GLOBAL EDUCATION IN THE 21ST CENTURY

Global Learning in the 21st Century

Tasos Barkatsas and
Adam Bertram (Eds.)

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Global Learning in the 21st Century

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Volume 1

Scope

The *Global Education in the 21st Century* Series will address contemporary cutting-edge teaching, learning and research issues from a global perspective. The series will present a modern focus on the debates surrounding current and significant educational issues, as well as the technological advances that impact on contemporary educational practices during a period of rapid social and technological changes.

Global Learning in the 21st Century

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TABLE OF CONTENTS

Section 3: Inclusion and Social Context

Section 4: Globalisation and Internationalisation

PREFACE

This book presents a modern focus on some significant and current issues in teaching, learning, and research and the debates surrounding these and how these issues are potentially resolved in practice. In this 21st century, technological and social change has never been as rapid as it has been before, and educative practices must evolve and innovate to keep up.

We, the editors, saw an opportunity to present some of these issues and innovative practices that are currently being explored by some of our researchers in our newly formed centre at the School of Education (SoE), RMIT University, Australia.

An open request was sent to our academics of the School of Education (SoE), RMIT University, Australia. We invited expressions of interest to contribute chapters for the book. Eighteen SoE academics agreed to submit their chapters, either as sole authors or co-authored with their research colleagues from other Australian or international Universities.

Prospective authors were asked to submit an abstract describing their proposed chapter. Once the submissions were received and reviewed, the editors suggested the changes that were required and invited the authors to submit their chapters. Each chapter was reviewed by at least two academic reviewers. Finally, the editors invited Professor Amanda Berry (SoE), to write the book's epilogue.

We commend the research efforts of the authors, the high quality of their research and their willingness to author chapters in this volume.

Finally, we thank the editorial staff of Sense for their constructive advice and feedback about the book.

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A warm and heartfelt thanks to all the authors and reviewers who have so kindly donated their time. We have a fantastic network of academics with extensive experience in their respective fields; it was a joy to work with all of you, and your contribution to this book has been valuable. This book was an idea conceived for our newly formed centre, the Centre for Education, Training and Work in the Asian Century (CETWAC). We thank Peter Kelly, as Centre director, for his support in this project at all stages of its development. We are also grateful that this publication has been supported by a Publication Submission/Presentation Grant from the Research and Higher Degrees by Research Committee, School of Education, RMIT University.

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ADAM BERTRAM

1. GLOBAL LEARNING IN THE 21ST CENTURY

An Introduction

INTRODUCTION

It is undeniable that our global societies are advancing rapidly toward a more integrated and connected world – and in this century, faster than ever before. It is imperative then that our education practices must keep pace. We must ensure that we are equipping learners with the necessary skills and competencies that empower them to succeed in a world where change is an inescapable constant. How then do educators support learning for change? What skills and competencies then become important? What aspects of current education need to be refocussed, emphasised, or even discarded? What new forms of education need to be introduced?

As our world becomes more globally connected and integrated, we also cannot ignore the increasing internationalisation of education. To this end, our education practices need to support our learners to be citizens of the world, not just of their own locale. Our students – who *will* become our future leaders, thinkers, and custodians of our fragile planet, and of humanity – need quality and relevant education to give them the diverse skills they might need for success. So, how is education and educational research responding to these challenges? We hope that this edited collection provides some insights into just some of the research that is preparing our students for these modern and changing times. This book sets out to examine some of the most significant and current issues in teaching, learning, and research; the debates surrounding these; and how these issues are potentially resolved in practice. Within different aspects of the curriculum, the contributing authors consider principles of teaching and learning and how these relate to planning, pedagogy, and assessment.

THE ASIAN CENTURY

While this book is designed for a global audience – much of the theory and research sits in the context of the dominant, Western/Eurocentric views of education. That being said, we do strongly subscribe to the idea that the 21st Century is *the* Asian Century. This idea recognises the emergence and refocussing of global dominance away from Euro-America (Law, 2004) to the economic rise of north, south, and east Asia. This development will have profound consequences throughout the globe.

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 1–5.

As China and India rise as superpowers, other Asian countries (including Japan, Malaysia, Singapore, Indonesia, Thailand, and Korea) will also play major roles as the global centre of gravity shifts to this region (Australian Government, 2012). As a consequence of economic and political changes, there will be critical and dynamic shifts in the globalisation of cultural and social dimensions as well as technological. This has implications for education. How do we prepare our students for such changes and what then should we prepare our students for?

In a century of increased social networking, technological advances, and global communication, educators and business leaders agree that specific skills are required for students (Beers, 2011; McCoog, 2008; Moylan, 2008). Smith and Hu (2013), in their article "Rethinking Teacher Education: Synchronizing Eastern and Western Views of Teaching and Learning to Promote 21st Century Skills and Global Perspectives", provided a succinct summary of how we might prepare our students for this century.

These skills might/should include:

- critical thinking;
- problem-solving;
- creativity and innovation;
- collaboration and teamwork;
- leadership;
- cross-cultural understanding;
- communications and information fluency;
- computing and ICT fluency; and
- career and learning self-reliance (Moylan, 2008; Paul, 2012 as cited in Smith & Hu, 2013).

In catering for these student needs, education practices need to be responsive and pioneering, and ought to prepare students for the Asian century. It is our aim that the chapters in this book go some way to addressing this.

ABOUT THIS BOOK

This book grew out from this idea, and has been made possible through our School of Education's new centre – the Centre for Education, Training and Work in the Asian Century (CETWAC). The centre supports research around advancing educational and social research in the context of "emerging understandings of changing forms of education, training and work; childhood, youth and young adulthood; relationships and family structures; culture, politics and the economy; development, migration and strategic relations. The Centre contributes to debates about how these experiences are marked by growth, development and opportunities, and by crisis, marginalisation and exploitation" (Centre for Education, Training and Work in the Asian Century, 2016). We are grateful that we could collaborate with members of this group and bring together a collection of our current research work in this context.

While many of our authors are Australian – and RMIT academic staff – they are widely travelled and participate in and publish about research at an international level, and regularly publish with international colleagues and for international journals. Our contributors and international and local co-contributors write about issues that have world-wide currency and valid implications for global learning, even if some of the empirical research were conducted in Australia. A number of the studies reported in the book, however, have been conducted in Asia and Europe.

In this book, we believe that we have captured some of the most contemporary and innovative practices and issues that *are* impacting on education today on a global scale. Our chapters provide evidence for claims, substantiated from empirical research and/or rigorous academic discussion. They encourage the reader not to take things in teaching simply on face value, common sense, or just because "that's how it's done around here". In other words, the chapters will challenge the reader to distinguish unsubstantiated opinion from evidence-based practice. At the same time, the authors are clear about where there is a lack of clear evidence and when issues are contested.

The reader will be provided with evidence from the literature that may either confirm or challenge their opinions and experience. The book will raise issues that the reader might not have previously considered and challenge the often taken for granted rhetoric of teaching (for example, diversity is something that somehow needs to be "managed" rather than seeing it as a resource to celebrate and build on).

While the intended audience is teacher educators, academics, and educational researchers, the book will also appeal to recently qualified teachers, experienced teachers, administrators, curriculum developers, university tutors, and student teachers. The book will be helpful for anyone interested in education to understand current practices that help prepare students for a modern and global world.

STRUCTURE OF THIS BOOK

As mentioned above, education needs to be responsive and innovative. This book is our response to this, and is intended to showcase some of the work that our centre (CETWAC) at the School of Education, within the College of Design and Social Context, at RMIT University has produced.

Drawing on the particular research and expertise of our colleagues in the centre (and that of our international and national collaborators), we offer here our work that we believe aligns with equipping students with the necessary skills for the 21st century. When we did so, we saw four salient themes emerge around which the various research studies were centred. These themes then were a nice way of grouping the chapters into relevant sections of this book.

The chapters are presented in four sections that align with each of the four themes:

- Section 1: Contemporary, innovative curriculum and pedagogical practices;
- Section 2: Affective domain, motivation and engagement in 21st century education;

- Section 3: Inclusion and social context; and
- Section 4: Globalisation and internationalisation.

The first theme, and perhaps the most obvious, is that contemporary, innovative curriculum and pedagogical practices are important in the education of students in the 21st (Asian) century. In this section, we have grouped five chapters together. Chapter 2 opens the book by unashamedly delving right into current pedagogies that uses technology and game-based learning for a connected society. Chapter 3 explores innovative pedagogical practice that considers diverse student abilities (in this case, special needs students) in the learning of specific subject matter (in this case, mathematics). Chapter 4 syncs nicely with the view that teacher education needs to be a collaborative effort – that there is a shared responsibility. Partnerships between stakeholders (universities and schools in this case) produce effective and productive outcomes for their students. Chapter 5 prompts us to consider the importance of curriculum areas in the learning and development of skills for the 21st (Asian) century. It argues the place of the Arts in education and its future for sustainable education. The last chapter of this section (Chapter 6) presents a case for the need for sustainability education as an intrinsic part of global citizenship.

The second theme that emerged was that of research around affective domain, motivation and engagement. Three chapters are presented. The first (Chapter 7) explores the affective domain of students and how their engagement with literature can be a transformative experience. The second chapter (Chapter 8) explores student motivation and engagement with the learning of a particular subject area. A wide empirical measure was used to determine the relationships between students' confidence, confidence with technology, attitude toward learning, and their affective and behavioural engagement with mathematics. The third chapter (Chapter 9) critically examines a framework that might be useful for exploring learning behaviours and intentions of school administrators, teachers, and students. The outcomes of which may be helpful in managing psycho-social aspects of learning.

The next theme identified was that of inclusion and social context. Two chapters are presented. The first chapter (Chapter 10) explores indigenous education policy discourses within Australia. It argues the case that we need to look in our backyard, not just globally, to address participation and attainment levels for differing social contexts. The second chapter (Chapter 11) brings awareness to teacher educators about the importance of inclusive education, with particular focus on special needs education. It also reminds us of the diverse learners that constitute our classrooms and how we could cater to their diverse learning styles.

The final theme is that of globalisation and internationalisation. Here, we present the final four chapters of the book. As our world races toward the globalisation and internationalisation of education, what then is the impact on students, teachers, and educative processes? The first chapter (Chapter 12) of this section explores the notion of teacher and student identity in a global and changing world. The second chapter (Chapter 13) explores internationalisation through a case study whereby

Chinese education students would combine part of their study at an Australian institution. The chapter explores the efficacy of this international partnership. The penultimate chapter (Chapter 14) identifies important challenges and aspects of the process of transition for international students studying in Australia. It highlights ways in which educators might consider the impact of cultural norms and rules on the adaptation of international students in regard to their study. We conclude the book with a chapter (Chapter 15) that explores the retention of international higher education students. In particular, the chapter examines the relationship between internationalised curriculum offerings with international students' experiences. The outcome of which, provides insight to educators about how they might cater, not only for the international student experience, but also how they might better internationalise their curriculum.

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SECTION 1

CONTEMPORARY, INNOVATIVE CURRICULUM AND PEDAGOGICAL PRACTICES

NICOLA CARR AND MATTHEW CAMERON-ROGERS

2. WHAT'S IN A GAME?

Game-Based Learning and Gamification

ABSTRACT

School education in the early part of the 21st century is coming under increasing fire for not preparing young people for 21st century society and workplaces, for not adapting to emerging trends in how people learn in a connected society, and for holding decreasing attraction to young people who have at their fingertips a world of information, networks and entertainment. Game-based learning and gamification are positioned as possible pedagogical approaches schools could adopt to engage young people in learning in ways that more closely reflect how people learn in a digital and networked world, and that can address some of the key 21st century skills that are more in demand in this digital age. This chapter takes a critical perspective on game-based learning and gamification and argues that, whilst there are inherent features of game-based learning and gamified curriculum that appear to have potential for addressing some of the current perceived shortcomings of schools, the context in which such approaches are applied is crucial.

Keywords: gamified learning; pedagogy

LEARNING IN THE 21ST CENTURY – A CONTEXT

The world in the 21st century is now seen as a place of constant change. The relative stability that characterised much of the 20th century has been replaced with near perpetual flux. In addition, technology has re-shaped how most of us live, work and learn (Siemens, 2005). There is a considerable body of literature in which it is argued that current education systems, still reflective of a 20th century paradigm, are failing learners in an increasingly digital world (Selwyn, 2011). As we move further into the 21st century, the call for pedagogies that promote 21st century skills to be adopted in schools to address perceived inadequacies grows louder from industry and governments around the globe. Schools are being asked to shift away from an industrial era frame characterised by a mechanistic (Thomas & Seely Brown, 2011) or factory/industrialised (Robinson & Aronica, 2015) mode, where the focus of the environment is to "learn as much as you can as fast as you can" with a one-size fits

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 9–28.

all approach to curriculum and standardised testing regimes. Instead, schools are urged to adopt pedagogies that promote the development of critical thinking and problem-solving, communication and collaboration, creativity and innovation, and digital technologies skills (Kay, 2010).

Beyond the emphasis on 21st century skills, a different view of what learning might look like, and where and how it might take place, is beginning to emerge. For some time, some educational researchers and commentators have been predicting a future scenario for learning that represents a shift away from schools (Selwyn, 2011). People, of all ages, are engaging with information and other people in online spaces, learning about topics and concepts that are of interest to them. Formal education no longer comprises the majority of our learning. As Thomas and Seely-Brown (2011) put it, learning is now "a cultural phenomenon that takes place without books, without teachers and without classrooms" supported by a "massive information network that provides almost unlimited access and resources to learn about anything" (pp. 18–19). Seeing information as a resource for learning rather than an end helps to shift thinking about learning in purely cognitive modes as an individual process of information absorption, adaption and accommodation, and start thinking about learning as a cultural and social process of engaging with and making sense of the constantly changing world around us. Growth in connectivity, underpinned by rapid uptake of digital technologies, particularly mobile devices, and the dominance of social media platforms, have informed visions of learning beyond formal school systems that are grounded in collaboration and networking. Rather than learning from a teacher in a formal space, learning takes place in a Vygotskian framework of learning from more capable peers in informal networks that are enabled by digital technologies. The result is a "fusing [of] a vast informational resource with a deeply personal motivation" (Thomas & Seely Brown, 2011, p. 31).

Whilst the rise of informal learning can be seen as a potential threat to traditional schooling, it can also be interpreted as an opportunity. Educators, regardless of sector, are being urged to recognise the trends that are occurring with how people are learning and to integrate some of the features of this learning culture into their classrooms, to augment – rather than replace – traditional educational practices (Thomas & Seely Brown, 2011). Emergent 21st century school pedagogies can be characterised by their focus on inquiry, an increased emphasis on the role of creativity, imagination and play, as well as on connectedness and collaboration through challenge-based and problem-based learning. The challenge for education is to marry the structure of institutional or formal education with the freedom that characterises informal learning in the 21st century to make something new (Thomas & Seely Brown, 2011).

What emerges from these debates is a suggestion that school education should adapt to the transformations that are taking place in how people are now learning, and that continuing to support a mechanistic or industrialised model of education will make schools less relevant to today's learner. Learning environments instead need to be spaces where learners can explore, in a collective way, issues of interest

and relevance, in ways that promote inquiry and questioning, through exploration, creativity and play. It is in this context that this chapter examines the role of game-based learning and gamification as part of the response to the challenges schools face as we move further into the 21st century.

GAME-BASED LEARNING

Games have been a part of most civilisations since the dawn of time. Board games, card games, and physical games have been part of most cultures for millennia. More recently, the take up of digital games has been a significant outcome, as well as a driver, of our digital world. The immense popularity of digital games has transformed how people, particularly young people, spend their leisure time (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012). Once seen as a largely male domain, dominated by action-orientated first-person shooter games like Halo and car racing games like MarioKart, technological developments in recent years have seen the proliferation of MMOGs (Massive Multiplayer Online Games), played by people of all ages, genders and cultures. Mobile devices have given us Angry Birds and Candy Crush Saga, whilst online networks have supported online social games like Farmville. Games today have far more universal appeal across age, genders and cultures (Simões, Redondob, & Vilasb, 2014). There is almost universal acceptance that well-designed digital games are highly engaging and motivating, because of their combined impact on cognitive, emotional and social aspects of the player (Lee & Hammer, 2011).

Game-based learning generally refers to the use of computer or digital games to support learning in a classroom setting (Simões, Redondob, & Vilasb, 2014). The use of games, and specifically computer-based games, as educational tools has been a part of educators' and educational researchers' sphere for some time (Beavis, 2004). Whether students are pitted against each other in a pre-World War Two resource and politics simulation (Watson, Mong, & Harris, 2011), or investigating the biology of an imaginary alien world (Seelhammer & Niegemann, 2009), or engaging in "serious games" that simulate of real world problems in order to change behaviours and attitudes, game-based learning involves the use of computer-based games that aim to engage students with educational content through interactive and multimodal means. To achieve this, curriculum and pedagogy are adapted to revolve around the use and facilitation of these games. The games become a tool for learning.

The attraction of games to young people and the sustained engagement and motivation that digital games engender is seductive to educators who would like their students to be as engaged in their lessons as they appear to be in digital games. What drives people to continued engagement in an activity has been a point of focus for educators and researchers alike for more than a decade. Games and game-mechanics have long been identified as potentially effective in motivating student engagement (Beavis, 2004; Beavis & O'Mara, 2010; Gee, 2007; McGonigal, 2011; Prensky 2001, 2008). Researchers have explored the use of digital games

in classrooms and have drawn parallels between the playing of such games and principles of effective learning. Games reflect features of how current theory suggests people need to learn or are learning in a digital age (Pelletier, 2009) in that they are active, experiential, situated and problem-based (Connolly et al., 2012). In a sense, games become a metaphor for 21st century learning (Gee, 2003). Gee (2003) argued that learning and playing are synonymous. Playing games requires a considerable amount of learning and involves risk-taking; developing creative solutions to problems that can be solved in multiple ways; building skills that can be applied in more complex problems; consolidating solutions but then rethinking those as new challenges arise; and thinking systematically about possible impacts on own and others' actions (Gee, 2003). Games offer a more active and multimodal learning model than many traditional pedagogical approaches. Importantly, games represent Seymour Papert's notion of hard fun (Papert, 1997), that is, something that is doable but challenging, or as pleasantly frustrating (Gee, 2003).

All games share the traits of having a goal or specific outcome that players work to achieve, sequences of tasks that are carefully designed to suit the player's skills and that scaffold their skills to higher and higher levels, a series of rules that provide limitations or boundaries on how players can achieve the goal, and a feedback system that shows progress towards the goal (Domínguez et al., 2013; Gee, 2003; McGonigal, 2011). Goals provide players with a sense of purpose. Rules that limit the obvious ways of achieving goals promote strategic and creative thinking as players attempt to work within rules. Real-time feedback, including low penalties on failure, reinforces the idea that the goal is achievable therefore providing motivation to keep playing (McGonigal, 2011). The experience of failure (or at least potential failure) is a key game-mechanic for gamification and games in general. Be it in the form of timed challenges, lives, or a set of quest parameters, the chance to fail is especially present in computer-based gaming. However, unlike with school learning, failure in games comes at a low price (in good games players can start again) and is often seen as a way of learning how to win in the future by testing hypotheses about the game (Gee, 2008). Games provide the player with a sense of agency; "actions and decisions co-create the world they are in and shape the experiences they are having" (Gee, 2008, p. 35). These characteristics contrast with the learning experiences many students have in formal education settings.

