, with one hour planned for watching the videolecture and the following hour intended for raising questions via Blackboard™ 8 discussion forums. The lecturer was expected to answer students' questions within 24 hours. Also, the lecturers and students from UM and Bilkent University participated in three live videoconferences (three hours each) on the subject of EU-Turkey relations within the framework of the 'Digital Lectures Series' of Turkey Institute, a think-tank based in the Hague, the Netherlands.[3] One videolecture was delivered by a UM lecturer, the other by a Bilkent counterpart, thus providing complementary views on the subject of EU-Turkey relations. The final videoconference implemented a round table discussion on Turkish accession to the EU, and included academic, civil society, and diplomatic experts. The course also included four online PBL tutorials,[4] with one hour of online pre-discussion session via discussion forum (students' brainstorming and setting of learning objectives) and one hour of online post-discussion session using the webconferencing software, Adobe Connect™ structured around the agreed learning objectives. Last, but not least, in the middle of the course the students were assigned a one-week group work project, encouraging them to pursue their own research and develop the teamwork skills in subgroups of five students. The results of group research were delivered in the form of a group report and a short PowerPoint™ presentation and examined via discussion forum at the end of the week. The course concluded with a take-home examination, with students instructed to submit answers to two essay questions within 48 hours.

8.2.2 *Collaborative Learning and* Instructor-Instructor *Interaction During the Course Design*

Before embarking on the pilot project, the academic and e-learning course coordinators engaged by establishing their professional network and exchanging experiences and practices (instructor-instructor interaction). This effort played a key role

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[3] See more on Turkey Institute project's website: www.digi-college.nl.

[4] To learn more about PBL tutorials, see Maurer and Neuhold (2013).

in the success of the blended learning course. This section identifies the main actors and the mechanisms of *instructor-instructor* interaction, as well as the specific factors that facilitated or hindered the collaborative learning within the blended learning framework.

8.2.2.1   University-Wide Administrative Support

Firstly, it is important to mention the role played by FASoS as well as UM-wide support for e-learning projects. Recalling the successful implementation of several previous online course pilots, FASoS has affirmed its willingness to invest in e-learning innovation of its curricula and support the academic and IT staff perceived as "agents of innovative change." FASoS has supported both experienced academic staff and other staff interested in innovating coursework and designing new pilots, researching online learning in higher education, as well as education, and engaging in national and international projects on innovative curriculum transformation. Furthermore, the creative approaches of the pioneering faculty and staff have been used for promoting organizational learning and dissemination. Those FASoS staff with experience in online and blended learning were invited to share their expertise in innovative curricular design during faculty's Education Days (yearly) and intra-university exchange of e-learning practices (e.g., E-learning taskforce). During these meetings the experienced academic and IT staff shared their knowledge and skills, addressing a large spectrum of questions from their academic peers on distance and blended learning course design and implementation. The endorsement of innovative online learning has been reflected also within FASoS 2010–2015 Strategic Plan, one of its goals being the exploration of the use of e-learning environments and online courses, specifically during student exchange semesters or internship periods, with the purpose of providing more flexibility and accessibility to the learning process.

The EU enlargement course was a FASoS pilot implemented during a two year period and financed by the university project, which comprised a total of **34 online/ blended courses** across different UM faculties during 2009–2012. This project aimed at training and supporting UM academic and IT staff in innovating their coursework and developing new pilot courses aimed at offering courses that offer more flexibility and accessibility to the learning process, particularly for non-traditional students who must combine learning with working. Course coordinators of these pilots were invited to complete training within the framework of an online course, Collaborative Knowledge Building. This module was offered in October-November 2010 (eight weeks, 25 hours) by e-learning experts and academic staff with experience in designing and implementing online courses. The module targeted course coordinators and was open to everyone interested in course (re-) design through integrating innovative ICT tools. The primary goal was training teachers and creating awareness of didactic ICT integration across UM faculties. The module focused on facilitating *instructor-instructor* interaction and the exchange of practices and experiences through formal and informal e-learning tools available via the Blackboard Learn™ 9 digital environment. The instructors and trainers met

regularly in a virtual classroom using Elluminate™, which offers the opportunity of videoconferencing from any place (without installing any software) and online collaboration, using a whiteboard on which users can present (e.g. slide sharing), take notes or draw. The Collaborative Knowledge Building module represented a unique opportunity for EU enlargement course coordinators to discuss the blended learning course concept and design, as well as the advantages and limitations of various ICT tools for different course activities, such as PBL sessions or inter-university video-conferencing. *Instructor-instructor* interaction proved invaluable for course design thanks to exchanging ideas and practices with experienced UM colleagues and gaining feedback from UM E-teacher trainers. Moreover, although the training module concluded before the start of the EU enlargement course, the established UM community of course coordinators and e-learning experts has remained active for exchanging ideas and discussing potential blended learning challenges throughout the running of EU enlargement course.

8.2.2.2   Previous Experience with Online Courses

The fact that both course coordinators (the academic coordinator and the e-learning coordinator) had been involved in previous online projects allowed them to make use of their personal experience with e-learning environments and blended learning. The lessons learned from a previous Master of Arts (MA) blended-learning course on "EU-Turkey relations" (2009) were of a significant value for facilitating the course design and implementation. During the course design, the coordinators focused on several key issues that emerged in 2009 evaluations by students and instructors. These issues included the need for highly detailed information on the use of asynchronous and synchronous tools and on specific roles for students and instructors, particularly during the online PBL tutorial and videoconferences with Bilkent University (Timus 2013). As a result, academic and IT staff collaborated to design a tailor-made course web-page within the Blackboard™ 8 electronic environment, develop a detailed coursebook with step-by-step information on different course components, as well as to provide students with software manuals and other related IT information. This type of *instructor-instructor* interaction has been crucial not only during the course design stage, but also during its implementation, and therefore is considered a key element of the learning process.

8.2.2.3   Inter-university Cooperation and Support
from Non-academic Stakeholders

Last, but not least, the academic *instructor-instructor* interaction was facilitated by The Turkey Institute,[5] a think-tank specializing in dissemination of information on Turkey to a broad Dutch audience and organizing activities on bilateral cooperation

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[5] http://turkije-instituut.nl/page/english.

between the Netherlands and Turkey. The Turkey Institute relies upon a large network of academic and NGO experts, government, business and the media. The course on EU enlargement benefited from the Institute's support, both organizational and financial, in promoting inter-university cooperation with Bilkent University on Turkey-related subjects. Due to this support, the Bilkent academic coordinator was able to make a visit to the UM prior to the implementation of the EU enlargement course, providing a guest lecture on EU-Turkey relations and giving a taste of the issues to be discussed during the forthcoming blended learning course. The face-to-face meeting between the two academic coordinators (UM and Bilkent University) enabled a more in-depth discussion and planning of the three inter-university videoconferences. The Turkey Institute facilitated the organization of a round table during the last videoconference, bringing together its experts, a senior Turkish diplomat, and UM and Bilkent lecturers. This valuable course activity allowed the students to complement their newly gained theoretical knowledge with real-life insights from the Turkey Institute experts as well as the official position of the Turkish diplomatic representative.

8.3   Lessons Learned and Future Recommendations

Evaluations by instructors and students demonstrated appreciation for the successful combination of different course elements within the blended learning framework and the technologically enhanced learning process.

From a pedagogical point of view, the course design and implementation proved to be successful, improving significantly compared to the earlier pilot from 2009. A major achievement was the exchange of practices and experiences between UM academic staff and e-learning experts within the framework of UM E-teacher and *L&W* projects, as well as enhanced inter-university cooperation with Bilkent University. The clarity of course structure and requirements within the coursebook, in addition to the accessibility of course material, allowed a smoother running of the course. Also, cumulating tasks of course design and coordination with tutoring PBL sessions and (partial) lecturing by one person led to a more efficient course management. However, a main drawback was the significantly greater amount of time and effort required from the academic course coordinator for interacting with academic peers and e-learning staff, as well as cooperating with societal stakeholders and a partner university. Furthermore, the academic course coordinator on several occasions found it necessary to provide technical assistance during the PBL webconferencing sessions.

The UM and Bilkent lecturers highlighted the benefits of collaborative learning and the support of The Turkey Institute in organizing the three videoconferences.[6] The broader exchange of theoretical knowledge and the opportunity to approach the

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[6] Based on course evaluation of Dr. Natalia Timuş (UM) and Dr. Dimitris Tsarouhas (Bilkent University), August 2013.

subject of EU-Turkey relations from different points of view by different lecturers, professionals, and societal stakeholders was identified as a major advantage of inter-university cooperation. However, the sensitivity of the subject of Turkish EU accession, the knowledge of Turkish politics by UM students, as well as the different approaches to the debate on EU-Turkey relations occasionally represented a challenge for Q & A sessions during the videolectures. As UM and Bilkent coordinators underlined, this challenge could be tackled by moving to a deeper cooperation between the two universities and the integration of this course within the curricula of both institutions. This would result in a synchronization of the readings, course requirements and assignments for UM and Bilkent learners and an equal student involvement in the course. Yet this requires further administrative endorsement of inter-university cooperation and curricular reform on the side of both universities.

Another benefit of the collaborative learning between UM and Bilkent University involved the broadening of the academic knowledge thanks to the complementary approaches of the lecturers on the same subject matter during the videoconferences. The academic coordinators from both institutions considered advantageous the collaboration between lecturers from partner universities and the division of lecturing tasks with the purpose of providing in-depth analysis of key aspects dealing with Turkish EU accession. Student evaluations were based on a UM audience[7] and were collected from an incoming student survey (see Appendix 1), an open course evaluation session,[8] as well as from an online survey containing course-specific questions and standard UM items (see Appendix 2). The incoming student survey asked all enrolled students (15) to specify (1) what persuaded them to enroll in a blended learning course, (2) three main expectations from the course, (3) how the course would help them in their future and (4) whether they were completing an internship, research field trip or any other extra-curricular activity during the course time. The most common answers to the first questions related to acquiring knowledge on the subjects of EU enlargement and specifically on EU-Turkey relations. Student expectations related mostly to the blended format of the course and the use of technologically enhanced teaching and learning. They anticipated a greater degree of flexibility in the learning process, acquiring digital skills, as well as exploring "what technological progress allows us in the global age"[9] with regard to inter-university cooperation. When reflecting upon how the course would help them in the future, all the respondents highlighted the advantages of inter-university cooperation in gaining intercultural skills through cross-cultural exchange. Lastly, most of the students stated that they were involved in carrying out their Bachelor of Arts (BA) thesis research, applying for MA programmes, or internships during the implementation of the EU enlargement course.

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[7] Since Bilkent University students participated on a voluntary basis and the audience changed from one lecture to another, there was a lack of opportunity to collect systematic student evaluation data regarding the three inter-university videoconferences.

[8] During the last PBL webconferencing session all the students (15) were asked to share any feedback and recommendations regarding course design and implementation.

[9] Incoming questionnaire No.3, Maastricht, March 2011.

During the open evaluation, students stressed as major advantages the fair balance between course information delivery and requirements, the comprehensive theoretical knowledge in the subject of EU enlargement and various real-life skills (digital skills, research, group work, PBL, intercultural skills, etc.). The flexibility in time and place was highlighted as a valuable blended learning course feature, particularly in the last period of BA studies, allowing the combination of studying with part-time jobs or searching for summer internships or postgraduate studies. Last, but not least, the students considered the videoconferences with Bilkent University as representing the most exciting activities, providing intercultural exchange between students, lecturers, and practitioners from the Netherlands and Turkey. Overall, the students emphasized that their initial course expectations were met, including gaining a deeper knowledge on the subject of EU enlargement, ICT enhanced learning process and flexibility in accessing course content, as well as the intercultural exchange with Bilkent University. The UM online student evaluation revealed that the highest points were given for the accessibility of course readings and clarity of the course book (4.9 and 4.6 points respectively out of 5). The students appreciated the tailor-made design of the course webpage and the usefulness of course-related information on the webpage. Also highly rated were tutorial guidance and intervention during the PBL sessions to keep the group 'on track' (4.4 out of 5) and coordinator support and answers to student needs (4.6 out of 5). Finally, students showed their increased support for the blended learning approach and asserted that this type of course design was useful and offered more flexibility and accessibility to the learning process (4.4 out of 5).

Students' critical assessment of different course components showed their preference for synchronous tools of communication, suggesting the use of webconferencing sessions both for PBL pre- and post-discussion sessions and also for group work presentations. The students considered that the limited time for PBL pre-discussion (1 hour) via Blackboard™ discussion forum constrained their brainstorming process and the definition of PBL learning objectives. Another challenge of using the asynchronous discussion forum was the potential repetition of ideas posted by different students almost simultaneously as well as the need to find a more structured way of posting and following the group discussions in order to ensure active participation by the entire class. The time resource was designated as one key difference between the use of synchronous and asynchronous tools, as well as between traditional face-to-face and e-learning environments. The students described the asynchronous learning via discussion forum as being more time consuming and slower than via synchronous webconferencing or face-to-face. Furthermore, the webconferencing PBL tutorials were considered to require a greater amount of time and preparation than the face-to-face meetings, merely because it took longer until all the students came online, adjusted their technical settings and could fully participate in group discussions. Also, the flexibility of accessing the webconferencing sessions from any location had its own drawbacks, deriving primarily from the quality of individual learners' Internet connections or the audio/video settings, exceptionally disrupting the online tutorial sessions.

Last, but not least, student evaluations demonstrated the merits of inter-university cooperation for enhancing the learning process through collaborating with peers and lecturers from Bilkent University. However, students expressed interest in greater involvement of Turkish students within the framework of the same course for a deeper exchange of knowledge and intercultural skills and more fruitful discussions.

8.4   Conclusion

This study aimed at sharing best practices in using blended learning within teaching ES and raising awareness of the opportunities that this innovative pedagogical method has to offer for addressing the challenges of modern education systems. By blending different types of activities, such as face-to-face, synchronous and asynchronous ones, the instructor can enhance the quality of the learning process, particularly encouraging collaborative learning and the simultaneous transfer of academic knowledge and real-life skills. The case study revealed that both instructors and students value the blended learning framework for tackling the needs of the different types of contemporary learners, offering more flexibility in time and place and accessibility to the course content and the learning process. However, the students also expressed a strong preference for synchronous tools such as webconferencing or inter-university videoconferences, stressing their advantage in providing faster and more efficient classroom participation and collaborative learning.

From a pedagogical point of view, blended learning helps the instructor to address the demands of modern educational systems, which require the combination of knowledge and skills within an academic field as well as innovative ICT skills. However, this comes at the price of higher amount of time invested by instructors in course design and implementation, as well as the changing role of the instructor when engaging with e-learning environments.

This work highlights the importance of *instructor-instructor* interaction during course design and implementation for enhancing the learning process and promoting bottom-up innovative curricular reforms. The administrative support offered by FASoS, UM to academic staff interested in promoting innovative learning, the intra-university training, and the exchange of practices, all have been integral to the successful pilot course design and implementation as well as the dissemination of best practices among academic peers. This case study also demonstrates the benefits of e-learning for promoting bottom-up inter-university cooperation, which affords the potential for a deeper institutional partnership. Videoconferencing represents a valuable tool for inter-university exchange of knowledge and practices and gaining intercultural skills. Moreover, it offers a low-cost opportunity for bringing together academic and civil society experts as well as practitioners (e.g., diplomats) in order to offer a broad and complex picture of interdisciplinary issues, such as European Studies.

Appendices

Appendix 1: Incoming Students' Survey "A Long and Winding Road: The Process of EU Enlargement," March 2011

1. Why did you choose this course?
2. What are your expectations for this course?
3. How will this course help you in your future?
4. Are you currently carrying out an internship/research field trip/any other extra-curricular activity?

Appendix 2: UM Course Evaluation Form for "A Long and Winding Road: The Process of EU Enlargement," April-May 2011

All items use a 5. scale (in the italic items they do so in a modified way)
    1. strongly agree 2. agree 3. neutral 4. disagree 5. strongly disagree/not applicable

A. Overall questions about this course

1. The objectives of the course were clear to me.
2. The course fits well with the overall educational program.
3. The course was intellectually stimulating.
4. The course was well organized.
5. Overall, how would you rate the course?

B. Reader, books and other learning resources

6. The course manual contained the relevant information.
7. The course helped me learn how to obtain information from relevant readings and/or other sources.
8. Books, articles and/or media were easy to access.
9. The course's electronic learning environment [ELEUM] was a helpful addition to other information and learning (re)sources.

C. Tutorial Group

10. I benefited from discussing the assignments in the group (pre-discussion).
11. When studying outside the classroom the learning goals agreed upon by the group were generally helpful to me.
12. Reporting on findings and/or readings in class (post-discussion) added to my understanding of the field of study.

13. Overall, how would you rate the performance of your fellow students in the group?

D. Tutor

14. The tutor helped me develop a better understanding of the field of study.
15. The tutor guided and intervened when necessary to keep the group 'on track'.
16. The tutor encouraged student input.
17. Overall, how would you rate your tutor?

E. Lectures

18. The lectures helped me develop a better understanding of the field of study.

On explicit request:

18.1. The lecture of [name] on [subject] helped me develop a better understanding of the field of study
18.2. The lecture of etc.

G. Workload

21. Compared to other courses, the amount of effort required in the course was:
   5. much greater than usual 4. greater than usual 3. equal 2. less than usual 1. much less than usual
22. How many hours per week do you estimate you spent on this course outside of class?
   On average ……. hours

H. Group work

1. The group work was useful within the framework of the course
2. The group work tasks were clear to me
3. The group research and reporting on findings added to my understanding of the field of study
   Overall, how would you rate the group work assignment?

I. Blended learning course design

1. Blended learning was a useful approach for this course
2. Blended learning gave me more flexibility in participating in this course
3. The coordinator of the course was able to offer support and answer student needs

J. Open questions

23. What were the best aspects of this course?
24. What improvements to this course would you suggest?

References

Anderson, L., Fyvie, B., Koritko, B., McCarthy, K., Paz, S. M., Rizzuto, M., Tremblay, R., & Sawyers, U. (2006). Best practices in synchronous conferencing moderation. Technical evaluation report. *International Review of Research in Open and Distance Learning, 7*(1). Available at: http://www.irrodl.org/index.php/irrodl/article/view/308/483. Accessed 30 June 2011.

Baturay, M. H., & Bay, O. F. (2010). The effects of problem-based learning on the classroom community perceptions and achievement of web-based education students. *Computers & Education, 55*(1), 43–52.

Beatty, K. (2003). *Teaching and researching computer-assisted language learning*. London: Longman.

Cini, M. (2006). The 'State of the art' in EU studies: From politics to interdisciplinary (and back again?). *Politics, 26*(1), 38–46.

Daymount, T., & Blau, G. (2008). Student performance in online and traditional sections of an undergraduate management course. *Journal of Behavioral and Applied Management, 9*(3), 275–294.

Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), *Collaborative-learning: Cognitive and computational approaches* (pp. 1–19). Oxford: Elsevier.

European Commission. (2010). Communication from the commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *A new impetus for European cooperation in vocational education and training to support the Europe 2020 strategy* (COM (2010) 296). Brussels: Rue de la Loi.

Finkelstein, J. (2006). *Learning in real time: Synchronous teaching and learning online*. San Francisco: Jossey-Bass.

Friday, E., Friday-Stroud, S. S., Green, A. L., & Hill, A. Y. (2006). A multi-semester comparison of student performance between multiple traditional and online sections of two management courses. *Journal of Behavioral and Applied Management, 8*(1), 66–81.

Garrison, D. R. (2003). Cognitive presence for effective asynchronous online learning: The role of reflective inquiry, self-direction and metacognition. In J. Bourne & J. C. Moore (Eds.), *Elements of quality online education: Practice and direction* (pp. 47–58). Needham: The Sloan Consortium.

Grandzol, C. J., & Grandzol, J. R. (2010). Interaction in online courses: More is not always better. *Online Journal of Distance Learning Administration, 13*(2), 1–18.

Kalpana, K. (2008). *A comparative study of the effectiveness of traditional instruction with home study instruction on GED test scores applied dissertation.* Nova Southeastern University, Fishler School of Education and Human Services.

Keeler, J. T. S. (2005). Mapping EU studies: The evolution from boutique to boom field 1960–2001. *Journal of Common Market Studies, 43*(3), 551–582.

Kern, R., & Warschauer, M. (2000). Theory and practice of network-based language teaching. In R. Kern & M. Warschauer (Eds.), *Network-based language teaching: Concepts and practice* (pp. 1–19). Cambridge, UK: Cambridge University Press.

Kolding, M., Robinson, C., & Ahorlu, M. (2009). Post-crisis: e-Skills are needed to drive Europe's innovation society. *IDC White Paper*.

Larreamendy-Joerns, J., & Leinhardt, G. (2006). Going the distance with online education. *Review of Educational Research, 76*(4), 567–605.

Lightfoot, S., & Maurer, H. (2013). Introduction: Teaching European studies – Old and new tools for student engagement. *European Political Science* (forthcoming).

Maastricht University. (2009). *Leading in learning. Education and research 2008–2009*. Maastricht: Maastricht University.

Malcolm, J., Hodkinson, P., & Colley, H. (2003). The interrelationships between informal and formal learning. *Journal of Workplace Learning, 15*(7/8), 313–318.

Maurer, H., & Neuhold, C. (2013). Problem based learning in European studies. In S. Baroncelli, R. Farneti, I. Horga, & S. Vanhoonacker (Eds.), *Teaching and learning the European union. Traditional and innovative methods*. Dordrecht: Springer.

Mihai, A. (2013). The virtual classroom: Teaching European studies through webinars. *European Political Science* (forthcoming).

Mulligan, R., & Geary, S. (1999). Requiring writing, ensuring distance-learning outcomes. *International Journal of Instructional Media, 26*(4), 387–395.

Ng, K. C. (2007). Replacing face-to-face tutorials by synchronous online technologies: Challenges and pedagogical implications. In I. Jung (Ed.), *Regional focus issue: Changing faces of open and distance education in Asia, IRRODL, 8*(1). http://www.irrodl.org/index.php/irrodl/article/view/335/764. Accessed 2 June 2013.

Olson, T., & Wisher, R. A. (2002). The effectiveness of web-based instruction: An initial inquiry. *The International Review of Research in Open and Distance Learning*, *3*(2). Available at http://www.irrodl.org/index.php/irrodl/article/view/103/182. Accessed 28 Oct 2013.

Persell, C. H. (2004). Using focused web-based discussions to enhance student engagement and deep understanding. *Teaching Sociology, 32*(1), 61–78.

Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses. *International Review of Research in Open and Distance Learning, 5*(2). Available at http://www.irrodl.org/index.php/irrodl/article/view/192. Accessed 28 Oct 2013.

Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (2001). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education, 14*(2), 50–71.

Russel, T. (2001). *The no significant difference phenomenon: A comparative research annotated bibliography on technology for distance education* (5th ed.). Montgomery: IDECC.

Salmon, G. (2000). *E-moderating – The key to teaching and learning online*. London: Kogan Page.

Spector, J. M. (2005). Time demands in online instruction. *Distance Education, 26*(1), 3–25. Available at http://www.tandfonline.com/doi/abs/10.1080/01587910500081251?journalCode=cdie20#preview.

Spector, J. M., & Merrill, M. D. (2008). Effective, efficient, and engaging (E3) learning in the digital age [Special issue]. *Distance Education, 29*(2), 123–126. Available at http://www.tandfonline.com/toc/cdie20/29/2#.VBCigqOnI4I

Stigmar, M., & Kornefors, R. (2005). Interplay between pedagogy and media technology when planning e-learning. *European Journal of Open, Distance and E-Learning (EURODL), I.* Available at: http://www.eurodl.org/materials/contrib/2005/Stigmar.htm. Accessed 28 Oct 2013.

Stigmar, M., & Sundberg, D. (2001, July 9–12). *Teachers as reflective learners.* Paper read at 26th international IUT conference, Växjö University, Department of Education, Johannesburg.

Timuş, N. (2010, November 1–2). *Distance learning in teaching European studies*. Paper read at "Student Mobility and ICT: World in Transition", The Hague, The Netherlands.

Timus, N. (2013). Distance learning as an innovative method of teaching European studies. In S. Baroncelli, R. Farneti, I. Horga, & S. Vanhoonacker (Eds.), *Teaching and learning the European union. Traditional and innovative methods* (pp. 430–444). Dordrecht: Springer.

U.S. Department of Education (USDOE), Office of Planning, Evaluation, and Policy Development. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington, DC: U.S. Department of Education (USDOE), Office of Planning, Evaluation, and Policy Development.

Umbach, G., & Scholl, B. (2003). Towards a core curriculum in EU studies. *European Political Science, 2*(2), 71–80.

Wilson, D., & Allen, D. (2011). Success rates of online versus traditional college students. *Research in Higher Education Journal*, *14*, 1–8. Available at http://www.aabri.com/manuscripts/11761.pdf. Accessed 21 Jan 2012.

Chapter 9
The Potential of Communities of Learning for Dual Career PhD Programs – A Case Study

Martin Rehm and Mindel van de Laar

9.1 A New Type of PhD Fellow

In recent years, both the demand for and the supply of graduate education have blossomed throughout higher education. While this development can be perceived as beneficial for universities and postgraduate research institutes, an increasing number of scholars have pointed towards the potential challenges it presents. More specifically, Pearson (1999) argued that the "*massification of graduate education*" (p. 270) has not only provided opportunities, but also created difficulties in a system previously accustomed to offering doctoral education to a relatively small set of participants. Similarly, research is no longer an activity that is merely conducted by a selected amount of individuals within specialized institutions. Instead, it has become part of employees' *normal activities* during their everyday working environment (Lee and Boud 2003). It can be argued that this trend is paired with a growing pressure on employees to learn continuously throughout their careers. In other words, employees need to update their knowledge and skills constantly in order to face the challenges and tasks of today's turbulent economic environment effectively (Gherardi and Nicolini 2000). As a result, a growing number of employees are *returning to uni* for doctoral research, which will provide them with "*specialist knowledge and research skills*" (Pearson et al. 2004, p. 348) and thereby enable them to achieve better results in their careers. Additionally, the aim of professional doctorates is often not to start an academic career, but rather to support their

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professional career (e.g. Costley and Lester 2012; Loxley and Seery 2012). Yet, while this diversification of PhD fellows should have resulted in an adaptation of how doctoral education is designed, implemented and facilitated, the vast majority of providers continue to hold onto the conventional picture of doctoral education. More specifically, they still assume "*an on-campus, full-time student experience, with socialisation arising formally and informally through interaction with the supervisor(s) and other academics in a university department, and which leads to academic or other full-time research work*" (Pearson 1999, p. 270).