The biggest drawcard of games to educators is the high levels of engagement they bring about in those who play them. Engagement can be the result of extrinsic or intrinsic motivation. Extrinsic motivation is categorised by one's participation in an activity for reward, outcome, or form of benefit. In educational contexts, a student might be extrinsically motivated to study so that they might achieve a certain score on an exam or make sure that they are on time to class to avoid an absentee mark. Game-mechanics like badges, levels and achievement boards provide students with goals that extrinsically motivate them to participate as they actively engage with tasks and activities in order to unlock the next challenge or level. Extrinsic approaches such as these can work in some learning contexts, but are not necessarily suitable

for all learners. For an intrinsically motivated student, engagement in the activity is reward unto itself. Be it reading in the library, playing basketball or practicing drums, intrinsically motivated student engagement is often driven by specific factors such as enjoyment and self-determination within the activity. *Flow* theory (Csikszentmihalyi, 1975) explores intrinsically motivated engagement as an optimal state "of absorption, focus and enjoyment" (Schmidt, Shernoff, & Csikszentmihalyi, 2014, p. 380). Characteristics of the optimal state are often described as:

- intense focus and concentration on the given task or activity;
- the merging of awareness and action as part of a deep sense of involvement;
- sense of control over the way in which one can deal with or approach the task or activity;
- a level of enjoyment and interest in the task or activity;
- experiencing a distorted sense of time, often that time has passed quickly during the task or activity (Schmidt et al., 2014, p. 380).

According to McGonigal (2011) this is an identical optimal state achieved by individuals engaging in a game. Games that seek to intrinsically motivate student engagement revolve less around reward systems and more on the creation of tasks, activities and learning spaces that allow students freedom in their approaches to tasks and curriculum that fosters enjoyment, collaboration and flow (Custodero, 2002; McGonigal, 2011; Ramirez & Squire, 2015). Competition and collaboration happily co-exist in a gaming environment, unlike in schools (Gee, 2008).

Extending beyond simply motivation and a multimodal means of engaging with content, the use of games for learning has matured and expanded in recent years, with significant investment from private and government sectors in the Australian context in recognition of the potential benefits offered to teaching and learning by games (Beavis & O'Mara, 2010). Many claims are made about the potential of games to enhance student learning. From a cognitive perspective, games are argued to promote content understanding and problem solving, collaboration, communication and self-regulation (Connolly et al., 2012; Egenfeldt-Nielsen, 2006; Perrotta, Featherstone, Aston, & Houghton, 2013). Claims are also made that games, in particular serious games, can promote affective aspects of learning such as motivation and attitude (Wouters, van der Spek, & van Oostendorp, 2009). Teachers who use digital games in their classroom believe that games are "fun" and engaging; that games are inherently motivating thus keeping students focused on the task, and that student learning will automatically flow from such engagements (Millstone, 2012). The fun element of games takes precedence over the learning, effectively disguising the fact that students are engaged in learning. Teachers also believe that game-based learning has the potential to benefit learners who might be disengaged within a traditional classroom context, in particular boys, who seem to respond to the competitive element inherent in any game-based approach (Beavis et al., 2014).

There are complicated links between digital culture, game play, and young people's identities (Stevens, Satwicz, & McCarthy, 2008) and learning. If we accept

that identity, our sense of self, is actively constructed in a social world aided by tools like social roles, rituals, clothes, and the stories and artefacts of our culture, then games represent another tool for identify formation. Games capture the player though identity building – a player takes on the role of an existing character or gets to create their own. But unlike in acting, where the actor behaves as they interpret the character to act, in a game, the player becomes the character – interactivity allows and indeed encourages the player to suspend their sense of self, take control and make disinhibited choices. Further, people who play the same games frequently form important social structures and connections, forming an identity within the affinity group. Gee (2003) argued that computer games foster multiple identities – the virtual or the identity of the game's character; the real, the human behind the screen; and projective identities, the identity space where the two identities come together respectively (pp. 48–54) and that it is through the establishment of identity in the game that leads to an extended commitment of self to the game. Gee argued that deep learning occurs only if there is an extended commitment of self.

CRITIQUE OF GAME-BASED LEARNING

Much of the literature related to game-based learning takes a largely uncritical and somewhat deterministic view that the affordances and qualities of games themselves will automatically improve student engagement, experience and achievement (Beavis et al., 2014) and that game-based learning can address the shortcomings of current educational practice. As Pelletier (2009) said:

> By bringing games into educational practice and theory, the hope is, it often seems, that the diseased, geriatric body of education can be treated through the rejuvenating, botox-like effect of educational game play. (Pelletier, 2009, p. 84)

The value placed on games as a "mediating plane" that facilitates access to learning outcomes through more relevant ways of teaching (Pelletier, 2009) has resulted in much of the research into game-based learning and gamification focusing on the form and subject matter of the game. However, other factors are equally important.

Games and game-based learning are frequently represented as universally appealing to all students. Instead, the diversity of students and context will influence how students experience game-based learning. Factors such as interest, cultural background, gender and socio-economic status will all influence students' responses to and participation in game-based learning. In the past, stereotypical views of gamers were of adolescent boys playing out macho fantasies in violent first person shooter games. Girls were, with some exceptions, not a significant part of gamer culture. These stereotypes are based on a narrow definition of gaming as confined to the highly visible "core games" played on consoles or computers, played mainly by a male audience and that generate the highest revenues. However, recent research in the UK suggests that with the advent of more mobile devices, females now account

for 52% of the UK gamer audience (Internet Advertising Bureau, 2014). The scope of games has expanded and now includes games that have more universal appeal. Despite this dramatic reversal of audience, certain scenarios and characters within a game may not have universal appeal, particularly those games that represent outdated gender and racial stereotypes. The practice of playing games with the associated level of competition may also be unappealing to some students.

Much of the hype surrounding game-based learning emphasises the inherent appeal of games to students, reflecting the notion that appropriating activities from students' out-of-school lives will make learning more engaging in school, and that higher levels of engagement will translate to improved learning. However, some games, particularly those designed for an education setting, can look and feel too much like school to engage learners.

Games initially carry with them a novelty factor, either in that playing games in the classroom may be new or the concepts, or characters and scenarios inherent to the game may be new and appealing. However, the game may become boring once the challenge has been mastered or may not appeal to some students on the basis of their content. A game-based learning approach, as with any other pedagogical approach, may lose its appeal if adopted too frequently.

The role of the teacher is critical to the success or otherwise of game-based learning. The pedagogical approaches that teachers adopt in game-based learning and their views of what learning is will influence how the diverse students in their classroom experience game-based learning. Such approaches invariably entail a shift in role for teachers. Teachers can feel a loss of control or a shift away from direct instruction to one that focuses on explaining how to play the game.

Time and resources are required to adopt game-based learning and develop appropriate pedagogies to support their effective use. Game selection can be a vital ingredient in the success or otherwise of game-based learning. Games need to be closely connected to the intended learning objectives and congruent with assessment. Logistics of when and where the game is played, during class time or at home, need to be addressed. Computer or video games require the use of digital technologies, which adds a layer of complexity to the classroom. For example, ensuring there are sufficient devices for the class, ensuring devices are charged, and that if the game is online, that there is adequate bandwidth. If time and resources are not sufficient, then game-based learning may not achieve the intended learning objectives.

Games are also heralded as "learning in disguise", where the learning is hidden behind fun and games, in an attempt to "trick children into learning what they have rejected by embedding it in a game. Nobody is fooled" (Papert, 2006, p. 583). Such educational games contributes to a problematic representation of learning as a nasty pill that must be sugar coated with fun and games (Papert, 2006). This suggests that the educational focus of games-based learning needs to be explicit and deliberate rather than positioning game-based approaches as "Trojan horses smuggling learning into unaware students' lives" (Beavis et al., 2014, p. 576). Further, when using games in the classroom there is a risk that the game takes over completely.

Where the learning purpose is too heavily disguised, or if the teacher does not adequately highlight it, the students may focus on the game play (Stanford & Francis, 2006) rather than focusing on the educational purpose.

Hiding the educational purpose of game-based learning reinforces the views of critics of game-based learning, including many parents, who argue that game-based learning has little if any positive impact on traditional measures of student learning (Provenzo Jr., 1991). Game-based learning is seen, by some, as frivolous, time-wasting and not "real" learning. In education systems that favour more formalised, authoritarian and didactic pedagogies, such as those in many Asian countries, it is hard to see game-based learning having any traction without more evidence of its contribution to student learning. To counter such criticism, research into game-based learning should shift towards the impact that game-based learning might have on learning processes and on student acquisition of 21st century skills like critical thinking and problem-solving, communication and collaboration, creativity and innovation, and digital technologies skills.

Critics of game-based learning also look to more general concerns (or possibly moral panics) about the perceived adverse effects of gaming. The gaming habits of some sectors of the population have been linked to rising levels of obesity (Calvert, Staiano, & Bond, 2013), online addiction (Kuss & Griffiths, 2012), and increased violent behaviours (Fischer, Kastenmuller, & Greitmeyer, 2010). There is a significant level of cultural resistance to digital games beyond education, manifested most clearly in the implementation of the *Cinderella Law* in South Korea, which bans teenagers from playing online games after midnight, and in the Chinese government's bans on the sale of games consoles (Wallis, 2011). Criticism of digital games beyond education becomes a potential barrier to those educators who wish to implement a game-based pedagogy in their classrooms. What the identification of these factors suggests is that a focus only on the features of games is at the cost of paying attention to the social, institutional and material context in which games are applied. Games do not exist in isolation and context is critical (Beavis et al., 2014; Pelletier, 2009). The introduction of games in a classroom is considerably more complex than a consideration of the functionality or content of the game.

CREATING GAMES

In many new generation computer games, players are empowered to create their own worlds, and in doing so affect the politics, culture and social aspects of the games they are playing (Lim, 2008). But rather than do this with someone else's games, young people are now able to create their own games. Game-based learning can also refer to the use of software applications that allow students to create their own digital games. Building on theories of learning that take a constructionist turn (Harel & Papert, 1991), that is, where learning comes about as a result of creating something either physical or virtual, recent research focuses on the potential for the creation of games to enhance learning. A plethora of game-making software tools

and applications, such as Gamemaker, Minecraft, and Scratch, enable even young children to create their own games. In using such tools, students shift from consumers of other people's games to "media producers, creating their own interactive stories, games, and animations" (Resnick, 2007, p. 20). Being a producer of a digital game enhances students' digital fluency (Kafai, 2006). However, this form of game-based learning is even less pervasive than the use of ready-made digital games in the school classroom, requiring even more technological and pedagogical knowledge and skills of teachers than introducing an existing game.

GAMIFICATION

If game-based learning seeks to incorporate the motivational and engaging elements offered by games by re-purposing them into "serious" educational games, gamification, by contrast, seeks to isolate and harness these beneficial game-mechanics as part of a new pedagogical approach. To be clear, the gamification of curriculum and pedagogy is not the use of games as learning tools, as with game-based approaches to learning. Instead gamification builds on the foundation established through prior approaches to game-based learning through the incorporation of game elements into the educational process, and includes the promotion of a dialogical discourse between teacher and students that aims to foster motivation towards learning tasks.

Gamification is the process of incorporating elements and characteristics from games (game-mechanics) into every day, and specifically, non-game tasks and activities. The theory of gamification is centred on concepts of challenge, feedback, reward, personal and personalised stimulation, which can be as readily applied to gaming itself as to education, marketing, as well as personal health and fitness (Hanus & Fox, 2015; McGonigal, 2011; Walz & Deterding, 2015).

Gamification theory, as described in *The Gameful World* (Walz & Deterding, 2015), seeks to promote ludic, or playful, approaches to everyday tasks and activities, achieving this through the incorporation of game-mechanics such experience point systems, achievements and achievement boards, challenges, and narrative structures. The incorporation and adaptation of these game-mechanics within a set task aims to build engagement and value with that task for the participants. In practice gamification often seeks to employ multimodal and collaborative forms to create a game world based upon enjoyable and authentic discourse.

Gamification in educational contexts could take the form of clear goals and achievements based around experience points and badges, teamwork, self-determined progression and a learner-centric difficulty curve. The gamified classroom is also heavily reliant on fast and effective communication between participants – both between teacher and students as well as between the students themselves. Rather than a single game-world being used as the learning tool, the whole classroom, curriculum and pedagogy can become the game experience. Gamification is not a tool in the educator's arsenal like learning games or laptops. It is a pedagogical and curriculum-based approach to learning capable of utilising

the learning tools available within a given learning context. There are, however, significant similarities in the effective planning and implementation of well-designed games for learning purposes and meaningful gamification in education.

Performance, achievement and social interaction are three characteristics of games that are key to any gamified approach (Bunchball, 2012, p. 2), with each of these characteristics further divided into and affected by specific game-mechanics. Performance is gauged through real-time feedback, transparency, and goal-setting; achievement is actualised via badges, levelling up, on-boarding, and mastery; and social interaction promoted through competition, and teams (Bunchball, 2012, pp. 3–5). The effective planning and implementation of gamification in a given context would strive to increase engagement in the three key areas of performance, achievement and social interaction through the adaptation and use of identified game-mechanics. One such game-mechanic identified by Beavis (2004) is the multiplayer experience.

Whether in an online game or table-top RPG (role-playing game), the multiplayer experience is an increasingly essential and complex staple of gaming. In these realms, gamers can engage with each other as combatants or collaborators, as part of a collective or as individuals – all the while consciously constructing an image of self and presenting it to their peers (Beavis, 2004). This social dynamic is not unlike that present in the average classroom. Team-based activities and group work have long been a standard part of educational discourse, along with the social pressures affecting how students interact and present themselves.

Indeed, there are many elements and practices already present in more traditional educational contexts that can be argued as already employing, or embodying game-mechanics. State and nation-wide testing provides leader boards of aggregate scoring that ranks students against each other just as any other competitive setting. Goals and "win state(s)" (Gee, 2007) are integral to any game as markers of progress and success, and well-designed assessment rubrics can provide students with clear objective markers and descriptors for achievement. Furthermore, these rubrics and marking systems are designed to be responsive to student failure as well as success. The experience of failure is a learning experience for both gamers and students, and has potential as a point from which positive growth can occur (McGonigal, 2011). While many points of crossover exist between game-mechanics and existent educational practices, the process of purposefully adapting and incorporating game-mechanics into education requires careful planning, design, and ongoing feedback between teacher and students.

GAMIFIED EDUCATION – IMPLEMENTATION AND PRACTICE

Conceptually, a gamified classroom would seek to engage students in learning through interactive and collaborative tasks and activities built upon clear goals, boundaries, and markers of progress. The effectiveness by which these goals are realised, just as for games, can be dependent on factors such as design, implementation, means

and extent of interaction, moderation and the rigidity/fluidity of rules within the gamified space.

A well-planned and executed gamified program can visualise feedback and progress to the potential benefit of engagement and authentic value to participants (McGonigal, 2011; Ramirez & Squire, 2015). This emphasis on feedback and thoughtful structuring of tasks, as well as the ability to fail and learn from that failure, are considered hallmarks of good game design (Ramirez & Squire, 2015), and are crucial for effective, authentic gamification. Beyond being thoughtful and targeted in the planning and implementation of a gamified intervention, a teacher in a gamified classroom must play an ongoing active and interactive role. Their pedagogy and curriculum must be dialogical, incorporating student responses and input alongside their own observations, training and experience as educators.

In practice, gamified learning seeks progression from the teacher modelling tasks, outcomes and behaviours, to scaffolding student participation, interaction, and finally removing the training-wheels and giving learners independence. When conducted effectively, this process is near identical to a well-designed game tutorial. The guide (teacher) will demonstrate and model competent and expert forms of participation and behaviour to the students within the context of an activity or narrative. The guide will then scaffold the students through the process of participation, as learners are given some degree of supported independence. Finally, with the tutorial over, the guide will step back and allow students to gain full independence. With this last stage at the end of the tutorial, the learners will also be given the chance to fail as part of their independence. This chance to fail is vital as a game-mechanic and part of gamified curriculum, as it provides learners with a potentially significant learning experience (Reiters et al., 2012).

Having completed the tutorial, students encounter one of the more serious stumbling blocks of gamified curriculum – are they motivated to participate further? The gamification of education seeks to harness the potential of game-mechanics to motivate and engage students in their learning, to bring about the absorption, focus and enjoyment characterised in flow theory, as discussed earlier in this chapter. Moreover, the means by which a given gamified curriculum aims to engage students, be it extrinsically or intrinsically, affects what and why certain game-mechanics are incorporated.

A large part of the allure to gamify education is the potential for gamification to tap into both extrinsic and intrinsic engagement forms and foster the flow that well-designed games produce. For this reason, the how and why gamification and game-mechanics are being used for given educational purposes becomes as important as which mechanics are employed, and what the intended outcomes are when planning a gamified curriculum. Such factors and elements are, by themselves, potentially complex issues for teachers with limited prior experience in gamified or game-based learning, and together they herald the need for extensive teacher training, support and resources for gamified approaches to learning. This additional cost in time and resources could be daunting for teachers and curriculum planners, along with the

added level of challenge stemming from the emergent nature of gamified education. Enter the allure of pre-made gamified curriculum and work units.

PRE-PACKAGED GAMIFICATION

Where there exists a need, industry will meet the need, and the growing industry of gamification consultancy is no different, with gamification.co and lithium.com providing two such examples. Both offer consultancy, books and seminars in the implementation and ongoing practice of gamification in different contexts, as well as specific pre-made gamified digital programs and work units for educational purposes, among many others. For a price, these pre-made gamified educational programs and units of work may simplify and streamline the process of planning and implementing gamification for teachers, schools and curriculum planners. Pre-packed gamified units and approaches from consulting firms are too often based on superficial and flawed understanding of key game-mechanics (Bogost, 2015, p. 68) seeking to capitalise on the gamification boom.

For gamification to be effective in educational contexts, it must be adaptive as well as reflexive in design and implementation. In theory, pre-packaged gamification may offer more accessible means of approaching the gamification of classrooms and curriculum, or at least a platform from which to plan gamified interventions. However, the success of their implementation is not guaranteed. Just as with game design, if the key game-mechanics do not match the task, learning goal, or support students' skill level, it is a poorly designed game and is unlikely to achieve the desired outcome.

Examples of Gamified Education

Although gamification is still in a relatively emergent phase of integration into educational contexts, the number of options and approaches available to teachers continues to increase with each year. Crucially, within the resources available there are significant areas of divergence – notably between the aforementioned pre-packaged gamified curriculum and those created "in house" by educators, as well as the platform/s through which students engage with them.

Vim Adventures (Linder, 2012) seeks to teach students keyboard shortcuts via a game world based on older video game motifs such as Nintendo's Zelda franchise. Students progress through a series of increasingly challenging puzzles as levelling up adds more keyboard-based solutions to their arsenal. There is prophecy, world building, and the potential for challenging other players based on score and times. It must be acknowledged that Vim Adventures, like the majority of gamified packages readily available online, takes the form of curriculum integrated within a videogame, or at least within a digital platform. Despite this reliance on specific forms of technology, which can be a limiting factor in student access, the adaptation of curriculum surrounding a program-based approach to curriculum such as

Vim Adventures may begrudgingly be labelled as gamified in a "loose and popular sense" (Bogost, 2015, p. 68). Vim Adventures and similar examples of gamified curriculum, whether or not they are digitally based, do have a practical advantage over those developed in house by teachers in terms of access to ready-made content and resources, and crucially in the time requirements for the development, implementation, and assessing curriculum. However, as highlighted previously, the relative inflexibility and often high reliance on specific forms of technology may hinder the accessibility and effectiveness of such an approach.

The alternative approach in which gamified curriculum is developed in house has the potential to be more time intensive, but also more adaptable and responsive. In his book, *The Multiplayer Classroom*, Sheldon (2011) explored a tertiary level game design class which he gamified using game-mechanics from massive multiplayer online (MMO) games. Game-mechanics such as boss and horde battles, multiplayer parties, experience points and all players starting at level one, were incorporated and adapted into the curriculum over the course of two semesters and different iterations of the class. This process of adaption and implementation relied heavily on the teacher's understanding of the game-mechanics in play as well as content, and the ongoing input of students was vital for improving each iteration of the curriculum. Furthermore, the gamified curriculum proceeded through several stages of testing and development before the teacher was satisfied with its design and implementation. Such an intense investment of time and resources may appear prohibitive for more conventional classroom settings, however, gamified curriculum that employs similarly adaptive, responsive, and multimodal approaches to education can allow for greater immersion and engagement (Sheldon, 2011).

CRITIQUE OF GAMIFICATION

In the more than a decade since Nick Pelling introduced *gamification* into the lexicon, some of the initial scepticism surrounding its use beyond marketing has faded (McGonigal, 2011; Walz & Deterding, 2015). The same is also true of its shine. A growing base of research into more traditional gamified mechanics such as badges, achievement and leader boards have yielded mixed findings. Highlighted are their potential benefits to student learning and engagement as well as potential detriment to those same areas due in large part to their use in competitive models. The potential for student competition in both gamified and game-based interventions to adversely affect student outcomes and disengage learners has been raised in numerous studies (Aesaert & van Braak, 2015; Meelissen & Drent, 2008; Volman, van Eck, Heemskerk, & Kuiper, 2005), and the use of such mechanics seen as an example of the dangers posed by gameful approaches to learning. When designed and implemented poorly, gamification becomes an inauthentic application of behaviourist principles (Ramirez & Squire, 2015). Participants' value and engagement in such a gamified task is fleeting, with ongoing benefits or interest in the activity an unlikely outcome (Lieberoth, 2015).

It is worth remembering that no single game-mechanic can be considered inherently "good" or "bad" when it comes to education. Any game-mechanic, when employed/adapted in an authentic way has the potential to meet student needs and improve outcomes and engagement. No individual game-mechanic is suitable for all occasions, and what works for one group of students may be problematic for another. If an achievement board system that compares student progression is leaving students disengaged and disaffected through competition, the achievement mechanic should be replaced or adapted. Providing students with individual achievement boards that are tied to key competencies may provide a more authentic learning experience that allows for the visualisation of progress.

Just as with good game design, it is imperative in gamifying education that game-mechanics are adapted meaningfully in order to ensure the creation of authentic learning experiences. The replacement of traditional grading schemes with experience point systems may appear as a relatively straightforward point of conversion in the gamification process, yet to be effective the experience point system game-mechanic must reflect levels of difficultly as well as incorporate and reflect students' actual level of ability. This latter point is significant. Experience points and levelling in game contexts is directly tied to a character's ability, such that they experience an appropriate level of challenge. For such a system to be authentically employed in a gamified classroom, experience points received and challenge must be tied to an individual student's level of ability, or their zone of proximal development, as defined by Vygotsky (1978).

Furthermore is it worth remembering that, just as game-mechanics are not inherently good or bad, mechanics like badges, experience points systems, achievement and leader boards are not essential for an approach to education to count as gamified. Just as the world of gaming offers a diverse and multimodal experience, so too does the classification of game-mechanics for the purpose of gamification in education or other contexts. We must remember that many games contain none of these mechanics. Boundaries, immersion, self-determination and logic puzzles are all game-mechanics that can be effectively utilised as part of a gamified experience. What is necessary for an approach to count as gamification is the use and adaptation of game-mechanics into a non-game context.

The conversion of group work into multiplayer quests, and assignments into hordes and boss battles, are just some examples of gamified education. This approach may employ game-mechanics from role-playing games, like character creation and strategic planning, with the aim of building students' immersion within the work, while fostering dynamic collaboration by necessity. Students could be given a matrix table of potential tasks of increasing difficulty. The matrix table provides students with a sandbox environment, full of both clearly defined objectives and agency in approaching them. The inclusion of minimum requirements and guiding direction of the teacher can allow students to challenge self-perception of their own ability while meeting outcome competencies.

Finally, the process of gamifying curriculum and pedagogy is an ongoing affair. As stated before, a teacher in a gamified context by necessity must be both active and dialogical in their practice. Listening to feedback is as vital to the teacher as it is for students. If an approach or game-mechanic is problematic for a student to engage with, a teacher to employ, or simply not achieving the desired outcome, it needs to change. If engaging in the task is not enjoyable, the experience is inauthentic, or if there is a failure in the feedback cycle, then fault lies somewhere in the design or implementation. Computer games can be patched. Rules can be changed. Design, curriculum and pedagogy can and must be adapted.

RE-THINKING GAMEFUL APPROACHES TO LEARNING

Just as with the greater use of mini-games and computer-based gaming in everyday life, gameful approaches to learning as a concept and process have been met with mixed responses. From those who herald it as an effective means of bringing greater engagement and enjoyment to mundane or challenging tasks (McGonigal, 2011), to those who deride it as just another buzz-word marketing ploy (Bogost, 2015), the "how" and "why" gamification and game-based learning is employed appears as divisive as the nature of "what" it potentially offers. Is gamification simply adapting and utilising game-mechanics that have been identified in engaging and motivating gamers into new contexts? Is gamification the cynical realisation of Skinner's theory of behavioural conditioning (Skinner, 1953)? The tenor darkens the further we delve. Does the fault lie with more traditional education structures? Is the existing learning system so broken that we must subvert it with outside forms? What are we as educators teaching students about learning and schooling if we have to disguise it with gameful approaches? Staunch advocacy for gameful and other non-traditional approaches to education can be seen as anything from a statement against traditional methods to outright rejection of what is likened to a broken system.

The spectre of Skinner's behavioural conditioning, wherein a participant will complete a task or exhibit behaviour based upon external stimulation or reward, forms both a significant part of a behavioural psychologist reading of the gameful process and a significant point of criticism (Linehan, Kirman, & Roche, 2015). According to McGonigal (2011), people may be motivated and engaged in real-world activities through the thoughtful incorporation of game-mechanics, and in doing so beneficially change their behaviour. Essentially people are rewarded for participating and completing certain tasks in specific ways. In the case of students, they are participating in the learning for extrinsic reasons. When the stimulus is removed it is not certain that behaviours will remain changed. In theory, lasting changes to motivation and engagement in learning must be achieved through students wanting to participate, not for external reasons, but intrinsic ones.

The joy of acquiring knowledge and intrinsic desire to learn are both tangible concepts and aspirational goals for any approach to education. However one cannot

simply be taught to enjoy learning. How one is taught can foster this enjoyment. A poorly designed game, or poorly orchestrated gamification is unlikely to promote intrinsic engagement in a given learning activity and, once the novelty has worn off, may leave students' development in a lesser place. In order to achieve what potential benefits to learning may be gained from gameful approaches, this process of planning the how and why must be clear and well informed.

The theoretical formula for achieving intrinsic, flow-based engagement in education is not something that can only be applied to gameful approaches. Indeed from childhood play to musical education, the experience of intrinsic engagement in learning through joy and fun has long been observed as effective and desirable for learning (Custodero, 2002). The potential of gameful approaches to education lies in its premise of harnessing the fun and utilising engagement in order to promote learning. While impressive in theory, the means by which this is achieved is the potential Achilles heel of gameful learning. What is required is a pragmatic approach.

When planning a gamified or game-based curriculum or unit of work, Ramirez and Squire (2015) offered a concise set of questions for exploring the design and application of gameful approaches to learning.

- How are [the gameful techniques and elements] working?
- Whose interests are being served and legitimated?
- Are [the gameful elements] engaging and life enhancing for the participants?
- How might we [educators] improve these structures so as to make them more just or equitable? (Ramirez & Squire, 2015, p. 631).

This more empirical approach provides educators with a critical lens through which to view gameful interventions, which encourages ongoing monitoring and the establishment of effective dialogical feedback loops between teacher and students. Simply asking "if" a given technique or game-mechanic is working, the participating teacher may be limited in both their response and observations. Exploring how techniques or elements may or may not be working; who is advantaged or disadvantaged by a given approach; whether the enacted approach is actually beneficial to participating students; and how improvements could be made, can provide teachers and curriculum designers with a wealth of information with which the gameful education can be adapted to best affect learners. Such a pragmatic approach to gameful education could facilitate situated learning for students through the promotion of collaborative, interactive, and transformative thinking.

CONCLUSION

Education frequently appropriates ideas and approaches from other sectors – productivity software from the business sector, the use of video games from the entertainment sector and now gamification from the business sector. In any

appropriation, adaptation of form and use needs to take place. A market place and a school are different spaces – what works in one space may need adaptation to account for the specific context, culturally, socially and materially of another space. Game-based and gamified approaches to curriculum bring with them significant potential to reinvigorate learning spaces and provide an engaging way to deliver core curriculum as well as general capabilities that address 21st century skills. However, just like computers, interactive whiteboards, and other digital tools before them, gameful approaches to learning are not silver bullets. Context is everything. What works in one classroom context may not prove effective in another, just as game-mechanics that are beneficial to one student may adversely affect another. If the reason why gameful approaches to learning are being introduced is to address failings within the existing education system, understanding of how and why the existing system is failing in different contexts is just as important to understand as how gameful approaches may address them.

This chapter has outlined the strong arguments that a "one size fits all" approach to education does not fit in the ever changing and adapting digital age. This chapter also argues that gameful approaches to learning offer potential for educators to address the learning needs of young people in ways that are more engaging than traditional pedagogies, that provide opportunities for young people to develop the sort of skills demanded in 21st century society, and that more closely resemble how people are learning in a digital age.

However, as also outlined in this chapter, the criticism of gameful approaches is significant and robust. Critics of gameful approaches highlight the reliance on extrinsic motivation to engage learners and question the impact that gameful approaches may have on learning. Critics also point to the tensions between extrinsic and intrinsic motivation to learning raised by some gameful approaches to learning. Further, wider suspicions and concerns about the impact of immersion in games held by some cultures and some sectors of society act as a barrier to educators implementing gameful educational approaches.

Despite the criticisms and barriers, research into gameful approaches to learning to date reveal sufficient potential as a pedagogy for the 21st century for these authors to advocate for more wider experimentation with and research into gameful approaches to learning. Further research into gamified curriculum and pedagogies is needed to evaluate the impact on a wide range of student learning outcomes, not just those aspects of student learning that are traditionally valued and measured. Additionally, while any form of educational intervention or change must ask how any approach is or isn't working, it is just as crucial to ask who is privileged/disadvantaged, and how the program may be improved. The sheer potential for flexibility and adaptability of curriculum offered by game-based and gamified learning lend themselves well to this rigor of review, and almost uniquely position themselves as a point of access into the interconnected and fast-paced world of the 21st century.

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REBECCA SEAH

3. DEVELOPING CONCEPTUAL UNDERSTANDING

Effective Instructions for Teaching Students with Special Educational Needs

ABSTRACT

Despite the commitment to promote equity and excellence in education, significant gaps remain in understanding how students with special educational needs (SEN) learn mathematics. Specifically, how they become competent with fraction ideas, essential skills needed to become numerate and learn higher mathematics, is unclear. While the nature of mathematics presents many obstacles and misconceptions for learners and teachers alike, much of the debates remain rhetoric. The absence of useful data meant that effective instructions could not be developed and refined. Focusing on decimal numbers, this article documents a study into the mathematical thinking process of high school students identified as having disabilities or learning difficulties. Evidence suggests that teaching for understanding requires systematic and intentional instructions that are sensitive to (1) individual and socio-constructivist factors, and (2) the relationship between instructional representations, language, and symbols in the construction of conceptual knowledge.

Keywords: Teacher knowledge, students with special needs, fraction ideas

INTRODUCTION

In a world that is increasingly shaped by complex, dynamic, and rapidly changing information technologies, possessing science, technology, engineering, and mathematics (STEM) skills are critical to remain economically competitive and improve the quality of life for all. It is estimated that 75% of the fastest growing occupations require STEM knowledge (Willox, 2012). English and Kirshner (2015) aptly pointed out that since students' future careers might not exist today or only in emergent forms, schools must equip students with mathematically powerful knowledge and reasoning processes to deal effectively with sophisticated technology in a flexible, creative and innovative way. In particular, conceptual understanding—the ability to apply and adapt mathematical ideas to new situations, has been seen as vital for preparing children to face the challenges of the 21st century.

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 29–56.

If teaching for conceptual understanding matters, employing evidence-based practice should ensure that every child achieves at or above the national minimum standard. However, judgments of teaching quality and decisions about how to recognise effectiveness are difficult (Skilbeck & Connell, 2004, p. 7) and are influenced by multiple factors. Among them is a lack of information on how to support low achieving students in the subject of mathematics to become numerate (Forgasz et al., 2008; Van Kraayenoord, Elkins, Palmer, & Rickards, 2000). Significant gaps remain in understanding the numeracy development of students with special educational needs (SEN). Traditionally, these students are under the care of special education, a field principally rooted in positivism, empiricism and behaviourism that differs from mathematics education's root of constructivism (Thomas, 2007). Differences in philosophical and methodological stances came to the fore with the implementation of an equitable and inclusive education. Today's classrooms are increasingly diverse, with a range of up to seven school years difference in student numeracy performance within year levels and between Year 5 and Year 9 students (Siemon, Virgona, & Corneille, 2001). Should teachers now adopt special education endorsed teaching practices, founded by the above-mentioned philosophical stances in the regular mathematics classroom? Or should proponents of inclusive education accept regular teaching instructions that are based on the constructivist's and situated perspective's ethos (Gates & Jorgensen, 2014) without first questioning their suitability for students with SEN?

Fraction ideas have been recognised as the most difficult concepts to teach and learn (Clarke, 2013; National Council of Teachers of Mathematics [NCTM], 2000) and remain a key challenge faced by middle school students (Barnett, Goldenstein, & Jackson, 1994; Booth & Newton, 2012; Kerslake, 1986; Lamon, 2007; Siemon et al., 2001). Fraction ideas underpin the development of proportional reasoning and multiplicative thinking skills, and are crucial for developing numeracy and higher mathematics (Vergnaud, 1994). One merely needs to make a purchase, read a poll result, lodge a tax return or cook a meal to be confronted by these sorts of numbers. Despite interest in this area, both in Australia and overseas (Behr & Post, 1988; Lamon, 2007, 2012; National Curriculum Board [NCB], 2008; Siegler, Fazio, Bailey, & Zhou, 2012; Siemon, Izard, Breed, & Virgona, 2006; Steinle & Stacey, 2004), how students become proficient with fraction ideas is not as well understood as their proficiency with whole numbers. Very few studies focus on the source of difficulties among struggling learners (Kilpatrick, Swafford, & Findell, 2001) and research on teaching students with SEN fraction ideas are almost non-existent.

This paper explores factors that contribute to the successful learning of decimal numbers among students with SEN. First, it addresses some of the controversies among the epistemologies of special education. Next, drawing on findings of students' misconceptions with fraction ideas, a conceptual change approach to teaching for understanding is proposed. Such an instructional approach is built on a full understanding of the connection between representations, language and symbols, and emphasises individual, constructivist, and sociocultural influences on

learning. The remaining sections report on the implementation and outcomes of such a teaching approach on students with SEN.

CHARTING THE EPISTEMOLOGICAL VARIANCE IN SPECIAL EDUCATION

Contemporary studies of special education are based on two distinct positions, a positivist perspective towards researching learning versus a post modernistic rhetoric of critiques against mainstream narratives and social structures. The positivist perspective views mathematics as monolithic and unitary, involving the disembodied voice of objectivity and rationality. It is assumed that most students with SEN, especially those with disabilities, require research-based, specialised instruction (Kauffman, 2005). Research focuses on identifying the causes, prevalence, and the effect of specific learner characteristics on learning particular tasks. Typically, a task analysis is performed to isolate specific, measurable objectives, which could then be investigated in a randomised, controlled environment. This emphasis on "exactness" ensures that this field is viewed as one of the "hardest of the hardest-to-do sciences" because of the complexity of the variability of the participants and their educational contexts (Odom et al., 2005, p. 139). Researchers operating within this perspective must specify clearly for whom and in what context a practice is effective.

Proponents of a positivist perspective argue that more effective outcomes are achieved when direct explicit instruction is used (Baker, Gersten, & Lee, 2002; Kroesbergen & van Luit, 2003). To endorse any teaching approach one first needs to understand what one is subscribing to. The fourth edition of *Designing Effective Mathematics Instruction: A Direct Instruction Approach* (Stein, Kinder, Silbert, & Carnine, 2006) provided a window into the characteristics of such practice. Each mathematical concept was provided with a definition and a total of 390 basic arithmetic facts to be learned. Fractions are "a numeral of the form y/x where $x \neq 0$ and involve division into equal-sized segments and a statement regarding the number of segments present, used, or acted upon" (p. 241). There was no mention of using mathematical objects or instructional representations to aid learning. Instead, students were taught to use tally marks when counting and the likely difficulty teachers would encounter was "when students write crooked lines or crowd them together" (p. 53).

A definition, although intended to describe the action or process of undertaking a specific task involving an operation, does not provide the conceptual understanding that underpins it. Special education researchers have little to say about conceptual understanding; fewer still look at rational number concepts and problem solving abilities that do not involve memorising a procedure. For example, Carnine (1997) proposed teaching SEN students "big ideas". By that he meant fundamental ideas, concepts, principles, knowledge, or root meanings, to build understanding of complex content. However, the guiding principle behind the supposed 'big ideas' is still restricted to knowing the right formula. Carnine, Jitendra and Silbert (1997) stressed the importance of understanding the concept of equivalent fractions for

computing fractions. However, there was no mention of how to teach this concept other than what rules to apply to find the "same denominator".

The exclusive focus on objectivity and individual differences impacts negatively on research progress and ignores student voice, the nature of mathematics, and the social context in which learning takes place. Consequently, research on special education teacher professional development is almost non-existent (Brownell, Ross, Colón, & McCallum, 2005; Sindelar, Brownell, & Billingsley, 2010) while professional development for inclusive education focuses on using a unitary approach towards difference and exclusion and did not address specific subject areas (Waitoller & Artiles, 2013). Criticism against the positivist perspective within the field of special education gives rise to postmodernism, where aspects of mainstream intellectual education ideologies and government policies that differ from the ethos of inclusion are being challenged. The postmodernists view disability as difference, not as deficiency or deviance. Decisions about educational settings are regarded as a moral issue, and inequality must be exposed and extinguished by practicing socially just pedagogies (Gallagher, 2007; Lingard & Mills, 2007). However, much of their debates remain rhetoric, few offer constructive solutions to improve learning outcomes. In fact, conflicts between proponents of positivism and postmodernism have resulted in an epistemological and ontological stalemate (Gallagher, 2007), or what Kauffman, Nelson, Simpson and Kauffman, Nelson, Simpson and Mock (2011, p. 15) term as "permanent fixtures" of special education.

Under such an impasse, it is doubtful that the epistemology of special education can provide new insights into how students with SEN learn. To investigate "what works" one must first determine the root of students' difficulties. Given the scarcity of information on how students with SEN learn fraction ideas, information on students' misconceptions has had to be obtained from studies conducted among regular students.

STUDENTS' MISCONCEPTIONS OF FRACTION IDEAS

The learning of fraction ideas occurs at the juncture where there is a significant period of cognitive reorganisation. Qualitative transitions exist not only in the structure of the underlying concepts but also in the representational systems used to describe and model these structures (Behr, Lesh, Post, & Silver, 1983). Research among regular students has identified a number of student misconceptions. In fractions, students' prior knowledge of whole number procedures tended to influence their computation with fractions, resulting in a response such as $\frac{3}{8}+\frac{2}{8}=\frac{5}{16}$ (Mack, 1990). Many students also could not connect their understanding of decimal numbers with other fraction notations and assume that a decimal number such as 2.5 is a synonym of $\frac{2}{5}$ (Markovits & Sowder, 1991).