Although this approach has undoubtedly been proven to generate valuable learning outcomes, it also has received a growing amount of criticism by scholars on at least two fronts. First, the underlying notion of a *full-time PhD fellow* can no longer be regarded as a fair representation of the overall PhD population. Instead, a *new type of PhD* (e.g. Pearson et al. 2004; Lester 2004; Neumann 2007) has emerged that tends to exhibit different background characteristics, e.g., with respect to age, job tenure, motivation and available time to conduct their research. In practical terms, while the *regular PhD student* tends to be in their mid-20s, having just graduated from university and lodging in a student flat near, or even on campus, the *new type* faces completely different circumstances. On average, a typical representative of the latter group is a working professional closer to their mid-30s or –40s, who resides off campus and must balance their research with family commitments and work obligations. Additionally, and in contrast to the *regular PhD*, members of the *new type* do not undertake their PhD as a means of career preparation. Instead, they already have gained considerable job experience, often have reached senior positions within their workplace, and tend to be more interested in attaining a PhD degree, to foster either a career change or advancement (Pearson 1999). As a result, scholars such as Malfroy (2005) argue that this trend will have "*a profound impact in altering traditional hierarchical models of [supervisor/student]*" (p. 166), which is yet to be fully accounted for in practice. Second, and closely related to the previous argument, a dyadic student/supervisor relationship has often been at the core of a PhD trajectory (Malfroy 2005, p. 165). Again, past experience has shown that this connection contributes greatly to the learning process of students by creating a type of expert-to-novice relationship (Rehm 2013). However, a growing body of evidence suggests that the underlying learning process, specifically for the *new type of PhDs*, can be further enhanced by introducing more open informal and formal learning communities (e.g. Smith and Bath 2006; Costley and Lester 2012). Overall, and following the notion of Pearson and colleagues (e.g. Pearson et al. 2004; Cumming 2010), it can therefore be concluded that the traditional PhD model needs to be challenged, as it better captures the needs and requirements of undergraduate student life and not necessarily reflects contemporary doctoral education.

With the growing availability and potential of online learning tools and methodologies, universities and postgraduate research institutes can now choose from a wide range of new options to foster the development of the *new type of PhD students* (e.g. Chalmers and Keown 2006; Allan and Lewis 2006). More specifically, *Communities of Learning* (CoL) have emerged as a promising methodology to foster an effective exchange of knowledge and experience between among

participants (Rehm 2013). Here, participants can collaborate in developing research skills, while at the same time creating a feeling of *belonging*, which helps to establish and strengthen personal ties and relations. This in turn has been hailed as exerting favorable effects on learning outcomes and the overall progress with which PhD research is conducted (Romsdahl and Hill 2012). Hence, the main question that has driven this research can be formulated as:

How can Communities of Learning (CoL) contribute to the overall progress of the new type of PhD students[1]?

In an effort to address this question and to contribute to the discussion on the topic in general, this chapter will introduce a case study of a part-time PhD program that has been designed specifically for the *new type of PhDs* –and that has created a CoL to assist and support fellows while they are off campus. Empirical evidence will be provided on how fellows perceived and behaved within this setting. Finally, based on the experience that the authors have gained in the process of designing, implementing and facilitating the dual career PhD program, the chapter will conclude by sharing some practical implications that can be considered for similar initiatives elsewhere.

9.1.1 Case Study – A Program for the New Type of PhDs: GPAC²

In 2007 a PhD program in Governance and Policy Analysis for working professionals (GPAC²) was started at the Maastricht Graduate School of Governance. This program offers an opportunity to policy analysts, researchers and consultants from the public and private sector to participate in courses, seminars and workshops that support their ambitions to obtain a PhD and intensify their research and analytical skills. The program is designed to fit the needs and possibilities of researchers who hold a daily job, and optimizes the conditions under which participants can maintain their careers while pursuing a PhD. The degree obtained is the PhD degree, while the program is officially not referred to as a professional PhD program.

The core of the PhD program consists of advanced training modules, individual research support and advice, assistance and supervision. The main objective of the program is to support fellows in establishing, designing, conducting, and completing a research project leading to a PhD, while maintaining full time employment. At the outset, we expected fellows to obtain their PhD after approximately three to five years, depending upon the amount of time they can devote to research prior to enrolling in the program. We also expected a higher dropout rate than in a full time program, because the combination of family, work and a long-distance PhD activity was not one we considered to be easy.

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[1] Note: We consider *overall progress* to be a multidimensional variable that captures aspects such as engagement into PhD research, as well as time to complete a PhD project.

In the topical domain of "Governance", this program can be considered as one of the forerunners. Generally, PhD programs with a more professional focus have emerged in the last decade, mainly in Australia, USA and Ireland (e.g. Lester 2004; Loxley and Seery 2012; Pearson 2005). However, in the field of "Governance", and particularly in Europe, the supply of such programs remains very limited. The alternatives of full time study or working with a professor on an individual basis often were considered less desirable by the target group, due to high opportunity costs in the first scenario (having to leave the job completely and join a residential program) and high uncertainty (depending on the input of one academic counterpart and receiving little if any institutional support) in the second scenario.

When starting the program in 2007, we incorporated six weeks of residential workshops in Maastricht in year one, and two weeks of residential workshops in the subsequent years. We expected fellows to spend an average of 16 weeks full time workload in year one, drafting their PhD proposal and participating in the course program. In the subsequent years we built in two residential weeks a year and we expected the workload to be more variable, depending on the past education, skills, time availability and possibilities of the individual fellow to invest in the PhD. The program design contains five elements that in essence have continued from the start of the program onward with only minor changes over the years:

1. A basic training program in year one of the program, provided in Maastricht. The basic training program consists of three visiting periods of two weeks each. Course components are compulsory and can be assessed formally in case participants require official credits.
2. Two yearly workshops in all subsequent years to assist and monitor the research progress of the fellows and to integrate them into the research community of our institute. During these workshops, peer presentations are offered, as well as keynote lectures by senior researchers and master classes on selected topics.
3. A personal research program that guarantees flexibility at an individual level. More specifically, in order to adapt to the needs, skills, and qualifications of the researcher, three plenary presentation sessions of the proposal in year one, as well as a presentation of the research progress during every workshop in the subsequent years are foreseen. The personal program also allows those fellows whose proposals are approved within the first year to begin the higher year program during their first year.
4. Personal supervision and monitoring during the entire program by a supervisory team, staff members of the institute and expert researchers invited during the residential workshops.
5. A dedicated CoL that allows participants to stay connected while being at home, access learning materials, receive (logistical) support, as well as collaboratively engage in various learning modules.

As the focus of this chapter is on CoL and how they can contribute to the dual career PhD program, the next section will begin by introducing the concept of CoL in general terms, before providing a more detailed description of the designed and implemented CoL in our specific case.

9.2   Communities of Learning for (Doctoral) Education

9.2.1   General

In the context of online learning communities, Communities of Practice (CoP) belong to the most popular e-Learning methodologies that have been developed in the field of (professional) training in recent years (Allan and Lewis 2006). Conceptualized by Lave and Wenger (1991), CoP constitute "*groups of people who share a concern, set of problems or 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). The main attributes of CoP are that, although they might be externally initiated, they tend to develop organically over time. Additionally, they are not subject to clearly defined boundaries, e.g., with respect to time and membership, and they provide a high degree of participatory freedom. Numerous examples demonstrate their value to organizations (Wenger et al. 2002), yet scholars have argued that CoP cannot easily be converted into a context for formal learning (Fowler and Mayes 1999). Instead, formal learning programs violate the three main attributes of CoP described above, as they have a specific purpose, limitations on timeframe and group membership, and limited participatory freedom (Nachmias et al. 2000).

Following this train of thought, the notion of *Community of Learning* (CoL) has begun to emerge (Stacey et al. 2004). The main additions and adjustments of this approach, compared to CoP, can be categorized into three aspects. First, a CoL acknowledges that formal learning requires a certain amount of structure, so as to work effectively and yield the envisioned learning results. Otherwise, participants can easily be diverted by other commitments and obligations, resulting in lower levels of activity and performance. Second, CoL are specifically monitored and facilitated by dedicated supporting staff, adding another dimension of structure and support that is of vital importance for online training activities (Garrison et al. 1999). Finally, and particularly important for formal learning programs, activities and outputs of participants are monitored, validated, and assessed in order to safeguard the quality of the learning process and to legitimize all diplomas and degrees.

Based on the growing importance and popularity of online communities, a considerable amount of research has investigated their main characteristics (e.g. Stacey et al. 2004; Alavi et al. 2005; Roblyer and Wiencke 2003). While these studies contribute to our understanding of how to best design and implement online communities, considerable uncertainty remains about their impact on learning outcomes. More specifically, some studies yielded opposing findings on how learning outcomes can vary based on the composition of online learning communities (Bernard and Rojo de Rubalcava 2000). Furthermore, Järvelä and colleagues (2008) argue that online training is more complex and demanding for learners than participating in a face-to-face environment, leading participants to react differently to online learning. Moreover, as has been indicated in the previous section, much uncertainty remains about how to effectively construct a meaningful CoL for the *new type of PhDs*, namely working professionals who have started a (part-time) PhD trajectory.

Previous research on the topic suggests that it is not as straight-forward as merely departing from what we already know about *regular PhDs* and other, similar groups of individuals (e.g., Bachelor and Master students). More specifically, research has revealed considerable differences in the activity patterns (Rehm et al. 2009), as well as behavior towards facilitators (Rehm et al. 2012) between regular students and working professionals. Additionally, interviews by Caffarella and Barnett (2000) with doctoral students in an educational leadership program in the United States revealed that collaboratively engaging into discussions about each other's work (e.g. PhD proposals) can create apprehension and an emotional atmosphere among students. The authors summarized: " *[…] receiving critiques was 'scary … like an intellectual striptease'. 'Frustration' is probably the best word to describe some of the students' feelings […].*" (p. 46). Similarly, Malfroy (2005) stipulated that working professionals might feel vulnerable when presenting their work in an academic setting as it fails to provide them with the same degree of authority and leadership they experience in their daily work. In the classroom they might feel a certain loss of control as they listen and respond to feedback and possibly critique, instead of being the party that issues such type of information. Hence an investigation of the social context of online learning in relation to behavior and performance of individual participants has been proposed (e.g. de Laat and Lally 2003).

9.2.2 Main Characteristics of CoL

Overall, six main characteristics of CoL can be identified that make them an appealing option for teaching the *new type of PhDs* (e.g. Amin and Roberts 2006; Rienties et al. 2006). First, CoL allow for an *open dialogue* among members. During these conversations, individuals are subjected not only to the views of their (academic) supervisors, but also the insights and thoughts of their research fellows. This creates a valuable atmosphere where everybody can contribute to each other's learning process Second, as the *new type of PhDs* must balance their research with other obligations, they require a high degree of *flexibility* in terms of how and when they are expected to contribute to the community and show progress in their PhD. This is an inherent characteristic of working professionals, who will remain a vibrant part of their working environments during their studies. Hence, in order to cater to such circumstances, CoL provide continuous access to all information and (collaborative) learning activities on an ongoing basis. This allows individuals to remain active in the CoL and continue their research irrespective of time and place. Third, CoL provide both *public and private community* spaces. By means of public spaces an overall exchange of knowledge can be stimulated. Within the private spaces, individuals can engage in more social discourse, which contributes to a feeling of *commonality* (Hung and Der-Thanq 2001). As a result, participants can more easily establish and strengthen personal ties with their peers and identify the general purpose of collaborating with fellow researchers (Gannon-Leary and Fontainha 2007). Fourth, CoL include spaces for *informal discussions*, where individuals get to know

each other better and stay connected. These informal discussions substantially contribute to the success of CoL as they create a sense of belonging and trust between the affected actors (Gannon-Leary and Fontainha 2007). Fifth, CoL stimulate the interaction between participants via the *intensive use of communication* tools, such as discussion forums, in order to bridge the geographical distance between them (Hung and Der-Thanq 2001). This not only aids the dialogue between individuals themselves, but also enhances the communication with (academic) supervisors. Finally, individuals always receive *rapid feedback*, which enhances the interaction between all members of CoL, as well as the overall performance of the individuals.

9.2.3 CoL Within the GPAC² Program

Figure 9.1 provides an overview of the implementation of CoL in the context of the GPAC² program. It was developed as an all-encompassing community, accessible throughout participants' PhD trajectory at the institute.

9.2.3.1 Pre – PhD

Once an applicant is officially accepted and enrolled into the PhD program, the learner has access to various components of the CoL that are specifically designed to provide general information and to *get acquainted* with the Institute. The CoL includes short biographies of the other PhD fellows in the program, as well as the overall type and level of research being conducted at the Institute. The CoL also provides some introductory reading materials. This introductory part of the CoL
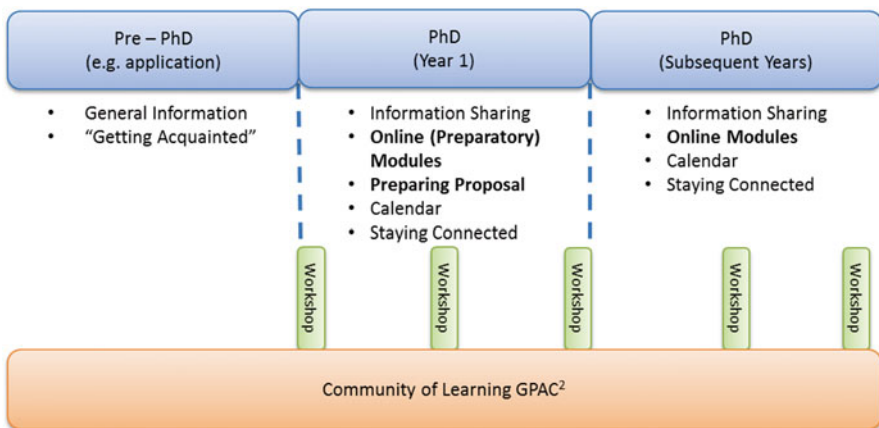

Fig. 9.1 Schematic overview of the CoL of the GPAC² program

is meant to contribute to the creation of a sense of belonging and trust among all parties (Becher 1994), so that they feel comfortable and welcome in their new environment. The underlying notion of introducing the overall type and level of research at the Institute is to facilitate a process of identifying *like-minded* researchers, who might be working on a similar topic or using a similar methodology. Incoming PhD fellows can thereby see who might be able to help them along their research trajectory. In practice, these considerations were given form by means of a dedicated blog, which is also available to all other members of the Institute and acts as a growing repository of relevant information and materials. More specifically, the blog hosts entries on podcasts and other multimedia resources, working papers, and reports from interesting workshops and conferences that have been attended by the Institute staff.

9.2.3.2   PhD (Year 1)

If an applicant is accepted and enrolled to the GPAC[2] program, the first year is oriented towards developing, writing and defending the PhD proposal. At this point the fellow either continues toward the second year or his affiliation with the Institute. Here, an important building block is not only to prepare the actual proposal, but also to acquire all necessary knowledge and skills that are needed to compose a comprehensive and convincing proposal. In terms of logistics, year one starts with a two week face-to-face workshop on-campus, followed by lengthy periods off-campus (on average three to four months). During the periods between workshops, all fellows have access to a virtual learning platform that hosts various types of information and learning activities. During the workshops, fellows are directed to the platform and encouraged to participate individually in targeted activities. Furthermore, as is depicted in Fig. 9.1, the first and subsequent later years are interspersed by two additional workshops, which allows not only for a more direct communication between fellows and staff, but also adds to the feeling of "*commonality*" (Hung and Der-Thanq 2001, p. 7). During the periods off-campus, fellows can stay connected with colleagues and staff, share information, and access a calendar of upcoming events and submission deadlines as well as online preparatory modules. The modules are particularly important for the *new type of PhDs* because, on average, quite some time has elapsed since they last participated in higher education. Hence, the majority of fellows must re-acclimate to the student role. Furthermore, empirical evidence suggests the validity of an (organizational) stereotype that as individuals move up the hierarchical ladder, their knowledge and understanding of factual information fades (Cross et al. 2001). Consequently, fellows with considerable work experience and tenure might need a refresher on certain topic domains. Additionally, because the GPAC[2] program has a strong international and multidisciplinary nature, it attracts fellows from different backgrounds and nationalities. Depending on their individual background (e.g., education, training and experience), the modules can be regarded either as *refreshers* or as remedial training modules that address gaps in prior knowledge.

The CoL modules deal with the basic content domains covered by the Institute and constitute, to one degree or another, vital elements of fellows' upcoming PhD research. Main areas covered are (i) Political Science, (ii) Governance, (iii) Economics, and (iv) Mathematics & Statistics. All modules build upon six main CoL characteristics, namely open dialogue, flexible levels of participation, public and private community spaces, spaces for informal discussions, intensive use of communication, and rapid feedback (Amin and Roberts 2006; Rehm 2009, 2013). Additionally, this arrangement is complemented by the online remedial teaching model developed by Rienties and colleagues (2006), which stresses the importance of ensuring access to learning materials and activities anytime anywhere, as well as well as providing timely responses to student inquiries. However, with these modules a distinction is made between modules (i), (ii) and (iii), which are offered in a collaborative learning setting, while (iv) is provided as self-paced training items. In the collaborative approach, fellows engage into discussions of real-life tasks via asynchronous forums, while they study the literature mainly independently and submit assignments to staff members for module (iv). Additionally, throughout the first year, fellows are required to submit and share drafts of their PhD proposal via a discussion forum, in which they can exchange feedback with their peers and hear from their (potential) supervisors and the GPAC[2] coordination team.

In terms of the design and layout of the virtual learning platform, we combine the needs and requirements of the program's coordination team with the needs and preferences of the fellows. This approach is promoted as creating a sense of ownership among fellows contributes to their willingness to engage in (joint) activities, thereby fostering higher levels of learning (e.g. Soares 2008). Additionally, when creating an online portal, researchers have advocated for the concept of "*perpetual beta*" (Procter et al. 2010, p. 46), which refers to remaining flexible and recognizing that the current status quo is not an endpoint. Consequently, the primary CoL activities of GPAC[2] have been hosted on various platforms and adjusted over the course of the CoL's existence.

9.2.3.3 PhD (Subsequent Years)

Once a proposal and its defense receive a positive evaluation, which takes place in the context of a face-to-face workshop or at the end of the first year, the fellow is approved to proceed to year two. The basic arrangement of year one continues unchanged, with access to information such as calendar items, preparatory materials for the face-to-face workshops and all upcoming events and submission deadlines. Expectations for regular submission of drafts to the CoL for feedback adds a recurring element of structure to help fellows *stay on track* along their trajectory.

However, the focus of the learning materials and activities within the CoL is altered somewhat to cater to the changing needs and requirements of fellows, supervisors and the coordination team. For example, instead of dealing primarily with refreshers of relevant content domains or remediation, the CoL now offers two additional types of (learning) materials. First, it provides more detailed and specialized

materials, which have a closer connection to the actual research being conducted, in comparison to the more *introductory level* online modules provided in year one. Second, more input is provided on what could be described as *generic research skills*. The underlying justification, particularly for the latter content, relates to prior experience with the challenges faced by fellows in the past. More specifically, faculty are often surprised to discover that (new) graduate students are not yet able to write and think like scholars. According to Caffarella and Barnett (2000) "*[t]his problem is particularly evident in professional schools in which many doctoral students [...] are full-time practitioners with very demanding schedules and precious little time for research and writing*" (p. 39). Additionally, Becher (1994) suggests that the exchange and collaboration within interdisciplinary contexts can be stimulated and supported by acknowledging the commonalities between the different domains. In the context of this chapter, we interpret commonality as all generic knowledge artifacts and skills that are applicable across academic disciplines (e.g. Political Science, Governance, and Economics). More specifically, this concept can include knowledge and experience about how to search and archive one's literature, statistical software packages, techniques to analyze qualitative data, or powerful typesetting tools. While there does exist an *underground market* for this type of information, mainly building upon emailing-lists and direct connections with personal acquaintances, incorporating this information within a CoL can contribute greatly to the collection and exchange of applicable knowledge and experience. Furthermore, it enables CoL members to tap into the tacit knowledge and skills of their colleagues, make it publicly available and showcase their efforts to create an inspiring research climate.

9.3   Method

9.3.1   Setting

The GPAC[2] Program was developed in response to a demand in the mid/career professional market and from inception has been flexible in structure in order to identify and serve needs of participants. The online support element was established at the outset in 2007. However, its importance increased when the CoL development became part of a larger three year project at Maastricht University, piloting innovative learning approaches by faculty to inform organizational practice. The underlying CoL constituted part of a larger effort to promote the creation of an international Community for Occupational Opportunities and Lifelong Learning (iCOOL). The underlying thought was to facilitate the interaction between theory (e.g. students, PhDs, academic staff) and practice (e.g. working professionals, international organizations), as well as to gain valuable insights into the needs and requirements of working professionals, which in turn would enable offering more flexible and targeted training programs for this specific type of learner. The CoL within the frame of that effort was initiated in September 2009. This chapter analyzes the CoL from inception (September 2009) through August 2013. Within this timeframe, all

indicated activities and materials were developed and implemented in a systematic way. More specifically, in the case of the four online modules, each module was implemented three times for discrete GPAC[2] cohorts, to enable a feedback loop for continuous improvement. Furthermore, adhering to the principle of "*perpetual beta*" (Procter et al. 2010, p. 46), the main CoL activities have been hosted on various platforms (e.g. Microsoft SharePoint® and Blackboard®) that have changed over the course of the CoL's existence.

9.3.2 Participants

Overall, 99 participants have been accepted and enrolled in the dual career PhD program at the Maastricht Graduate School of Governance. These participants are spread over seven cohorts, one cohort for each year since 2007, when the GPAC[2] program was initiated. The average age at enrollment is 42.77 (SD = 8.12, range = 27–61) and 43.56 % of participants are female. Overall, 45 different nationalities from across the globe are represented. All participants must hold at least one Master's degree from content domains such as Public Policy, Business Administration, International Development, Urban and Regional planning, and Public Health.

9.4 Instruments

9.4.1 User Statistics

In accordance with previous research, we assessed the amount of activity for the different component parts within the CoL by analyzing user statistics. Blog usage could be measured only anonymously, because this part of the CoL fellows was accessible to a larger group of individuals, including staff members and full time PhD fellows; and the blog was available before fellows were provided with unique usernames. In the context of the different virtual learning platforms that have been used over the duration of the GPAC[2] program, we were able to measure individualized data. More specifically, we assessed the frequency with which each fellow logged into the system, as well as the areas of the CoL that were visited.[2] This approach provides valuable insights into the behavior of fellows without

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[2] Note: The particular component parts of the CoL were (i) PhD Work (e.g. including PhD proposal, chapter, working papers); (ii) Discussion Boards (e.g. to exchange general information or post inquiries); (iii) Content Materials (e.g. readings, video-recordings, online resources); (iv) Online Modules (e.g. *refreshers* or *remedial teaching modules*); (v) Face-to-Face Preparations (e.g. agenda, general logistics, required readings); (vi) Experience from Previous Cohort(s) (e.g. anecdotes and tips from experienced fellows and how they combine their research with their other obligations).

interrupting the actual learning process (Zembylas and Vrasidas 2007). For the purpose of this chapter, we focus on the latest version of the CoL because it is available to all cohorts and therefore constitutes a type of catch-all platform, where all participants are simultaneously reached. Additionally, we also account for the overall progress of fellows by including two proxies. First, we consider their current status, which constitutes a categorical variable that could assume the values of 0 (stopped), 1 (in progress) and 2 (completed), measured at the time of this study. For the purpose of this study, we include both fellows that *stopped* (either by choice or because the program committee did not accept their proposal) and *completed* (submitted and successfully defended their PhD), since members of both groups during their active GPAC^2 trajectory have been exposed to the CoL. We are interested in whether and to what degree we would find a correlation between participation in the CoL and the applicable progress of individuals. Second, we compute the *attendance rates* at workshops. This measure constitutes the degree to which participants have attended all available workshops in year one and thereafter. The purpose of this item is to assess the general engagement of fellows in their PhD, which might account for part of their activity within the CoL.

9.4.2   Correlation Analysis

Testing for the normality of the data's distribution revealed a violation of the parametric assumption (e.g., normally distributed data and homogeneity of variance) for all measured variables. Consequently, we used Spearman's rho (r_s) to determine correlations on an individual as well as cohort level.

9.4.3   Focus Group Meetings

Focus groups have been employed to gather first-hand information and experiences from fellows on a certain topic or activity (e.g. Onwuegbuzie et al. 2009). More specifically, focus groups have been found to "*help in facilitating access to 'tacit, uncodified and experiential knowledge', as well as the opinions and meanings of the participants*" (Hopkins 2007, pp. 528–529). In the context of the research at hand, a series of focus groups has been conducted for all applicable cohorts. Each focus group was conducted by an external and independent interviewer in order to maximize objectivity. These meetings were recorded. Additionally, following a semi-structured approach, the interviewer guided the focus group with a number of *starting questions* and then encouraged fellows to openly share their views, preferences and experiences (Martinovic and Zhang 2012). Fellows were informed in advance about the purpose and setting of the meeting. Furthermore, they were given a summary of the focus group and an opportunity to contribute additional comments and feedback. The recordings were transcribed prior to analysis of the data.

9.4.4   Triangulation

We accessed various sources to gain information on the functioning of the program. Every workshop is evaluated in a focus group and by means of an online evaluation form. In addition, the frequent interaction between fellows and the management and coordinators generates information for evaluating the CoL. These materials as well as the general program management documents were used to triangulate our findings and reach a full understanding of the role of the CoL.