In decimal numbers, evidence suggests a lack of decimal place value knowledge as the cause of student difficulties (Hart et al., 1981; Resnick et al., 1989; Steinle & Stacey, 1998). For example, Hart et al. (1981) reported that many students were unable to identify a decimal number on the number line, did not know that since 6 tenths is written as 0.6, 3 hundredths should be written as 0.03, and assumed that 2.3 × 100 is 23.000. Steinle and Stacey's (2004) survey of 3000 Grades 4 to 10 students' ability to differentiate and interpret the magnitudes of decimal numbers found that many students assumed that the longer the number, the larger is its magnitude. Others developed faulty reasoning such as thinking that any number of tenths is greater than any number of thousandths. The robustness of student misconceptions throughout their school years led Stacey (2005) to argue that much of school instruction did not seem to make a real impact on the mathematical thinking of many students. Indeed, research into teacher knowledge has shown that many teachers across Australia, Israel and the United States made similar errors and lacked the knowledge and practice needed to help students develop conceptual understanding of fraction ideas (Ma, 1999; Ryan & McCrae, 2005; Stacey, Helme, Steinle, Baturo, Irwin & Bana, 2001; Tirosh, Fischbein, Graeber, & Wilson, 1998).

Since certain decimal numbers deal with very small magnitudes, efforts were placed on finding a representation that could capture this essence. Most of the earlier studies used base 10 materials to teach both whole number and decimal number operations (e.g., Hiebert, Wearne, & Taber, 1991). It became apparent that students have difficulty making the cognitive shift from using the same representations in different situations and this might have in part contributed to student misconceptions. Stacey, Helme, Archer and Condon (2001) proposed the linear arithmetic blocks (LAB) used by a local teacher to teach decimal numbers. The blocks were made from ordinary washers and PVC pipe of a similar diameter to represent tenths, hundredths and thousandths. While LAB appeared to be superior to the base 10 materials, it was unable to link to the concept of place value. Further, these materials are not easily accessible, which made it less attractive for teachers who would have to make their own in order to use them.

Recently, analysis of students' intuitive understanding (prior knowledge) and knowledge of symbolic notations for fractions and decimal numbers points to an over generalised knowledge of whole number reasoning when working with fraction ideas (Ni & Zhou, 2005; Stafylidou & Vosniadou, 2004). As shown in Table 1, whole number knowledge is qualitatively different from decimal number knowledge. It appears that students are unable to fit new information into their existing mental schema without a change in their underlying conceptions. As such, a conceptual change approach is needed to teach for understanding. Conceptual change focuses on the cognitive components of learning. It is domain-specific and purposes to complement domain-general approaches by emphasising the distinct domains of thought required to learn the subject matter (Vosniadou, 2007). For conceptual change to occur, Vosniadou maintains that: (1) students must become aware of the

inconsistencies between their naïve theories and the scientific ones, and (2) teachers must provide conscious and deliberate instructions to cultivate intentional learners who can engage in deep comprehension of mathematical ideas (p. 51). Two questions emerge through this perspective. First, what are the conceptual building blocks for learning fraction ideas? Second, would it work with students with SEN?

Table 1. Comparison of decimal number and whole number knowledge (adapted from Resnick et al., 1989, p. 10)

Elements of decimal number knowledge	*Elements of whole number knowledge*
A. Place values: • Values decrease as move left to right • Each column is 10 times greater than column to right • Zero serves as a place holder • Zero added to rightmost column does not change total value • Values decrease as move away from decimal point	1. Place values: • Values decrease as move left to right • Each column is 10 times greater than column to right • Zero serves as a place holder • Zero added to leftmost column does not change total value • Values increase as move away from decimal point
B. Place value names: • End in –ths • Start with tenths • Naming sequence (tenths, hundredths…) moves left to right • Reading sequence is tenths, hundredths, thousandths	2. Place value names: • End in –s • Start with ones • Naming sequence (tens, hundreds…) moves right to left • Reading sequence is thousands, hundreds, tens, ones
C. Reading rules: • The units must be explicitly specified and they vary	3. Reading rules: • The ones implicitly serve as the units in all cases

THE EPISTEMOLOGY OF LEARNING MATHEMATICS

One of the difficulties in studying teaching and learning is an expectation that children should grasp within a few years the mathematics that took humanity thousands of years to construct (Sinclair, 1990). Indeed, it is easy to forget that the mathematics students are asked to learn today is a human invention, jointly constructed by individuals from different societies over entire human histories. The provenance of fraction ideas provides insights and appreciations of this.

Fractions came into existence with the need to measure magnitudes. The necessity for some form of representing fractional parts had been known since ancient times. Fractions such as 1 half, 1 third, 1 fourth, 2 thirds and 3 fourths were considered as "natural fractions" and frequent usage led to the creation of special diagrams such as  and  for them (Flegg, 1983). Then, fractions were used only for counting and not considered as numbers but as relations between whole numbers

(Ifrah, 2000). Indeed, the ancient Greeks did not even call fractions of the form p/q a number but rather a relationship. The decimal-point notation that is now the standard usage in English-speaking countries was founded on the need to facilitate trading outside Europe. Then, decimal fractions were identified by putting a zero inside a circle to indicate the end of integers such that 235.789 appeared as 2357⓪8②9 (Ifrah, 2000). Near the end of the East-Roman (Byzantine) Empire, another form of fraction arose when 100 as a common base for computation came to be used, hence per cent, as in "per cento" in Latin was formed (Smith, 1898).

Today, as part of a "multiplicative conceptual field" (Vergnaud, 1994), rational numbers have become a complex construct involving a number of sub-concepts, including multiplication and division, linear and bilinear functions, ratio, rate, dimensional analysis, linear mapping and linear combinations of magnitudes. Their developments substantiate the nature of knowledge construction and evolvement, human innovation and design effort, where different needs and new information brought about new understanding and refinement of the conceptual system. Hence:

> A person's knowledge is necessarily the product of her/his own constructions, or mental acts. Thus, s/he can have no direct or unmediated knowledge of any objective reality. From sensory experiences to meditative reflections, the intellect, emotions, memories and expectations mediate experience of the world. If a person chooses to believe in an objective reality, that belief is act of faith, another sort of construction. Knowledge consists of a mental action on the world; it is a way of seeing, of organising experience. (Confrey, 1985, p. 479)

Seeing knowledge as constructed rather than passively received presents many challenges to educators and researchers alike. To begin, as a grand theory, constructivism is often mistaken as equivalent to discovery learning and accused of not providing guidance (Hennessey, Higley, & Chesnut, 2012). This misinterpretation arises from a lack of recognition that constructivism focuses on individuals' construction of knowledge and not whole class teaching (von Glasersfeld, 1995). Therefore, it cannot be defined as a specific pedagogy. Next, when a learner comes into contact with mathematics, s/he encounters an accumulation of knowledge, a set of ready-made rules and objects "taken-as-shared" by its communities (Yackel, 2004). The ontological assumptions that these mathematical symbols represent are implicit in the expert-participants' language, highly dependent on the social interactions within the learning community to bring out their meanings (Sfard, 2000). How do children come to comprehend concepts such as "one", "fifth" and "multiply"?

Conversations about mathematical ideas rely on the use of symbols mediated by objects or instructional representations to engage what Sfard (2000) termed a "virtual reality discourse" (p. 39). Accordingly, the use of symbols, instructional representations and language are the three cornerstones where mathematical ideas

are constructed and each present a particular conceptual challenge for the learner (Booker, Bond, Sparrow, & Swan, 2010, see Figure 1).

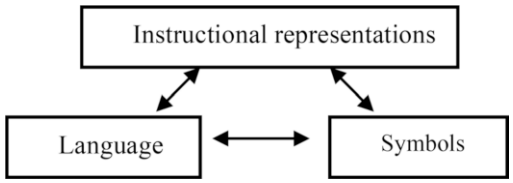
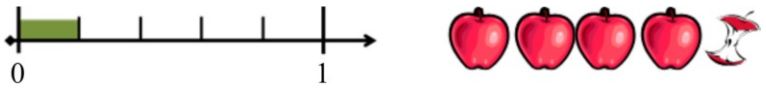


Figure 1. Booker's connected, conceptual understanding of learning mathematics framework

When learning fraction ideas, objects or instructional representations are often used to illustrate and clarify the ideas. The meaning of these representations are obvious to the teachers who have already constructed this understanding, but not to their students (Cobb, Yackel, & Wood, 1992). Consider the following representations:



On the left is a number line and on the right is a group of apples. They do not look remotely alike, but can both be written as 0.2 or $\frac{1}{5}$ and share the same idea. While knowing that one out of five apples has been eaten was fairly straightforward, the meaning expressed through the number line, and the symbols are not as obvious. Indeed, this notion that a simple idea can be represented in multiple ways is very difficult for students who have been brought up in a rote and procedural base-learning environment.

When symbols are introduced, they create additional difficulty. Quite often, object names and symbols bring almost no perceptual hints as to the relevant aspects of the situation (Sfard, 2000). For example, when students are asked to solve the problem: "Jason spends 2 thirds of his weekly income on food and lodging, 1 third of what is left on entertainment and saves the rest. If he spent $74.85 on entertainment, how much money did he earn a week?" Such problems require students to produce what Sfard termed as an "out-of-focus" response where it signifies a certain type of situation that does not yet refer to a well-defined mathematical object for the students.

When talking about mathematics, children's use of words is template-driven (i.e., modelled after their teachers), whereas that of adults is mediated by their former knowledge (Sfard, 2000). For example, when a teacher says "two over five" or "three point seven" s/he means 2 fifths and 3 and 7 tenths respectively, whereas for the students, "two over five" and "three point seven" were the written position

of the symbols. Accordingly, language plays a central role in the development of mathematical ideas, or more precisely, the development of consciousness.

> Language is a correlative of consciousness. The mode of language correlative to consciousness is meanings. The work of consciousness with meanings leads to the generation of sense, and in the process consciousness acquires a sensible (meaningful) structure. To study human consciousness means to study this sensible structure, and verbal meaning is the methodological unity of this study. Such a study can be carried out at the abstractive as well as the concrete level. At the level of abstract psychology we can study general rules of signification; at the concrete level we should be concerned with specific "sense-generating" activity that changes the consciousness of a person. (Kozulin, 1990, p. 190)

Language provides tools of thought, and carries the cultural inheritance of the communities in which the individual grows up (Lerman, 1996). Accordingly, the phrase, "two point five", may not convey the relationship the symbol "2.5" represents. For that "(mathematical) thought to come into existence through the use of language" (Vygotsky, 1986, p. 218), the phrase "2 and 5 tenths" is needed.

Three guiding principles are essential to resolve these challenges. First, the design of instructional representations needs to be "transparent", so students are able to see through the underlying principles and relations without being confused by the features of the representation itself (Lesh, Behr, & Post, 1987). Second, a process of reflection and communication is needed where a construct the instructional representation typifies becomes the object of scrutiny in the learner's imaginations, to name and represent it in symbols and images (Confrey, 1990). Third, the negotiation of meaning is an essential part of the learning process (Confrey, 1985), because "the meaning (of any construct) is derived from, or arises out of, the social interaction that one has with one's fellows" (Blumer, 1969, p. 2). It is through this process of negotiation between existing and prior knowledge and the new information, aided by the appropriate use of language and instructional representations, that knowledge is constructed.

THEORETICAL FRAMEWORK

If teaching for understanding involves employing "the most useful forms of representations, the most powerful analogies, illustrations, examples, explanations, and demonstrations… the ways of representing the subject that make it comprehensible to others" (Shulman, 1986, p. 9), then distributed cognition is most suited for this investigation. A distributed perspective sees the teaching-learning process as an adaptive reorganisation in a complex system, always mediated by human interaction through the use of tools (Hutchins, 2006). Here, it serves to analyse the process to which individual teachers and students construct and negotiate mathematical meaning through the use of instructional representations. Meanwhile, Booker's connected, conceptual understanding of a learning mathematics framework (Figure 1) acts as

a localised instructional theory to develop teacher pedagogical content knowledge for fraction ideas. It posits that any mathematical concept begins with providing full meaning for number words to match instructional representations, and later linking with the symbols that represent them. The framework helps to develop students' ability to connect various sub-constructs to form a unified scheme – the concept of unit, the process of partitioning and the concept of quantity, for learning fraction ideas (Carpenter, Fennema, & Romberg, 1993). The concept of unit is a fundamental component of fraction ideas. In decimal numbers, the focus is on the base 10 system, such that 1 hundred makes 10 tens, 1 ten makes 10 ones, 1 one makes 10 tenths, 1 tenth makes 10 hundredths and so on. Such knowledge enables one to rename a number in different ways. The unit also enables the identification of decimal numbers on a number line. The concept of partitioning in turn is related to the idea of quantity. Learning to count and partition these sorts of numbers cultivates an understanding that quantity can be represented by a new kind of numbers.

Figure 2. Using ones and tenth grid and a place value chart to teach decimal numbers

These ideas contribute to the design of the instructional sequence; to create various opportunities to explicitly confront the conceptual conflicts students' prior knowledge about whole numbers has with decimal numbers. Learning decimal numbers involves knowing that:

- They are an extension of the whole number system, such that 1 one makes 10 tenths, 1 tenth makes 10 hundredths.
- They are a composition of whole numbers and fractions, with the decimal point marking the "breaking point".
- Ordinal numbers are used to name, rename, and count decimal numbers.
- Zero indicates there is none of a particular place. When at the extreme right of a decimal number, the value of the number is not changed, whereas for whole numbers it increases the value of the number by a power of ten.
- Knowledge of place value system is needed compare and sequence these numbers.

An important aspect in this present study is the use of instructional representations. Given that decimal numbers are not naturally occurring and students need to use concrete materials in their construction of ideas, an instructional representation must be designed to accurately portray the essence of a unified scheme while retaining its root in the whole number system. Here, a 10 grid is used as a representation for the concept of tenths relating it back to the base 10 number system with the accompanying place value chart. Incorporating manipulatives, tenths and hundredths grids, place value charts, regional models, real-life contexts, and verbal and written

symbols allow fractions to be developed as a unified theme. Essentially, the use of a multiple representation approach acts as a "conceptual bridges" (Greer, 2004) to help students comprehend the interconnectedness between whole number reasoning and fraction ideas.

METHOD

This study was conducted in a high school located in a low socio-economic area in Queensland, Australia. The results reported here formed part of a larger investigation into teacher professional learning and students' understanding of fraction ideas. The participants were: (1) Ted, the special education teacher and his Year 9 class consisting of 12 students ascertained by a medical practitioner to have either an intellectual impairment (six), speech and language impairment (three), and/or Autistic Spectrum Disorder (three) and (2) two learning support teachers, Hana and Ann, and their Year 8 classes consisting of 19 students identified through the school's internal screening process as having learning difficulties.

1. What fraction of this shape is shaded?

   Circle your answer **2 eighths** *or* **2 tenths**

2. Write these numbers as decimal fractions: 3 and 7 tenths ____ 8 tenths _____

3. Write these numbers as decimal fractions:
   7 and 2 hundredths _____ 16 hundredths _____

4. Write the numbers that are 3 tenths more:
   8.4 ____ **9.7** ____ **6**____ **0.8** ____ **2.9** _____

5. Write these decimal fractions in order from least to greatest:
   3.04 **3.16** **3.0** **3.2** **3.10**

6. **5. 8** **+ 6. 2**

7. **9. 0 2** **- 4. 2 3**

8. **4. 7** x **6. 8**

9. **8**)**63.52**

10. At the swimming carnival, the times for the butterfly race were 119.23, 121.18, 120.54, 122.0, 119.7, 123.2, 119.15 and 121.8 seconds. What was the difference in time between the swimmer who won the race and the swimmer who came last?

Figure 3. Booker Decimal Fractions Test A (2011)

Using a design base research method, a total of 50 lessons, 24 in Year 9A, 15 in Year 8A and 11 in Year 8B, were planned, observed and redesigned. Each teacher was briefed on the mathematical basis of each learning activity and ways of using

the instructional materials. Individually, the teachers decided how to introduce each concept, what examples to use, and how to facilitate the learning. Collectively, the researcher and teacher engineered a learning environment where students' misconceptions could be unearthed and challenged. Priority was given to students' understanding of the connection between instructional representations, language and symbols when naming, sequencing and ordering decimal numbers. Instructional games were used extensively to (a) provide a platform where decimal numbers could be constructed in a non-threatening manner, (b) help develop teachers' subject matter and pedagogical knowledge, and (c) create a rich context for learning.

The data included students' performance on *Booker Decimal Fractions Test A* and *B* (Booker, 2011) (Test A is showed in Figure 3) and video recording of lessons. The tests were administered at the beginning and the end of the project. They assessed students' understanding of basic concepts, naming tenths and hundredths, sequencing, ordering, computing and solving word problems. The initial data collected contributed to the design of the instructional sequence while the results for Test B provided an indication of lesson effectiveness.

THE CONSTRUCTION OF DECIMAL NUMBERS

Initial Results

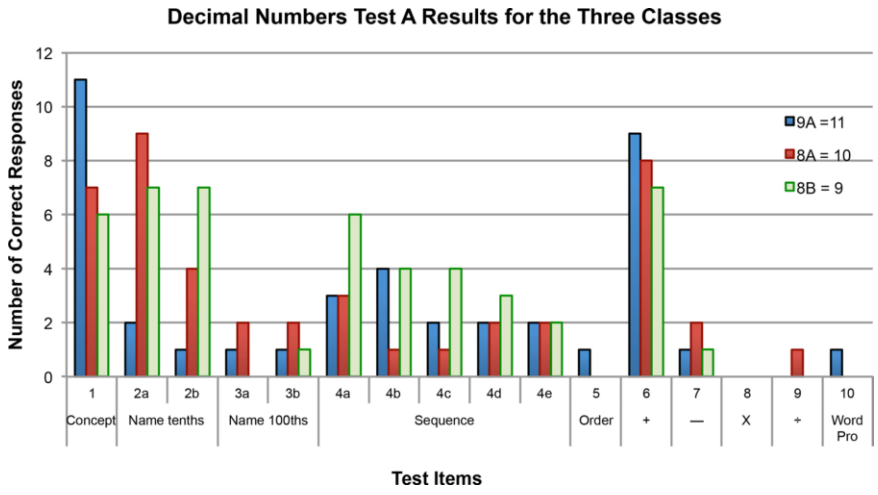


Figure 4. The initial results for all three classes by question and question type

As shown in Figure 4, the overall performance of *Decimal Numbers Test A* across the classes was poor and restricted to basic part/whole relationships and simple addition (e.g., question 6, 5.8 + 6.2). Few students could sequence, order, compute and solve word problems. Only Peter, who has Autistic Spectrum Disorder and had

attended a regular Year 8 Mathematics class, was able to answer most questions except multiplication and division with decimal numbers. The majority of students with disabilities (9A) struggled with all aspects of decimal fraction ideas. While students with learning difficulties showed slightly better understanding than students with disabilities, both cohorts made similar errors.

To begin, while naming a shaded fraction (representation⟶language) was reasonably easy for many students, they had difficulty connecting their understanding of decimal number words to symbols (language⇢symbol). Many students did not know 8 tenths is written as 0.8 and wrote it as 8.0, 8.10 or 80. The concept of hundredths, especially when it involved an internal zero, was particularly difficult. Many wrote 7 and 2 hundredths as 7.2 or 7.200 (question 3a) and 16 hundredths as 1.6, 1.600 or 16.0 (question 3b). Such errors indicated a lack of decimal number place value understanding, which was particularly evident when sequencing decimal numbers. When asked to write the numbers that are 3 tenths more from the corresponding set of decimal numbers (question 4), many students simply increased one part of the number by 3 and wrote responses such as: 8.4 as 11.4, (question 4b) 9.7 as 9.10, (question 4c) 6 as 9, (question 4d) 0.8 as 0.11, and (question 4e) 2.9 as 5.9.