9.5   Results

9.5.1   Blog

Two hundred ninety blog entries were posted, attracting an average of 93 views. On closer inspection of the user statistics (Fig. 9.2), a number of posts stand out. In the case of (1), the entry was posted by a full-time PhD fellow who attended reputable conferences. This post described the conference and summarized the main issues
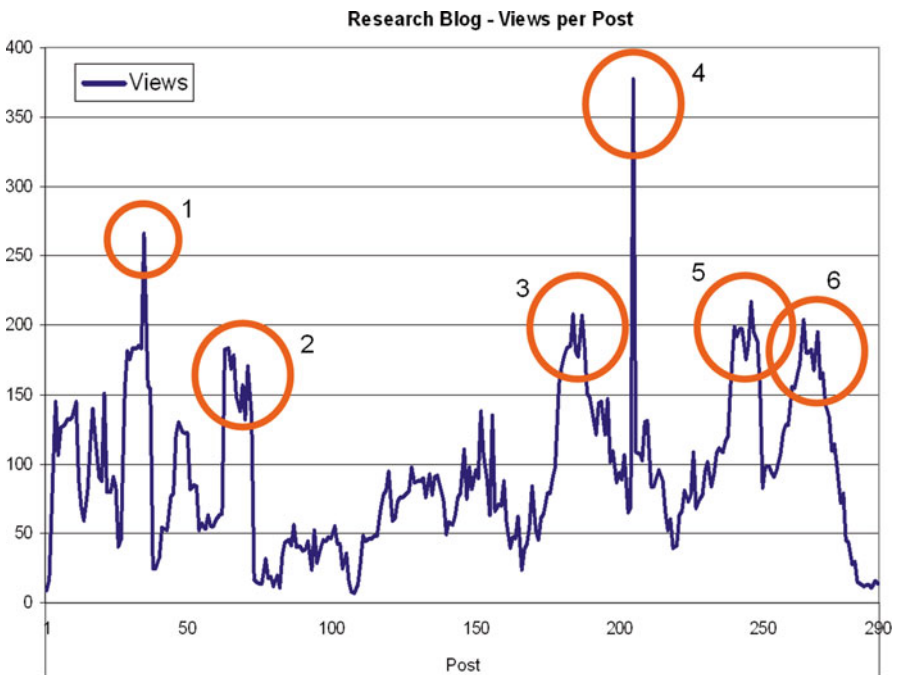

Fig. 9.2   Blog: User Statistics. *1* conference report, *2* working papers, *3* seminar podcast, *4* workshop/conference, *5* seminar podcast, *6* workshop/conference

covered by the keynote speakers. The peaks at (3) and (5) reflect notices of newly available podcasts recorded as part of the Institute's seminar series. In both instances the podcasts featured talks from renown experts from reputable, global organizations (e.g. OECD) that shared their thoughts and views in their field. Peak (2) related to the provision of a range of new working papers by members of the Institutes' research staff. Finally, peaks (4) and (6) depict conference and workshop announcements in research fields that are of interest for a large group of researchers at the Institutes.

9.5.2 Virtual Learning Platform

As previously indicated, this chapter will focus on the latest version of the CoL.

Fellows visited the virtual learning platform regularly. More specifically, since the launch of the latest version, fellows have spent on average 35.45 h within the system. However, a considerable amount of variation exists between fellows and cohorts, which is highlighted by a standard deviation of 56.21 and a spread ranging from not having accessed the platform at all to having spent 263.38 h in the system. Examining the distribution through the week, which is represented in Fig. 9.3 below, reveals a clear tendency to use the platform on Mondays. While the remaining days of the regular working week exhibit similar traffic, fellows *take the weekend off*. A careful examination of the component parts of the CoL that attract the most visits from fellows Table 9.1 shows that the *Face-to-Face Preparations* have by far been the most visited part of the CoL, followed by *PhD Proposals*, *Online Modules* and *Discussion Boards*. Yet while the most frequently used parts of the CoL include *Online Modules*, the total level of activity falls considerably short of expectations, inasmuch as this particular activity comprises a crucial aspect of community.

Interestingly, a positive overall relationship seemed to emerge between the cohort in which fellows are enrolled and their level of activity in any of the provided component parts of the CoL. Table 9.2 below summarizes the applicable results of a correlation analysis. From the Table it is evident that there is indeed a significant difference between the GPAC[2] cohorts and their engagement in the CoL. More specifically, as PhD fellows progress in their trajectory and move closer to the completion of their dissertation, they spent less time in the CoL. Alternatively, fellows who have just begun their PhD seem very interested in making effective use of the platform and the materials and activities offered. Also, cohorts that started later, when the CoL had been modified a number of times and perhaps suited their needs better, spent more time in the CoL. In addition, Table 9.2 also provides some preliminary insights on how the overall progress of fellows might have affected their level of activity within the CoL. When considering the applicable correlation coefficients, there is evidence for a significant positive relationship between both measures of progress, namely *Status* (r_s=.36, p<.01) and *Attendance Rate* (r_s=.40, p<.05) and the overall level of participant activity within the CoL. Interestingly, this observation includes neither engagement in the *Online Modules* nor usage of the *Content Materials*.
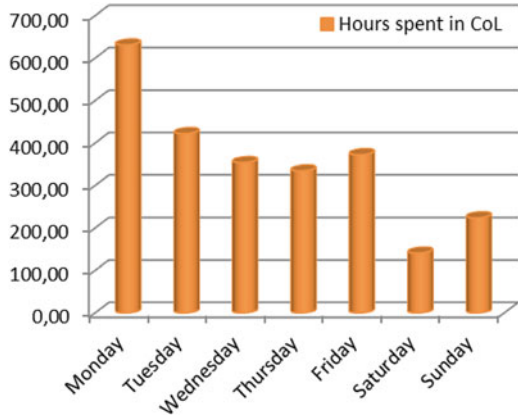
Fig. 9.3 Total hours spent in CoL

Table 9.1 Average number of visits per CoL topic area (within the latest platform used)

CoL activity						
Cohort	PhD work	Discussion boards	Content materials	Online modules	Face-to-face preparations	Experience from previous cohort(s)
2007	3.00	2.00	0.00	1.00	21.00	1.00
2008	1.00	0.00	0.00	0.00	0.33	0.00
2009	7.00	0.75	0.00	0.00	15.25	0.75
2010	1.25	2.75	0.25	0.13	5.88	2.38
2011	0.71	0.57	0.00	0.00	8.86	2.00
2012	16.07	5.60	1.00	4.40	50.27	3.07
2013	65.47	37.59	5.29	69.53	445.94	8.71
Total	25.51	13.71	1.95	22.73	155.04	4.20

Table 9.2 Correlation coefficients for GPAC[2] cohorts, fellows' progress and component parts of CoL

CoL		1	2	3	4	5	6	7	8	9	10
1	Cohort	1									
2	Status	.48**	1								
3	Attendance rate	.04	.29**	1							
4	CoL – PhD proposals	.70**	.34*	.26	1						
5	CoL – discussion boards	.59**	.35**	.49**	.66**	1					
6	CoL – content materials	.67**	.19	.02	.66**	.55**	1				
7	CoL – online modules	.77**	.19	.16	.75**	.57**	.88**	1			
8	CoL – face-to-face preparations	.79**	.32*	.35*	.83**	.79**	.76**	.83**	1		
9	CoL – experience from previous cohorts	.51**	.32*	.52**	.69**	.66**	.49**	.57**	.66**	1	
10	CoL – overall activity	.77**	.36**	.40*	.90**	.81**	.75**	.83**	.98**	.73**	1

*p<.05; **p<.01

9.5.3 Focus Group Meetings

The focus groups were conducted on a regular basis at the conclusion of every face-to-face workshop, when fellows were on campus. To ensure the collection of comments, feedback and suggestions for a broad collection of items, these sessions addressed broad domains, namely the technology being used and the content provided.

9.5.3.1 Technology

Generally, fellows prefer to be updated as soon as new information is available and preferably only on issues and topics that are directly related to their PhD. If possible, the updates should be distributed via (at least) two commonly used channels, namely email and mobile devices (e.g. smartphones). Additionally, fellows clearly indicate that irrespective of the actual system being used they would prefer an approach that (i) does not require logging in, (ii) is easy to learn, and (iii) helps in tracing and organizing relevant information. On being asked how the current setup meets these specifications, participants express strong agreement that the blog makes a valuable contribution to the CoL, as it is easily accessible and provides relevant information in formats that are accessible via various formats and devices. Concerning the virtual learning platform, fellows cite concerns about the current level of flexibility and user-friendliness. While representatives from earlier cohorts, who also experienced the preceding platforms, reported some improvements, particularly with receiving just-in-time information and updates, they also called for more interactive communication tools such as web-videoconferencing that include screen sharing facilities. Furthermore, fellows expressed their wish to *personalize the environment*, including the ability to enable or disable certain building blocks and information sources. Finally, interviewees called for a more tailor-made approach to the already available *private communication channels*. In the current setup, fellows can request a dedicated sub-group, in which they can communicate and share information with a selected group of individuals. This feature constituted a valued part of the CoL. However, fellows would like to move towards a more self-organizing, organic form of creating and maintaining these groups, whereby they can manually hand-pick applicable colleagues without any support from staff.

9.5.3.2 Content

The interviewees clearly indicated that all content, including the online modules, was appreciated. The fellows acknowledged that, considering that the online modules were provided repeatedly over the years, their comments were carefully considered when (re)designing and implementing the modules, contributing to a more pleasant and relevant learning experience that takes into account their family obligations and work duties. Additionally, fellows indicated that the online modules

enabled them to enhance their knowledge and skills in the applicable topic domains. They appreciated positive showcases, both in terms of *PhD Proposals* from colleagues, as well as *Experience from Previous Cohorts*, as these provide valuable guidance and incentives to continue their own research. Finally, interviewees generally acknowledged the added-value of participating in a CoL during their PhD trajectory.

Nonetheless, they also shared some critique and suggestions for improvement. While the learning materials link theory and practice by providing real-life tasks and assignments, fellows identified room for continued improvement through the provision of additional possibilities to apply the newly gained knowledge to their actual environments. More specifically, interviewees suggested more attention to the creation of content that is directly related to the specific topics and requirements of the fellows, in effect offering tailor-made training activities. Fellows acknowledged their lack of collaboration amongst themselves during the online modules, which they attributed to a certain *vicious circle*. As one interviewee formulated it: *"Nobody else seemed to start a discussion, so I also did not feel the need to start off"*. In order to circumvent these perceptions and developments, the fellows called for an even stronger commitment of (supporting) staff to proactively guide and facilitate them while they are off campus. They suggested that this commitment could take the form of emphasizing the importance of collaboration while off campus, as well as communicating clear(er) deadlines and meeting regularly with staff via real-time communication channels (e.g. web-conferencing). Alternatively, another recurring suggestion relates to the overall format of the online modules. More specifically, rather than providing a clear structure and guided discussions, some fellows proposed a more flexible approach. Here, fellows would have access to a general pool of relevant information that they can access in their own time, while at the same time having the possibility to post questions and answers to colleagues via a discussion board, again at their own discretion. Finally, the interviewed GPAC[2] fellows indicated that they would like to be more closely embedded in the regular research community at the Institute. In order to move towards this goal, they suggested the introduction of dedicated research groups, in which everyone interested in topic A could share relevant information and engage in specific and detailed discussions about latest developments in the field. These research groups could then also serve as a platform to initiate joint research activities, in which part-time PhDs could (more directly) learn from more experienced colleagues, e.g., full-time PhDs.

9.6   Discussion

This chapter investigated how Communities of Learning (CoL) can contribute to the PhD trajectory of working professionals. In an effort to address this question and to contribute to the discussion on the topic in general, we first described how doctoral

education has increased in popularity in recent years amongst working profession-als, who are driven to update their knowledge and skills continuously (Gherardi and Nicolini 2000), and are embarking on PhD research as a means to take the next step in their careers (Pearson 1999). As a result, a *new type of PhDs* (Pearson et al. 2004) has emerged, with backgrounds that differ considerably from the *regular PhDs*, including on average higher age, tenured jobs and location off campus. Second, we highlighted the challenges identified in previous research on the *new type* of stu-dents. More specifically, taking into account that the majority of part-time PhDs have gained a considerable amount of job experience and tenure, we have argued that this factor will have "*a profound impact in altering traditional hierarchical models of [supervisor/student]*" (Malfroy 2005, p. 166), which are yet to be fully accounted for in practice. Additionally, scholars such as Pearson and colleagues (2004) concluded in their work that "*not only is the 'traditional' model of a Ph.D. student inadequate to conceptualize contemporary doctoral education, but so is a model of the undergraduate student life cycle*" (p. 350). Third, we introduced the concept of Communities of Learning as a new and more flexible way of facilitating PhD research for working professionals. Next, we provided empirical evidence from an actual CoL, which has been specifically designed, implemented and facili-tated for the *new type of PhDs*, namely the part-time PhD fellows at a Dutch univer-sity. Based on transcribed focus group meetings with fellows, we have concluded that fellows generally appreciate the concept of CoL and that they recognize the added value of collaborative activities as part of their PhD experience. Our research also revealed a considerable level of activity among fellows, as assessed by user statistics, within the context of a dedicated blog and a virtual learning platform. However, while one of the main goals of the CoL was to promote the collaborative exchange of insights, knowledge and experiences, this particular aspect was not particularly pronounced in the investigated CoL. Fellows acknowledged this within the focus group meetings and suggested a range of possible adjustments to the cur-rent CoL structure and content that might enhance the communication and engage-ment of fellows. Among the most commonly mentioned suggestions was the inclusion of real-time web-videoconferencing facilities and the possibility to *per-sonalize the environment* to the needs and requirements of the individual fellow. Moreover, mirroring the finding of other scholars such as like Caffarella and Barnett (2000), who discovered that participants were hesitant to engage into open discus-sion because they thought it "*[…] was 'scary … like an intellectual striptease'.*" (p. 46), our data also suggested that fellows focused on retrieving information from the CoL and studying on their own within the CoL. In order to change this situation, interviewees proposed a more tailor-made supply of online modules, which focus specifically their research needs and requirements, as well as inclusion of clear(er) deadlines. Additionally, they envisioned a closer match between themselves and *regular researchers* at the Institute, for example by means of dedicated research groups in which interested parties could engage in discussions about detailed and specific issues of a certain topic.

Considering the quantitative and qualitative findings of this research, as well as the ongoing efforts to improve the PhD trajectory of working professionals, we suggest the following steps in order to enhance the learning experience for the *new type* of PhD fellows (i.e. part-time PhD fellows).

9.6.1 Continuous Availability of Online Modules

Instead of offering the online modules during predefined timeslots, and in a structured fashioned, the content should be available continuously for self-paced use. In order to cater to any questions that might come up in this process, a discussion forum, as well as a general help desk will then be available to fellows.

9.6.2 Research Groups

Full-time PhDs at the Institute are categorized into seven separate research groups, each covering a different aspect of the area in which the Institute is active. The dual career PhD fellows will be included in this categorization and will gain access to the groups' content areas. Moreover, in order to make the groups more interactive (in general), they will be provided with designated areas in the established virtual learning environment, as well as the created blog. This accounts for the call for an approach that is centered more on their actual research (proposals). Additionally, by effectively combining the two types of PhD groups, an effort is made to create a larger group of interested individuals, which in turn increases the chance of creating the critical mass required to foster a more vibrant community.

9.6.3 (Peer-) Feedback Platform

With the development of a feedback platform, the aim is to provide dual career PhDs with the opportunity to present their research in an online environment. This would take place in real-time, using webconferencing tools. The presentation will be offered to staff on campus with feedback immediately thereafter. Given the global nature of the community, the presentations will be recorded using screencasting tools in order to ensure that the general academic staff at the Institute, as well as other dual career PhDs, also have the opportunity to comment and provide feedback at any time convenient to them.

9.7 Limitations

The current research exhibits a few shortcomings that should be taken into account when interpreting the results. First, while we included all individuals accepted into the PhD program since 2007, the actual number of active participants (N = 17; 29.82 %) in the dedicated CoL still remains rather limited. Hence, any conclusions drawn from this work need to be validated with a larger sample, which would allow for a more thorough statistical analysis. Second, we focused on the latest version of the underlying virtual learning platform in use. We did so to construct a *catch-all* setting, wherein every fellow in the program has been subject to the same platform and environment. However, by selecting only our latest platform, we neglect the fact that earlier cohorts have also used three other platforms. Therefore we can estimate the effect of changes only by means of the focus groups, rather than by statistical data. Consequently, future research should also delve more into the available data on the other platforms, in order to attain a more complete picture of how different forms and layouts of CoL can contribute to the dual career PhD trajectory of working professionals. Finally, future research should consider moving beyond the analysis of user statistics to a content analysis (CA) of the underlying communication within the CoL. This approach is widely accepted for assessing the quality of learning processes and outcomes (de Laat and Lally 2003) and allows drawing a more refined picture of the actual level of content and knowledge that has been exchanged between participants.

9.8 Conclusions

When the dual career PhD program first started, we were unsure about the specific needs and requirements of participants, as well as how to best support them in their efforts to attain a PhD degree. During the first years, and prior to the active implementation of CoL, we learned that participants were very much focused on their individual research activities and collaborated with colleagues only in the event it was strictly required. A possible explanation for this observed behavioral pattern is the very diverse backgrounds of participants. Coming from different disciplines and being subject to different job obligations and family settings, participants experienced difficulties in finding a *common ground* that would have allowed them to more easily engage into collaborative communication. Additionally, some fellows were more intrinsically motivated and did not require collaborative activities, i.e. within CoL, to further stimulate their research activities. In contrast, other individuals attended only the face-to-face workshops and neglected all other activities of the program while they were off campus. Finally, another group of participants was willing to join CoL and engage in collaborative activities with (supporting) staff, as well as fellow researchers. Yet these individuals, who could benefit most from joining CoL, were often hesitant at the beginning and required help and support to get

started. Consequently, we believe that the observed level of activity within CoL was driven mainly by participants, who were actively looking for support and not refraining from discussing this with (supporting) staff and fellow researchers.

Moreover, based on our experience with the CoL, we realized that the fellows disapproved of strict deadlines and requirements; they resulted in substantial attrition. This suggests that the new type of PhD is less driven by obligatory activities, or at least less stimulated to perform based on imposed requirements. This in turn should be taken into account for future CoL developments, through voluntary activities that offer clear direct benefits. Instead of employing deadlines and requirements, a different terminology should be used, with positive incentives for participants. Practically speaking, this could take on the form of providing more timely and elaborate feedback on submitted research drafts. On the one hand, those participants who upload their proposals on time (e.g. before a face-to-face workshop), will receive more attention from (supporting) staff. On the other hand, those participants who do not adhere to deadlines will not be negatively affected. Instead, they will simply benefit less from the available support. Finally, CoL for the *new type of PhDs* worked best, when offering flexible and tailor-made services and solutions to their need and requirements. Time is the most pressing factor for all participants. Hence, even the most efficient and intrinsically motivated PhD fellow might not utilize CoL, unless it offers the right services and activities at the right time, which is a continuous goal for organizers of such communities. While this can create considerable challenges for organizers and fellows alike, we believe that it will significantly improve the learning experience for the *new type of Phds* and contribute not only to their success, but also to the success of the providing universities and postgraduate research institutes.

References

Alavi, M., Kayworth, T. R., & Leidner, D. E. (2005). An empirical examination of the influence of organizational culture on knowledge management practices. *Journal of Management Information Systems, 22*(3), 191–224.

Allan, B., & Lewis, D. (2006). The impact of membership of a virtual learning community on individual learning careers and professional identity. *British Journal of Educational Technology, 37*(6), 841–852.

Amin, A., & Roberts, J. (2006). *Communities of practice: Varieties of situated learning'*. EU Network of Excellence Dynamics of Institutions and Markets in Europe (DIME).

Becher, T. (1994). The significance of disciplinary differences. *Studies in Higher Education, 19*(2), 151–161.

Bernard, R. M., & Rojo de Rubalcava, B. (2000). Collaborative online distance learning: Issues for future practice and research. *Distance Education, 21*(2), 260–277.

Caffarella, R. S., & Barnett, B. G. (2000). Teaching doctoral students to become scholarly writers: The importance of giving and receiving critiques. *Studies in Higher Education, 25*(1), 39–52. doi:10.1080/030750700116000.

Chalmers, L., & Keown, P. (2006). Communities of practice and professional development. *International Journal of Lifelong Education, 25*(2), 139–156.

Costley, C., & Lester, S. (2012). Work-based doctorates: Professional extension at the highest levels. *Studies in Higher Education, 37*(3), 257–269.

Cross, R., Borgatti, S. P., & Parker, A. (2001). Beyond answers: Dimensions of the advice network. *Social Networks, 23*(3), 215–235.

Cumming, J. (2010). Doctoral enterprise: A holistic conception of evolving practices and arrangements. *Studies in Higher Education, 35*(1), 25–39.

de Laat, M., & Lally, V. (2003). Complexity, theory and praxis: Researching collaborative learning and tutoring processes in a networked learning community. *Instructional Science, 31*(1–2), 7–39.

Fowler, C. J. H., & Mayes, J. T. (1999). Learning relationships from theory to design. *Association for Learning Technology Journal, 7*(3), 6–16.

Gannon-Leary, P., & Fontainha, E. (2007, September). Communities of practice and virtual learning communities: Benefits, barriers and success factors. *eLearning Papers*, p. 5.

Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*(2–3), 87–105.

Gherardi, S., & Nicolini, D. (2000). The organizational learning of safety in communities of practice. *Journal of Management Inquiry, 9*(1), 7–18.

Hopkins, P. E. (2007). Thinking critically and creatively about focus groups. *Area, 39*(4), 528–535. doi:10.1111/j.1475-4762.2007.00766.x.

Hung, D. W. L., & Der-Thanq, C. (2001). Situated cognition, Vygotskian thought and learning from the communities of practice perspective: Implications for the design of web-based learning. *Educational Media International, 38*(1), 3–12.

Järvelä, S., Järvenoja, H., & Veermans, M. (2008). Understanding the dynamics of motivation in socially shared learning. *International Journal of Educational Research, 47*(2), 122–135.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Lee, A., & Boud, D. (2003). Writing groups, change and academic identity: Research development as local practice. *Studies in Higher Education, 28*(2), 187–200. doi:10.1080/0307507032000058109.

Lester, S. (2004). Conceptualizing the practitioner doctorate. *Studies in Higher Education, 29*(6), 757–770.

Loxley, A., & Seery, A. (2012). The role of the professional doctorate in Ireland from the student perspective. *Studies in Higher Education, 37*(1), 3–17.

Malfroy, J. (2005). Doctoral supervision, workplace research and changing pedagogic practices. *Higher Education Research and Development, 24*(2), 165–178. doi:10.1080/07294360500062961.

Martinovic, D., & Zhang, Z. (2012). Situating ICT in the teacher education program: Overcoming challenges, fulfilling expectations. *Teaching and Teacher Education, 28*(3), 461–469. doi:10.1016/j.tate.2011.12.001.

Nachmias, R., Mioduser, D., Oren, A., & Ram, J. (2000). Web-supported emergent-collaboration in higher education courses. *Journal of Educational Technology and Society, 3*(3), 94–104.

Neumann, R. (2007). Policy and practice in doctoral education. *Studies in Higher Education, 32*(4), 459–473.

Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). Toward more rigor in focus group research: A new framework for collecting and analyzing focus group data. *International Journal of Qualitative Methods, 8*(3), 1–21.

Pearson, M. (1999). The changing environment for doctoral education in Australia: Implications for quality management, improvement and innovation. *Higher Education Research and Development, 18*(3), 269–287. doi:10.1080/0729436990180301.

Pearson, M. (2005). Framing research on doctoral education in Australia in a global context. *Higher Education Research and Development, 24*(2), 119–134. doi:10.1080/07294360500062870.

Pearson, M., Evans, T., & Macauley, P. (2004). The working life of doctoral students: Challenges for research education and training. *Studies in Continuing Education, 26*(3), 347–353. doi:10.1080/0158037042000265917.

Procter, R. N., Williams, R., & Stewart, J. (2010) *If you build it, will they come? How researchers perceive and use web 2.0*. London, UK: Research Network Information.

Rehm, M. (2009). Unified in learning – Separated by space: Case study on a global learning programme. *Industry and Higher Education, 23*(4), 331–341.

Rehm, M. (2013). *Unified yet separated – Empirical study on the impact of hierarchical positions within communities of learning*. Maastricht: Uitgeverij Boekenplan.

Rehm, M., Giesbers, B., & Rienties, B. (2009). Comparing communities of learning for incoming bachelor students & working professionals. In N. Brouwer, B. Giesbers, B. Rienties, & L. Van Gastel (Eds.), *Student mobility and ICT: Dimensions of transition* (pp. 143–150). Amsterdam: FEBA ERD Press.

Rehm, M., Galazka, A., Gijselaers, W., & Segers, M. (2012). *Managing communities of learning for working professionals: The impact and role of facilitators*. Paper presented at the EDiNEB 2012, Haarlem, The Netherlands.

Rienties, B., Tempelaar, D., Waterval, D., Rehm, M., & Gijselaers, W. (2006). Remedial online teaching on a summer course. *Industry and Higher Education, 20*(5), 327–336.

Roblyer, M. D., & Wiencke, W. R. (2003). Design and use of a rubric to assess and encourage interactive qualities in distance courses. *American Journal of Distance Education, 17*(2), 77–98.

Romsdahl, R. J., & Hill, M. J. (2012). Applying the learning community model to graduate education: Linking research and teaching between core courses. *Teaching in Higher Education, 17*(6), 722–734. doi:10.1080/13562517.2012.678325.

Smith, C., & Bath, D. (2006). The role of the learning community in the development of discipline knowledge and generic graduate outcomes. *Higher Education, 51*(2), 259–286. doi:10.2307/29734977.

Soares, D. (2008). Understanding class blogs as a tool for language development. *Language Teaching Research, 12*(4), 517–533. doi:10.1177/1362168808097165.

Stacey, E., Smith, P. J., & Barty, K. (2004). Adult learners in the workplace: Online learning and communities of practice. *Distance Education, 25*(1), 107–123.

Wenger, E., McDermott, R., & Snyder, W. M. (2002). *Cultivating communities of practice*. Boston: Harvard University Press.

Zembylas, M., & Vrasidas, C. (2007). Listening for silence in text-based, online encounters. *Distance Education, 28*(1), 5–24.

Chapter 10
Recommendations from Instructors for Adopting Successful Online Learning

Maike Gerken and Therese Grohnert

Educational organizations reside at the heart of a society characterized by continuous innovation. In order to fulfill their societal role, institutions of higher education must invest in innovation, both in terms of content and delivery. To reach new student populations, to facilitate flexible education integrated with other activities and to benefit from the latest technological developments, more and more universities are migrating from traditional face-to-face structures to online classes (The Sloan Consortium 2011).

This development is fueled by the needs of the increasingly diverse student population, and by insights from educational research. Online teaching offers exciting opportunities to create an engaging learning environment. Research showed that students preferred online learning for providing a clear structure of the course material, distributing information and more self-regulated learning (Paechter and Maier 2010) and perceived online courses as more difficult, yet of a higher quality compared to peers in a traditional course (Hannay and Newvine 2006).

Implementing online education requires universities to rethink the entire concept of a learning environment and to reorganize the dynamics of learning and instruction (Garrison and Kanuka 2004). During this process, from strategy to implementation, institutions rely on the most critical link: the instructor, who must be willing and able to develop and teach online courses (Clark-Ibáñez and Scott 2008). While instructors adapt their teaching approaches to online settings, they must be accorded the necessary knowledge and tools to manage the challenges of online teaching. Challenges include considerations of course design (Chin and Williams 2006; Graham 2006), learner engagement (Govindasamy 2002; Van Uden et al. 2014) and technological issues (Derntl and Motschnig-Pitrik 2005; Benson et al. 2011).

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The aim of this chapter is to examine the role of the instructor in transitioning from traditional face-to-face settings to online courses, and increase our understanding of the challenges they encounter. Through semi-structured interviews with experienced instructors of online courses, we derive a series of their recommendations addressing three key challenges for instructors: course design, learner engagement and technological issues.