Ordering decimal numbers from least to greatest (question 5) was the most challenging task apart from computation. A majority of students wrote 3.0, 3.2, 3.04, 3.10, and 3.16 or the reverse, 3.16, 3.10, 3.4, 3.2 and 3.0, focussing on the visual size of the number after the decimal point rather than the number as a whole. A lack of place value understanding also hindered students' ability to subtract decimal numbers, producing the following responses:

9.02	9.02	9.02	9.02
−4.23	−4.23	−4.23	−4.23
5.21	4.29	4.09	5.01

The students either reversed the procedure, took 2 hundredths from 3 hundredths, or partially renamed 9 ones to make 12 hundredths instead of 9 tenths and 12 hundredths. They were then left with no tenths. Others simply assumed that any numbers involving zero must result in zero and acted accordingly.

Many students did not attempt the questions on multiplication (question 8) or division (question 9). Those who did provided incorrect responses, such as:

4.7	4.7	4.7	4.7
×6.8	×6.8	×6.8	×6.8
296	29.6	2.96	319.6

The first three errors showed that these students did not fully understand the processes needed to complete the algorithm. While the last example indicated an ability to carry out the procedures, s/he nonetheless was troubled by the decimal point. It revealed a lack of number sense, the ability to make an estimation that 4 sixes must result in a number that is in the tens and not hundreds.

Errors made in division were more diverse and only one student in Year 8A was able to divide decimal numbers. Many failed to recognise that their answers did not make sense, for example:

$$\begin{array}{r} 7.6 \\ 8\overline{)6\,3.5\,2} \end{array} \quad \begin{array}{r} 4.79 \\ 8\overline{)6\,3.5\,2} \end{array} \quad \begin{array}{r} 7.19 \\ 8\overline{)6\,3.5\,2} \end{array} \quad \begin{array}{r} 21.80 \\ 8\overline{)6\,3.5\,2} \end{array} \quad \begin{array}{r} 08.048r4 \\ 8\overline{)6\,3.5\,2} \end{array}$$

In summary, the data indicated that a majority of students in this study had some ideas of the form of decimal numbers and their operation but did not fully comprehend the meaning behind these processes. Given that these misconceptions were not new and have been well documented in the research literature, the finding points to teaching and the nature of mathematics, rather than student deficits alone, as significant causes for students' difficulties. This is very encouraging, as investigation into what works for this cohort may well improve the learning of all students.

Learning the Concept of Tenths

Acknowledging the conceptual challenge of using base 10 blocks for teaching decimal numbers, the first instructional sequence used these materials to review students' understanding that 1 of one unit made one of the next smaller unit learned in whole numbers. Once this idea was established, the grids for ones and tenths or hundredths were used to develop the idea that decimal numbers represent fractional numbers smaller than one.

The concept of tenths was introduced after students had revised reading larger numbers. All three teachers assumed that when showed a ones block and asked how many parts it could be broken into, students would automatically say 10. Instead, "halving it" or cutting it into "quarters" was their response. It appeared that materials 'transparent' for the teachers were not necessarily so for the students. Across the three classes, the 1–10 relationship – "How many hundreds make a thousand?", "How many tens make a hundred?", and "How many ones make a ten?" had to be revised. Only then could the idea that breaking one of the ones blocks would also result in ten equal parts be understood.

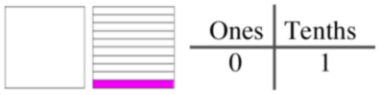


Figure 5. Using the grids and place value chart to establish the language ↔ representation ↔ symbols connection

The one and tenths grid and place value chart (Figure 5) were used to introduce the language and associated symbols for decimal numbers. Establishing the

representation↔language↔symbols connection required intentional scaffolding – constant probing to encourage the students to construct meaning together. For example, when Hana the learning support teacher shaded 1 tenth, many students straightaway answered, "One out of ten", to which Hana promptly wrote $\frac{1}{10}$.

Researcher:	How else would you write one out of ten?
Students:	(Long pause)
Researcher:	So this number is smaller than one, how would you write it?
Students:	(Long pause)
Hana:	Is it a whole cube?
Students:	No.
Hana:	So it is part of a cube.
Researcher:	So is not quite one yet, what would you write on the ones place?
Jaya:	One.
Researcher:	It's not one yet.
Tracy:	Zero.
Pula:	Oh, is one in the tenth place.
Researcher:	What else do we have to do to show that it is not one?
Nancy:	Put a decimal.
Researcher:	Where would I put the decimal?
Nancy:	In the middle.
Researcher:	What does the decimal tell you?
Some students muttered, "That it's not…"	
Hana:	That it's not what?
Mondi:	Is not a whole number.

Collectively, the teachers and students developed a full meaning for the written symbols for tenths and the connections between symbols and the representations. Once this connection was constructed, a bingo game for practicing reading decimal numbers on the game cards and matching the printed word with either the symbol or the corresponding model representation printed on the game board was introduced (Figure 6).

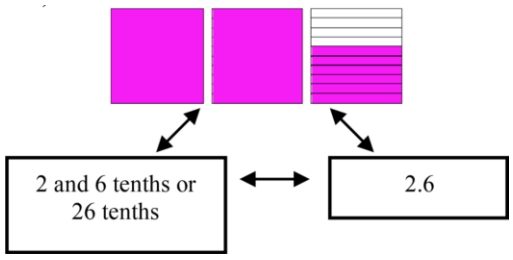


Figure 6. A connected, conceptual understanding of tenths

As seen in Ted and Ann's class, every student needed to construct their own understanding in order to play the game,

Sam:	What do I have to do?
Ted:	So that's one and how many tenths? (Pointing to the bingo game board).
Ted:	What's that? 2 and…
Sam:	2 tenths. (Looking at the next grid) Err… zero seven tenths?
Connie:	3 and 6 tenths (Reading the next grid).
Sam:	So you've to say tenths in all of them?
Ted:	Yep.
Chanel:	How do you do this, 3 and 3 tenths?
Researcher:	Do you have a match?
Chanel:	No.
Researcher:	Look carefully.
Chanel:	There's only two, two, two, one, two (pointing to the ones grids).
Researcher:	What about these sorts of numbers? (pointing to the symbols)
Chanel:	Oh yah!
Nydia:	Nah, I don't have it.
Researcher:	Yes you do.
Nydia:	Where?
Researcher:	Where is 7 tenths?
Peter:	She's got it. I can see it! I can see it!
Nydia:	(Long pause) Oh my gosh! It's this one. 7 tenths is zero point seven!
Ann:	How do you read this? How many wholes are there? One, two so is two whole.
Connie:	No. It's three.
Ann:	But is this coloured?
Connie:	No.
Ann:	How many of these are coloured?
Connie:	Two.
Ann:	So is 2 whole and 8 tenths.

These episodes support the view that learning is both an individual and social event. By providing a supportive learning environment, the teachers were able to encourage individual students to clarify their misconceptions, voice their concerns, and construct the meaning of tenths in a non-threatening manner.

Learning the Concept of Hundredths

The concept of hundredths began with building on earlier understanding of tenths. Given that in whole numbers hundreds are bigger than tens and ones, special care was required to highlight the difference that in decimal numbers, an addition of "*th*"

distinguished hundred*ths* as smaller than ones and tenths. Working with hundredths also requires an understanding that zero indicates there are none of a particular place. However, such knowledge was lacking among many students:

Researcher:	Let's talk about zero first. What is zero?
Jama:	It's a number.
Connie:	It's nothing.
Researcher:	What else can you tell me about zero?
Mondi:	You can times it.
Rau:	You can add on to other number like 20.

Drawing on students' whole number place value knowledge, the significance of zero was highlighted.

Researcher:	Let's have a look at what you've done earlier. There're lots of zeros on those larger numbers. What does the five in this set of number (524,709,812) represent?
Jama:	Millions.
Researcher:	Yes, it shows hundreds of millions. So what do you think this zero mean?
Students:	Tens of thousands.
Researcher:	Yes, it is on the tens of thousands place. So how many tens of thousands are there?
Students:	Err…nothing.
Researcher:	So if it is nothing, can I write the number like this? (Wrote 524,709,812 as 524,79,812)
Students:	No.
Ann (teacher):	Why not?
Jama:	Because you take out the zero and it now becomes 79.
Ann:	So zero holds the place and you need to have the zero or it changes the number isn't it!

Using the ones and hundredths grids and place value chart, the teacher: (1) introduced 1 hundredth as smaller than 1 tenth, and (2) challenged students' underlying beliefs of zero. For example, placing the 1 and 1 tenth grid and the one and hundredths grid side-by-side, Hana shaded 1 and 1 hundredth (Figure 6) and asked her Year 8 students how to write it as symbols. Unanimously they said, "One point one." Pointing to the one and tenths grid, Hana continued, "So this is the same

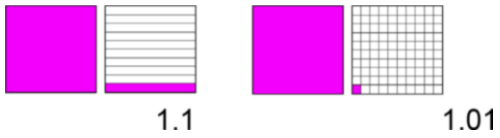


Figure 7. Instruction on the difference between 1 and 1 tenth and 1 and 1 hundredth

as this?" Without thinking, all the students said yes again but immediately doubted their own answer as Hana highlighted the shaded portion.

Hana: So you're telling me that the amount I'm dealing with here (pointing to 1.1 grid) is the same as this?
Students: Err…
Vina: Ms, I don't get it… why… is like I get it but I just can't explain.
Hana: I've coloured the one and I write one (wrote 1) right? Now am I shading the whole thing here?
Students: No.
Hana: (Drew a place value chart) So what's happening to my tenths place?
Vina: Is not a tenth, it's a one.
Hana: Listen. My one, I'm dealing with one (wrote 1 on ones place). Do I have tenth?
Students: No.
Hana: (Wrote a zero on the tenths place) What do I have?
Students: One.
Hana: Out of what?
Students: Tenth.
Hana: Out of what? (Circled around the hundredths grid)
Students: Hundredths.

Nodding her head, Hana wrote the symbol "1" on the hundredths place and added the decimal point.

Hana: So if I colour this one, what would it be?
Students: One point zero two and then one point zero three.
Vina: So Ms, what if you colour the whole line (as in tenth) what's it going to be?
Tracy: Is one point one.

Hana nodded her head again and proceeded to talk about internal zero.

Hana: (Pointing to the number) What's this?
Nancy: One point zero five.
Hana: What's this zero doing? This zero just holds the place.
Vina: If there's no zero there won't be right hey.

Renaming numbers to their equivalent form without losing their values is an important aspect of developing number sense. It enables numbers with internal zeros to be handled, computation to make sense, through knowing that 2.55 can be read as 255 hundredths, and 0.7 is the same as 70 hundredths. Students' difficulty with this aspect of learning began to surface while learning the concept of tenths. A case in point was finding the matching card for 20 tenths.

Sara: I don't have it.
Researcher: Yes, it's on your board, look carefully.
Sara: Where?
Researcher: Remember, 20 tenths is 10 tenths and 10 tenths, what does it look like and how do you write it?
Students: (Long pause)
Researcher: How do you write one whole?
Sara: One.
Researcher: If there were no tenths, what would you write?
Sara: One whole.
Researcher: You can write that (as in 1) or you can write one whole and no tenths (wrote 1.0). So 20 tenths is how many wholes?
Sara: Two.
Researcher: Do you have one that says two wholes and no tenths?
Desiree: Oh here!
Sara: I got it first! (Pointing to 2.0)

Getting students to shade decimal numbers on the grids highlighted the importance of renaming. For example, when asked to shade 2.5 on the grids, many students made the error of shading 2 and 5 hundredths instead. Ted began clarifying this misconception,

Ted: How do we say this decimal number Kristy? (Wrote 2.5 on the board)
Kristy: Err what?
Ted: Two and?
Kristy: Two and err what? … 5 tenths.
Ted: So we first shaded two ones and then?
Kristy: Five, those hundred squares.
Chanel: No. Is 50 hundredths!
Ted: But Kristy, you just said 5 tenths.

Some students immediately realised their own mistakes. Ben pondered the grids for quite some time before uttering,

Ben: Oh, I get it now.
Kristy: I got the next one right, but I don't know why?

Ted then showed the difference between 5 tenths and 5 hundredths. He then explained that even when there were a number of zeros written behind the 5 tenths, in this case 2.500000, the value remained unchanged. To further establish the understanding, Ted then asked:

Ted: Jay, which is smaller, 7 tenths or 9 hundredths?
Jay: 7 tenths, oh wait…err is 9 hundredths.

The use of the grids with the appropriate language became a powerful tool in helping students conceptualise the difference between 2.5 and 2.05. Meanwhile, an inability to rename numbers became a major stumbling block to students' ability to sequence and order decimal numbers.

Learning to Sequence and Order Decimal Numbers

Comparing and sequencing decimal numbers were introduced after the concept of tenths and hundredths. Prior to the research, spelling out the decimal numbers, as in "two point five", was a common practice among the teachers and their students. The students would utter, "two point seven, two point eight, two point nine…" for a sequence such as "2.7, 2.8, ___, ___" and ended with "two point ten". As shown in the following episodes.

Ann:	What's this?' ("6.98, 6.99, ___, ___")
Mondi & Jama:	Six point ninety-eight, six point ninety-nine, seven, seven point one.
Ann:	Not seven point one.
Mondi:	Seven point ten.
Bonnie:	Seven?
Ann:	We need three numbers here.
Hana:	If I have four point 98, four point 99, what comes after that?
Students:	Five.
Hana:	What comes after five?
Students:	Five point one.
Joe:	Five point nine.

Accordingly, teachers who made a concerted effort to emphasise the values of these numbers, and modelled how to rename them helped students to grasp the concept more quickly. For example, Jay picked up a card (10.8, 10.9, ___, ___),

Jay:	10 and 8 tenths, 10 and 9 tenths, 10 and 10 tenths.
Ted:	10 tenths make a?
Jay:	…Is eleven!

Getting students to explain and justify their answers also helped to cement the understanding, for example,

Rau:	It's wrong.
Ann:	Don't just tell him he's wrong. Tell him why you think he's wrong.
Rau:	Cause he took 3 hundredths off instead of 3 tenths.

Learning to order decimal numbers provided valuable opportunities to further challenge the teacher and students' underlying beliefs about decimal numbers. Often, teachers' assumptions about how students think had to be verified. As well, multiple learning opportunities in different situations were needed to confront students'

misconception. For example, Hana introduced the concept of ordering by writing three decimal numbers, 1.01, 1.1 and 1.001 on the board. She then asked Maya to arrange them from the smallest to the largest order of magnitude. Maya wrote 1.001, 1.01 and 1.1. Only Vina could not decide if Maya was right.

Vina:	I've a different answer. (She proceeded to write 1.1, 1.01, and 1.001).
Hana:	Oh, you went from largest to smallest. Do you agree that this (wrote 1.0) is smaller than this (pointing at 1.1)?
Vina:	(Pointing to 1.1) That's bigger.
Hana:	What about this (pointing at 1.1) and this (pointing at 1.01)? Which is bigger? The one on the left or the one on the right?
Vina:	The one on the… Oh Ms stop! I'm confused.
Researcher:	Use the hundredths grid to help you.
Vina:	I thought hundredth is more than tenth, (pointing to the grids).

Vina's response, "I thought hundredth is more than tenth" provided the evidence that Hana's earlier assumption was inaccurate. Knowing what those numbers represent, Hana had assumed that Vina has written the sequence from largest to smallest. However, the arrangement represented a different meaning from Vina's perspective. In the next lesson, Hana again worked on the concept of ordering. She asked Maya to order a set of numbers from the greatest to the least. Maya wrote:

7.16, 7.10, 7.09, 7.2, 7.0

Researcher:	Why do you think she organises it that way?
Joe:	Because seven point two is smaller than seven point sixteen.
Vina:	She sees that there is a zero there (pointing at 7.09) and that the rest have one.
Hana:	Speak for yourself Maya, why did you put it that way?
Maya:	Because the highest numbers out of the hundredths is sixteen.

Showing Maya the grids, Hana asked:

Hana:	Looking at the grids, is the hundredths bigger or the tenths bigger?
Pula:	The hundredths!
Hana:	Don't listen to her. Now, is the parts in the hundredths bigger or the parts in the tenths bigger?
Maya:	The tenths.
Hana:	Good, so now looking at the tenths and reorganise the numbers because the tenths is bigger.

This time round Maya came up with the number sequence: 7.2, 7.0, 7.09, 7.10, 7.16. Vina disagreed. She wrote 7.09, 7.16, 7.10, 7.2, 7.0 and said, "this is big" (pointing to 7.09). It looks small but it is big. Because this is the hundredths place (underlying the digit nine), and tenth, tenth (underlying the digit one)".

Hana assumed that Maya understood her instruction, but Maya's second attempt (7.2, 7.0, 7.09, 7.10, 7.16) showed that she merely obeyed Hana's instructions by placing both the decimal numbers with no hundredths in front. Vina too, could not comprehend, as her sole focus was on the size of the last digit and the misconception that hundredths is bigger than tenths. In her view, the digit 9 is bigger than 6, 10 is bigger than 2 and 2 is bigger than 0. One way of confronting this misconception was to get students to shade each number, and process the information individually, as seen in the following episode,

Vina:	Is the hundredths place more than the tenths or the tenth more than hundredths?
Researcher:	Look at the grid, what does it say?
Vina:	Hundredth is less then tenth. I just found out. I never knew that!

Students' Decimal Number Knowledge After the Research Project

The *Booker Decimal Numbers Test B* was administered at the end of the research. All students reacted badly to being tested, despite having enjoyed the lessons and being told that the assessment was to determine their progress. The analysis here focuses on students' ability to name, sequence and order decimal numbers.

Previously, the majority of students struggled with all aspects of decimal numbers. In the second test, significant progress was made by students in Year 9 and Year 8A (Figure 8). Year 8B students showed only slight gains in some areas. In naming, most students overcame these difficulties and were able to write 2 and 9 tenths as 2.9 (question 2a), 4 tenths as 0.4 (question 2b), and 19 hundredths as 0.19 (question 3b). The main difficulty involved numbers with an internal zero, as some students still wrote 6.500 for 6 and 5 hundredths (question 3a).

A lack of decimal number place value understanding caused many students to give confused responses in the sequencing task in Test A. In Test B, most students responded appropriately when asked to write 3 tenths less from the corresponding set of decimal numbers (question 4), and many students correctly wrote: 6.5 as 6.2 (question 4a), 8.1 as 7.8 (question 4b), 4 as 3.7 (question 4c), 0.9 as 0.6 (question 4d), and 5.3 as 5 (question 4e). There are two reasons why Year 8B students performed poorly on this item. First, this class only had 11 lessons compared with 15 lessons in Year 8A and 24 lessons in Year 9. Consequently, limited time was spent on learning to rename decimal numbers. Second, the introduction of thousandths in Year 8A and 8B, when students had yet to develop a secure understanding of the relationship between tenths and hundredths, may have led many to write 3 tenths less than 8.1 as 7.98 (question 4b) and 3 tenths less than 4 as 3.97 (question 4c).

Marked improvement was shown in ordering decimal numbers. Previously, none of the students in these classes were able to order decimal numbers. All of them focussed on the size of the number after the decimal point. In the second test, their errors were diverse and dissimilar. A few still wrote 5.16, 5.10, 5.09, 5.2 and 5.0

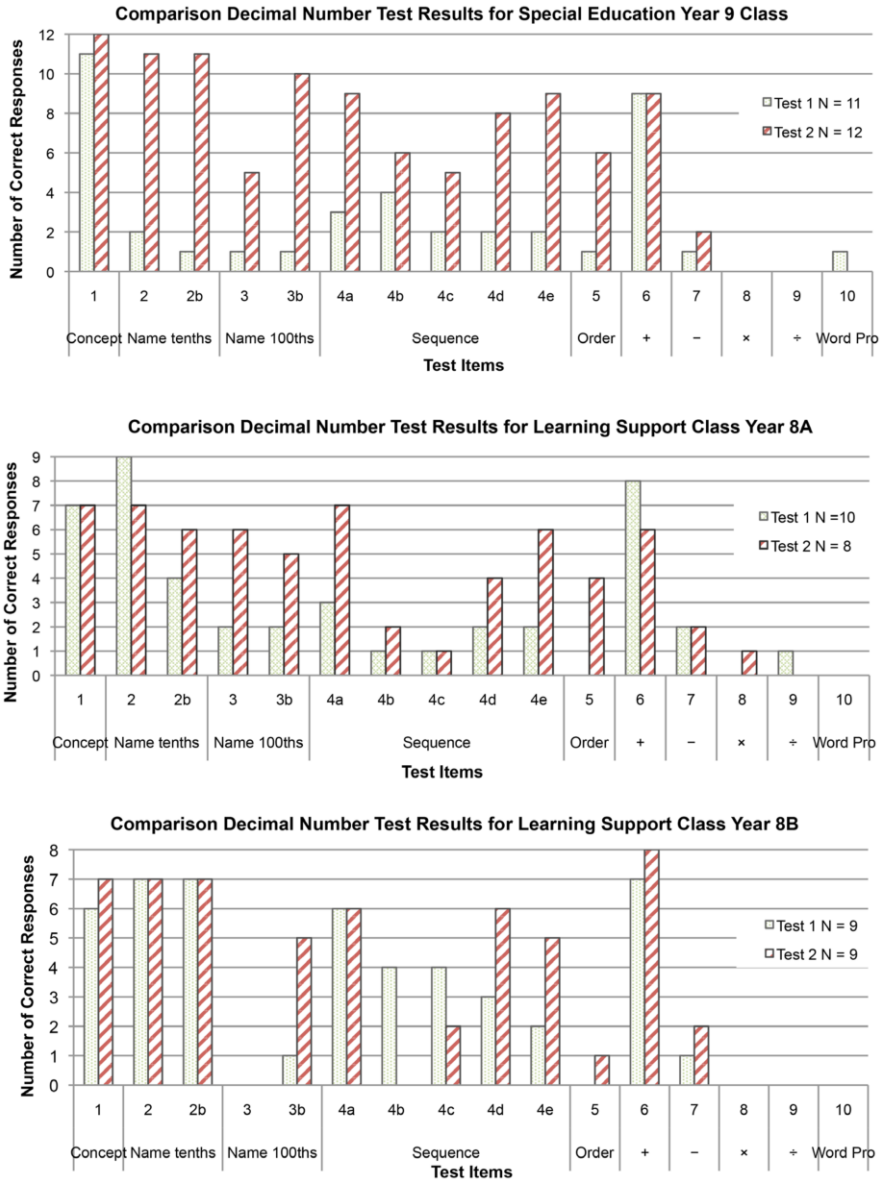


Figure 8. Comparison results of Decimal Fraction Test A and B across the three classes

when asked to order from greatest to least. Others got the greatest and least number correct but made errors for the remaining numbers, suggesting that these students are beginning to comprehend the number magnitudes.

CONCLUSION

The data collected here were invaluable to our understanding of how students with SEN learn mathematics in actual contexts. From a research perspective, distributed cognition complements Booker's framework in explaining the representation↔language↔symbols connection and contributes to our understanding of the type of support and scaffolding needed to help students learn. Fraction ideas are abstract entities. From a design perspective, representations that are more stable and better organised are easier to comprehend. Compared with the base 10 blocks or LAB, the grids were superior in meeting the transparency criteria, and retaining shadows of the whole number system. They acted as a conceptual bridge (Greer, 2004) connecting the idea that decimal numbers are an extension of the whole number system, similar yet different in its symbolic representations.

Significantly, the errors students made were similar to those reported elsewhere (see Steinle & Stacey, 2004; Thompson, 1992), suggesting that most students with SEN do not require specialised pedagogy to learn mathematics and that effective instruction benefits all students. Such instruction emphasises: (1) well-designed instructional representations to reflect the underlying meaning, (2) full meaning of number words to bring clarity to what the symbols denote, (3) be cognizant of the nature of mathematics that contributes to students' misconceptions, (4) constant probing of students' thinking to guide instructional and curricular decision, and (5) multiple opportunities for students to reason and practice their understanding in a supportive environment.

Certainly, researching how students with SEN learn mathematics is still at its infancy. Nevertheless, developing new understanding on how these students learn requires a collaborative effort in building bridges to help students construct knowledge. Such bridges include our values, beliefs and assumption about the nature of mathematics, students with special educational needs, and the need to teach for conceptual understanding. Only then, can the students be equipped with the skills needed to face the challenges of 21st century.

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JENNIFER ELSDEN-CLIFTON AND KATHY JORDAN

4. REFRAMING PROFESSIONAL EXPERIENCE

Adopting a Distributed Open Collaborative Course Framework to Facilitate Third Spaces

ABSTRACT

This chapter describes a redesigned practicum course that interconnects theory and practice using a Distributed Open Collaborative Course (DOCC) pedagogical approach. Course design decisions were influenced from literature advocating for greater connection between universities and schools (Top of the Class, 2007, Teacher Education Ministerial Advisory Group [TEMAG], 2015), the use of effective work-integrated learning (WIL) features (Orrell, 2011), and forming productive partnerships (Top of the Class, 2007; TEMAG, 2015). This chapter outlines the theoretical underpinning and features of the course. Using the feedback from students/pre-service teachers' pre and post survey data, it evaluates the various DOCC principles such as collaborative partnerships and shared responsibility for teacher education.

Keywords: Teacher Education, Professional Experience, DOCC model

INTRODUCTION

Numerous reports into teacher education in Australia typically refer to the need to improve the quality of Teacher Education programs, with consistent concerns about the lack of connection between theory and practice (Ure, Gough, & Newton, 2009). This rhetoric drives political commentary and has been the premise for a number of reports and initiatives. For instance, the *Top Of The Class* report (Australian Parliament House of Representatives Standing Committee on Education and Vocational Training, 2007) argued that at the centre of the issue around interconnection was the "current distribution of responsibilities in Teacher Education" (p. 2); whereby theoretical components are typically taught on campus by faculty, and the teaching practicum undertaken on-site in schools by practising teachers. The more recent Teacher Education Ministerial Advisory Group (TEMAG, 2014) report shared similar sentiments; schools and universities need to form closer partnerships and practising teachers should be more involved in preparing pre-service teachers to be more classroom ready.

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 57–70.

The teaching practicum is generally acknowledged as one site where universities and schools can connect, as well as being vital for the development of practical skills for future teachers (Ure et al., 2009). Yet, a number of issues around practicum continue to be identified in reports and research literature. Zeichner (2010) was critical of the way universities approach the practicum, arguing that they typically have very little involvement in its details, leaving these to be worked out between pre-service teachers and their teacher mentors. Drawing on his own extensive experience, he suggested that the teacher practicum is often perceived by universities as an administrative task. Another problem with the practicum, he suggested, is that schools and teacher mentors know very little about what happens in the university coursework, and that university educators have little knowledge of what happens in schools. Darling-Hammond (2010) similarly suggested that:

> … [the practicum] side of teacher education has been fairly haphazard, depending on the idiosyncrasies of loosely selected placements with little guidance about what happens in them and little connection to university work. (p. 40)

While there is general acknowledgment by policy makers, academics, researchers and practitioners alike, that university-based coursework and the teaching practicum should be more connected, there is also agreement that achieving this connection is complex. A number of approaches have been tried such as: establishing professional development schools; teaching courses in schools/site-based; and having practising teachers teach in universities. Yet, as noted by Grossman, Hammerness and McDonald (2009):

> … though scholars of teacher education periodically revise the relationship between theory and practice, teacher education programs struggle to redesign programmatic structures and pedagogy to acknowledge and build on the integrated nature of theory and practice as well as the potentially deep interplay between coursework and field placements. (p. 276)

In recent times a number of researchers (Taylor, Klein, & Abrams, 2014; Zeichner, 2010) have suggested that creating a hybrid, or Third Space, could prove effective in bridging the boundaries between the two spaces and move towards better integration of theory and practice.

This chapter reports on our efforts to realise a Third Space by designing a course to explicitly bridge the often separate components (spaces) of university coursework and practicum using a Distributed Open Collaborative Course (DOCC) pedagogical approach. This course, Professional Experience: Connected Classrooms, is a second year course in the Bachelor of Education (primary) program in the School of Education at RMIT University. The Bachelor of Education program is one of the initial teacher education programs delivered within the School and covers a number of streams (Primary, Disability Studies and Early Childhood Education). The program has around 800 students of which some 200 are in second year and

enrolled in the course at the heart of this chapter. The course was collaboratively designed by practising teachers from 15 partner schools and School of Education staff during semester 1, 2015. Course content was uploaded into a Google Site, and then localised by School-Based Coaches, practising teachers employed by the School. The second year pre-service teachers, organised into smaller groups in each partner school, undertook this course in semester 2. The core content of this course focused on lesson sequence, and the use of ICT in education and placement. It involved 10 weeks of classes taught at university and partner schools and included three assignments.

We begin this discussion by exploring issues around practicum that form the backdrop to our course design, including provision of practicum and the lack of connection between theory and practice and between universities and schools, and the importance of partnerships to these connections. We then turn to explore Third Space theory and then how we used a DOCC approach to enable this space to be realised.

PROFESSIONAL EXPERIENCE IN TEACHER EDUCATION

Professional Experience, or practicum, is a traditional feature of teacher education programs and often seen as a valuable learning experience as students are immersed into a school setting and undertake supervised practice under the guidance of a Teacher Mentor. Yet practicum, as indeed teacher education, is the subject of continued debate in Australia. This is evidenced by the large number of national and state reports that have been conducted over the last thirty years. For example, the *Top of the Class* report (2007) was charged with reporting on the scope, suitability, organisation, resourcing and delivering of teacher education courses and preparedness of graduates to then teach. This report provides an influential account of these debates, as well as illuminating some of the recommendations put forward at the time to resolve them. The more recent report by the Teacher Education Ministerial Advisory Group (TEMAG) provides a more current account of these debates.

One of the key issues discussed in both these reports is provision of practicum. In 2007, the *Top of the Class* report (2007) commented that there was:

> … no single model of practicum provision in teacher education courses in Australia. There is also little consensus on questions such as how much practicum there should be, when practicum should begin and the best structure for practicum. (p. 70)

Subsequent national accreditation of teacher education programs, beginning in 2011, aimed in part, to resolve this debate by mandating a common set of standards and procedures around provision. As a result, a minimum number of days for practicum were stipulated (at least 80 days in undergraduate programs and 60 days in post graduate programs). Providers were required to form partnerships with schools, and to document the nature and length of practicum, planned experiences and assessment,

and arrangements for supervision and professional support. It seems however, given recent recommendations in the report by the TEMAG (2015), that these measures were not enough to resolve the issue. The group was established to provide advice on the quality of teacher training and to make recommendations to better prepare teachers with the practical skills needed for the classroom. It recommended a greater focus on the timing, length and frequency of practicum and is currently suggesting a further number of reforms to national accreditation.

Another of the key issues identified by both reports is lack of connection. This often refers to the perceived lack of connection between theory (taught at the university through coursework) and practice (the practical component undertaken on site in schools). Ure et al. (2009, p. 13) refer to this conceptualisation of teacher education programs as a "two-step process". Lack of connection can also refer to the perceived weak relationship between universities and schools, reflected in comments around poor communication, lack of understanding of expectations of either or both sites, and lack of support by universities during placement. Both the *Top of the Class* report (2007) and TEMAG (2015) make similar recommendations around the need to improve connection, and both advocate forming partnerships.

The notion of forming partnerships between schools and teacher education providers has long been advocated on the grounds that this will enable greater connection between the coursework delivered by providers, and the practice experienced at school sites, moving towards a shared responsibility for teacher education. Indeed, it was one of the key recommendations in the *Top of the Class Report* (2007), and the report by the Victorian Council of Deans of Education (Ure et al., 2009). The Victorian Institute of Teaching, which governed the accreditation of initial teacher education programs in Victoria, and more recently AITSL, the national governing body, all mandate partnerships with schools as a requirement for accreditation (AITSL, 2011).

THIRD SPACE

Third Space theory is essentially used to explore the spaces "in between" two or more discourses, conceptualisations or binaries (Bhabha, 1994). This theory has been used in a variety of disciplines and for different purposes, for instance, Bhabha (1994) explored the ways in which people negotiate being in-between their own traditional culture and a newly imposed culture; in other words being in-between first and second spaces. Bhabha (1994) argued that through a continual negotiation, reinterpretation and creation of identities, a hybrid or Third Space is created which challenges both cultures. Moje et al. (2004) used Third Space theory to examine the in-between everyday literacies (home, community, peer group) with those used within a schooling context. In their influential paper, they summarised the three main ways that theorists have conceptualised Third Space: as a bridge; as a navigational space; and as a transformative space of cultural, social, and epistemological change.

Perceived as a bridge, Third Space is a space to build bridges between knowledge which, according to Moje et al. (2004), helps learners see connections, contradictions and bridge competing understandings. As a navigational space, Third Space enables participants to cross over or draw upon different binaries, discourses or discursive boundaries. In other words, Third Space can be seen as hybrid learning space in which students' linguistic and cultural forms, goals, or ways of relating, transform the official space of the school, teacher or classroom, so enabling participants to become more central to their learning and gain access to alterative knowledge (Gutiérrez, Baquedano-López, & Turner, 1997). Finally, Third Space can be perceived as a space for change or transformation where competing knowledge is brought into "conversation" leading to new understandings, new forms of learning and to knowledge projection (Moje et al., 2004).

Third Space theory has also been appropriated by teacher education researchers as a conceptual way of realising greater connection between theory and practice and between universities and schools. Zeichner (2010) explores a number of ways that Third Space has been used in teacher education contexts including: bringing teachers into university courses; encouraging the use of examples of teacher practice into coursework; mediating instruction (where part of a course is taught on-site in schools); having hybrid educators who teach a course both at the university and on-site; and/or incorporating knowledge from multiple communities (Taylor, Klein, & Abrams, 2014). In such Third Spaces, responsibility for teacher education can be shared, as boundaries between practicing teachers and university educators are blurred and there are more open lines of communication and shared understanding (McDonough, 2014).

In this chapter, we report on our efforts to redesign a course in the second year of the Bachelor of Education (primary) program in the School of Education at RMIT University to realise a Third Space. To do so we chose a Distributed Open Collaborative Course (DOCC) approach to frame this course design.

DISTRIBUTED OPEN COLLABORATIVE COURSE (DOCC) FEATURES

A Distributed Open Collaborative Course (DOCC) is a new approach to course design based on the feminist principles of openness, sharing of power and knowledge, and collaboration. The term DOCC was first used by FemTechNet (a network of scholars, artists, and students who work in and around the borders of technology, science and feminism) to describe an alternative model, one that takes a decentralised, networked approach to learning. The first DOCC, Feminist Dialogues on Technology, involved instructors at 15 universities and colleges in the United States, with each participating institution teaching a "nodal course" in which they designed an aspect to suit their own students, institution, location and discipline (Juhasz & Balsamo, 2012). Table 1 shows how this initial DOCC was designed in light of its feminist principles.

Table 1. Feminist-based principles and DOCC design features

Principle	*DOCC Design Features*
Shared responsibility and power	Course created collaboratively by staff from multiple institutions: notion of distributed expertise
Localised and adapted core content	Shared content production – each nodal course produced by one institution, who knows the students, institution, location and discipline, but courses would have credit
Interactive online learning	Use of technology to enable collaboration and course delivery
Learner input and interaction	Connected collaborative learning via nodal or connected courses

Drawing on these principles we then identified a number of key questions to help us conceptualise the course design. These are described in Table 2.

Table 2. DOCC key questions

Principle: Distributed
How will the course be produced? Who will design the course? Produce course content? Who will distribute? What pedagogical framework will encourage distribution? Who will teach the course? How will the course be appropriated to different contexts? What Learning Management System will be used to deliver this course? What technologies will we use to support effective learning? Why or why not? What technologies will students use in this course? Why? Who manages the content once it is uploaded and live? Who provides additional feedback, resources, hints, models if needed to be pedagogically effective?
Principle: Open
Who will contribute to the community? How "open" will the community be? Will all partners have the same level of access? How will power be distributed among the partnership? Will there be a hierarchy? How will issues be resolved? Who will make final decisions?
Principle: Collaborative (connected)
Who will collaborate? How will these collaborations/partnerships be formed? What professional learning will be needed in the first instance? Later? What strategies will we used to form (and then sustain) these partnerships? What strategies will we use to support collaboration? How will this collaboration occur (face-to-face/online)? When and how often will collaboration occur? What will be collaborated? I.e., What will be the outcomes of collaboration? What won't be collaborated?

Table 2. (Continued)

Principle: Course
What are the course requirements for the course? What are the course objectives and outcomes? What assessment strategies will be used to target these objectives and assessment?
What knowledge, skills and dispositions will this course focus on? How will we know if it has been achieved?
What specific teaching strategies will we employ in this course? For example, flipped classroom, podcasts, scenarios, text-based instruction? Why or why not?
What learning devices will be used? Why these and not others? Given the literature says that learning should be active, structured, authentic, reflective/self and peer, how can we in-build these into the course? For example, what audits? What evaluations? What reflections?
How will we build on prior learning?
How will the course cater for all students: the mature aged and international students?
How will we build risk-taking rather than comfort?
How can we "best" deliver this course? What are the advantages? The logistics?
How will the content foster diversity in opinion as well as experience?
How will we assess the effectiveness of this course?
What data collection will we collect? How?
What feedback do we want to receive and from whom?
Have we ensured that the course acknowledges its origins – its bias and prejudices?
Does the course enable ease of access to students with different levels of access and internet speeds?
What will this course cost, to design, implement and evaluate?

There were a number of ways that this course was underpinned by a DOCC design including some we have outlined below:

- Shared responsibility: Content such as video, exemplars, and readings were collaboratively developed between partner schools and teacher educators through a Think Tank Day and a 3 day Professional Learning Program.
- Localised and adapted core content: The course content was then appropriated and reshaped by the School-Based Coach at each of the 15 partner schools to suit local needs. Thus content was intended to accommodate the diverse school contexts and students' needs, creating a professional learning community approach to teaching and learning. One of the key departures from the original model was how the course was distributed/localised. In the Feminist Dialogues on Technology DOCC, content was distributed and localised across a number of universities, whereas in this iteration, content was distributed across a number of school sites.
- Interactive online learning: The course was developed and shared via an online Google Site to enable all members of the professional learning community to have access and to interact with it across both first (universities) and second spaces (schools). Course content was multimodal and geared towards specific learning objectives. The online site was framed by principles developed by Khan and Granato (2008).

- Learner input and interaction: This course was framed by goal-based learning (Conzemius & O'Neill, 2006) in which pre-service teachers conducted an audit of their current skills, knowledge and practices, to develop individualised goals which then shaped their assessment, learning and interaction within the course.

How each of these principles, shared responsibility and power, localised and adapted core content, interactive online learning, and learner input and interaction, specifically influenced the development of the course, *Professional Experience: Connected Classrooms* are discussed in the next section.

Shared Responsibility and Power

One of the affordances of Third Space is that it provides a framework for moving beyond dominant narratives and enables the blending of binaries that have traditionally characterised the two spaces of school and university. As seen in the literature review, universities/lecturers have, in the past, been seen as the qualified experts to teach the theory, with schools then being allocated responsibility for the development and teaching of the practice (Darling-Hammond, 2006). Third Space theory enables us to disrupt this binary of university/school to better interconnect theory and practice. To realise shared responsibility for learning, schools and the university collaborated over course design, assessment and teaching and learning activities. Practising teachers and teacher educators shared responsibility for the teaching and learning of pre-service teachers. This was achieved in a number of ways.

Firstly, a Professional Learning Community was formed to represent the interests of partners, and to develop a shared purpose and collective responsibility to the design, implementation and evaluation of the course. This PLC was made up of representatives from university, industry and student bodies.