10.1 Theoretical Framework

10.1.1 The Role of the Instructor in Teaching Online Courses

The combination and integration of new technologies and tools such as synchronous and asynchronous communication can lead to an effective learning experience, but instructors must reconsider their teaching and learning paradigm (Anderson and Elloumi 2004; Coppola et al. 2002; Koehler and Mishra 2010). Many of the skills known to be successful in traditional face-to-face settings do not apply to online courses and some instructors will unlearn certain teaching methods as they adopt new ones. In this respect, instructors occupy the central role in making fundamental changes to teaching and learning (Govindasamy 2002; Anderson and Elloumi 2004; Desai et al. 2009). Online courses are only as effective as their implementation and require an intensive preparation, planning, intentional design and attention to detail, which often are neglected in face-to-face teaching (Hinson and LaPrairie 2005; Conceicao 2006; Allen and Seaman 2013). This places a new demand on the instructor in the sense that they are faced with many considerations (Cowham et al. 2005; Schoonenboom 2014). Instructors must reconceptualize their teaching while shifting from a teacher-centred instruction to a more student-centred instruction when teaching online courses, thereby making substantial changes in their practice (Jaffee 2003; Pedersen and Liu 2003; Conrad 2004; Hinson and LaPrairie 2005; Tallent-Runnels et al. 2006; Conceicao 2006). Teacher-centred instruction starts with the instructor's agenda and methods and a greater instructor direction whereas student-centred instruction focuses on learner needs and goals (Barker 2003; Jaffee 2003). In addition, the instructor usually presents a central issue or problem during the online course and then functions as a facilitator and coordinator during the student learning process. This means that the learning responsibility is placed on the student and demands active participation, reflective thinking and online collaboration (Maor 2003).

In order to support the student learning process, instructors must focus on course design, learner engagement and technology when teaching online (Tallent-Runnels et al. 2006; McQuiggan 2012). Course design involves defining the learning outcomes and a strategy to reach these outcomes, as well as defining the content of the course (West et al. 2006). Learner engagement challenges include planning for the climate of the course as well as learner interaction and progress (Govindasamy

2002). Technology deals with the mechanical aspects of an online course and involves using the proper tools to support learning and training students to use these tools (Mishra and Koehler 2006). Researchers argue that the selection and coordination of the proper tools and methods is a central task for instructors, one that is necessary to meet the specified learning objectives for online courses to be effective (Savery 2005; Derntl and Motschnig-Pitrik 2005; Alvarez et al. 2009; Bawane and Spector 2009). The following section will elaborate on these factors.

10.1.2   Course Design Challenges

Compared to more traditional face-to-face classes, instructors of online classes face additional challenges both in the planning stage as well as during teaching (Mishra and Koehler 2006; Desai et al. 2009). The course must be tailored for online delivery, paying attention to the course layout, content and assignments so that learners are motivated to engage and collaborate (Limniou and Smith 2010). Literature on online course design and teaching have consistently highlighted the importance of adjusting the design to the specific circumstances or objectives of a course (Graham 2006), supporting the learning processes of students (Govindasamy 2002) and managing the technological demands of online classes (Derntl and Motschnig-Pitrik 2005; Benson et al. 2011). For example, instructors may favor certain tools but must match the tools to the course objectives to support the learning process (Bernard et al. 2004). Moreover, learning must be fostered through opportunities for active knowledge construction and reflection (Chin and Williams 2006). According to Koepke and O'Brien (2012) this can be facilitated by setting course goals and a detailed course plan at the beginning of the online course.

10.1.3   Learner Engagement Challenges

Instructors also must deliver a certain quality in online courses in order to enrich the learning experience for students. Several authors stress that the quality of an online course is associated with pedagogical considerations (e.g., Chin and Williams 2006; Govindasamy 2002; Mishra and Koehler 2006; Tallent-Runnels et al. 2006; Van Uden et al. 2014). These considerations include providing feedback, supporting students to connect and apply ideas, and motivating students to contribute (Anderson 2001). Greene and Land (2000) found that scaffolding questions from instructors as well as timely feedback in an online course helped students to better understand the online material and interact with each other. At the same time, interactions among students must be structured and monitored to become maximally meaningful to them (Garrison 2011). Dennen et al. (2007) found that if instructor expectations were not clear, learner engagement decreased because participants did not know

how to contribute to the course. Participants also cease to contribute if the instructor does not show involvement such as giving feedback (Xie et al. 2006). Govindasamy (2002) states that learner engagement is the most neglected aspect when implementing online courses, which might exert a direct influence on learners as they might avoid participation in the online courses or perform poorly. Moreover, the quality of the online course content could deteriorate without proper attention to learner engagement. Therefore, the instructors' expertise in pedagogical principles is essential to avoid frustration and that can turn online learning into an effective learning experience (Govindasamy 2002; Koehler and Mishra 2010).

10.1.4 Technology Challenges

Next to course design and learner engagement, the effectiveness of online courses depends on the use of technological tools (Anderson and Elloumi 2004). Instructors sometimes are overwhelmed with the variety of tools offered for online courses. Instructors should ensure that the technology fosters learning by selecting the right tools. In addition, students should not be distracted by technological issues and concentrate on learning (Tan et al. 2010). However, Derntl and Motschnig-Pitrik (2005) assert that in many cases instructors lack the required technical skills and expertise as well as time and incentive to select and use the appropriate tools. They teach their first online course without prior training or knowledge, simply adding tools and neglecting the need to use pedagogical principles to restructure the course design knowledge (Barker 2003; Derntl and Motschnig-Pitrik 2005). The online course content often determines the use of certain tools (Kinchin 2012) and proper use of these tools must be mastered (Anderson 2001; Grosse 2004; Anderson and Elloumi 2004). Benson et al. (2011) states that most instructors see technology as a simple way of organizing and managing information online. Furthermore, instructors and students often experience technical problems (Tallent-Runnels et al. 2006) that limit student contribution (Hummel et al. 2005).

10.1.5 Research Questions

In line with these findings, this chapter highlights three specific challenges to teaching online: course design considerations, learner engagement considerations and technical support, and aims to give insights that benefit and inform online instructors. Therefore, we propose the following research questions:

RQ 1: How can online courses be designed to facilitate student learning?
RQ 2: How can instructors support interaction and assignment completion in learners?
RQ 3: How can instructors manage the technological component of online courses?

10.2   Methods

10.2.1   Sample

Eight instructors from a mid-sized European university participated in this study, teaching online and blended courses in the domains of law, policy design, social psychology, medical health sciences and accounting. On average, instructors had 13 years of teaching experience in the online, blended, and offline modes.

10.2.2   Data Collection and Analysis

Qualitative data were collected from the instructors in the form of semi-structured interviews. Instructors were asked about their previous experiences and challenges in teaching online courses. All interviews were recorded, transcribed and coded using MAXQDA qualitative data analysis software. Statements were chosen as a basic unit of analysis (Minichiello et al. 1990) and direct content analysis was used to structure the statements based on findings from literature (Hsieh and Shannon 2005). The resulting approaches from instructors were grouped according to the three main challenges identified: course design, learner engagement, and technical support.

10.3   Results

RQ1: How can online courses be designed to facilitate student learning?

In the semi-structured interviews, all eight instructors commented on the need to pay attention to the differences between face-to-face and online course design. Specifically, they emphasized the need to structure the composition of the learning group, the need to support flexibility, to facilitate interaction and to structure assessments in a way conducive to teaching online, both synchronously and asynchronously. Table 10.1 summarizes the challenges and recommendations of online course design.

"It is all about matching expectations from faculty and students," said one instructor, and according to the insights shared by participants, several dimensions apply to these expectations. Firstly, learners within one setting should share the same expectations in terms of purpose (e.g. certification vs. voluntary participation). Instructors can manage these groups more easily, due to the group's shared goals. Secondly, both students and instructors need to be flexible in their activities and plan accordingly. This might mean a different timeframe for instructors, who may be used to fixed times during which students might be expected to be available for learning (e.g., Monday to Friday, 8 am to 6 pm). Instead, learners with competing time demands may prefer to study during evenings or on weekends. Participants

Table 10.1 Challenges and recommendations of online course design

Challenges	Recommendations
Selecting learners	All learners must have the same pre-conditions for enrolling in a course (e.g. mandatory vs. voluntary participation)
	Create small groups of 3–10 students
Supporting flexibility	Agree with your students which days/times they prefer
	Make asynchronous materials available for long time spans
	Offer multiple time slots for synchronous activities
Facilitating interaction	If possible, meet face-to-face with your students before the course begins
	Instructors and students should share a picture/webcam image with the group
	Use multiple channels of communication to convey information
Structuring assessment	Announce deadlines very early, and set them for Monday morning, allowing professionals to work on the weekend
	Frequent assignments/meetings allow the instructor to monitor progress
	Provide direct feedback to individual learners and the group (e.g., respond to student demands within 24 h)
	Communicate task structures and deadlines visually

gave three specific recommendations to accommodate these demands. First, instructors and learners should become aware of times when both sides are available for learning. Together, agreements can be made on when learners and instructors can engage in either synchronous or asynchronous learning activities. To support flexibility, asynchronous materials should be made available for extended time periods, and deadlines should be announced in advance. Synchronous activities on the other hand were successfully offered in multiple time slots, maximizing accessibility. One instructor specifically focused on the importance of combining different channels and modes of communication:

> Synchronous moments can be good to motivate people to keep going. But when you are working with professionals or people that are hard to reach, you will not be able to have these kinds of moments that often.

With respect to assessment, one instructor highlighted the benefits he perceived in student papers that came from online seminars he conducted:

> The papers were quite good, and students all raved how useful they found the course. And I was kind of worried about the format of the virtual seminar, but they seemed to actually point to that as one of the primary achievements of the course.

Communicating expectations and deadlines early helped to organize assessment in this course.

RQ 2: How can instructors support interaction and assignment completion in learners?

The second challenge was perceived by all participants as an important issue to take into account. All instructors focused on the need to engage learners in the beginning, to maintain interaction and to support individual and group task completion. Table 10.2 summarizes challenges and recommendations of supporting learner interaction and progress.

Table 10.2 Challenges and recommendations for supporting learner interaction and progress

Challenges	Recommendations
Engaging learners	Challenge students with provocative statements questions
	Give as few directions as possible to stimulate discussion
	Give students freedom to use the tools and integrate technological elements based on their interest
	Use graphical illustrations to stimulate discussion
Maintaining interaction	Send regular reminders to learners regarding deadlines
	Provide feedback on group functioning, individually and in the group setting
Supporting task completion	Communicate task structure and the approaching of deadlines visually
	Send frequent emails to participants informing them on their progress and open tasks
	Choose frequent, smaller assignments over larger, infrequent ones: take limited time for completion into account

Recommendations identified by participants can be grouped across three objectives. Regarding the support of learner engagement, tools that work well in face-to-face settings can be complemented by advantages of the online setting. Stimulating students through bold statements and provocative questions were perceived as very effective by participants. One instructor made the experience that learner groups should have as much autonomy as possible in how they structure both their synchronous and asynchronous interaction. While this forces the instructor to relinquish control, it enables learners to design learning processes suited to their (immediate) needs. One instructor mentioned that an online meeting room was continuously available for students' use, so that they could schedule ad hoc online meetings on as as-needed basis. While the instructor may not be present in all meetings, this option mirrors the option for face-to-face students to meet up spontaneously. Moreover, the same instructor was particularly enthusiastic about the use of images, videos and mind-maps in online settings as a tool to engage learners:

> We were lucky to have a student in our group that has an affinity with graphical tools, he made great use of his skill, and that has a good influence, you could tell that the other students were quick to post graphs and tables on the whiteboard, which is something you wouldn't normally do because you have to get up, draw it on the board, which is difficult and takes a long time.

Second, to maintain this engagement, one instructor reported that she repeatedly sent emails to participants,

> to tell them how well they were doing, give them feedback on their participation and assignments, and to keep them up to date on approaching deadlines and assignments.

Another instructor highlighted the importance of group-level feedback and evaluations next to individual feedback:

> in the course there are frequently moments where you ask how things are going and what can be improved, and yes, we also went through it in the final meeting where everyone was very enthusiastic, some people even said they would prefer to always work like this.

Third, supporting task completion was perceived as a particular challenge by participants. Based on their experiences, they recommend to make task requirements and deadlines more explicit than in face-to-face settings, e.g., through a visual timeline, a task list or through narrated presentations. Moreover, they found the sending of individual emails more effective than collective reminders e.g., in synchronous sessions or as online announcements. Finally, they emphasized that the scope of assignments needs to be adapted to the time limits imposed by the learners' competing activities. One instructor in particular suggested to favor a series of smaller assignments spaced out over time rather than a large assignment to be completed over a longer period. In these shorter timeframes, learners can focus their attention better, and a regular schedule of (sub-) deadlines supports task completion.

RQ 3: How can instructors manage the technological component of online courses?

Three of our participants had extensive experience with technological support, both for instructors and for students. Table 10.3 summarizes key challenges and recommendations they recommend to handle technological challenges in online courses.

As a provider of the learning experience, instructors are expected to be competent in the use of all tools involved in a course and to be able to support students in the use of these tools. In practice, participants of this study find these expectations unrealistic in the absence of certain support mechanisms. Firstly, they require training for instructors before the course starts, allowing time to get to know different functionalities and to play with the new tools. During the course, instructors appreciated the availability of a technical helpdesk (e.g., by the provider of a certain tool, or located within the institution itself), as well as the provision of technical manuals suggesting solutions to common problems. Next to the instructors, also students need support in engaging with (new) online tools. Despite the label of 'digital natives', students appreciate the opportunity to get to know and to experiment with a new tool as much as instructors do. Regarding the support of technology use during the course, one of the experienced instructors reported that her team included an

Table 10.3 Challenges and recommendations of technological support

Challenges	Recommendations
Supporting instructors	Train instructors before they start using the technology in class
	Provide a technical helpdesk for instructors
	Prepare a technical manual for quick reference
Helping students	Train students ahead of time (in small groups), leave practice time in the first meeting to get to know the technology
	Set clear technology rules, e.g. required equipment, logging in to synchronous sessions with a time buffer
	Be available for questions (e.g. via Skype) for urgent problems, aim to help students within 24 h
	Give students direct access to support staff

expert to teach both students and tutors to use a new technology before a course started. During the course itself, she would be available online so that students

> can contact me via Skype, and I encourage the students like: 'Ok, I'm on Skype the whole time so you can add me to your contact list, if you have a problem with collaboration or you're not there, please call me and I will immediately go to you and help.

The benefit of this approach, especially for synchronous sessions, is that obtaining immediate help can avoid delays and frustrations early. The disadvantage is that this approach demands much time of the tutor/technical support staff. To make the most of limited synchronous time available, all three instructors highlighted the need for clear guidelines. They require their students to "log in 15 min before a session is scheduled to start. That gives enough time to fix and log-in problems" and to "have a USB headset and webcam before joining". Additionally, all three instructors provide manuals for new technology to their students that included a *Frequently Asked Questions* (FAQ) section or solutions to commonly encountered problems.

10.4   Discussion

This chapter examined the role of the instructor and challenges faced when transitioning from traditional face-to-face settings to online courses. The literature describes three challenges to instructors when teaching online courses: course design, learner engagement, and technology. To gain more insight, we conducted semi-structured interviews with instructors teaching online courses to identify their approaches.

In our study, instructors specifically emphasized the need to select the learners (when possible) to control group size before the start of the online course in order to ensure the same pre-conditions for each student. If possible, students should meet in person at the beginning of the course. Furthermore, asynchronous material should be available during the entire course and several synchronous meetings should be scheduled to allow learners to be flexible in their work and other commitments. Regarding assignments, instructors emphasized the need to communicate deadlines early in the course of assessments and to set them for a Monday morning to allow participants to work over the weekend.

In order to support learner engagement, interaction and progress, all instructors reported the importance of engaging learners at the beginning through challenging statements for discussion and by visual support such as graphics, videos and mind-maps. Providing feedback on the group process helped to maintain interaction during the online course. In addition, instructors emphasized that frequent emails including reminders, feedback and tasks helped to ensure engagement and fostered task completion.

In order to handle the technological support, instructors highlighted the need for training before the start of the course in order to provide support for students. Preferably, to avoid frustration and delays, additional technical support staff are

present to help the instructor and the students immediately if there is a problem. are you referring to videoconferencing, in which case a technician might be needed; but not so with online courses.

Additional challenges were cited by instructors: uncertainty over why some students engage actively while others are less active; attrition; and a decreasing response rate after the first online meeting. Similarly, instructors mentioned that dealing with unstable learning systems, technical glitches, and different levels of unfamiliarity with technology within a student group continue to challenge novice online instructors. These challenges could be addressed by forming connections among instructors to promote a strong sense of community (Tallent-Runnels et al. 2006). In addition, technical experts should be included during the entire process of planning, designing and teaching to support the instructor (King 2002; Tallent-Runnels et al. 2006).

It becomes clear that online instructors carry more responsibilities than their traditional classroom counterparts (Grosse 2004; Allen and Seaman 2013). For example, they must foster relationships online and have clear course objectives so that participants know their time is well spent online (Grosse 2004). In this respect, universities should guide the instructors in their professional development for teaching online (King 2002). In line with this notion, Allen et al. (2007) reported that instructors are hesitant to teach online if there is a lack of support and assistance by the university. These results support the need for professional development for instructors (Garrison and Kanuka 2004; Desai et al. 2009) in the form of practical support such as trainings and technical assistance (Clark-Ibáñez and Scott 2008).

The outcomes presented in this study add to the literature of useful approaches for teaching online courses. More quantitative and qualitative research is needed to ensure the quality of online instruction and the qualifications of instructors. Instructors should understand the principles of online teaching and their role. Furthermore, research should focus on teacher's professional development in order to arrive at more generalizable findings.

10.5   Conclusion

Emergent technologies propose new ways to deliver and teach online courses, thereby offering learners more flexibility and new ways to build knowledge (Anderson and Elloumi 2004). When developing and teaching online courses, universities and instructors should understand the challenges involved. The exchange of recommendations on an institutional level is an important step to support the development towards high quality online education, especially for instructors who are new to online teaching. It is critical for instructors to not only understand the different aspects of the design of a course and learn the technologies linked to online learning but also understand the need to change their pedagogical approaches to create meaningful online learning experiences for students and foster learner engagement.

References

Allen, I., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. Sloan Consortium. PO Box 1238, Newburyport, MA 01950.

Allen, I., Seaman, J., & Garrett, R. (2007). *Blending in: The extent and promise of blended education in the United States*. Needham: Sloan Consortium.

Alvarez, I., Guasch, T., & Espasa, A. (2009). University teacher roles and competencies in online learning environments: A theoretical analysis of teaching and learning practices. *European Journal of Teacher Education, 32*(3), 321–336. doi:10.1080/02619760802624104.

Anderson, T. (2001). The hidden curriculum in distance education an updated view. *Change, 33*(6), 28–35.

Anderson, T., & Elloumi, F. (2004). *Theory and practice of online learning* (Vol. 36). Edmonton: AU Press. doi:10.1111/j.1467-8535.2005.00445_1.x.

Barker, A. (2003). Faculty development for teaching online: Educational and technological issues. *Journal of Continuing Education in Nursing, 34*(6), 273–278.

Bawane, J., & Spector, J. M. (2009). Prioritization of online instructor roles: Implications for competency-based teacher education programs. *Distance Education, 30*(3), 383–397. doi:10.1080/01587910903236536.

Benson, V., Anderson, D., & Ooms, A. (2011). Educators' perceptions, attitudes and practices: Blended learning in business and management education. *Research in Learning Technology, 19*(2), 143–154. doi:10.1080/21567069.2011.586676.

Bernard, R. M., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., Wallet, P. A., Fiset, M., & Huang, B. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research, 74*(3), 379–439.

Chin, S. T. S., & Williams, J. B. (2006). A theoretical framework for effective online course design. *Journal of Online Learning and Teaching, 2*(1), 12–21.

Clark-Ibáñez, M., & Scott, L. (2008). Learning to teach online. *Teaching Sociology, 36*(1), 34–41.

Conceicao, S. C. O. (2006). Faculty lived experiences in the online environment. *Adult Education Quarterly, 57*(1), 26–45. doi:10.1177/1059601106292247.

Conrad, D. (2004). University instructors' reflections on their first online teaching experiences. *Journal of Asynchronous Learning Networks, 8*(2), 31–44.

Coppola, N., Hiltz, S., & Rotter, N. (2002). Becoming a virtual professor: Pedagogical roles and asynchronous learning networks. *Journal of Management Information Systems, 18*(4), 169–189.

Cowham, T., Duggleby, J., & College, T. S. (2005). Pedagogy and quality assurance in the development of online learning for online instructors. *Journal of Asynchronous Learning Networks, 9*(4), 15–27.

Dennen, V. P., Aubteen Darabi, A., & Smith, L. J. (2007). Instructor–learner interaction in online courses: The relative perceived importance of particular instructor actions on performance and satisfaction. *Distance Education, 28*(1), 65–79. doi:10.1080/01587910701305319.

Derntl, M., & Motschnig-Pitrik, R. (2005). The role of structure, patterns, and people in blended learning. *The Internet and Higher Education, 8*, 111–130. doi:10.1016/j.iheduc.2005.03.002.

Desai, M., Hart, J., & Richards, T. (2009). E-learning: Paradigm shift in education. *Education, 129*(2), 327–335.

Garrison, D. (2011). *E-learning in the 21st century: A framework for research and practice*. New York: RoutledgeFalmer.

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education, 7*(2), 95–105. doi:10.1016/j.iheduc.2004.02.001.

Govindasamy, T. (2002). Successful implementation of e-learning: Pedagogical considerations. *The Internet and Higher Education, 4*, 287–299.

Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk & C. R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs*. San Francisco: Pfeiffer Publishing.

Greene, B., & Land, S. (2000). A qualitative analysis of scaffolding use in a resource-based learning environment involving the World Wide Web. *Journal of Educational Computing Research, 23*(2), 151–179.

Grosse, C. (2004). How distance learning changes faculty. *International Journal of Instructional Technology and Distance Learning, 1*(6), 25–34.

Hannay, M., & Newvine, T. (2006). Perceptions of distance learning: A comparison of online and traditional learning. *Journal of Online Learning and Teaching, 2*(1), 1–11.

Hinson, J. M., & LaPrairie, K. N. (2005). Learning to teach online: Promoting success through professional development. *Community College Journal of Research and Practice, 29*(6), 483–493. doi:10.1080/10668920590934198.

Hsieh, H., & Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277–1288.

Hummel, H. G. K., Tattersall, C., Burgos, D., Brouns, F., Kurvers, H., & Koper, R. (2005). Facilitating participation: From the EML web site to the learning network for learning design. *Interactive Learning Environments, 13*(1–2), 55–69. doi:10.1080/10494820500173474.

Jaffee, D. (2003). Virtual transformation: Web-based technology and pedagogical change. *Teaching Sociology, 31*(2), 227–236.

Kinchin, I. (2012). Avoiding technology-enhanced non-learning. *British Journal of Educational Technology, 43*(2), E43–E48. doi:10.1111/j.1467-8535.2011.01264.x.

King, K. P. (2002). Identifying success in online teacher education and professional development. *The Internet and Higher Education, 5*(3), 231–246. doi:10.1016/S1096-7516(02)00104-5.

Koehler, M. J., & Mishra, P. (2010). *Technological pedagogical content knowledge (TPACK)*. New York: Routledge.

Koepke, K., & O'Brien, A. (2012). Advancing pedagogy: Evidence for the role of online instructor training in improved pedagogical practices. *Journal of Asynchronous Learning Networks, 16*(2), 73–83.

Limniou, M., & Smith, M. (2010). Teachers' and students' perspectives on teaching and learning through virtual learning environments. *European Journal of Engineering Education, 35*(6), 645–653. doi:10.1080/03043797.2010.505279.

Maor, D. (2003). The teacher's role in developing interaction and reflection in an online learning community. *Educational Media International, 40*(1–2), 127–138. doi:10.1080/0952398032000092170.

McQuiggan, C. (2012). Faculty development for online teaching as a catalyst for change. *Journal of Asynchronous Learning Networks, 16*(2), 27–61.

Minichiello, V., Aroni, R., Timewell, E., & Alexander, L. (1990). *In-depth interviewing: Researching people*. Hong Kong: Longman Cheshire.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054.

Paechter, M., & Maier, B. (2010). Online or face-to-face? Students' experiences and preferences in e-learning. *The Internet and Higher Education, 13*(4), 292–297. doi:10.1016/j.iheduc.2010.09.004.

Pedersen, S., & Liu, M. (2003). Teachers' beliefs about issues in the implementation of a student-centered learning environment. *Educational Technology Research and Development, 51*(2), 57–76. doi:10.1007/BF02504526.

Savery, J. (2005). BE VOCAL: Characteristics of successful online instructors. *Journal of Interactive Online Learning, 4*(2), 141–152.

Schoonenboom, J. (2014). Using an adapted, task-level technology acceptance model to explain why instructors in higher education intend to use some learning management system tools more than others. *Computers & Education, 71*, 247–256. doi:10.1016/j.compedu.2013.09.016.

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research, 76*(1), 93–135. doi:10.3102/00346543076001093.

Tan, L., Wang, M., & Xiao, J. (2010). Best practices in teaching online or hybrid courses: A synthesis of principles. In P. Tsang, S. K. S. Cheung, V. S. K. Lee, & R. Huang (Eds.), *Hybrid learning* (pp. 117–126). Berlin/Heidelberg: Springer Berlin Heidelberg.

The Sloan Consortium. (2011). *Going the distance: Online education in the United States 2011*. Babson Park: Babson Survey Research Group.

Van Uden, J. M., Ritzen, H., & Pieters, J. M. (2014). Engaging students: The role of teacher beliefs and interpersonal teacher behavior in fostering student engagement in vocational education. *Teaching and Teacher Education, 37*, 21–32. doi:10.1016/j.tate.2013.08.005.

West, R. E., Waddoups, G., & Graham, C. R. (2006). Understanding the experiences of instructors as they adopt a course management system. *Educational Technology Research and Development, 55*(1), 1–26. doi:10.1007/s11423-006-9018-1.

Xie, K., DeBacker, T. K., & Ferguson, C. (2006). Extending the traditional classroom through online discussion: The role of student motivation. *Journal of Educational Computing Research, 34*(1), 67–89.

Part III
Looking Ahead: Learning in the Future

In Parts I and II of this collection we have explored the emerging trends and catalytic conversations that are shaping higher education, business education and training, and learning as we know it today. We have shared empirical work and research from pilot leaders who have recently explored the integration of such non-traditional learning strategies in their own courses and program – using collaborative knowledge sharing and knowledge building across the disciplines to improve their work. Hence, in Part III we wish to look to the future of higher education and to challenge each reader to envision a new reality for learning. David Boud and Donna Rooney cite selected features of the changing higher education landscape and link them to a solid body of workplace learning research. They cite specific practices which offer potential for meeting diverse learner needs and highlight the importance of learners as producers. This concept, of empowering learners, continues with the unique and thought-provoking writings of two leaders in educational innovation. Laurie DiPadova-Stocks, originator of the "Unscripted Future" movement, and co-authors John Moravec and Ron van den Hof, creator of the "Knowmad Society," share their perspectives on the future of learning.