Secondly, to collaboratively create teaching and learning material, a Think Tank Day was organised to enable practising teachers and school staff to come together as a group to think about, scope and design possible content for the course. A number of pedagogical strategies were used to stimulate discussions around concerns and authentic workplace issues. Some examples include:

- Brainstorming effective workplace skills and knowledge: Partners completed a Y chart brainstorm around student and industry relationships. A graphic organiser captured information around what a positive relationship between university and industry would "look like, sound like and feel like". This was later collated and used as a teaching and learning activity, with pre-service teachers completing the same Y chart, to highlight similarities and differences and to develop shared expectations of all partners.
- Providing input into the assessment criteria for the DOCC course: A template was developed which outlined a number of professional standards that could be assessed in the course. Partners then developed a rubric which outlined: not

meeting standard; meeting standard; or exceeding standard. This ensured a shared understanding of assessment.

Finally, the DOCC was taught both at the university and in partner schools by a coach. In the first 5 weeks at university, the pre-service teachers were introduced to the course and its core elements. They audited their past performance and practice, and current knowledge and expected levels of performance based on industry standards. They then developed four STEP (student, teacher, e-learning, planning) goals using the GROW (Whitmore, 1992) and SMART framework. When in schools, coaches supported pre-service teachers to enact their goals. Thus, many stakeholders contributed to the successful design and delivery of the course. This includes School of Education staff, industry partners, as well as School-Based Coaches. Figure 1 below shows the many stakeholders involved and their connection.

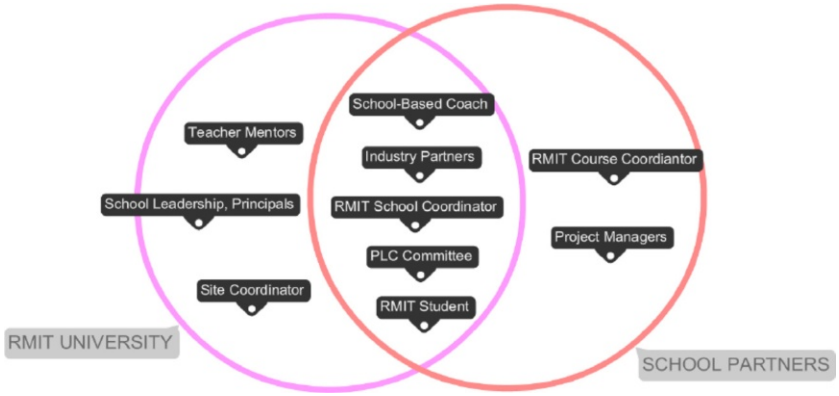

Figure 1. Roles in the DOCC course design

This course was purposefully designed to disrupt and redistribute binaries of power that have been typically replicated in teacher education programs such as teacher mentor/student teacher, universities/schools, teacher/student and lecturer/student. For instance, the learning activities were designed to challenge what and whose knowledge counts and question experience/expertise. At times, the theoretical knowledge often associated with university was valued, at others the practical was more supported, and sometimes the learner had the most valued input.

Localised and Adapted Core Content

One of the reasons a DOCC model appealed is that it encouraged the blending and localisation of second space (schools) with the first space of university. This DOCC design recognises that expertise is distributed and that there is not "one" course, but local courses created around a central theme (Caulfield, Collier, & Halawa, 2013).

In a Work-Integrated-Learning (WIL) context, it recognises that each industry site is different and has unique complexities. Therefore, this course was designed to be adopted and localised to suit individual students and diverse workplaces. This was achieved through a number of ways.

Firstly, a video snapshot of each industry site, showcasing location, size, priorities, learning spaces, and demographics was created to help students understand that schools are very diverse and to encourage them to appreciate some of the differences from one site to another. Secondly, a coaching framework was implemented to support the localising of workplace content and pre-service teacher achievement of individual goals. Each school site had at least one School-Based Coach who customised the core curriculum of this course to suit their specific school context. A number of templates to support coaching were then produced including: coaching framework; qualities of a coach template; building the coaching relationship; sample coaching questions; and feedback frameworks.

To support the coach in this process, a 3 day Professional Learning Program was developed. A brief outline of this program is provided below.

Table 3. Outline of coach professional learning

Day 1	Welcome and Introduction Introduction to the role of the coach and coaching Course structure, framework, assessment Google Site demonstration and Q and A Practising observation/assessing practice
Day 2	Coaching strategies Building the learning partnership Foundations of good coaching Coaching dilemmas
Day 3	Practicing clarifying and probing questions Developing a coaching plan

The coach undertook a number of roles (assessor, observer and/or supporter) while sometimes teaching in the school as part of their normal duties. RMIT University paid for their release from classroom duties, based on the number of pre-service teachers they coached. For example, if there were 15 pre-service teachers at the school, teaching release was paid each day of the four week placement. If there were six students at the school, release was paid for two days per week for the four weeks. Some schools had one coach and some had several coaches who shared the role with other teachers within the school. Tasks that they completed were diverse including:

- collaborating with the other School-Based Coach in the school and the Site Coordinator;

- observing the beginning of a lesson and providing pre-service teachers with some explicit strategies;
- revisiting the STEP goals with the pre-service teachers;
- addressing issues with teacher mentors and school leadership;
- conducting sessions with teacher mentors;
- conducting coaching sessions with pre-service teachers;
- facilitating tutorials linked to university outlines;
- providing formative and summative feedback on pre-service teacher lesson plans and teaching performance; and,
- assessing students' work and performance.

Interactive Online Learning

The use of "online teaching and communication platforms is important to the DOCC innovations" (FemTechNet White Paper Committee, 2013, p. 8). It also provided the means to easily and readily cross from first space to second space, and have a shared Third Space between schools and universities to support students' learning. To achieve this principle, decisions were made around the interface design and how to manage the learning environment. The eight dimensions of e-learning devised by Khan and Granato (2008) were used to generate a set of questions to inform this decision making. These dimensions being: Pedagogical, Technological, Interface Design, Evaluation, Management, Resource Support, Ethical, and Institutional. One key decision involved selecting the platform to deliver the course in multiple partner school locations. As the RMIT Blackboard site restricts access to RMIT staff and students, Google Site, which enables easier access, was selected.

Each week of the course was structured in the same way with a workshop focus, set of learning intentions, pre-workshop tasks, and workshop resources such as activities, podcasts and success checklists. A separate Google Site was created to provide online support for School-Based Coaches, who needed to localise the content to suit their specific school setting. This Google Site included: a glossary of terms; contact details and roles; practicum and course materials; workshop guides; samples of students' work for each week; coaching materials; and assessment and moderation podcasts.

Learner Input and Interaction

An important feature of Third Space theory is that hierarchies of expertise are examined and questioned (Lewis, 2012). Pre-service teachers in practicum spaces are often bound by binaries that place them in limiting positions such as teacher/student, active/passive, expert/notice, student/learner; they neither "belong" to the school, nor are they "at" university, thus, they are in-between these two spaces. Thus the DOCC design principle of learner input became a strong feature of the course,

with a goal-based approach to learning being used to support its achievement. Goal-based learning (Conzemius & O'Neill, 2006) has a long history in education, and focuses on valuing the individual learning needs of students. In the course design, students were asked to formulate four goals, known as their STEP goals: a Student goal, a Teacher goal, an e-learning goal, and a Planning goal. They set these goals at university in the first weeks of the course and then refined and enacted their goals in their school settings, with support from their coach.

In this model students were seen as the experts in their own learning, which is different to the design of many courses within Higher Education. As such, the intent was that students could individualise their learning, have more control of their learning and better meet their needs, particularly when compared to the controlled spaces often associated with the first space of university. However, this was dependent on pre-service teacher ability to set and refine goals and the support they gained from the school context to enact them. The role of the School-Based Coach became vital in supporting the pre-service teachers to not only align these goals to those of the partner schools, but to realising them in practice. The School-Based Coach's actions were guided by a broad coaching model. To Whitmore (1992), coaching is about helping people to learn rather than teaching them, and he developed the GROW framework to help structure a coaching conversation. This framework was then used to guide development of coaching skills.

IMPLICATIONS

In teacher education, Third Space has often come to mean a hybrid space which crosses the university/school, academic/teacher, expert/novice boundaries, giving rise to new possibilities and undermining accepted wisdom (Darling-Hammond, 2006; Zeichner, 2010). This chapter described a course that was underpinned by a DOCC pedagogical approach, with its focus on shared localised knowledge, distributed power and online features, as a means to realise a Third Space. This DOCC model was designed to enable greater insider/outsider knowledge across the first space of university and the second space of school, and to encourage interaction and shared power. Within a DOCC, expertise is distributed among its diverse participants. Learning is organised around collaboration with a focus on pedagogical engagement and the distribution of power among all participants. A DOCC uses online tools and pedagogical materials such as images, videos and activities, which target specific learning objectives. This content is appropriated and adapted by users and localised by universities/lecturers to suit their specific learning context and learning needs.

Research and reports into teacher education have consistently expressed concern about the lack of connection between theoretical and practical components in program design. This course, Professional Experience: Connected Classrooms, was particularly interested in being able to address this concern through its innovative approach to design and delivery. Positively, there was evidence that there was a

closer alignment of theory and practice, and a redistribution of responsibility and power which is often cited as the "problem" within teacher education. However, in encouraging new structures and systems, it challenges the "histories that constitute it" (Bhabha, 1990, as cited in Usher, 2002, p. 49) and in doing so, it raises complex new relationships that may be unfamiliar in teacher education. In destabilising what counts as knowledge, and "official" roles and conventions, it does raise some interesting dilemmas and questions. Are teacher mentors and pre-service teachers ready for a Third Space? Do we want Third Spaces? How might teacher mentors, teacher educators and pre-service teachers perceive and react to a change in roles and expectations? Who is valued/devalued in Third Space constructs? More research will be needed to fully realise the complexities of creating Third Spaces within and beyond teacher education.

We were drawn to Third Space theory as we thought it could enable us to make visible the connections between schools and universities via a DOCC model. The notion of a Third Space, as a hybrid space, offers possibilities for teacher education where traditionally there have been clear boundaries between the space occupied by theory, often taught on campus, and the space of practicum, taught on-site in schools. For a long time this disconnect has been seen as one of the main areas of concern for the quality of teacher education programs. In this chapter we discussed how a DOCC approach has the potential to bring together theory and practice in meaningful ways and possibly realise a Third Space. However, it also highlights the need for more research to fully realise the complexities of creating Third Spaces within and beyond teacher education.

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5. THE ARTS WITHIN A SUSTAINABLE EDUCATIONAL AGENDA

ABSTRACT

Engagement in the arts has a wide range of benefits for students and educators. Despite such recognition of value, the journey of arts education and its sustainability in formal educational settings, such as schools and tertiary institutions, has been ubiquitously turbulent as a result of constant changes. Education is strongly influenced by the social, political, and economic contexts in which it takes place. This paper explores the place of the Arts in education and focuses on the provision of arts education in Australia. The arts are an acknowledged key learning area of the Australian curriculum, however, the Australian educators and researchers claim that providing an in-depth, meaningful engagement is unrealistic with the current situation. The authors suggest that policy makers, curriculum developers, researchers, teacher educators, arts educators, and educational institutions focus on implementing arts education effectively in formal educational settings and sustain arts education for twenty-first century learners in Australia and beyond.

Keywords: Arts education, teacher education, sustaining arts teaching, Australian curriculum and arts and society

INTRODUCTION

In the *Road Map For Arts Education* (UNESCO, 2006), the aims of arts education were being described as to: "Uphold the human right to education and cultural participation" (p. 1); "Develop individual capabilities" (p. 1); "Improve quality of education" (p. 3); and "promote the expression of cultural diversity" (p. 4). A number of policies, conventions, declarations, reports, and frameworks, including research evidence, have been used to devise these aims. It has also been identified that through arts education it is possible to provide creative and cultural education. National Advisory Committee on Creative and Cultural Education (NACCCE of the United Kingdom) (1999) pointed out that cultural education enables students to engage and understand growing complexity and diversity of social values in contemporary multicultural societies. The development of creative thinking in children is one of the important anticipations of contemporary education.

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 71–81.

Despite such recognition of value, the journey of arts education and its sustainability in formal educational settings, such as schools and tertiary institutions, has been ubiquitously turbulent. The Arts in the worldwide curricula face many obstacles and continues to struggle. These obstacles came with many faces and were initiated by different incentives. The intention of the authors is to explore these issues, especially related to the Australian context, and alert the stakeholders to take necessary actions.

Exploring the British context, Bamford and Wimmer (2012) articulated that "the degree to which the arts are included in national curriculum varies" (p. 4) and this has been the case globally, including Australia. It is possible to interpret this claim in different ways and, for the purpose of this discussion, we will use the following versions: the depth of arts education provided and the amount of art disciplines offered in different educational settings. There are many reasons behind these variations and this paper will explore those factors which might have influenced education in the arts. Even though the main focus is to investigate the practices of formal arts education in educational settings, it is also vital to explore the practical use of the arts in society, especially focusing on how different forms of arts are used in everyday life.

The Arts have been one of the key learning areas of Australian education since the Hobart Declaration of 1989. Similar to other educational systems worldwide, the decade of the 1990s raised awareness on the value of the arts for a sustainable society as well as the attempts to ensure universal access to arts education for every child. Over this time, there have been debates on issues such as the need of the artistic engagement and participation for cognitive and communicative development, the promotion of people's creativity and transformative problem solving through the arts, and the arts as the vehicle for cultural understanding in multicultural societies. In addition, there has been consideration of the arts as a way of transmitting social values and peacefully responding to social inequalities. Each of these issues has been the focus on a range of studies and continue to inform debates in and across the role, place, and function of the Arts as a core area in education.

Since the Hobart Declaration (1989), there has been agreement that an education in the Arts within schooling will include a variety of art forms − dance, drama, music, media, and visual arts. The identification of these forms has been to reinforce and ensure children's access to and appreciation of the five arts disciplines included the curriculum. There is a need to ensure that arts education includes the efforts to address a series of agreed general capabilities for students to develop during schooling such as Literacy, Numeracy, Information and communication technology capability, Critical and creative thinking, Personal and social capability, Ethical understanding, and Intercultural understanding. In addition, approaches to arts teaching and learning are directed to meeting the cross-curricular priorities in the Australian Curriculum − Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia's engagement with Asia, and Sustainability. There is an articulated need to define the place of each art form, the essential learning for the arts, and issues of time devoted to the arts within the curriculum. These concerns have been ongoing themes of

investigation in the agenda of arts education professionals and academics (Forrest & Watson, 2006, 2012; Jeanneret, 2010; Jeanneret, Forrest, & Watson, 2007).

CURRENT CHALLENGES FOR THE SUSTAINABILITY OF THE ARTS AND THEIR EDUCATORS

The preface of Foster and Blau's (1989) *Art and Society: Readings in the Sociology of the Arts* suggested that Art is old and ubiquitous. Through a series of chapters exploring the relationship between the arts and society, they addressed the fact that, considering the importance of the arts for humankind, society has not reflected enough about the connections between the arts and personal and social behaviours. Although more than 25 years have passed since this publication, the process of understanding how to successfully approach the arts for students is constantly being debated, particularly among policy makers. This often enables arguments about the importance of the arts in the holistic development of children.

The role of the arts in society has changed over the years. The perceptions and realities of these changes constantly evolve and need to be rearticulated. In contemporary societies, the value attached to art is in the process of shifting into new understandings of what it means to be a good piece of art and its value. In general terms, ideologies during the nineteenth and twentieth centuries regarding the value attached to the arts suggested that the good art possesses certain properties such as universality, eternality, complexity, and originality (Green, 2003). Today, within a global understanding of art, more complex ideas exist on what good art may entail. Together with striving for excellence in the performance of a certain art form, a positive aesthetic experience often involves interrelating different art forms, experiencing art in the most unexplored realms and therefore searching for creativity. The understandings of complexity within the arts have been widely explored. In relation to the idea of creativity, Peter Dallow (2004) addressed:

> Uniqueness and cultural authenticity in art withered in the Modern Era, according to Walter Benjamin, and subsequently the cultural conditions of postmodernity in turn were supposed to have made the possibility of doing anything new in art impossible. Nonetheless, it remains true that the contemporary creative arts still continue to coalesce around the formative notions of "novelty", "newness", and "difference", even if the notion of originality appears to have become redundant as a defining element. Indeed, as will be asserted later, novelty itself serves as a broader cultural metaphor for contemporary existence. But how, though, might we go about investigating the way something new is done (creativeness), in the creative arts? (p. 133)

The notion of the arts as a way of thinking and doing for people to encourage divergent thinking, originality, or novelty, and therefore exploring their creativity, is one of the strongest arguments for many educators to uphold the importance of the arts in holistic development. The idea of creativity in the arts within a creative

society – with creative economies and policies – tends to be a – or even in some context the – key element for educational agencies to argue over the sustainability of the arts in education. Furthermore, the arts have, in many cases, assumed the role to be the school subject that is aimed at developing people's creativity.

We must keep in mind that creativity and creative thinking are not exclusively the realm of the Arts, but they are central to the thinking, practice, and realities of the Arts along with many other disciplines within the school curriculum. The concept of creativity in education has been attached to "open-mindedness, exploration, celebration of the difference and originality … [It has been] taken to be an automatic opposition to the language of targets, to instrumental skills, the measurement of outcomes and the dogmas of accountability" (Cullingford, 2007, p. 133). As Díaz Gómez and Frega (1998) stated, the world of the arts revolves around the creative abilities and potential of human beings. The systematic stimulation of creativity should be indispensably considered as cross curricular to all the teaching and learning processes in arts education and the broader curriculum. The search for developing creativity through the arts has been one of the main areas of study and reflection for many artists and educators who, as Grierson (2011) posed, "find a way to argue for the sustainability of art education as a creative mode of enquiry through which self and the world may be better understood, identity might be realised as difference and being-in-time might be possible" (p. 336).

Education is strongly influenced by the social, political, and economic contexts in which it takes place. In many countries, the educational system has been constantly changing and under consideration due to changing social paradigms that promote a significantly more comprehensive understanding of what being educated entails. In many cases, these changes are targeted under the pretext of meeting global challenges and responding to actions made by certain governments that organise themselves for promoting policies that will improve the economic and social well-being of people and seek solutions to common problems. For example, the OECD (2015) has self-defined. currently, a significant shift into the "objective" international evaluations of education systems, by reports such as PISA, TALLIS – or NAPLAN in the Australian context – have turned the attention of governments and educational authorities into strengthening certain knowledge areas and limiting those that are not being assessed. These underlying interests have promoted educational agendas to focus the priority on certain capabilities that, among others, are objectively easier to measure and assess.

Moreover, Myers (2008) upholds that "calls for real-world relevance are prevalent among today's global efforts to improve education" (p. 1). Political, social, and economic concerns typically provide the context for such requirements. Proponents emphasise the need to formulate and continually update a workforce that can apply its knowledge and skills to resolve real-world problems. Within that context, art educators need to return to debates aimed at justifying the importance of people's artistic development and, therefore, the need to ensure compulsory arts

education in schooling. At the same time, researchers in art and music education need to conduct investigations to ensure the implementation of arts education activities in schools is consistent with the idea of art in society, and with the social needs that the educational system must meet. Interestingly, we must not lose sight that in Australia the disciplines of music and visual art have been a part of the school curriculum for more than one hundred years. In some States (such as New South Wales) specific times were mandated for the delivery of these two disciplines within the compulsory curriculum.