Laurie DiPadova-Stocks' examination of familial and socio-cultural context as a traditional basis for behavior, goal-setting, and achievement, explores the neatly patterned scripts that so often predestine the life of a person, and discusses the extent to which education can serve as an agent of transformation. She compares the sixteenth century with the 21st century in relation to the role of higher education in shaping conditions, personal outcomes, and futures. This illustration helps the reader learn from the past in the shadow of an uncertain and unscripted future we face today, and highlights the role of education in creating value.

With a provocative and entertaining addition to our collection, John Moravec and Ronald van den Hoff share a conversation about "higher education 3.0" and how their visions for the 3.0 world are being actualized.

At the beginning of this collection, readers were invited to consider three questions:

1. What is the future you see for higher education?
2. How can changes and opportunities in learning (i.e. with learner mobility, emergent technologies, new target populations, etc.) be harnessed to our collective advantage?
3. What will invoke your next learning innovation? (i.e., what do you anticipate exploring during the next 2 years?)

Kay S. Dennis and Amber Dailey-Hebert present a summary of responses to these questions as provided by the contributing authors. How are they thinking in fresh, new ways? To what aims will they be turning their attention in the near future? This concluding chapter is intended to encourage the reader to share in innovative, 'green light' thinking and to participate in continued conversations about these exciting topics.

Chapter 11
What Can Higher Education Learn from the Workplace?

David Boud and Donna Rooney

Teaching and learning in higher education are built on long traditions, shaping the form and orientation of what is regarded as important. While major external influences have affected the subject matter of courses, the organization of learning has been viewed as part of the normal business of universities and colleges. Technology is currently exerting a major influence, extending the range of teaching and learning practices and adding new media to the repertoire. An outside observer might conclude that higher education possesses all there is to know about learning, and that with a few digital enhancements, its knowledge was complete.

We might contrast this higher education setting with another, where perhaps even more learning occurs. In this setting, learning happens over long periods of time without structured courses or the intervention of teachers. Little if any direct supervision of learning takes place, and certification of achievement is typically absent. Compared to the intensity of these features in higher education, we might be surprised if worthwhile learning of any kind ever occurs. This second setting is of course the workplace and work and life-related activities—where people tend to spend more of their time than they do in education, and arguably, where much of what they need to know and do on an everyday basis is learned and practiced.

It is not the intent of this chapter to suggest that learning at work is preferable and that we should adopt its practices in higher education—far from it. However, what has evolved through research in recent years is a much greater appreciation of how learning occurs in settings outside educational institutions—without the normal

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artifacts, drivers and frameworks that are taken as commonplace and necessary within these institutions. From the perspective of the educator it can be a mystery how so much worthwhile learning takes place in what is apparently an alien setting.

What we seek to do in this chapter is bring the perspective of learning at work to that of higher education and explore what this viewpoint might contribute to an understanding of how to make learning more effective in a formal context. What can we learn from situations in which learning occurs without teaching and without continuous certification through grading? It is important that we gain such an appreciation because the majority of our courses are preparing students to operate and continue to learn in this very context. If our students can only learn with the support and intensive framing of the kind they encounter in universities and colleges, how well equipped are they to take their place in society? This concern addresses not how students can be more effectively trained vocationally, but rather what can be missed when we assume there is little to be learned from the world of practice.

We write from the perspective of researchers involved in the study of learning at work who operate simultaneously in the world of higher education. We draw upon ideas that are becoming commonplace in research on learning outside educational institutions, and illustrate these with examples from our own studies. We have found that research on workplace learning offers alternatives to the individualized, cognitive and behavioural understandings of learning that traditionally have dominated research on pre-service learning.

The approach we take here is to start by considering the changing context of higher education, and in particular the demands of a changing student population and the range of outcomes required. We focus then on the world beyond education and identify the flourishing of research and conceptualisation about learning in non-educational settings. From this we take a set of the key ideas that we believe have particular resonance. Using these ideas, we explore what the implications might be if we saw higher education through an external lens to draw attention to the pervasiveness of learning in all settings. Such a viewpoint leads to practices which may be challenging to existing institutions, but which offer students something absent from the conventional ways in which they are expected to learn. We will see that while some of these ideas have already been incorporated into courses, the conventional assumptions made about what is legitimate learning in the academy have constrained our thinking about new possibilities.

11.1 Changing Students and Context of Higher Education

Higher education is shaped by the socio-economic context in which it is located. In recent times, a blurring of boundaries has seen higher education become more open to the influences of its broader environments. One important example involves the way in which the economic agendas of governments, and their associated rhetoric about the role of education in preparing students for work, provide new justifications for higher education.

While learning remains the raison d'etre for higher education, it is generally underpinned by a desire for students to make meaningful contributions to the world beyond the academy. A great deal (although admittedly not all) of this can be understood as students' potential for contributing to society through some form of practice in the world beyond education. We also know that future work is a common focus for most higher education graduates. So there is mutual dependence between the activities of work and the activities of higher education. It is clear that current as well as future changes will involve a continued emphasis on the role of higher education in preparing students both for highly skilled work with the general education that should accompany this, and for whatever unknowns the future will bring. While in many cases it will be impossible to predict what this specific practice will be, we can confidently anticipate that students will go out to practice in even more complex social, ethical and economic worlds.

So, who are these students—these future practitioners? This question draws attention to a second, related change that has affected higher education: a wider acceptance of the importance of education. The concept of lifelong learning has morphed from its humanistic beginnings to a critical component of advanced economies. It is not only governments that recognize the importance of learning for productivity, but also the populace. Participation in higher education is more widely promoted than ever before. Higher education has increasingly become a widespread enterprise: no longer the pursuit of an elite few. Young people, and their families, from all parts of society believe that a higher education promises a brighter and more lucrative future, or at the very least they fear that without higher education a less prosperous and gloomy future will await them. Many people already accept considerable debts in the promise of such a future, and in our part of the world—Australia and more generally the whole of Asia—there are few signs of this trend diminishing.

But growing student populations reflective of a wider community is not the only change. Other social phenomena such as increased migration; overseas students and ageing populations also are reshaping higher education. Few national populations comprise homogeneous cultural and ethnic groups; therefore heterogeneous student populations are becoming not only the norm but can be expected to increase in extent as subsequent generations graduate.

Further still, in terms of ageing societies, and coupled with (and a general acceptance of) demands for lifelong learning, we commonly see mature students enrolling. While this trend has been observed in undergraduate programs, it is more universally obvious in postgraduate studies: moreover when most people have an undergraduate degree, the demand for postgraduate studies rises. The resounding ideal of lifelong learning, as well as workforce expectations for ongoing professional learning, has become normalized. Higher education can anticipate more participation by older, experienced and already highly skilled people, at multiple intervals throughout their work lives.

Beyond these developments other boundaries are blurring. Students are increasingly crossing back and forth between higher education and the working world. The growing student population increasingly is employed before and during

their program of study: increased tuition fees and less affluent backgrounds exacerbate this trend. Student-workers cross between higher education and the world beyond in more fluid and iterative ways. In Australia, for example, it is common for undergraduates to have significant work experience prior to enrolment, with many also maintaining concurrent part time work alongside full time study (Smith and Patton 2013). The growing mature-aged population is also dipping in and out of education on a regular basis (Fragoso et al. 2013). The already normalized workplace demands for continuing professional education ensures this will continue into the future.

However, we should not expect the changing student population to engage in the same ways as their predecessors. Aside from the ubiquitous nature of social and other digital media, today's students will be intolerant of many of the arbitrary constraints of existing institutions: why attend classes each week in units of an hour to be briefed on what is required of them? Why enroll in programs over many years? Why limit oneself to a particular place or institution? As they will be familiar with the world of work through their concurrent employment, they will demand new forms of flexibility of provision: why limit oneself to the normal working day or working week? They will want higher education to be responsive to them in all the ways to which other aspects of society have become responsive to the consumer in a multimedia age.

The growing phenomenon of regular student boundary crossings will shape what is to come in terms of what students expect and *accept* from their higher education experience. Students are unlikely to tolerate patronizing educational processes, which may spark further demands for more authentic learning that helps them fulfill their pursuits in the world.

11.2   Learning in Higher Education and Beyond

Learning is of course a normal activity in the contemporary world beyond higher education. For students, the world consists of various domains including family and friends, community, the marketplace, and work. These domains engender a range of human activities, and one of these is learning. Learning is a natural human process that occurs in all domains of life. While learning through participation in everyday activities has occurred throughout time, the perceived value of learning in some domains of the life-world has amplified calls for learning societies. While some call for the *creation* of a learning society, others would say that for many, it is *already realized* (Field 2006). A significant amount of learning has been identified in all sites of human life: in families; in communities and civic institutions; and in workplaces. What is more, this learning has potential to make a significant difference to the various practices that occur across all domains. Just as learning in higher education changes future practice, so too does learning in families change parenting practices, learning in communities impacts on civic engagement, and learning at work changes work. In other words, learning changes practice—no

matter what the setting. And, of course, in a reciprocal way, engagement in practices leads to learning.

An acceptance of the significant learning occurring in domains of life *other* than educational institutions, as well as an acceptance of the potential to change or improve practice, provides a turning point for higher education. While such acceptance may unsettle any perceived monopoly held by educational institutions on preparing students for future practice, it also helps us to rethink higher education and to ask useful questions of our own practices. It may be that some of the things we take for granted in higher education—and which were useful in the past—are not needed in the way we conventionally assume.

11.3 Workplace Learning

It is impossible to imagine higher education without considering learning. After all, learning is our raison d'etre. A wealth of educational research has amassed to theorize learning and to provide evidence for various pedagogical initiatives. While this is an appropriate strategy, focusing on educational practices alone risks neglecting important insights that come from learning research in other domains. For instance, many years of workplace research has shown people successfully learning in and for work by and large in the absence of teachers, courses and formal assessment (Malloch et al. 2011; Biesta et al. 2011). This new tranche of research has potential to enhance what we already know about learning, and perhaps to suggest new and different practices. Importantly, workplace learning is not just another site for learning, using work as the focus can transform how we view learning practices. The following section turns to learning dimensions of work itself. In doing so it shifts focus from the dominance of research on educational practices within the academy to the emerging body of workplace research.

While people have always learned from participating in employment, the past two decades have witnessed a groundswell of interest in this learning. Not only is industry convinced that learning promises competitive advantages, but also the exponential nature of the changing world adds weight to the need for continual learning. While this research differs on several points, there are some key themes that emerge across various workplace-learning studies.

11.3.1 Embedded

A first key theme is that learning is embedded in everyday activities. While the axiom of 'learning by doing' is commonly acknowledged, workplace-learning research provides useful empirical accounts of where workers learn 'on the job' in the process of performing their substantive duties. In some cases learning may be the result of workers facing a particular challenge or problem in their work, which

in turn provides impetus for them to decide on a particular course of learning. For instance, they may consult a documentary source, or seek advice from someone they consider suitably knowledgeable or experienced (Boud and Middleton 2003). In other cases learning may be completely tacit. Through the continuing practice of what they do they may learn new or better ways of doing it.

Many early accounts of workplace learning made use of the concept of formal and informal learning to describe this phenomenon. Set against 'formal learning' in a binary relationship, informal learning became a useful concept to explain how workers simultaneously learn about their practice through performing it (Marsick and Watkins 2001). In later workplace learning research the formal/informal binary was problematized and more complex understandings emerged in recognition that there are formal practices within informal learning, and informal practices certainly occur in formal learning (Colley et al. 2003). Contemporary workplace research is more tentative and recognizes the limitations of relying on such a simple distinction. The use of the term 'everyday' learning has emerged in response to this complexity (Rooney and Solomon 2006) in recognition that learning is embedded in everyday activities. New ideas and a series of theoretical 'turns' have resulted in a growing array of theories of workplace learning. For instance, complex models describe how people learn in their working lives (Illeris 2011); new models suggest how work and learning can be integrated (Ellström 2001); and more general theories and philosophies address workplace learning (Hager 2008, 2011).

Despite theoretical differences, what can be gleaned by consideration of this research is the agreement that learning occurs as part of everyday activities at work. It is not a separate activity but is embedded in work itself.

11.3.2 Situated

A second and related theme from workplace learning research is the idea that learning is situated. Work and workplaces have come to be understood as more than mere backdrops or stages where everyday learning occurs. Learning emerges as a necessary response to the contingencies of the situations in which people find themselves. Learning ceases only when the demands of the environment cease to change. Material arrangements along with the way work is organized can hinder or foster learning. For example, particular types of physical spaces, or organizational structures or events, can shape how workers come in contact with each other, thus affording opportunities for learning (Billett 2001, 2004). While the archetypal setting of conversations around the water cooler or photocopier provides a simple example, more complex examples can be found in research accounts. In our own studies we noted an instance where the introduction of computers in the vehicles of field workers actually hindered learning opportunities (Boud et al. 2009). While the initiative was meant to expedite work, it also meant that the workers were no longer required to make regular trips back to the office—a practice that had previously provided important opportunities to actively seek information from other field workers and management.

11.3.3   Social

A third theme to evolve from workplace learning research is the social nature of work and, through extension, the social nature of workplace learning. Work in any field is rarely an individual endeavour. All work is connected with that of others even when they are not physically present. Work practices involve relationships, which can provide opportunities for everyday learning. What is worth noting here is that the formalised teacher/student relationship is generally absent. Indeed, in workplaces everyone has potential to be both a 'teacher' and a 'learner'—sometimes simultaneously and often unacknowledged. The social arrangements of work afford all sorts of opportunities to learn on the job.

Ironically, when such everyday learning support is formalised its effectiveness can be much diminished. Obligations to co-workers are strong when not part of formal job descriptions. When they are officially inscribed, however, relationships change and co-workers no longer are seen as peers. Trust must be built anew (Boud et al. 2009).

The popular idea of 'communities of practice' (Lave and Wenger 1991; Wenger 1998; Wenger and Snyder 2000) has drawn attention to how newcomers are inducted in indirect ways to the field of practice—not unlike the apprenticeship model in which newcomers are inducted into full practice by senior or more experienced practitioners in the same field. Working alongside others on common or related tasks can result in learning. While the notion of communities of practice has endured they have also come under increased scrutiny (Gherardi et al. 1998). Among such critiques are claims that 'communities of practice' fail to account for the interdisciplinary nature of contemporary work. Lave and Wenger's (1991) original study described how homogeneous communities of tailors worked together and how newcomers' peripheral participation gradually moved them toward the centre. In contrast, contemporary workers work alongside a range of others including those who do not share the same professional background (e.g. doctors with nurses and social workers, etc.). In our own research we have noted how engineers' work involves collaborations with environmental scientists, construction workers, and customers—and how these relationships provide learning opportunities for the engineers (Rooney et al. 2014). These ideas have been accepted to a limited extent in higher education, particularly for professional development of teaching staff. However, they are often misunderstood as implying that communities of practice can be deliberately contrived even when work relationships and workflow do not lend themselves to being conceptualised in this way. This is not to suggest that use of the idea is limited, but that like all concepts developed for one purpose, caution must be exercised when translating them to another area without awareness of crucial differences of context.

11.3.4   A Practice Focus

A central feature of these aforementioned workplace learning themes is a theorised concept of practice. This concept is providing a new lens for workplace learning researchers (Eraut 2010; Hager et al. 2012; Norland and Jenson 2012; Reeves and

Forde 2004). Such a perspective helps us to recognize how learning is embedded in everyday work activities, how practice and learning are intimately associated and intertwined in a range of social relationships, and finally how practices and learning are materially mediated. Practices enable us to see work and learning not in the exclusively individualistic terms of the educational institution, but in terms of the conduct of real tasks in genuine settings with consequences beyond those of the people directly involved. 'Practice' is an important unit of analysis as it moves beyond notions of knowledge and skill to link these to the activities and contexts in which they are manifest, thus positioning them as embedded, social and situated phenomena. This focus can be framed in different ways and one must note that practice theory is not a unified body of work. Subtle (and not so subtle) variations and emphasis exist. However, 'practice' does provide a unifying focus for the ideas above as well as a way forward in considering the practices of higher education itself (Boud and Brew 2013).

11.4   Learning Practices in Higher Education and Work

While many lessons can be drawn from the world of work we should also be conscious of important differences between learning in and beyond higher education. To do this we start with various and enduring practices common across most of the sector. These are recognizably educational practices and have come to be understood as germane to the business of education. They include designing the curriculum, preparing and presenting lectures, creating assessment tasks, and issuing qualifications. All of these practices 'make sense' for higher education and have been found to facilitate the prescribed learning. In addition, various relationships (e.g., teacher-student) are assumed in these practices. These arrangements, along with the material arrangements of classrooms, lecture halls and learning technologies, combine to give meaning to higher education—all with the purpose of bringing about learning. As the individual learner enters the site he or she submits to a broad acceptance of these arrangements—the institution in which he or she has entered shapes his or her learning practices. At various points students' learning is assessed. Notwithstanding carefully considered pedagogies that emphasize and purposefully maximize peer learning, mutual inquiry or collaboration, ultimately it is the individual that is assessed. Importantly, while learning may contribute to a student's work, or future work an important distinction here is that work is only ever secondary to the practices of learning: *learning* is the privileged activity.

In contrast to the learning practices of the student are the learning practices of the worker-learner. In the work context, the material, social and relational arrangements of higher education are absent. Workplace learning does not include predetermined curricula; rather, learning can occur as the result of a worker or a team of workers facing a particular challenge or problem. While they may set themselves the task of learning something, it is workers themselves who give structure to any

learning project—deciding what is to be learned and how to go about learning it. To this end they may consult a documentary source, or approach peers they deem to be experienced or knowledgeable on the topic (Boud and Middleton 2003). In terms of assessment, again it is the workers, sometimes in conjunction with their managers, who decide whether learning has occurred and to what extent. While at times this may be an individual assessment, it can often be a collective assessment—such as a team acknowledging the accomplishment of their collective learning as result of a team project. Alternatively, learning may be tacit in the sense that it occurred spontaneously during daily practices (e.g. the engineers example provided earlier) and go unnoticed altogether. Ultimately, it is the final product from the learning period that is judged by others, and not the stages of learning. Regardless of how it occurs, work is central here, and learning is always secondary to work. In other words, and in contrast to the student experience, working is the privileged activity.

11.5   Intermediate Activities

So far we have elucidated the distinctions between learning in education and learning at work. However, some practices bring these two areas together. In this section we turn to some intermediate activities that attempt to reconcile the polarities of work and education. Some of these intermediate activities are work-based and seek to cross the divide to education, whereas others are education-based and seek to cross the divide to work. While sharing an intermediary function, they start from different kinds of places: one in educational institutions, the other in workplaces. Here we concentrate on the former: that is, educationally based activities that seek to cross the divide between learning and work.

Higher education increasingly offers students opportunities to apply newly acquired knowledge and skills through intermediate activities in workplaces and civil society. While initiated by higher education, these activities typically manifest as students being absent from campus for periods of time. Common examples of these activities include practicums, internships, fieldwork, cooperative education, field education, sandwich courses and service learning (Cooper et al. 2010, pp. 38–9). While these examples are not new, their importance has intensified through amplification of the perceived accountability of higher education to produce particular kinds of graduates. The power of these activities comes not necessarily from the knowledge and skills that students acquire—for often there is considerable variation in these within a cohort—but from the immersion of learners in settings with authentic challenges. These are not contrived for the purposes of making an educational point; rather, they exist regardless of whether a learner is present. This gives students a sense of embedded engagement in the world and a focus on making a difference, no matter how modest, to real problems. It is manifestly not about working for grades.

However, intermediate activities need not involve engagement in external activities at all. Within university-based programs other examples can be found. Some courses intentionally seek to provide authentic-rich learning tasks that draw on 'real life' workplace problems, scenarios and/or examples (for example see Seron and Silbey 2009). Other examples include simulation activities in which students are safely scaffolded into full participation in professional areas. An exponential growth in simulation technologies in health-related programs demonstrates the importance accorded these activities.

11.6 Implications for Higher Education

A consideration of intermediary activities raises some interesting issues for universities. For example, given that educational institutions must satisfy the accrediting regimes that regulate them, tensions can arise between good practice in higher education and external contexts and demands. These tensions can sometimes deter any innovative practice (Seron and Silbey 2009). This is not to say that we should maintain the status quo, but it does remind us that we need to balance innovation with the realities of the broader world in which we operate. The following ideas might be considered in exploring the implications for higher education practices.

11.6.1 Being a 'Learner' Is Not as Powerful as Being a Producer

In workplaces, being seen as a 'learner' is not always a desirable state of affairs (Scheeres et al. 2010). It implies that one may not be a fully functioning member of the workgroup but a person of lesser status, 'like having 'L' plates around one's neck' as one of our respondents reported to us. In education, the term 'learner' is not questioned. Indeed, it is seen as a desirable identity: the process of students making the transition to adopt the identity of learner is an important part of the process of getting them to not look to the teacher to meet their needs. However, we should perhaps question whether the identity of learner is a good one even in education. It may not be a sufficiently strong one no matter what the context. There are moves to shift undergraduate courses so that students see themselves as knowledge producers rather than knowledge consumers (e.g. Manathunga et al. 2012).

Perhaps we need to reconceptualize education not as an activity that produces the rather intangible output of learning, but rather as something more substantive and worthwhile. If we viewed students as engaged in meaningful tasks which lead to producing something that is intrinsically valuable, we could begin to focus on those activities that lead to meaningful learning—participating in the tasks themselves (cf Hattie 2009)—and not just some artificial product used solely to judge the

achievement of some disembodied learning goal. Students could become invested in something that they can own and be proud of as they do when engaged in the range of intermediate activities discussed above. Our existing forms of assessment essentially ignore what students substantively produce: it is rarely recorded and formally celebrated in institutional certification but it is read merely (by teachers) in order to contribute to a certificate. The focus on grading rather than the production of a material work product may be the greatest inhibitor of student engagement and worthwhile learning. Students, like workers, learn whatever is necessary to produce something worthwhile.

11.6.2   *The Conduct of Tasks Is Not an Isolated Activity*

Learning at work is a social enterprise; in the university it is very individualistic. Sfard (1998) characterises the differences in learning in the two settings through the metaphors of acquisition (for what occurs in educational institutions) and participation (for learning in work). Acquisition is an individual act although it may occur partially in a social setting. Participation is necessarily social. At work, what people produce together is what counts. Even when teachers promote group tasks or peer learning in their classrooms, they do so to promote individual learning (e.g., 'learning to work as part of a team'). While a student may be assigned a group grade for particular tasks throughout their course, ultimately the student is judged and certified individually.

Such a view is a limiting condition on what can be achieved. It privileges certain kinds of learning outcomes over others (individual knowledge and skills over working together) and constrains the use of a wide range of pedagogic practices known to enhance learning (principally the use of peer learning activities). While we have seen the injection of group tasks and even group assessment into the curriculum, this is inevitably restricted and treated with suspicion by teachers and students, if not external parties. The role of the institution in the certification of learning and the ubiquity of grading creates formidable constraints.

Addressing this situation involves not just a matter of implementing more peer learning and providing more opportunities for students to work together on substantial meaningful tasks, worthwhile as these may be. It requires creating opportunities and environments where students spend time working with their peers rather than in lecture halls listening to experts. It requires a reversal of thinking about the default scenario in educational programs. At present it is exposure to teachers followed by study activity, but perhaps this practice needs to evolve toward an emphasis on study activity, what has become recently fashionable as 'flipped learning'. Weaning students off teachers as such involves a fundamental reconceptualization of their role in the direction of becoming managers and facilitators of learning environments. Moreover, questions of how we prepare students to be 'teachers' in their workplaces can also compound the need to consider new and different practices.

11.6.3 Appropriation of Assessment for Learners

One of the greatest disparities between higher education and the practices in higher education and the world beyond lies in assessment (Boud 2009). Learning at work commonly involves determining what constitutes good work and identifying ways to ascertain whether one is performing at that level prior to scrutiny by supervisors. This process is reflected to some extent in what high achieving students do in their courses. However, the practice of deliberate self-assessment is far from widespread, and weaker students find it very problematic (Boud et al. 2013). A key learning skill with direct applicability to the world of work is the ability to make judgements about one's own work: 'what constitutes successful completion of the task', and 'is this good enough to meet the requirements for this kind of work?' Current unilateral assessment systems in which outcomes are defined by others, assessment tasks are fixed by others and others determine assessment processes, do not prepare students for making judgements on their own work and that of others that they will necessarily encounter following graduation.

In education, most important decisions in assessment are removed from the learner. Students rarely have to identify the sources of appropriate standards for their work and how to interpret them. They rarely have to ascertain how they will determine whether their work meets these standards. And they seldom have to justify their own judgements. This work is done for them, as if the most important task is the demonstration of narrow learning goals rather being able to operate on and make judgements about a real task with demands of its own. The pre-processing of assessment activities and the removal of engagement of students with the most important features (standards, making judgements) leaves them ill equipped for the complex challenges that follow graduation. A reconfiguration of what assessment involves and the activities surrounding it needs to occur.

11.6.4 Making Up One's Own Learning

Contrary to popular belief and the assumptions of human resource development, workers continually remake their own jobs (Price et al. 2009). They recognise what is a priority for their organisation and shift their own activities in the direction of making work more satisfying for themselves and, if they are to be accepted within the organisation, satisfying to their employer as well. This leads to both parties being content and to better work outcomes. Through such an approach, workers tailor their work to suit both their own needs and interests and that of their employer. Similar approaches could be used more frequently in formal courses, but there is often little scope for students to make the objects of study their own. If everyone in a class has the same task, how can students develop the same investment as when they tailor it to their own interests?

The challenge of a mass higher education is how to treat it as if it were *not* a mass production system producing identical outputs. While there may be economies

of scale, we should not lose sight of the importance of choice and selection within the overall parameters of a course. This approach promotes engagement as well as a diversity of products to meet the diversity of expectations of graduates. Such accommodation is just as possible in courses with external professional requirements as it is in those without them.

Furthermore, this 'making up one's own learning' is not just about individuals making decisions about what they produce—it can also provide opportunities for groups of students to do the same. Negotiating learning with others for collective benefit is also a feature of working practice.

11.7 Conclusion

To summarise, we see some fruitful directions for higher education coming from our analysis of the application of what we know about learning and work to the context of education. Many of these suggestions are consistent with recommendations from other educational research. First, higher education could focus more on students working on substantial tasks meaningful to them, as well as create environments that support students working with others on such tasks. Secondly, there is a need to shift assessment thinking to prioritize the importance of determining quality and foreground the importance of working out what counts as good and making judgements about one's own work (again, with others). Finally, we need less focus on direct mass instruction—either face-to-face or digitally mediated—as its role in an embodied, contextual world is diminishing. However, reduction in instruction as such implies much greater access to learning resources as needed for larger tasks. In short, the emphasis is on what students *do*, with other people. It constitutes a shift from satisfying the disembodied other to a more contextualised, more engaged and more realistically productive focus.

References

Biesta, G., Field, J., Hodkinson, P., Macleod, F., & Goodson, I. (2011). *Improving learning through the lifecourse*. London: Routledge.

Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *The Journal of Workplace Learning, 13*(5), 209–214.

Billett, S. (2004). Workplace participatory practices: Conceptualising workplaces as learning environments. *The Journal of Workplace Learning, 16*(6), 312–324.

Boud, D. (2009). How can practice reshape assessment? In G. Joughin (Ed.), *Assessment, learning and judgement in higher education* (pp. 29–44). Dordrecht: Springer.

Boud, D., & Brew, A. (2013). Reconceptualising academic work as professional practice: Implications for academic development. *International Journal for Academic Development, 18*(3), 208–221.

Boud, D., & Middleton, H. (2003). Learning from others at work: Communities of practice and informal learning. *Journal of Workplace Learning, 15*(5), 194–202.

Boud, D., Rooney, D., & Solomon, N. (2009). Talking up learning at work: Cautionary tales in co-opting learning. *International Journal of Lifelong Education, 28*(3), 323–334.

Boud, D., Lawson, R., & Thompson, D. (2013). Does student engagement in self-assessment calibrate their judgement over time? *Assessment and Evaluation in Higher Education, 38*(8), 941–956.

Colley, H., Hodkinson, P., & Malcom, J. (2003). *Informality and formality in learning: A report for the Learning and Skills Research Centre*. London: Learning and Skills Research Centre.

Cooper, L., Orrel, J., & Bowden, M. (2010). *Work integrated learning: A guide to effective practice*. London: Routledge.

Ellström, P. E. (2001). Integrating learning and work: Problems and prospects. *Human Resource Development Quarterly, 12*(4), 421–435.

Eraut, M. (2010). Knowledge, working practices and learning. In S. Billet (Ed.), *Learning through practice, professional and practice-based learning* (pp. 37–58). Dordrecht: Springer.

Field, J. (2006). *Lifelong learning and the new educational order*. Trentham: Stoke on Trent.

Fragoso, A., Goncalves, T., Ribeiro, C., Monteiro, R., & Quintas, H. (2013). The transition of mature students to higher education: Challenging traditional concepts? *Studies in the Education of Adults, 45*(1), 67–81.

Gherardi, S., Nicolini, D., & Odella, F. (1998). Toward a social understanding of how people learn in organizations. *Management Learning, 29*(3), 273–297.

Hager, P. (2008). Learning and metaphors. *Medical Teacher, 30*, 679–686.

Hager, P. (2011). Historical tracing of the development of theory in the field of workplace learning. In M. Malloch, L. Cairns, K. Evans, & B. O'Connor (Eds.), *The SAGE handbook of workplace learning* (pp. 17–32). London: Sage.

Hager, P., Lee, A., & Reich, A. (Eds.). (2012). *Practice, learning and change: Practice-theory perspectives on professional learning*. Dordrecht: Springer.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.

Illeris, K. (2011). *The fundamentals of workplace learning: Understanding how people learn in working life*. London: Routledge.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Malloch, M., Cairns, L., Evans, K., & O'Connor, B. N. (Eds.). (2011). *The SAGE handbook of workplace learning*. London: Sage.

Manathunga, C., Kiley, M., Boud, D., & Cantwell, R. (2012). From knowledge acquisition to knowledge production: Issues with Australian honours curricula. *Teaching in Higher Education, 17*(2), 139–151.

Marsick, V., & Watkins, K. (2001). Informal and incidental learning. In S. Merriam (Ed.), *New directions for adult and continuing education: The new update on adult learning theory* (pp. 25–34). San Francisco: Jossey-Bass.

Norland, M., & Jenson, K. (2012). Epistemic practices and object relations in professional work. *Journal of Education and Work, 25*(1), 101–120.

Price, O., Scheeres, H., & Boud, D. (2009). Re-making jobs: Enacting and learning work practices. *Vocation and Learning, 2*(3), 217–234.

Reeves, J., & Forde, C. (2004). The social dynamics of changing practice. *Cambridge Journal of Education, 34*(1), 85–102.

Rooney, D., & Solomon, N. (2006). Consuming metaphors: Stimulating questions for everyday learning. *Studies in the Education of Adults, 38*(1), 64–73.

Rooney, D., Willey, K., Gardner, A., Boud, D., Reich, A., & Fitzgerald, T. (2014). Engineers' professional learning: Through the lens of practice. In B. Williams, J. Figueiredo, & J., Trevelyan (Eds.), *Engineering practice in a global context: Understanding the technical and the social* (pp. 265–283). Leiden: CRC Press/Balkema.

Scheeres, H., Solomon, N., Boud, D., & Rooney, D. (2010). When is it OK to learn at work? The learning work of organisations. *Journal of Workplace Learning, 22*(1&2), 13–26.

Seron, C., & Silbey, S. (2009). The dialectic between expert knowledge and professional discretion: Accreditation, social control and the limits of instrumental logic. *Engineering Studies, 1*(2), 101–127.

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher, 27*(2), 4–13.

Smith, E., & Patton, W. (2013). Part-time working students: Is it a political issue, and for whom? *Journal of Education and Work, 26*(1), 48–76.

Wenger, E. (1998). *Communities of practice*. Cambridge: Cambridge University Press.

Wenger, E., & Snyder, W. (2000). Communities of practice: The organizational frontier. *Harvard Business Review, 78*(1), 139–145.

Chapter 12
Higher Education Shaping the Unscripted Future: The Imperative to Affirm Human Values in Transformative Times

Laurie N. DiPadova-Stocks

> Whereas the peoples of the United Nations have in the Charter reaffirmed their faith in fundamental human rights, in the dignity and worth of the human person and in the equal rights of men and women and have determined to promote social progress and better standards of life in larger freedom. (http://www.un.org/en/documents/udhr/index.shtml) (Preamble, U.N. Universal Declaration of Human Rights, 1948)

The promise of higher education is to disseminate knowledge and inspire commitment to human values and human rights on the global scale, providing the foundation of opportunity creation for the benefit of all. Higher education is the only institution positioned to assume this crucial role. Education and learning, from the earliest beginnings in the history of the world, have served to improve the human condition, enhancing the well-being of individuals and society. In this respect, educators have always shaped the future.

From the earliest times of Plato's Academy in Ancient Greece, to Muslim philosophers and mathematicians, to the University of Al-Karaouine in Morocco, to the Nizamiyya School in Iran, the University of Paris and the University of Cambridge, educational institutions have advanced human culture and civilizations. Educators have always endeavored to improve the lives of individuals and to strengthen society.

Educators of centuries past have dramatically influenced the world as we know it; the impact of educators today will impact the future for all. As the 21st century unfolds, and as the shape, character, and composition of higher education rapidly change, educators will continue to shape the century. The issue and opportunity facing higher education is *how* and *by what means* it will be a major positive force for humanity, given the turmoil that it faces as it struggles to shape itself for the future.

> Non nobis solum (not for ourselves alone) (Shapiro 2005, p. 1)

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The emerging new century is bursting with challenges and changes of epic proportion and global consequence. Today's challenges know no boundaries. As described by Johansen of the Institute for the Future, we are living in a VUCA world—one characterized by Volatility, Uncertainty, Complexity, and Ambiguity (Johansen 2009, pp. XIV–XV). Scharmer and Kaufer describe our times as the "Age of Disruption", an age in which issues faced are daunting on a scale previously unparalleled, while the promise of "renewal has never been more real" (Scharmer and Kaufer 2013, p. 1). This world promises both dangers and opportunities.

The work of educators in the 21st century is to minimize the dangers of our VUCA world, optimize opportunities, and intentionally create a world-wide population of global citizens who embrace human dignity for all, working through and across all boundaries of existence. Such citizens acknowledge the impact of their actions on the rest of the world, eagerly make such impacts central to their calculations, and recognize others—regardless of gender, race, religion, nationality, or ethnicity—as equal and of great worth. Global citizens embrace the role of championing universal human values and protecting human dignity.

The mission of higher education is to perpetuate and protect the values that underlie human dignity and human rights. These values are articulated in the United Nations' Universal Declaration of Human Rights and other key documents.[1] The central danger we face as we are propelled into a global technologically driven future is that we fail to protect human dignity, that widely disseminated knowledge and networks neglect to affirm the centrality of humanity in the future, and in the worst case scenario, knowledge and networks are put to use to destroy the prospects of the survival of others and ultimately ourselves. Terrorism is the least of these dangers; failure to address food shortages, environmental damage, and conditions for pandemics are sufficient for concern.

This work concludes by considering the heightened necessity for higher education and the affirmation of universal human values that it uniquely can perpetuate. We assert that higher education is fundamental to human progress in the world.

Central to this chapter is the use of an historic case study to provide a broad overview of the defining role of higher education in shaping the future of nations, societies, and individuals; reinforcing values; and strengthening the social fabric.

The chapter is divided into four sections, illustrating the role of education in society. The first section uses micro level analysis to consider the idea of individual life scripts based on circumstances of birth. The second section uses a five variable macro level analysis, drawing on historical data to examine the shaping of a future using the seventeenth century British colonies in America as a case study. The role of education in transforming the future of 13 disparate colonies into a nation

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[1] The conceptualization of human dignity and human rights used in this chapter finds expression in the UN's Universal Declaration of Human Rights, founding documents of the United States, and works of philosophers during the Enlightenment Period (some directly referenced throughout this chapter), among many writings of a religious, historical, and political nature around the world. The United Nations Universal Declaration of Human Rights, crafted in 1948 in the wake of the events of World War II, forms the basis of the concepts of universal human rights and values discussed in this work. http://www.un.org/en/documents/udhr/index.shtml.

renowned for its influence in global affairs is traced, and the importance of the affirmation of human dignity is outlined.

The third section of the chapter considers the same variables with regard to higher education of the twenty-first century and how higher education can reshape itself so that it can fashion the global century. The fourth section focuses on the role of the educator, and affirms the twin requirements of higher education in this century: to marshal relentless changes to craft the educational process, and to preserve basic human rights in order to dispel dangers and shape a future for everyone.

12.1   Scripts, Their Purpose, and Their Undoing: Education and Human Advancement

> When one considers in its length and in its breadth the importance of this question of the education of a nation's young, the broken lives, the defeated hopes, the national failures, which result from the frivolous inertia with which it is treated, it is difficult to restrain within oneself a savage rage. In the conditions of modern life the rule is absolute, the race which does not value trained intelligence is doomed. Not all your heroism, not all your social charm, not all your wit, not all your victories on land or at sea, can move back the finger of fate. Today we maintain ourselves. Tomorrow science will have moved forward yet one more step, and there will be no appeal from the judgment which will then be pronounced on the uneducated. (Alfred North Whitehead (1861–1947), British mathematician and philosopher)

Throughout human history it has been largely the case that the context into which individuals are born, their circumstances and culture, as well as gender, race, and social class, have provided a mechanism or a pathway of expectations for the rest of their lives. This shaping mechanism provides a socially developed and accepted script for their future, and provides a well-worn path for them to follow.

While scripts provide a measure of stability and predictability, the dilemma is that by definition scripts are controlling, constraining, and limiting. Enlarging the scripts of the human experience can be regarded as the essence of freedom.

Educational opportunity has been closely tied to changing the scripts of one's life in the United States (http://www.brookings.edu/research/reports/2013/06/13-facts-higher-education) and around the world (http://www.ets.org/Media/Research/pdf/PICPN192.pdf). Resistance in certain parts of the world to the education of girls often reflects efforts to maintain the current social order and protect their traditional scripts; education is the key to opportunity precisely because it enlarges the individual script. This can be seen as threatening to the established order, and can be dangerous. Young Malala Yousafzai's experience of being shot and severely injured by the Taliban at the age of 14 for her activism drew world-wide attention to and admiration of her courage (http://www.bbc.co.uk/news/world-asia-23282662; Yousafzai 2013). The education of girls changes lives, families and nations (http://press.clintonglobalinitiative.org/press_releases/president-clinton-opened-2012-clintonglobal-initiative-annual-meeting-emphasizing-action-through-social-investment-empoweringgirls-and-women-and-designing-for-impact/).

Education changes long-held scripts for current and future generations. Examples of students changing their lives are commonplace. Generations of parents have struggled to send their children to school so that the children could advance in society beyond what the parents were able to accomplish. Educators serving first-generation college students are often keenly aware of the enduring impact on the lives of students and their families for generations.

Consider the common experience of young people who often seek educational opportunities in an effort to enlarge their scripts, change their life trajectory and expand personal opportunity. One such woman is an acquaintance from Vietnam. She had been working in the rice paddies, along with her parents, in the same manner as generations before them. In one short decade, she seized an opportunity for schooling, eventually earning a Ph.D. Education helped change the life script assigned at her birth—from the rice paddies of Vietnam to a Ph.D. in nuclear physics. Without educational opportunities, her life would have followed her family's age-old generational script of working in the rice paddies. Now her work as a physicist stands to benefit all of humanity. Education is the power not only to improved lives for generations to come, but to change the world.

Nonetheless, today in remote regions of the globe, there remains a high probability that what a young girl will do throughout her life is precisely what her mother did and her grandmothers did and her female ancestors for generations and centuries in her past. Even though the girl's country of birth might be advanced in many ways, she may be born in a region or circumstance where her life and future are marked as rigidly scripted.

That said, life scripts may be comfortable, even while limiting individual potential and choice. Scripts provide the security of known expectations, social acceptance and predictability; decisions about one's future are pre-determined. Rigid scripts in stable societies provide comforting pathways for anticipating one's future. Risks and anxieties about one's future may be minimized as choices are limited and the pathway is clear and unchallenged. Even those individuals who wish to remove the confines of their scripts may recognize that the scripts themselves made life simpler as everyone's expectations, both for themselves and for others, were clear. Thus, scripts—even those that may be considered less desirable—at least serve to outline a predictable future with the security of time-honored roles, norms, expectations, and approval.

At the same time, the prospect of an unscripted future, one that falls short of expectations or is perceived as threatening, may generate considerable distress, or alternatively may be seen as a pathway to opportunity for a more desirable script.

Changes in scripts—even desirable changes—may be accompanied by a range of responses from discomfort or anxiety (on the personal level) to social unrest (on the societal level). One example of such social unrest is the national upheaval of the Civil War in the United States, a violent struggle to advance basic human dignity and human rights. This mid-19th century effort was focused on changing the scripted role of black Americans from slaves and property to free people and citizens. Like other civil wars and unrests in nations around the world, these events were prompted by organized objections to scripts and protests by groups of individuals. While the

resulting changes were obviously desirable, the historical record shows that in the United States, for many black Americans the transition was difficult and even dangerous for decades following the war. Fortunately for all Americans, the script has been rewritten to include freedom and the opening of boundless opportunities. Similar upheavals also occurred when women in the United States sought to change their life scripts, marching, petitioning, and serving jail time to claim opportunities ranging from voting rights[2] through the full spectrum of opportunity.

This historical perspective informs the need for continual focused attention to the protection of human rights. Securing these rights in the United States was a lengthy and deadly struggle. The United States suffered more casualties in the Civil War than all other wars combined.[3] Yet today some observe that these hard-won economic and political rights are being eroded, as exemplified by the United States Supreme Court decision in 2013, invalidating section 4 of the U.S. Voting Rights Act of 1965[4] (updated in 1975).[5]

Most societies have changed through the centuries, creating structures and institutions of governance, some of which reinforce traditional scripts while others open pathways of possibilities for changing or enhancing one's birth script. Tools to change birth scripts include political governance, social institutions, and educational opportunity. Here we turn to our case study to consider the role of education in the creation of a self-governing society and we begin with the Colonial Era of the United States.

12.2   Case Study: Higher Education Transforming the Future of Thirteen Colonies into One Nation

> To the extent that we have failed to challenge the full capacities of our students, from kindergarten through graduate school, we have betrayed the democratic ideal that is so precious to us. The meaning of democracy in education is not found in a dead-leveling process that attempts to conform all to a simple equality. We believe not that all persons are

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[2] The effort of women to secure the right to vote in U.S. elections was an 80 year effort: 1840–1920, culminating in the 19th Amendment to the U.S. Constitution. http://memory.loc.gov/ammem/naw/nawstime.html

[3] This observation has been bolstered by recent research by Dr. J. David Hacker of the history department at SUNY-Binghamton, published in *Civil War History*, 57 (4), 307–348. 2011.

[4] Shelby County, Alabama V. Holder, Attorney General, et al. http://www.supremecourt.gov/opinions/12pdf/12-96_6k47.pdf

[5] Section 4 of the 1965 Civil Rights Act required states and jurisdictions with a history of racial discrimination to secure clearance from the U.S. Justice Department or a federal court in Washington, D.C. before changing voting procedures. The 5–4 ruling by the Supreme Court specifies that Congress legislate the terms of such clearance using current data. Texas, one of the affected states, moved immediately to enact more restrictive voting procedures, which many point out adversely impact minority and elderly populations. http://www.nytimes.com/2013/06/26/us/supreme-court-ruling.html?pagewanted=all&_r=0; http://www.washingtonpost.com/politics/supreme-court-stops-use-of-key-part-of-voting-rights-act/2013/06/25/26888528-dda5-11e2-b197-f248b21f94c4_story.html. As of this writing, the application of this ruling in affected states is being litigated in federal courts.

of equal capacity, but that all are entitled to the opportunity to develop fully such capacities as they have. We combine this with a belief in the inherent dignity of the individual person. These are powerful ideas with tremendous implications. They mean, certainly, that the creative artist, the professional person, and the artisan alike deserve the full esteem of their fellow men and that everyone is entitled to the measure of self-respect who is doing their best in a vocation that contributes to the total life of our society. (McMurrin 1961; Sterling M. McMurrin, former U. S. Commissioner of Education (1914–1996))

Higher education has played a defining role in building society and shaping the future, not only for individuals and nations, but also the world. Using the emergence of the United States as our case study, we find in the early colonies a demonstration of the impact of higher education in building the future of a people. This section begins our comparison of two timeframes: one in which we have data and substantial hindsight, and the other, the future. In the next section, we use current developments to extrapolate to what might happen in the future, obviously with limited hindsight.

The analytical framework of the historical case study considers six variables: Characteristics, Data, Common Conditions, Proven Outcomes, Context, and Citizenship. The discussion of this case is organized by variable.

12.2.1 Characteristics

Higher education in the sixteenth to seventeenth centuries is familiar to those who read this chapter, as its key aspects likely mirror our own experience. While there have been significant innovations in higher education in the past century, such as the institution of graduate degree programs in the early twentieth century and service-learning in the late twentieth century, fundamentally rigid role structures have been persistent and remained intact: faculty roles and rewards; classroom based instruction; class schedules; degrees and credentialing.[6] These characteristics, or a variation, are consistent with the structure of higher education in many countries. While higher education is currently transitioning from its longtime limited access, classroom instruction basis to more use of technology, changes have been difficult for many.

12.2.2 Data

Informed hindsight and historical records provide copious evidence for the case study of America's 13 original colonies on the shores of seventeenth century America. All were colonies of Great Britain, which at the time was regarded as the greatest superpower in the world.

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[6] Dr. David Helfand details the rigidities inherent in the structure of higher education: http://www. youtube.com/watch?v=DZQe73IXZtU&feature=share&list=PL98356CD352B01730

Colonists had traveled across the ocean to settle in an unfamiliar environment. They were not from the upper classes of society. Some were expatriated from debtors' prisons and had no voice in their destiny. Many crossed the ocean seeking a better life than the scripted one from their birth. The travel itself carried great personal risk as many did not survive the ocean voyage. Once a colony was established, its survival was not guaranteed.

Higher education provided the defining foundation for the development of the colonies into a nation. While its transition from colonies to nation has been rocky and fraught with the challenges of forging a path from humane ideas of equality and human dignity to struggle and uneven implementation, the early insistence on the value of education has been shown to equip the polity with the necessary tools for addressing such challenges.

12.2.3   Common Conditions

As in our 21st century, the future of the colonists was unscripted. Those who survived the voyage set forth in a new environment with many unknowns and numerous threats to survival. Many colonists died from starvation, malaria, cholera, and other threats, including conflicts with the Native Americans, occasioned by taking the tribal lands. Some entire colonies did not survive.[7]

The journey of the colonies into a nation began in 1607 with the Jamestown Settlement in Virginia, and culminated in 1787 with the signing of the United States Constitution. The interim 180 years was characterized by generations of changes, struggles, and a complex history culminating in the uneven embrace of the values of equality and human dignity in a land of the slave trade and an economy based on the private ownership of humans as property.

For the colonies, the future was yet to be shaped. The colonies were not founded with the intention of breaking away from England and forging a new country. However, after more than a century of disputes with King George III and his predecessors, the colonies began the awkward, difficult and dangerous process of becoming a nation. Many individual colonists made the painful decision to renounce their status as British subjects and risked being hanged for treason if the colonies lost the Revolutionary War, while others returned to England.

12.2.4   Proven Outcomes

Founding documents of the new nation, including the Declaration of Independence and the U.S. Constitution, were influenced by the thinkers of the Enlightenment period, particularly the philosophy of John Locke (1690). These "self-evident"

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[7] The late sixteenth century Roanoke Colonies in (present-day (NC) did not survive.) http://encyclopediavirginia.org/Roanoke_Colonies_The#start_entry

human dignity values of equality, "…right to life, liberty, and the pursuit of happiness…"[8] undergird the effort of the 13 colonies toward one imperfect union. Like the values explicit in the U.N. Universal Declaration of Human Rights, these values provide a human dignity subtext that has helped inform underlying governing decisions of the nation from the eighteenth century to now.

Proven outcomes continue from the Colonial Period. As we trace the evolution of the United States from 13 struggling colonies, it is clear that institutions of higher learning continued to play a critical role over time, perpetuating human values as well strengthening the social fabric. From the private colleges of the colonies to the westward expansion and the Morrill Acts of the 19th establishing land-grant universities and colleges and encouraging admission of African Americans (Association of Public and Land-Grant Universities 2012), to research universities, the Servicemen's Readjustment Act of 1944 (http://www.gibill.va.gov/benefits/history_timeline/) greatly expanding the middle class (http://www.scholarsstrategynetwork.org/sites/default/files/ssn_key_findings_mettler_on_gi_bill.pdf), the National Defense Education Act and other acts expanding educational opportunity for all citizens regardless of race, gender, religion or nationality, and the Higher Education Act (http://www2.ed.gov/about/overview/fed/role.html), the impact of higher education on the United States has been profound.

12.2.5   Context

The establishment of colleges in colonial America demonstrates commitment to higher education. Early colonists founded Harvard College 15 years after the Mayflower landing. Within 18 years of the Jamestown Settlement, the precursor to the charter of the College of William and Mary was written. During the 17th and 18th centuries, several colonies established colleges. Harvard College and the College of William and Mary have their beginnings in the 1600s, while many others—including Princeton, Yale, Dartmouth, Rutgers, and others—were established in the 1700s. The earliest institutions prepared men for key roles in society. They studied the humanities, Greek, Latin, logic, philosophy, and associated disciplines. Later, fields such as law, surveying, navigation, mathematics, and physics were added to the curriculum (Rudolph 1991). The earliest faculties of these institutions, often established by the governor of the respective colony, were educated at European universities.

Education was important for the growth and vitality of society in general and for the colonies in particular. Later, the leaders of the United States, many of whom

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[8] Declaration of Independence. http://www.archives.gov/exhibits/charters/declaration_transcript.html

were themselves graduates of these institutions, explicitly posited advanced learning as necessary for the survival of a self-governing nation.[9]

The Founders, while representing conflicting interests and often vigorously disagreeing amongst themselves, understood the importance of education in developing a viable nation and shaping a future they hoped would endure. In their view, only an educated citizenry would be capable of the necessary work of a representative democracy. Only through education could values of equality and liberty be grounded in reason and discourse, and institutionalized in perpetuity for future generations.

Two of the intellectual giants of the founding era were John Adams of the colony of Massachusetts and Thomas Jefferson of the colony of Virginia. Both were elected president of the new nation. They had worked closely together on the Declaration of Independence. They often found themselves in disagreement on key issues. Adams did not hold slaves, considering it immoral; Jefferson did not free his slaves. Their long relationship turned rocky. Mutual animosity was so intense that decades passed without any communication between them. Their many commonalities, however, included the necessity for education and the importance of equality and human dignity.

Adams penned the Constitution of Massachusetts, in which he described the role of government, the social compact of all citizens, affirming the respect for the rights and liberties of every person, and the citizenry as interconnected individuals with duty to one another. Adams thus provided a governing document as well as the values-based foundation of society in which individuals could recognize their community connectedness to one another. Such an articulation promotes a sense of common bond and lessens the destructive individual mechanisms by which people have been known to prey on one another. The Constitution of Massachusetts, the "oldest continuously functioning constitution in the world" (http://www.mass.gov/courts/sjc/john-adams-b.html) is recognized as one of the significant predecessors to the United States Constitution.

Central to Adams' view of government was the necessity of an educated populace to make it work. He wrote: "Laws for the liberal education of youth, especially for the lower classes of people, are so extremely wise and useful that to a humane and generous mind, *no expense for this purpose could be thought extravagant* (italics added)."[10]

Meanwhile, Virginian Thomas Jefferson, wrote on the same topic, in a letter to his law professor, George Wythe, in Williamsburg:

> I think by far the most important bill in our whole code is that for the diffusion of knowledge among the people. No other sure foundation can be devised, for the preservation of freedom and happiness…Preach, my dear Sir, a crusade against ignorance; establish & improve the law for the education of the common people. Let our countrymen know that the people alone can protect us against these evils [tyranny, oppression, etc.] and that *the tax*

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[9] For example: John Adams attended Harvard College; Thomas Jefferson, George Wythe, and James Monroe attended the College of William and Mary; James Madison attended The College of New Jersey (now Princeton University).

[10] Quoted by McCullough (2001, p. 103).

which will be paid for this purpose is not more than the thousandth part of what will be paid
to kings, priests, and nobles who will rise up among us if we leave the people in ignorance
(italics added). (Jefferson 1786)

Like many founders, Adams and Jefferson asserted the value of education for survival of the nation, agreeing that costs cannot be a factor; the cost of ignoring education is far greater.

Jefferson, who founded the University of Virginia (http://www.virginia.edu/uvatours/shorthistory/) considered it one of his finest achievements and included it on his tombstone as one of his three most important accomplishments. Although he had served as Governor of Virginia, U.S. Secretary of State, and President of the United States, Jefferson omitted these distinctions and included only the following achievements (http://www.loc.gov/exhibits/jefferson/207.html): "Author of the Declaration for American Independence and of the Statute of Virginia for Religious Freedom, and Father of the University of Virginia." He wrote: "Because by these, the testimonials that I have lived, I most want to be remembered" (http://www.monticello.org/site/research-and-collections/jeffersons-gravestone).

Why these three accomplishments and in this order? Clearly, the Declaration of Independence asserted that everyone is created equal to everyone else, and that every individual is entitled to "life, liberty and the pursuit of happiness". The Statute of Virginia for Religious Freedom declared the freedom to think, to believe as one chooses, or not to believe, as fundamental to human rights and dignity (http://www.vahistorical.org/collections-and-resources/virginia-history-explorer/thomas-jefferson).

Last on Jefferson's list is "Father of the University of Virginia." In crafting this list for his tombstone, Jefferson affirmed to the world the necessary role of higher education in ensuring the principles established by the documents already listed. Without such institutions dedicated to freedom and learning, the survival of human values would be in jeopardy. Jefferson wisely understood the function of universities to perpetuate individual freedoms and enshrine for generations to come individual freedoms and basic human values.

Colleges and universities provided a choice of scripts to many. At the same time, these colonial institutions provided the necessary basis for a form of government grounded in the will of the people.

12.2.6   Citizenship

Higher education was launched to develop citizens so that a society would be fashioned and a self-governing people could function under the rule of law. This effort had a national focus—building the future of the country—rather than recognition of global impact and responsibility.

12.2.7   Summary

This section drew on historical data to examine the defining role of higher education in shaping the future of a group of colonies 400 years ago into a major country of the world. This is a case study from which key lessons can be derived and applied to national situations. Clearly, the dominance of educational institutions providing learning opportunities for everyone in a diverse multicultural society as pathways for opportunity, perpetuating human values, and thereby building society through human values, were indispensable to shaping the future of the colonies.

At the same time, it must be acknowledged that during this era—as now—there was among the citizenry a massive failure to see violations of human dignity in their collective midst. In spite of the centrality of human values in the founding documents, those values were not uniformly and readily embraced. Progress is incremental and hard fought. It is through difficulties, and even outright war, that progress is made. The challenges in bringing the values to fruition speak to the difficulties of overcoming cultural resistance to championing those values, and serve to warn us of immense challenges in developing a corps of effective global citizens.

12.3   The Role of Education in Shaping the Unscripted Future

> Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world…
> (Preamble, U.N. Universal Declaration of Human Rights, 1948)

Turning our attention to the need to shape the emerging future by advancing human values, higher education is key to that effort. Given the defining impact of higher education on human civilizations in the past, it is appropriate that we consider the question of how it might shape the future on a global scale.

The future of the world in the 21st century is yet to be defined and is currently being crafted by us all. While the levels of individual uncertainty and anticipation may mirror past times in human history, including that of the colonists and revolutionaries renouncing their British citizenship, today's uncertainties are global in nature and connected around the world.

During the 20th century, higher education provided a means for individuals to grasp opportunity, change their birth script to a more desirable one, continue with that newly acquired script, while enhancing their role as citizens. In the past, degrees provided graduates with the pathway to a "script" whereby they learned exactly what they would be doing in their professions, enjoyed a long career, and were rewarded with a good retirement. Obviously, for all practical purposes, those days are over. Career expectations for many are no longer realistic for the next 50 years, or even the next 5 years.

The reasons that career expectations are presently being dashed include the myriad of forces we are witnessing. Vast social, economic, employment, techno-

logical and global changes affecting us and the world are increasingly apparent. The broad outlines of these changes were developed in Park University's Hauptmann School of Public Affairs in 2007 (http://www.park.edu/academics/hauptmann-school-of-public-affairs/deans-message.html) and have been described as The Unscripted Future (DiPadova-Stocks and Kenworthy 2009). The changes identified here reflect the VUCA world[11] as well as the Age of Disruption[12] and are occurring in virtually every sphere: global, political, environmental, work and employment, technological, medical, mechanical, higher education and more. The changes are unique and wide-ranging in character, knowing no geographical or political boundaries; they circle the globe, enhancing world-wide communications and distribution of knowledge.

These changes are relentless, fast-paced, and accelerating. The same tool can be used to create opportunity and to create danger. For example, technology and the internet enable global collaboration with colleagues around the world, and also provide (e.g.) instructions on how to create a bomb.

The Unscripted Future surfaces difficulties of having no predictive models for consequences of events which have not previously occurred and thus have not been subjected to investigation. Consequences of decisions are untested; any of them may either be largely favorable for humankind, or very unfavorable. No predictive sciences anticipate the outcome of events, as some of what we are witnessing has never occurred. Prior research is not predictive of the future.

These considerations are critical in looking at higher education in our emerging future. They raise the foundational questions on its purpose and its most productive role in such an environment.

Increasingly, educators worldwide are recognizing that open creative thinking is required; keeping the models of the past will not work. In December 2007, Dr. Stephen Joel Trachtenberg, who had served as a university president for 30 years (University of Hartford and the George Washington University), addressed the annual conference of the Council of Graduate Schools. Expanding on his address in a published article, he asserted that if he were to convene a panel of experts to consider the future of higher education and how to advise students accordingly, he would include not only university deans, presidents, consultants, and the like, but also others experts in the following: "(1) the rise of graduate education in Europe and Asia and (2) distance learning…and (3) experts who earn their living by imagining the future" (Trachtenberg 2009, p. 73). As education is one of the more tradition-bound professions in the U.S. (along with the clergy and the judiciary), the third category of experts is especially striking. Trachtenberg described these experts as "…not bound or directed by tradition" (Trachtenberg 2009, p. 76).

Drawing on experts who are not bound by the past is critical for consideration of the future of higher education. The global and technological changes occurring now have no precedent. To think through these issues, one must be informed by tradition, but not bound or directed by it.

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[11] See Johansen (2009).

[12] See Scharmer and Kaufer (2013).

Table 12.1 Role of Higher Education in Shaping the Unscripted Future. This chart presents variables presented in the case study and applies them to the 21st century

Colonies, sixteenth to seventeenth centuries	The 21st century future
Characteristics	*Characteristics*
Traditional from 14th century	Technology enabled
Basic structure unchanging	Continual change; innovation
Ivy tower; rigid roles	Community-based; global
Hierarchical; authority centered	Collaborative; co-creative
Top-down	Individualized
Classroom lectures based	Contributive; experiential
Gatekeeper of knowledge	Knowledge democratized
Unquestioned value	Judged on career outcomes
Exalted role in society	Elevated role in society
Recognized public good	Intentional global good
Elite; selective	Open access
Data	*Data*
Informed hindsight	Limited foresight
Historical records	Inferences applied forward
Evidence-based	Emerging evidence
Common conditions	*Common conditions*
Lack of certainty	Lack of certainty
Threats to survival	Threats to survival
Future to be shaped	Future to be shaped
Proven outcomes	*Necessary outcomes*
Strengthening social fabric	Strengthening social fabric
Human dignity values (HDV)	Human dignity values (HDV)
HDV perpetuated over generations	HDV perpetuated over generations
HDV reflected in governance and decision-making	HDV reflected in governance and decision-making
Citizenship	*Citizenship*
National identity	Global identity
	Responsibility of all professions

We are poised in an era of unprecedented opportunity to shape the future of human civilization (Martin 2006; Goldin 2008). The massive scale of this opportunity presents itself in the form of relentless change in many key spheres of life, from nanotechnology, to artificial intelligence, to global climate change (Stern 2007). According to Dr. Ian Goldin, Director of the Oxford Martin School for the Twenty-First Century at Oxford University, the possibilities of this century have been described as superb human advancement or, alternatively, failure to handle the twin threats of growing complexity and rising awareness of income inequality (Goldin 2008).

These changes create an immensely exciting yet unsettling era. New technological advances available to the public include 3-D printing, which will revolutionize manufacturing while making firearms and other weapons even more widely available. Google-glass, another consumer product, will transform interpersonal interactions while raising privacy concerns.

This era is complex, demanding and daunting. Each opportunity brings associated risks. The pace of change—described by Kurzweil as an accelerated exponential rate (Kurzweil 2005)—exacerbates the challenges.

12.3.1 Characteristics

The pace of change in higher education has been accelerating throughout the twentieth century and as of 2014, the future shape is barely beginning to surface. Technology is enabling many of the changes, with vast networks—and libraries—of knowledge increasingly available online to individuals on every continent. Learners in classrooms are increasingly more informed on their subject, and they know how to access current thinking on any topic instantly. Global collaborative groups are operating. A virtual tsunami of false information and fabrications quickly turns into an ocean of data, requiring critical thinking skills and attention to the legitimacy of information. As the saying goes, with the internet, everyone needs to learn to be their own reference librarian.

Innovative changes include: use of social media, mobile online courses (taking courses on phone and tablet apps), Massive Open Online Courseware, iTunes U, to career portfolios, personal learning networks, to name a few.[13] Even gaming as skill development for saving the world is recognized as advancing global awareness and problem-solving in real world scenarios.[14] Institutions of higher learning will accelerate life-long learning commitment in many directions, from encouraging people to take more courses to helping people learn from their environments.

12.3.2 Data

Data for informing our understanding of the 21st century has limitations because much of the data are, by definition, still to be collected on phenomena yet to occur. Many variables are yet to be identified.

While it is not yet possible to extrapolate from masses of historical data and primary documents, ongoing scientific studies and developments are underway, with new developments, innovations, and reports released at a rapid pace. For example, the September 2013 report of the Intergovernmental Panel on Climate Change reflects a heightened concern, as the evidence shows that global changes are accelerating (http://www.climatechange2013.org/images/uploads/WGIAR5-SPM_

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[13] See Fast Company's Anya Kamemetz, http://www.youtube.com/watch?v=i6MLLkmXee0

[14] See The Institute for the Future's Dr. Jane McGonigal's conceptualization: http://www.youtube.com/watch?v=dE1DuBesGYM, as well as the SuperStruct games. http://janemcgonigal.com/play-me/

Approved27Sep2013.pdf). This change knows "no geographical or political boundaries". Jurisdictional governing structures reflect geographical and political boundaries. Issues that cross these boundaries may not have the necessary governing structures to forge solutions. The climate change issue provides an illustration of challenges inherent in developing a solution to address it and fashion an appropriate governing structure, honor the sovereignty of nations, and act quickly.

12.3.3   Common Conditions

Like the English colonists of 400 years ago, we face threats and an unscripted future. Unlike the colonists, the 21st century brings global threats and no governing structure available to provide a set of common values and other benefits necessary to build a universal social fabric.

The colonists had a familiar present in the sense that their hunting and gathering skills for food, communication structures, and the like were familiar from generations past. In contrast, today's generations in the same household communicate differently; social media, texting, and instant messaging, for instance, are skills that parents and grandparents find themselves learning from the youngsters. This dynamic will continue.

As the colonies had clear threats, we face some as well in our fast-paced global technological environment. Current issues that we as a human family are addressing include (but not limited to): climate changes with associated coastal flooding (Levermanna et al. 2013), challenges to the global food supply and the availability of safe drinking water, prospects of resulting massive population displacements, enhanced possibility of pandemics, wide availability of deadly chemical and bacterial weapons, enhanced cyber-attacks, global resource management challenges, and much more. While governments can shut down global internet access to curtail unrest, we have also seen social media launch revolutions and overturn dictatorships.

The convergence of these and other threat-like conditions can foster divisions among groups of people and threaten the societies. Left unchecked, they can unravel civility and launch social unrest. Threats, coupled with helplessness and no apparent governing mechanism for addressing the threats, shred any sense of common bond and surface destructive individual mechanisms by which some humans have been known to prey on others.

12.3.4   Necessary Outcomes

This category is the counterpart to Proven Outcomes in the case study. As demonstrated earlier, institutions of higher education are in the ideal position to perpetuate and affirm common human values, and in so doing, strengthen society. Without a

governing structure of sufficient strength to embrace human values, build the common social fabric and respond deftly and effectively to threats, higher education can imbed those values throughout the world so that they govern individual and collective decisions.

12.3.5 Citizenship

Higher education can meet the challenges facing humankind; the technology is now available to develop human intellectual capital on a global scale. Regardless of field of endeavor or profession, its important work is developing a corps of global citizens who embrace basic universal human values, are committed to protecting human dignity, and to building a better world for everyone. Doing so will help strengthen a global social fabric of resolve and understanding.

To that end, the following threads of learning provide generic starting points for developing global citizens:

- Universal human values and basic human rights
- Adaptability, empathy and service to others
- Cross-cultural and international perspectives
- Critical thinking, healthy skepticism, and research skills
- Historical perspective
- Accountability for actions and responsibilities
- Leadership and responsibility for others
- Ability to examine, articulate and argue different points of view.

These threads are not constrained by discipline, field, modalities, profession, or boundaries. They foster creative learning, draw on learning knowledge, and enhance the adaptability of learners, important features during these times of relentless change. In the online environment, learners gain experience leading virtual teams, conducting virtual presentations, and interacting with fellow learners located around the globe.

In the emerging future, individuals create their own scripts. Given the dynamic, global employment environment, people need to be able to adapt quickly. Many find themselves pursuing multiple careers in their work life and creating innovative businesses for themselves. To enhance their success, they seek educational programs that provide a necessary knowledge base and skill set for adaptation.

Individual distress prompted by challenging existing scripts, especially when those changes are not favorable or planned, is expected. While these dynamics are mentioned earlier in the chapter, if the disappointment is widespread across the population, it can lend itself to various forms of social protests and dysfunctional behaviors as people try to adapt. Many economic and political discussions on the global landscape reflect the importance of reliable and predictable scripts. In the United States, many Americans have long expected that they would not be confined to a generational script, but that they would be able to develop life circumstances

that surpassed those of their parents. Of open concern in today's economic and political environments is the recognition that growing income inequality leads to limited mobility of younger generations, in contrast to parents whose upward mobility is seen as having been more favorable.

12.4   The Unscripted Future and the Twenty-First Century Educator

> In a world consumed with uncertainty, how can we ensure the success of ourselves as individuals, our communities, and the planet? (John W. Moravec, 2013, *Knowmad Society*, p. 18)

Harold Shapiro, the 18th President of Princeton University, points out that "Universities, like other social institutions and even individuals, ought to serve interests that include but move beyond narrow self-serving concerns" (Shapiro 2005, p. 1). The 21st century has become one of considerable uncertainty and turmoil as economies and employment frameworks are being restructured and income inequality in some parts of the world has increased. Educators, long committed to the betterment of society, find themselves in the predicament of not knowing how their own work will be shaped.

The following understandings are well established:

1. The foundation of stability in the Age of Disruption/the Unscripted Future is widespread recognition and emphasis of universal human values. They have been tested and proven for centuries and millennia of human history. They hold the promise of providing stability in a world of turmoil.
2. Education and learning improve the human condition.
3. Educators will be the force that shapes minds and hearts with universal human values.

Such understandings provide a basis for moving forward as we consider the shape of higher education. The physical boundaries of colleges and universities will become faded. Subject matter will respond to real time pressing issues and include problem solving. Learning will be more individualized, while global and virtual; guided continuous learning, with an increase in MOOCs and similar knowledge platforms freely available; faculty serve as continual sage mentors actively engaged in their own learning journey, concerning themselves with individual performance in the learning environment, careers, and in life, and with global implications. Higher education will provide linkages and pathways to the future via other organizations, associations, and local endeavors. Colleges and universities more fully embrace the establishment of businesses, firms, and laboratories to give graduates needed work experience beyond internships, and continue innovative associations with graduates.

Fortunately for the world, in many countries investment in higher education is a priority in shaping the future of their people and nation. While the United States has been decreasing its investment in higher education over the past few decades, China,

India and other nations continue to increase funding. China, for instance, is investing $250 billion a year in higher education (http://www.nytimes.com/2013/01/17/business/chinas-ambitious-goal-for-boom-in-college-graduates.html?pagewanted=all&_r=0). These investments coupled with the sheer demographic differences between countries place pressure on other nations to harness and develop all possible human intellectual capital.

Key questions must remain at the forefront of our efforts as the future emerges: Will the development under consideration affirm human dignity? Will it improve the human condition? Will it develop needed intellectual capital? And will it be a force for good in the world?

12.5   Conclusion

> Civilization is a race between catastrophe and education. (H. G. Wells (1866–1946), British writer)

From an exploration of individual life scripts to the societal and national level of analysis, we considered the role of higher education in the early 13 colonies as a nation was created, using it as a case study of diverse entities jointly shaping their future into a global presence. We turned to multiple dynamics of the 21st century in which scripts and expectations, both individually and globally, are being redefined, enlarged, and challenged, and we explored the defining role of higher education in bringing humane transformation in a way that protects human dignity worldwide. We conclude by affirming higher education as the most promising institution to shape the global future and the future of humanity.

Like the plight of the early colonies, the future looms unscripted and difficult, with its own set of dangers, yet exciting with promise and opportunity. Clearly, as this chapter is being written, the script of the future facing individuals and the world is yet to be framed and we cannot assume the outcome. The future, fraught with opportunities as well as with danger, is not scripted; this century may be the best humanity has seen, or the worst (Goldin 2008). It is up to the collective us.

The power of humane ideas, of values of equality and human dignity, are timeless, and no century, past or future, is exempt. The protection of human values, human dignity, and human rights is never secure, and the preservation of these values requires constant deliberate and intentional actions.

Like many leaders throughout history and around the world, the founders of the United States recognized that education is fundamental to a free, self-governing people and to civil society; they understood that education improves the human condition. They asserted the importance of higher education in founding colleges and universities as a priority. They recognized that the development of human intellectual capital was important to shaping a future viable for livable society. These realizations are distributed throughout the myriad of documents from that era—state constitutions, the Declaration of Independence, various declarations of rights,

and others, and resonate with the twentieth century's U.N. Universal Declaration of Human Rights.

Higher education in the 21st century must accomplish for the global future what universities accomplished in the Colonial Era. Then, like now, institutions of higher learning play the defining role in developing human intellectual capital equipped to meet the daunting issues facing our human family, and to shape a viable future for the world.

> I look to the future, not to just be part of it but to shape it. (John F. Kennedy, Jr. 1917–1963)

References

Association of Public and Land-Grant Universities. (2012). *The land-grant tradition*. Washington, DC: APLU. http://www.aplu.org/document.doc?id=780. Accessed 17 Dec 2013.

Barber, E. S. (n.d.). *One hundred years toward suffrage: an overview*. National Woman Suffrage Collection Association. Library of Congress. http://memory.loc.gov/ammem/naw/nawstime.html. Accessed 16 Dec 2013.

Bradsher, K. (2013). Next made-in-China boom: college graduates. *The New York Times*. http://www.nytimes.com/2013/01/17/business/chinas-ambitious-goal-for-boom-in-college-graduates.html?pagewanted=all&_r=0. Accessed 17 Dec 2013.

Clinton Global Initiative. (2012). *President Clinton opened 2012 Clinton Global Initiative annual meeting emphasizing action through social investment, empowering girls and women, and designing for impact*. Press Release September 22, 2012.

Declaration of Independence. (2013). http://www.archives.gov/exhibits/charters/declaration_transcript.html. Accessed 17 Dec 2013.

DiPadova-Stocks, L. (2011). *Dean's message*. Hauptmann School of Public Affairs, Park University. http://www.park.edu/academics/hauptmann-school-of-public-affairs/deans-message.html. Accessed 17 Dec 2013.

DiPadova-Stocks, L., & Kenworthy, A. (2009). Unscripted and interconnected: What happens to some of us affects us all. *International Journal of Organizational Analysis, 17*(1), 4–9.

Goldin, I. (2008). *21st century challenges: Humanity at the crossroads*. London: Oxford Martin School, Oxford University. http://www.oxfordmartin.ox.ac.uk/videos/view/23. Accessed 17 Dec 2013.

Greenstone, M., Looney, A., Patashnik, J., & Yu, M. (2013) *Thirteen economic facts about mobility and the role of higher education*. Brookings Institution. http://www.brookings.edu/research/reports/2013/06/13-facts-higher-education. Accessed 16 Dec 2013.

Hacker, D. J. (2011). A census based count of the Civil War dead. *Civil War History, 57*(4), 307–348.

Hefland, D. (2013). *Designing a university for the new millennium*. TEDx. http://www.youtube.com/watch?v=DZQe73IXZtU&feature=share&list=PL98356CD352B01730 Accessed 17 Dec 2013.

http://press.clintonglobalinitiative.org/press_releases/president-clinton-opened-2012-clinton-global-initiative-annual-meeting-emphasizing-action-through-social-investment-empowering-girls-and-women-and-designing-for-impact/. Accessed 16 Dec 2013.

Jefferson, T. (n.d.). *Thomas Jefferson's design of his headstone*. Thomas Jefferson Exhibition. Library of Congress. http://www.loc.gov/exhibits/jefferson/207.html. Accessed 17 Dec 2013.

Jefferson, T. (1786, August 13). *Letter to George Wythe*. Monticello. http://www.monticello.org/site/jefferson/quotations-education#footnote2_w5bjsm0. Accessed 17 Dec 2013.

Johansen, B. (2009). *Leaders make the future*. San Francisco: Berrett-Koehler, Inc.

Kamenetz, A. (2010). *How innovations are enabling personal learning networks that augment traditional learning*. TEDx DIY U. http://www.youtube.com/watch?v=i6MLLkmXee0. Accessed 17 Dec 2013.

Kurzweil, R. (2005). *The singularity is near: When humans transcend biology*. New York: Penguin Group.

Levermanna, A., Clark, P., Marzeiond, B., Milnee, G., Pollard, D., Radicg, V., & Robinson, A. (2013). The multimillennial sea-level commitment of global warming. In J. C. Moore (Ed.), *Proceedings of the National Academy of Sciences of the United States of America*. http://www.pik-potsdam.de/~anders/publications/levermann_clark13.pdf. Accessed 17 Dec 2013.

Locke, J. (1690). *Second treatise of government*. Seaside, Oregon, USA: Watchmaker Publishing Co., 2011.

Martin, J. (2006). *The meaning of the 21st century*. New York: Riverhead Books. http://www.oxfordmartin.ox.ac.uk/videos/view/23

McCullough, D. M. (2001). *John Adams*. New York: Simon & Schuster.

McGonigal, J. (2010). *Gaming can make a better world*. TED http://www.youtube.com/watch?v=dE1DuBesGYM. Accessed 17 Dec 2013 & http://janemcgonigal.com/play-me/. Accessed 17 Dec 2013.

McMurrin, S. (1961, May 8). *Comments on the present condition of American education. Testimony before the subcommittee on appropriations, Departments of Labor and Health, Education, and Welfare Appropriations for 1962, Eighty-seventh Congress, United States House of Representatives*. Washington, DC: U.S. Government Printing Office.

Mettler, S. (2005). *How the G.I. bill built the middle class and enhanced democracy*. Scholars Strategy Network. http://www.scholarsstrategynetwork.org/sites/default/files/ssn_key_findings_mettler_on_gi_bill.pdf. Accessed 17 Dec 2013.

Miller, R., Michalski, W., & Stevens, L. (1998). *Twenty-first century technologies: promises and perils of a dynamic future*. Paris: Organization for Economic Co-operation and Development. http://www.oecd.org/futures/35391210.pdf. Accessed 17 Dec 2013.

Monticello. (n.d.). *Jefferson's Gravestone*. Thomas Jefferson Encyclopedia. http://www.monticello.org/site/research-and-collections/jeffersons-gravestone. Accessed 17 Dec 2013.

Moravec, J. (2013). *Knowmad society*. Minneapolis: Educate Futures.

Policy Evaluation and Research Center. (2011). *Optimizing talent: Closing educational and social mobility gaps worldwide* (Policy Notes, Vol. 19, p. 2). Princeton: Policy Evaluation and Research Center, Educational Testing Service. http://www.ets.org/Media/Research/pdf/PICPN192.pdf. Accessed 16 Dec 2013.

Qin, D., Stocker, T., & WGI Bureau. (2013). IPCC Fifth Assessment Report (WGI AR5). Climate Change 2013: The physical science basis. Bern, Switzerland: Intergovernmental Panel on Climate Change. http://www.climatechange2013.org/report/review-comments-disclaimer Anders. Accessed 17 Dec 2013.

Rudolph, F. (1991). *The American college and university: A history*. Athens: University of Georgia Press.

Scharmer, O., & Kaufer, K. (2013). *Leading from the emerging future* (p. 1). San Francisco: Berrett-Koehler, Inc.

Servicemen's Readjustment Act of 1944. National Archives and Records Administration, USA Freedom Corps, and US History Day. http://www.ourdocuments.gov/doc.php?flash=true&doc=76. Accessed 17 Dec 2013.

Shapiro, H. (2005). *A larger sense of purpose: Higher education and society*. Princeton: Princeton University Press.

Shelby v Holder, 570 U.S. (2013). http://www.supremecourt.gov/opinions/12pdf/12-96_6k47.pdf. Accessed 16 Dec 2013.

Stern, N. (2007). *The Stern review: Economics of climate change*. New York: Cambridge University Press.

Supreme Judicial Court. (2007). John Adams and the Massachusetts Constitution. Massachusetts Judicial Branch. http://www.mass.gov/courts/sjc/john-adams-b.html. Accessed 17 Dec 2013.

The Federal Role in Education. (n.d.). United States Department of Education. http://www2.ed.gov/about/overview/fed/role.html. Accessed 17 Dec 2013.

Trachtenberg, S. (2009). Of course it's not your father's Oldsmobile: They don't make them any-more. In D. D. Denecke (Ed.), *Graduate education in 2020: What does the future hold?* Washington, DC: Council of Graduate Schools.

United Nations. (1948). *Universal declaration of declaration of human rights*. The United Nations. http://www.un.org/en/documents/udhr/index.shtml. Assessed 17 Dec 2013.

University of Virginia. (2013). *Founding of the university. Short history of UVa*. http://www.virginia.edu/uvatours/shorthistory/. Accessed 17 Dec 2013.

Vaidyanathan, P. (2013, June 12). Shot Pakistan schoolgirl Malala Yousafzai addresses UN. *BBC News.* http://www.bbc.co.uk/news/world-asia-23282662. Accessed 16 Dec 2013.

Wolfe, B. (2013). *The Roanoke colonies. Encyclopedia Virginia*. Virginia Foundation for the Humanities. http://encyclopediavirginia.org/Roanoke_Colonies_The#start_entry. Accessed 17 Dec 2013.

Yousafzai, M. (2013). *I am Malala: The girl who stood up for education and was shot by the Taliban*. New York: Little, Brown and Company.

Chapter 13
Higher Education 3.0: Knowmads Create Their Own Value!

John W. Moravec and Ronald van den Hoff

The future is not pre-designed. Rather, it is conversed and created as we go along. Recognizing this, John Moravec and Ronald van den Hoff engage in an imagined conversation on their ideas about "higher education 3.0" and how their visions for the 3.0 world are being actualized.

John: Ronald, what is your vision of *Society 3.0*?

Ronald: We live at a juncture. There is no escaping it. Certainties of yesterday are gone. One day after another, we are again faced with crisis. Our financial systems failed and dragged us into an economic recession of unknown proportions. The cogwheels of our society have stopped. Everywhere you look, there are traffic jams. "Crisis?" It is more like a global social transition! Our technological potential for social mobility is greater than ever. Our world seems to have shifted into top gear. But why are the wheels not turning? Every proper-minded person must agree that our countries are being derailed structurally. Our craving for the faster, bigger, and better has crippled us. This makes us at Seats2meet.com (my company) angry. We are angry that we don't allow ourselves to use new technologies, new ventures, or new legislation; and, that the political and governmental elite of Europe (and, with it, perhaps the entire Western world) is redistributing, in a very inefficient way, over 50 % of our Gross National Product the same way they did 100 years ago. That is done with the approval of the established, larger corporations.

Schools still educate people in an industrial way. Students are "end products," however. Universities are preparing them to fulfill jobs that no longer exist. This is an enormous mismatch. Youth unemployment throughout the European Union is staggering. What about the healthcare system? There is no movement there either.

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Big players in the system bicker about capacity. They bicker about remuneration, quality, funding, fears of overspending, and about preserving a "free market." But what about the patients? They are left totally out of the picture. On top of that, we are getting older and older. The costs of elderly care as well as our health systems are astronomical.

The resulting indecisiveness of our political leaders has proven to be crippling for the innovative force of Europe. Somehow, our political system has survived itself. The gap between the voter and candidate has never been so wide.

We are living in the aftermath of the plutocracy of the last century. We are stuck due to the dynamics around us, many of which were rooted over several hundred years ago. Some European countries are still rich, while some are not. Step-by-step, there is an acknowledgement that our wealth is gone. There is awareness, especially among younger people, that things can and have to be organized differently. Forced innovation or "revolution" by the "lower caste" is something of concern to all age groups. So, be prepared. The feeling that "all is quiet" can, under the influence of modern social media, change in no time.

Robert Adams mentions in his book, *Decadent societies* (1983), five drivers lead to the decay of rich and influential societies:

- Indecisive leadership;
- Extreme taxes;
- Social inequality;
- Extensive laws and rules; and,
- Smugness and arrogance.

Does this sound familiar to you?

Therefore, it is time to for something new. Since the traditional system no longer works, we have to reinvent ourselves, our social systems, our political systems, and our business models to create new value. This includes transforming our educational systems to be ready for a new time – a new format of society, which I call *Society 3.0*.

John: My vision of Society 3.0 is quite similar. From my investigations of this emerging reality, it seems clear that we are moving into a society dominated by accelerating technological and social change, escalating globalization, and an innovation society fueled by *knowmads* (Moravec 2013).

Vernor Vinge (1993), Ray Kurzweil (2005), and Hans Moravec (1988) have popularized the notion that the exponential growth and performance of technologies are leading to an era of machine augmented intelligence and artificial intelligence within the next two decades. These accelerating technological developments also prompt personal and social transformations. Many futurists predict that a *Technological Singularity* will emerge by 2045, when change will occur so quickly that it will appear to happen instantaneously for human observers, defying our imaginations.

The idea of a Singularity is, and will be, under debate for a while, but the general consensus is that we are entering an age of massive uncertainty and constant

change. We built our economic and education systems for an industrial paradigm of simple, rational decisions and relationships. But, now that the world is much more complex – and further *complexifying* at an increasing pace – the challenge for education is becoming quite clear: We need to prepare people for jobs that we can no longer imagine.

Our relationships with each other used to be simple and easy to define. Now they are much more complex. Today's organizations might look like they have clear lines of reporting and responsibilities among their people, but when we really look closely, organizations are starting to resemble a plate of spaghetti and meatballs more than a neatly-organized pyramid. We used to be much more transactional in how we related with others, but now we are forced to seek out synergies – and this is compounded by the challenge that we all perceive the world a little bit differently from each other. How we create value in this emerging 3.0 paradigm is closely tied with our abilities to contextually apply the individual knowledge that each of us possesses (Moravec 2008a).

Moreover, in a rapidly changing world, we need to create our own work. In the past, jobs and work used to be commingled together as one. Now we are seeing a tremendous division emerge. *Work* is something that is very personal, and is connected with one's individual knowledge and skills. A growing segment of the population is taking on *jobs* as gigs – like *free agents*, or as I prefer to call them, *knowmads*.

A knowmad is:

> […] a nomadic knowledge worker – that is, a creative, imaginative, and innovative person who can work with almost anybody, anytime, and anywhere. Industrial society is giving way to knowledge and innovation work. Whereas industrialization required people to settle in one place to perform a very specific role or function, the jobs associated with knowledge and information workers have become much less specific concerning task and place. Moreover, technologies allow for these new paradigm workers to work within broader options of space, including "real," virtual, or blended. Knowmads can instantly reconfigure and recontextualize their work environments; and, and greater mobility is creating new opportunities. (Moravec 2008b)

Knowmads are 21st century extensions of Peter Drucker's (1993) knowledge workers who can adapt and thrive in periods of accelerating change. The general consensus is that free agents and knowmads will comprise 45 % of the workforce by 2020. Even today, in 2013, one in three U.S. Americans are estimated to be members of the knowmadic, free agent workforce (see esp. summary by Disney 2013).

The question is, how do we train for "anytime, anywhere, with almost anybody" careers if our schools and universities are still focused on developing human capital for old, industrial paradigms of work and society?

Ronald: I guess there will be many more locations in which to learn in the near future, as well as a greater variation of content. We will see more tailor-made programs, if you like; so instead of going to school for six years, you pick up knowledge, when and where you need it, about 1,000 times per year, for a period of 30 years, and so on.

If we want to be usable as interdisciplinary junctions in the knowmadic value network, remain employable in the process of value creation, and keep our new organizations up to par in these dynamic times, then we will have to assume an attitude of learning for life. By "being usable," I mean as human beings who are aware of the qualities and responsibilities that reach far beyond technical skills. Learning is becoming more accessible to the broader population through technologies. Information and knowledge can often, and easily, be found on the World Wide Web. Knowledge is shared with people from all over the world, and as a result, new insights and knowledge come into being. We need to prepare our children for this.

So, the question is: Do we still send our youth to school, and if so, how would they develop? What does "learning 3.0" look like?

John: In the old paradigm, meaning was dictated to us. Knowledge experts or others licensed or chartered by the state/institution told us what the right answers were, and how to find them. In a world that is constantly evolving, the "correct" answers are now often socially constructed and contextually reinvented. We live in a world where one plus one does not always equal two, and, invariably, the *context* of the problems and solutions we explore are critical for the determination of the most plausible solutions.

Teaching was done from teacher to student, but in a world that is infused with ICTs, and where the contextual utilization of our individual knowledge is critical, we now have multiple pathways for instruction: Teacher to student, student to student, people utilizing technology to co-teach others. In essence, this is technologically augmented co-constructivism.

With technologies, we can break down the "place" of an institution as belonging within a building or campus. Indeed, we have many online options today, but it is also possible to embed technologies within the social environments in which we interact with. We can create smart learning and discovery options that are thoroughly infused into society (i.e., within cafes, workplaces, city parks, transit stations, etc.).

This 3.0 paradigm embraces an ambient presence of technologies that link us together socially to share, augment, and build upon each individual's personal knowledge. This is a big break from what have traditionally done in education. In primary and secondary-level schooling, ICTs are managed very carefully or are often completely absent. In tertiary education, the possibilities are more open, but universities are having a hard time figuring out what to do. In essence, they are trying to map old practices to new technologies, which cannot be expected to result in innovations.

Ronald: I agree. The rise of alternate learning locations, like coworking centers, tech labs, and corporate *intra*preneurial departments, open to external peers of an organization, are excavating the exclusive right of a physical university (building) to be the center of learning and research. "Boundless" and "blurring" are themes of Society 3.0, which, obviously, are also emerging in education.

John: There are a number of places that inspire me around the world, including:

- **E-180** in Montreal, Canada: A peer-to-peer learning platform based on the concept of enabling individuals as "lifelong teachers" (Renaud 2013).
- **General Assembly** in New York, USA: Integrates business opportunities with courses focused on technology and design.

- **KaosPilots** in Aarhus, Denmark: A hybrid design and business school with an emphasis on leadership and entrepreneurship.
- **Knowmads Business School** in Amsterdam, The Netherlands: A one-year social entrepreneurship program for change makers.
- **Shibuya University Network** in Tokyo, Japan: Founded by a young adult who was so disenchanted with Japanese higher education, he created his own school (CNN 2007) that is integrated into the community and facilitates peer-based learning.

While the bulk of universities have experienced the phenomenon of "McDonaldization" (see esp. Hartley 1995; Ritzer 1993), these postsecondary providers buck the trend by diversifying their approaches, and show some interesting commonalities:

- **Smaller, boutique-like:** By being smaller in organizational size and bureaucracy, and by focusing on a particular, unique mode of learning, it can be argued that each provider is more nimble in regard to its abilities to adapt to changing educational, economic, and social environments.
- **Focused on community:** Whereas traditional academic institutions often set themselves apart from the communities they serve (the "ivory tower" analogy), these 3.0 institutions are more closely embedded with – and collaborate with – the communities they serve.
- **Value generative:** Rather than providing top-down, managed educational services, these institutions engage in more "horizontalized" strategies. That is, they often engage in peer-based learning and collaborations with community partners that are more focused on co-creating mutually-beneficial value than transaction-based profit.

With your work at Seats2meet.com, what are the implications for traditional universities?

Ronald: I am looking toward a direction where our educational institutions have to develop self-learners who can produce knowledge by sharing what they know with others and remix what they learned from others to form new ideas. These graduates will find change and continuous development necessary, and also a common aspect of their lives. They are people who present themselves and behave like meaningful beings; people who can mobilize their knowledge, experience, and information for themselves, and in relation to others. These are global citizens of knowledge and innovation-based society – the knowmads.

In order to join that global game of value creation in the future, our educational systems, from primary through tertiary levels, must be fundamentally changed. Pumping improvement money into a dead system in order to gain a competitive advantage, as many governments are doing presently, is disastrous. We no longer need a closed institution; rather, we require an open space that is dazzling, creative, and social; virtual and physical, with places for meetings and activities in the community, village, or city where the school is located.

John: Indeed, we need to open the learning space to modern formats. It seems to me that, in an era of accelerating uncertainties, we need to expand our ecology of options

for higher education. It does not make sense to invest so heavily (economically and culturally) into one mode of learning and certification if we know other models are just as equipped, or better equipped, to meet future challenges. My fear is that if we universally invest into the mainstream higher education format as our single, most valued mode of postsecondary development, then we face the risk of failing universally.

Ronald: It is impossible to imagine life without learning for life. If people want to remain employable, they will have to take refresher courses or retrain during their working life. Finishing school is not the end of one's learning process, it should be the beginning. By making immense amounts of information available, the World Wide Web is helping people actualize this, but how users (consumers?) convert this access into meaningful knowledge is a shared challenge.

Likewise, education (and community) leaders should embrace the metaphor of the Web to incorporate new social and economic inputs into a larger "web" of continuous education and sharing. I refer to this as "The Mesh" (van den Hoff 2013) – and, in essence, it means that all levels of continuous education become more of a cultural product that is embedded in our daily lives rather than discrete experiences.

John: It is interesting that you bring culture into the socioeconomic mix. It seems to me that you are alluding to an emerging crisis in higher education, where we are focusing too much on Adam Smith-type economics and industrial modes of production. As Hakken (2003, p. 355) notes, we need to create a "knowledge theory of value" that can help us navigate the Mesh-like relationships that are emerging in society that mirror the transformations occurring in cyberspace.

We are at a juncture with two conflicting approaches to teaching and learning. Can the industrial model adapt or co-exist with a value-based social model? What if universities fail to adapt?

Ronald: I started this conversation with, "we live at a juncture." That does not mean we have a choice! We are presently in the middle of our own revolution. Society is rapidly evolving into a new era: Society 3.0. It is up the global Society 3.0 citizen to reinvent our social and economic systems. This reinvention is where we can find the opportunity – an opportunity to get us out of this turmoil. It is not an easy journey, as the established, industrial-focused old guard is resisting; however, their inability to show us the way out and guide us to this new era demonstrates that the industrial system, with its political and economic components, is really at its end.

Therefore, if organizations, universities, governments, or corporations do not adapt, we will simply bypass them and they will lose their *raison d'etre*. Teaching is not the exclusive right of schools and universities anymore. Recent research from the Rotterdam School of Management (van de Vrande et al. 2013) shows that know-mads working in our Seats2meet.com coworking locations report an improvement of their business skills (47 %), an improvement of their products or services (41 %) and the development of new products or services (37 %). They learn by collaborating with others and do not necessarily need (or desire) the backing of an official institution to learn. The sooner the ivory tower establishment realizes this, the better!

References

Adams, R. N. (1983). *Decadent societies*. San Francisco: North Point.

CNN. (2007). Interview: Yasuaki Sakyo. *CNN*. Retrieved from http://edition.cnn.com/2007/TECH/11/01/sakyo.qa/

Disney, J. (2013). The freelancing boom: How coworking & business centres can capitalize. *Officing Today*. Retrieved from http://www.officingtoday.com/2013/11/the-freelancing-boom-how-coworking-business-centres-can-capitalize/

Drucker, P. F. (1993). *Post-capitalist society*. New York: HarperBusiness.

Hakken, D. (2003). *The knowledge landscapes of cyberspace*. New York: Routledge.

Hartley, D. (1995). The "McDonaldization" of higher education: Food for thought? *Oxford Review of Education, 21*(4), 409–424.

Kurzweil, R. (2005). *The singularity is near: When humans transcend biology*. New York: Viking.

Moravec, H. P. (1988). *Mind children: The future of robot and human intelligence*. Cambridge, MA: Harvard University Press.

Moravec, J. W. (2008a). A new paradigm of knowledge production in higher education. *On the Horizon, 16*(3), 123–136. doi:10.1108/10748120810901422.

Moravec, J. W. (2008b). Knowmads in Society 3.0. *Education Futures*. Retrieved from http://www.educationfutures.com/2008/11/20/knowmads-in-society-30/

Moravec, J. W. (2013). Knowmad society: The "new" work and education. *On the Horizon, 21*(2), 79–83. doi:10.1108/10748121311322978.

Renaud, C. (2013). Relationships as the ultimate pedagogy: Making everyone a life-long teacher. In J. W. Moravec (Ed.), *Knowmad society* (pp. 213–230). Minneapolis: Education Futures.

Ritzer, G. (1993). *The McDonaldization of society: An investigation into the changing character of contemporary social life*. Newbury Park: Pine Forge.

van den Hoff, R. (2013). Society30: Knowmads and new value creation. In J. W. Moravec (Ed.), *Knowmad society* (pp. 231–252). Minneapolis: Education Futures.

van de Vrande, V., Hynes, N., & Burmeister, K. (2013). *Why there should be more free lunches*. Rotterdam: Rotterdam School of Management.

Vinge, V. (1993). *The coming technological singularity*. Retrieved from http://www-rohan.sdsu.edu/faculty/vinge/misc/singularity.html

Chapter 14
Transformative Perspectives and Processes in Higher Education: Concluding Thoughts

Kay S. Dennis and Amber Dailey-Hebert

At the beginning of this collection, we posed three questions for the reader to consider:

1. What is the future you see for higher education?
2. How can changes and opportunities in learning (i.e. with learner mobility, emergent technologies, new target populations, etc.) be harnessed to our collective advantage?
3. What will invoke your next learning innovation? (i.e., what do you anticipate exploring during the next two years?)

We conclude this collection of diverse perspectives, innovative strategies, and alternative pathways for higher education by synthesizing ideas offered by the authors. When asked about the future, they shared mixed responses with divergent considerations. Two schools of thought emerged – the first characterized by dissolution, stagnation, and the obliteration of higher education as a whole, and a second picture marked by innovation, change, and hope.

14.1 The Future for Higher Education

As Milter predicts, "Higher education as we now know it will cease to exist." Others share similar views of the significant upheaval that awaits and the ways in which such higher education as an entity has become antiquated. According to Blaschke, the future of higher education rests in large part on the shoulders of its leaders and

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policymakers, although teaching staff/faculty and students also will play a part. Change at all levels is required, starting with a top-down commitment to new ways of learning, personalized curriculum, and a learner-centric environment. Absent these elements, she continues, higher education runs the risk of becoming even more fragmented by diverse types of providers snipping away at the higher education domain.

Boud and Rooney anticipate an environment in which "private providers 'cherry pick' the easy, high margin courses and leave the rest for the increasingly deprived public sector institutions." They expect that higher education will utilize digital technologies developed by others, but that higher education will not be a great originator in this area. Higher education can be compared to the newspaper industry, according to Bohle-Carbonell, who adds that perhaps, "higher education… should be dismantled into the things it can do very well", to strip away all other elements and create specialized units that work together to provide support for the learner.

However, Rehm suggests that cooperation among universities will become increasingly important; higher education will become more open and perhaps employ 'media-didactical solutions' that focus on quality assurance and transferability of learning across different providers. Mandernach expects to see a continued merger across the public, private and for-profit sectors of higher education.

Timus states that a flexible and more 'tailor-made' approach to course design based on specific audiences (traditional students, professionals) will be needed, along with greater flexibility in administrative policies regarding course design, pedagogy, and use of e-learning. Similarly, Boud and Rooney emphasize effective educational design and generative tasks, and the incorporation of feedback processes. They look for greater connections with the rest of society (including the world of work) and acknowledge the importance of motivating learners. Fonteijn cites the need for ensuring the quality of global, learner-centric and highly individualized, technology-driven transfers of knowledge and skills.

All chapters suggest significant opportunity in the future of higher education. Boud and Rooney see diversification as the cornerstone for that future, as a result of increased differentiation between educational designers and those who teach the courses, as well as increased interaction with societal stakeholders to promote transfer of relevant knowledge and skills. According to Rhem, higher education will be urged to provide additional tailor-made courses/modules for special target groups (e.g. working professionals), so their design and setup will evolve. Grohnert envisions flexible learning pathways, on which students can complete courses at multiple institutions, extend time to graduation by taking off time between semesters, mix traditional courses with internships, take classes from alternative providers like Coursera (MOOCs), or study abroad.

Bohle-Carbonell suggests that higher education as an entity will continue to exist but should place greater emphasis on learning that can take place outside its physical space. She hopes to see a movement away from assessment and performance measurements toward a focus on learning per se.

14.2   Harnessing Change and Opportunity

On the question of how changes and opportunities in learning can be harnessed to the collective advantage, our contributors were quick to point out that the evolving landscape offers an array of benefits for teaching and learning that are "hugely underestimated and underutilized," as expressed by Blaschke. Future learners will enjoy unprecedented avenues for self-determination. Boud and Rooney expect that undergraduates in particular, not wishing 'a wholesale move to online,' will seek engaging, attention-keeping, in-person experiences that are unavailable through other pathways. The preferences and needs of tomorrow's learners will effect radical change in classroom teaching and campus spaces. Timus predicts that intercultural competency and skill development will strengthen on a widespread basis as a result of communications made simpler yet more robust.

Learners will benefit from help with navigating the maze of study programs and courses, particularly when credit transfer is involved. This important service can be simplified, possibly similar to the airline industry's partnerships, as Grohnert suggests. For example, learners will have a 'home' university but be allowed to complete courses or other approved activities, such as internships, elsewhere. Moreover, attention can be directed toward maintaining rigor in course work as well as preserving and expanding the professional development opportunities for the teaching staff/faculty.

Teaching staff/faculty, according to Bohle-Carbonell, can form *Communities of Practice* (virtual or in person) to exchange experiences and ideas on teaching and how best to stimulate learning. She adds that smaller universities may be better positioned to respond to changes more quickly, with greater flexibility, as they are less hindered by an abundance of strict rules and regulations, particularly in relation to technology uses.

Boud and Rooney suggest that courses geared toward developing professionals will mirror the realities of professional careers and build the capacity of learners to meet contemporary workplace challenges. Open Source™ solutions will offer strong support, according to Rhem, for not only do they offer the potential to strengthen interoperability of systems; but also they enable institutions to reach out to partners and students who might lack the means to take advantage of commercial solutions.

As our global economy pushes institutions of higher education to be more efficient and effective (as well as accessible) in educating an expanding body of knowledge workers, institutions "will be forced to lean upon the successes of one another to meet demands in a fiscally responsible manner," as Mandernach explains. Milter adds that institutions whose leaders take an entrepreneurial approach to the learning enterprise of tomorrow will find themselves better equipped to remain relevant and respond rapidly to emerging issues. Accountability for outcomes will increase as institutions are expected to publicize and attain their academic standards and to report course outcomes. To a growing degree students will want value for their money.

And as for money, in the opinion of Bohle-Carbonell, all of the much vaunted developments in learner mobility, emergent technologies, new target populations and the like, will be accelerated and enhanced when funding is made available to the many bright minds out there – hobbyists and inventors, academics, small business owners, teenagers – individuals and groups who want to change the status quo for the common good. Systems can be established by venture capitalists, foundations, and other sources, to enable open application procedures to bring the latest great ideas to fruition.

14.3   Future Explorations

We asked our contributors, "What will invoke your next learning innovation? What do you anticipate exploring during the next two years?" Not surprisingly, they were quick to share their plans. Ideas are percolating on all fronts. Here are some examples, about which we may be learning more in the days to come:

- Virtual mobility, blended team learning, 'peeragogy', gaming, creativity
- How to foster students making judgments about their own learning
- Use of embedded feedback processes throughout courses
- Investigate a future in which people and computers interface in new ways
- Ensuring that all assessments generate worthwhile study

  – Teaching students to derive knowledge in a scientific and individualized manner, such that a manner of thinking becomes the program core, rather than domain expertise
  – Determining which competences students must develop during a technology-mediated problem-based learning course that integrates academic thinking and practical experience
  – From portfolio to social media as conservator and conduit of one's progressive, lifelong teaching, learning, sharing and supporting learning

- Exploring developments of innovations such as Google Glasses™ and Lenses™ to map the best pedagogical practices and exchange practices between the EU and East European universities, thereby updating European Studies curriculum to deliver more real-world job skills that are required by the job market (eg. problem based learning, simulations, e-learning)
- Investigating better incorporation of technology, enabling better facilitation of learning via technology and a mindset toward deeper and more meaningful application of learning in real contexts

It is clear from their accounts of challenges, projects and results that our contributors and their colleagues around the globe are indeed embracing the complexity and uncertainty surrounding us, and are leveraging them to benefit the learner and society. They are focused on needs and possibilities, and are devising strategies and systems not only for coping but also for improving and extending the quality of learning, of life itself.

What might our future look like if higher education focused on the needs of humankind and the enablers for meeting those needs? Again we assert that revolutions in education already have occurred worldwide and will continue to shape the face of learning as we know it. As lines blur across all forms of learning – be it informal, formal, traditional, professional, networked or otherwise – shifts in our perspectives and collective understanding are necessary to accompany and support such change. We hope that this collection has introduced you to multiple practical concepts for consideration and adoption as we challenge ourselves to participate in innovating the future of learning.

About the Contributors

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Katerina Bohle-Carbonell is a researcher at the Educational Research and Development department at Maastricht University. She was involved in several projects creating online and blended courses for professionals. Most prominently, in the Learning and Working project she coordinated the research efforts across schools and created a framework for administrators to stimulate innovation. Her research analyzes how adaptive experts contribute to superior team performance by providing a key role in coordinating team members. She uses a mix of qualitative and quantitative data collection methods and social network analysis. She teaches in the blended MHPE master program for health professionals, mentors medicine students, and is a member of the ICO graduate school.

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Amber Dailey-Hebert has worked, in the United States and abroad, for continuing higher education programs focused on adult learners, distance education and training, and grant-funded projects that serve working professionals. She earned her Ph.D. in Adult Education from Cornell University and works as a full professor in the Graduate Program of Adult Education at Park University, focusing on educational innovation for social change. Her administrative academic experience includes Department Chair, Program Coordinator, Associate Dean, and Founding & Executive Director of *the Center for Excellence in Teaching & Learning (CETL)*, which provides faculty development for over 1,600 full/part time faculty located around the globe. Her international experience includes leading grant-funded projects for professional learners, faculty development, and assisting with university-wide strategic initiatives worldwide.

Kay S. Dennis has devoted three decades to adult continuing education and higher education, and earned an Ed. D. in Adult and Higher Education from North Carolina State University. She teaches in the Graduate School of Professional Studies at Park University, supervising student research and developing/teaching online courses in Research, Adult Development, and other areas. Her international activities include a 2010 Fulbright Scholarship to Latvia to teach Intercultural Communication and Qualitative Research, with three subsequent visits there. As a Distance Learning administrator she obtained numerous technology grants and composed the institution's 5-year Technology Plan. She also served as Program Evaluator for federally funded faculty development initiatives in medical education. Additional administrative experience includes Interim Department Chair in Adult Education and Online Instructor Evaluator.

Laurie DiPadova-Stocks, professor of public administration at Park University, serves as Dean of the Hauptmann School of Public Affairs (HSPA), succeeding its founder and first dean, Dr. Jerzy Hauptmann. An advocate for the responsibility of colleges and universities to engage with the community for the common good, DiPadova-Stocks has played a key role in advancing service-learning in U. S. higher education through national academic professional associations. She earned her Ph.D. degree in public administration and policy from the Rockefeller College of Public Affairs and Policy, State University of New York at Albany, with primary research interest in organizational hierarchy, authority and leadership. Recognizing the extraordinary pace of societal changes due to globalization and technology, and its associated dynamic employment environment, in 2007 she established the *Unscripted Future Initiative* at HSPA to inform research and teaching. She has published in a variety of national and international scholarly journals. She has received lifetime achievement awards from the University of Utah, the Rockefeller College of Public Affairs and Policy, and the Academy of Management (Public/Nonprofit Division).

Herco Fonteijn is an associate professor at Maastricht University in The Netherlands. He works at the Faculty of Psychology and Neuroscience since 1995, currently at the Department of Work and Social Psychology. He received

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Stewart Hase is a consultant psychologist. He has been an academic for 30 years and has written widely in the areas of education and training, and organizational behavior. Stewart has also been a psychotherapist and organizational consultant. It is the latter area he currently works, along with writing and developing new approaches to learning. With Chris Kenyon he developed the concept of heutagogy in 2000 and the idea has excited a number of people around the globe interested in developing appropriate learning for the twenty-first century. Their book, 'Self-determined learning: heutagogy in action' has recently been released by Bloomsbury in the UK.

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