The USA National Art Education Association (2016) advocated a call on policy makers and the public to re-examine support for quality arts education by answering questions such as "what does art education do for the individual and for society?; why do we teach art?; and how does art contribute to education at all levels?" Three answers to these questions stand out as crucial in today's social and economic climate: art means work, art means language, and art means values. Many researchers in art and, specifically in music, have been commissioned to investigate relationships between personal development and the engagement in the arts in different perspectives. In this line, efforts have been made to investigate the effect of music on cognitive and behavioural development (Hallam, 2010; Schellenberg, 2004), on logical-mathematical thinking (Ahlawat, Batra, & Sharma, 2012; Hallam & Price, 1998), or to improve language skills (Tierney, Krizman, Skoe, Johnston, & Kraus, 2013). Many arguments have been used by music educators to justify the virtuality of the study of different art forms, and thus provide arts education with relevance and therefore sustainability.

Perhaps, as Myers (2008) addressed, art and music educators may have focused efforts on convincing those who are responsible for educational policies of the need for the arts, even with arguments that put aside the importance of the art per se, and ignoring the cognitive, expressive, cultural, and experiential aspects derived from artistic practice and participation. It is important to centre debates to provide "(1) reflective and critical analysis of why the public is tepid in its endorsement of the arts and arts education as non-negotiable investments in schools and communities; and (2) serious consideration of the responsibility that the arts and arts education communities bear to foster enhanced public value through universal access to high-quality engagement and learning across the lifespan" (Myers, 2008, p. 2).

In a global and essentially multicultural context, the cultural aspect of the artistic and musical experience is undoubtedly important. Music education has been repeatedly used to enhance the management of cultural diversity in schools, mainly through participating in common artistic experiences that involve learning and sharing cultural practices. The figure of the music teacher has been seen as a cultural manager. Numerous investigations and experiences followed this trend (Bradley, 2006; Dillon, 2007a, 2007b; Joseph & Southcott, 2009a, 2010). In recent years, new forms of conflict are emerging in our societies as a direct repercussion of the current acute economic and social crisis. In this context, a necessary task in the

field of education is to work towards improving coexistence through encouraging the initiation and consolidation of cultural practices that enable intersubjective links between individuals.

Today, the plurality in the understanding of the artistic and musical experience is so marked that philosophers and music education theorists, let alone musicians and music teachers, cannot come to grips with all the factors that intervene in this diversity within the music classroom (Green, 2005). Recognising the complexity and hybridisation of artistic forms of this real art pervades our everyday realities – both the physical and audiovisual spaces – and integrating them into the classroom and promoting their understanding and appreciation is a challenge for teachers.

FINDING THE PLACE OF/FOR ARTS IN THE AUSTRALIAN CONTEXT

The UNESCO *Road Map for Arts Education* (2006) recommended "Active partnerships between schools and arts organizations and between teachers, artists and the community" (p. 20). It is highly important to explore arts practices in the communities as teaching and learning in schools (and other educational institutions) should be related to the actual applied practices of art. In everyday life, various arts forms are used by people for different purposes and functions in many ways without any categorisation. For example, in contemporary societies people constantly use media such as television without differentiating various forms of arts such as visual arts, music, dance, and drama used in television program production. Therefore, the premise of a wholesome arts education (which includes all five forms) is highly recommended to attain those advocated values in the Road *Map for Arts Education* by UNESCO (2006).

Australian educators and researchers claim that in-depth engagement with the arts as part of an education cannot be provided due to time restrictions in a crowded curriculum and the lack of resources (Joseph & Southcott, 2006; Southcott & Joseph, 2007; Nethsinghe, 2012). The amount of arts discipline offered in courses also varies due to changing drive of educational trends such as the focus on STEM (Science, Technology, Engineering and Mathematics) education. In a position paper, the office of the Chief Scientist (Australian Government, 2013) urged the Australian community to adopt the STEM practices stating that "many countries are relying on their STEM enterprise and its quality to build knowledge-based communities and economies [and] Australia must do the same" (p. 4). As recommended, the educational authorities started focusing on promoting STEM using different strategies. The Australian educational institutions embraced the STEM enterprise and, as a result, arts education eventually received less attention. In the US, there has been the extension of STEM with the inclusion of the A for Arts to produce STEAM. This will potentially reach the Australian educational context, but the current interests are focused on STEM.

It is also important to consider the National Assessment Program Literacy and Numeracy (NAPLAN) introduced in 2008 and conducted annually in the month of May for school students in Years 3, 5, 7, and 9 (NAP, 2013). This assessment, which focuses on Literacy and Numeracy, has been decried by many as an activity that reduces time for arts education. Advocates such as Richard Gill, a highly acclaimed musician/music educator, asserted that "evidence is now available that schools all over the country are cutting back on arts education to devote more time to subjects which will make children literate" (Gill, 2011, para. 4). Gill (2011) has criticised the loss of the arts in Australian schools as a result of the narrow focus of NAPLAN testing.

The issue of sustainability is central to the arguments of this contribution. We are considering the sustainability of the arts in school and education and the complementary consideration of the arts in teacher education programs. As identified above, the arts are an acknowledged component of the Australian Curriculum. While there has been significant debate on the place of the arts in the Australian Curriculum over the last five years, the arts do form a part of the curriculum. The issue about the place of the arts in the Australian Curriculum comes forward when the consideration of implementation is placed alongside the policy. The Curriculum identifies that a child will experience all five arts forms through schooling. What is not articulated at the policy level is how the child will experience these forms. At the most pragmatic level, we divide a school timetable by the number of key learning areas and then by the components of these areas. There is not a lot of time for any meaningful engagement with the broader field of arts in education. It is unreasonable and unsustainable for a school to attempt to meet the requirements of the current policy. A child could not experience a meaningful and sustained engagement with all five disciplines within the arts.

Taking this view to the curriculum of a teacher education program, we are confronted with the issue that all university teacher education programs have reduced their offering of arts education courses within the overall program of study (Joseph & Southcott, 2009b). The universities are delivering what the regulatory authorities demand for a graduate to be registered as a teacher. They are not providing a broad, rich education experience as this is not mandated by the State or Territory registration authority. There is then the issue of who actually pays for the education towards the registration. It is seemingly unrealistic for a graduate teacher to be fully equipped to teach across the five disciplines of the Arts. This in itself is unsustainable.

If we return to the historic position of music and visual art in the curriculum, there is an opportunity to offer a sustainable offering of the arts within the curriculum. We need to reconsider what an education in the arts involves, and more importantly, what can be accomplished within the constraints and opportunities of the school (and university) timetable. If we returned to offering the disciplines of music and visual art, we have a legitimate opportunity to provide students with a meaningful, sequential, and engaged (Ewing, 2010) experience of the arts.

CONCLUDING THOUGHTS: SUSTAINING ARTS EDUCATION IN AUSTRALIA AND BEYOND

The efforts to sustain arts teaching in schools should begin in teacher training, providing necessary skills and knowledge to generalist pre-service teachers in their teacher education courses. Then, appropriate professional development needs to be offered to in-service teachers to learn how to integrate arts in to their curricula. It is also important to establish partnerships among teachers, arts practitioners, theorists, administrators, and educational institutions to work collaboratively and learn from each other. Exploring the situation in the Northern Territory (NT) in Australia, Perso et al. (2011) claimed that:

> More sustained arts in schools programs involving partnerships between schools and local art centres, musicians and other artists have been developed in some NT communities. While the evidence of the educational and other benefits of such programs is largely anecdotal, more systematic arts in schools programs with defined methodologies designed to integrate with the broader school curriculum, and/or aim to impart arts education practice skills to teachers within the participating schools have become available in recent years. (p. 1)

We believe that this should be the case nationwide and more attention of policy makers, educators, researchers, arts practitioners, including communities, need to be directed towards enhancing the arts in education. Perso et al. (2011) explained the inclusion of arts in education as:

> … a way of teaching and learning that has the potential to be used as a strategy for learning across the curriculum impact upon on a range of educational outcomes;
>
> a way of teaching and learning that has the potential to impact upon teachers' professional learning and enrich classroom practices and be embedded in all content areas
>
> a way of collecting and using data that has the potential to inform new solutions to old problems. (p. 2)

According to UNESCO (2006) "Arts Education contributes to an education which integrates physical, intellectual, and creative faculties" (p. 2) and has the potential to transform "educational systems struggling to meet the needs of learners in the 21st century" (Ewing, 2010, p. 12). With such positive effects on knowledge transmission and fostering creativity and innovation, arts need to be in the centre of attention of all stakeholders who are interested in enhancing holistic education and finding solutions to "creativity crisis" of the modern world (Kim, 2012).

As Grierson (2011) advocated, it is important to explore avenues to sustain arts education as a creative mode of enquiry and, most importantly, to transmit the knowledge of arts practices to younger generations as a way of sustaining

and enhancing aesthetic qualities. There may be different agendas that influence approaches to arts education in various countries, and it is important to identify those reasons related to the Australian context and then enhance the provision of arts education based on those unique requirements. UNESCO (2006) advised individual countries to act upon enhancing and implementing arts education in a coherent and sustainable manner. For example, in multicultural Australia, the arts can be used as a vehicle to provide multicultural education for learners and also as a method to provide creative education for implementing the National Innovation and Science Agenda which embraces the STEM initiatives in educational settings.

In this process, it is important to investigate how to offer the most possible authentic experiences with all five art forms included in the Australian curricular framework for learners in different educational institutions. As a multicultural country, arts education agendas should also include different cultural aspects and comprise diverse arts practices of multicultural communities that reside in Australia, offering a broader range beyond traditional Western classical music approaches.

Studies have revealed how arts education benefits student achievement and has a proven impact on improving skills, including learning. It is also important to consider increasing resources needed to provide arts education and expanding time for learning as much as possible. In the process of paving the way for an effective and a sustainable arts education agenda, it is also vital to educate teachers and equip them with appropriate skills and expertise, cultivating a research culture that focuses on enhancing arts related practices.

In conclusion, we suggest that Australian policy makers, curriculum developers, researchers, teacher educators, arts educators, and educational institutions focus on exploring how to implement arts education effectively in schools considering important factors such as the inclusion of five arts forms, depth of educational engagement/provision, addressing requirements such as creativity enhancement and STEAM education, globalisation and cultural diversity in the Arts, and sustaining arts education for 21st century learners.

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ANNETTE GOUGH

6. ENVIRONMENTAL SUSTAINABILITY IN SCHOOLS

Tensions around Teaching a Global Imperative

ABSTRACT

Despite efforts over the past 40 plus years, environmental sustainability is still on the margins of the curriculum in most countries. While there is much evidence that children enjoy learning *about* and *in* the environment, many teachers remain reluctant to teach environmental sustainability, and governments frequently marginalise the area. This chapter discusses the need for education for sustainability as part of global citizenship and provides a history of the implementation of environmental sustainability education in schools, with a particular emphasis on Australian and English schools, and the tensions that have been encountered. It also gives some examples of instances where environmental sustainability has been successfully implemented in schools, and concludes with a discussion of some of the challenges for the future. A thread throughout these discussions is the relationship between environmental and science education because these fields have long been seen as related in a schooling context.

Keywords: environmental education, sustainability, science education, global citizenship

INTRODUCTION

Since the late 1960s, there has been a global imperative to educate people to protect and enhance their environment. For example, at a conference held at the University of Keele in 1965, it was agreed that environmental education "should become an essential part of the education of all citizens, not only because of the importance of their understanding something of their environment but because of its immense educational potential in assisting the emergence of a scientifically literate nation" (Wheeler, 1975, p. 8), and the United States Congress passed an Environmental Education Act in 1970 (McCrea, 2006, p. 4). The 1972 *United Nations Declaration on the Human Environment* reinforced the importance of environmental education in having as one of its principles that:

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 83–101.

> Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. (United Nations, 1972, p. 3)

More recently, the post-Millennium Development Goals agenda stated that, "Environmental sustainability is a core pillar of the post-2015 agenda and a prerequisite for lasting socioeconomic development and poverty eradication" (United Nations, 2013a, p. 2). Hence, environmental sustainability education continues to be needed as part of the core of global learning for the twenty first century, and this is reflected in the *Roadmap for Implementing the Global Action Programme on Education for Sustainable Development* (UNESCO, 2014), although not in the national curricula in either Australia or England, or many other countries.

As I discuss in this chapter, despite efforts over the past 40 plus years, environmental sustainability is still on the margins of the curriculum in most countries. While there is much evidence that children enjoy learning about and in the environment, with some programs also promoting a "for the environment" component (Ballantyne, Fien, & Packer, 2001; Gough & Sharpley, 2005), many teachers remain reluctant to teach environmental sustainability (Blumstein & Saylan, 2007; Spork, 1992; Thomas, 2005), and governments frequently marginalise the area (Gough, 1997; Hickman, 2013; United Kingdom National Commission for UNESCO, 2013; Victorian Department of Education and Training, 2014). In addition, although long recognised as a goal for school education in many countries (for Australian and English examples see, Australian Education Council, 1994; Chatzifotiou, 2006; Ministerial Council on Education Employment Training and Youth Affairs, 1999, 2008; United Kingdom National Commission for UNESCO, 2013), the inclusion of sustainability in curriculum documents continues to meet resistance (Donnelly & Wiltshire, 2014; Hickman, 2013), at the same time as the planet faces increasing environmental crises which would seem to make the need for the teaching of environmental sustainability even more urgent.

In this chapter, I first discuss the need for education for sustainability in a global context, and then describe a history of the implementation of environmental sustainability education in schools, with a particular emphasis on Australian and English schools, and the tensions that have been encountered. In the third section, I provide some examples of instances where environmental sustainability has been successfully implemented in schools, and then conclude with a discussion of the challenges for the future. A thread throughout these discussions is the relationship between environmental and science education because these fields have long been seen as related in a schooling context.

THE GLOBAL NEED FOR EDUCATION FOR SUSTAINABILITY

The field that has become environmental education emerged from the growing awareness of the (usually human-created) threats to the environment during the 1960s. At that time, the environment was seen primarily as a set of natural ecosystems with the environmental crisis being understood as a consequence of the increasing contamination of land, air and water; the growth in human population; and the continuing depletion of natural resources. The urgency to address this crisis was recognised in the Stockholm Declaration from the 1972 United Nations Conference on the Human Environment, which focused on the need to "inspire and guide the peoples of the world in the preservation and enhancement of the human environment", where "both aspects of man's[1] environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself" (United Nations, 1972, p. 1). This may be interpreted as a humanist agenda because, according to Stables and Scott (1999), "'Humanism' is generally held to refer to sets of beliefs which are anthropocentric: in other words, which are concerned with the perspective and welfare of humanity, though this does not preclude care for the natural environment" (p. 146). However, the intention of the agenda at this time was more holistic, going beyond "care of the natural environment" to a concern with acting for the environment to achieve a better quality environment for all living things.

The origins of the international environmental education/education for sustainable development (ESD) movement are in the 1972 United Nations Conference on the Human Environment, and as United Nations and UNESCO documents provide the globally shared visions of environmental education that inform national actions over the decades, these documents provide the source documents for this discussion.

The concerns about the natural environment as well as the human environment, expressed in Principle 1 of the Declaration from that conference, are reflected in the Belgrade Charter (UNESCO, 1975) which stated that:

> … the foundations must be laid for a world-wide environmental education programme that will make it possible to develop new knowledge and skills, values and attitudes, in a drive towards a better quality of environment and, indeed, towards a higher quality of life for present and future generations living within that environment. (p. 2)

Over the following decades there was a transition in terminology with "environmental education" increasingly being replaced by "education for sustainable development" (United Nations, 1993, 2002). In particular, the vision broadened from focusing on "the role of education in pursuing the kind of development that would respect and nurture the natural environment" to encompass "social justice and the fight against poverty as key principles of development that is sustainable" (UNESCO, 2004, p. 7). This change is significant in that the environment is now

seen as a "natural resource base for economic and social development" in the World Summit report (United Nations, 2002, p. 2), and notions of improving the quality of the environment, contained in earlier statements, have disappeared and been replaced by a focus on the welfare of humanity – a major shift towards a humanist agenda.

Similarly, somewhere between the environmental education statements from the 1970s and those that have appeared in the last decade (UNESCO, 2004, 2005, 2013, 2014), a concern for the environment disappeared and the focus became the human condition. For example, the "definition" of ESD contained in the *Roadmap for Implementing the Global Action Programme on Education for Sustainable Development* (UNESCO, 2014) was: "ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity" (p. 12). This statement was consistent with the commitment to ensuring "the promotion of an economically, socially and environmentally sustainable future for our planet and for present and future generations" in *The Future We Want* (United Nations, 2012, p. 1). It was also consistent with the post-Millennium Development Goals agenda (United Nations, 2013a, 2013b) which placed "Put sustainable development at the core" as the second of five big transformation shifts[2] that the UN Secretary-General's High Level Panel believed needed to be made in their universal agenda: "Our vision and our responsibility are to end extreme poverty in all its forms in the context of sustainable development and to have in place the building blocks of sustained prosperity for all" (United Nations, 2013b, p. iii). Sustained prosperity includes achieving universal primary education and an extension to universal secondary education.

Continuing what was started with the UNESCO international implementation scheme for the *Decade of Education for Sustainable Development 2005–2014* (UNESCO, 2004) – which brought together the Millennium Development Goals (MDG) process, the Education for All (EFA) movement, and the United Nations Literacy Decade (UNLD) with ESD – education for sustainability is increasingly being interwoven with other international education priorities. An important example here is the UN Secretary-General Ban Ki-moon's Global Education First Initiative (GEFI) which had as its goal: "to empower learners to engage and assume active roles both locally and globally to face and resolve global challenges and ultimately to become proactive contributors to a more just, peaceful, tolerant, inclusive, secure and sustainable world" (Vivekanandan, 2014, para. 2).

What follows from this convergence in international discourses related to sustainability and global citizenship is the need for education in schools to reflect these movements.

ENVIRONMENTAL EDUCATION FOR SCHOOLS

The history of environmental education in schools is one of marginalisation within the curriculum and an on-going association with science education, even though

science education has long been characterized as a limited vehicle for environmental education (Gough, 2002; Lucas, 1980). In this and the following sections, I trace some of the history of environmental education in the Australian and English national curriculum statements, and the tensions and resistances encountered by environmental education in both places and elsewhere.

Australia and England both commenced the development of their national curriculum in the late 1980s (Chatzifotiou, 2006; Education Council, 2014), however, while the English national curriculum was introduced in 1990, Australia only implemented its national curriculum in all states and territories from 2014. In both curricula, environmental education (later called sustainability) was originally included as a cross-curriculum theme, but this status is now being diminished in both countries (Donnelly & Wiltshire, 2014; Hickman, 2013).

Framing Statements

Early statements on environmental education in Australia, such as the Curriculum Development Centre's *Environmental Education for Schools* (Greenall, 1980), drew on the 1972 Stockholm Declaration on the Human Environment, together with the 1975 Belgrade Charter and the 1977 Tbilisi Declaration (even though the latter two documents were not explicitly mentioned). The stated aims were concerned with the total environment – for example, "to help students develop a basic understanding of the total environment and the interrelationships of man and the environment" and "to help students develop the skills necessary for investigating the total environment and for identifying and solving environmental problems" (Greenall, 1980, p. 4). This total environment as "the self-contained system that supports all the life on Earth" (p. 6) has many components, broadly classified as natural, built, technological, and social (which includes the economic, political, technological, cultural-historical, moral and aesthetic aspects). Environmental education was seen as "developing a concern for the environment, developing a willingness to take responsible action to improve the quality of life, and accepting responsibility for environmental management", and involving "all students and all subjects at all levels" (p. 5).

Similar statements were made in regard to environmental education in the English national curriculum, which was also grounded in the Tbilisi Declaration, and adopted a holistic approach to environmental issues and encouraged "providing opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment" (Chatzifotiou, 2006, p. 369) across the curriculum.

Over subsequent decades and declarations on common and agreed national goals for schooling in Australia, the references to environmental education became weaker and more closely aligned with a neoliberal agenda. For example, in 1989 the Australian Education Council (AEC) proposed ten common and agreed national goals for schooling in Australia, entitled the Hobart Declaration, which included the need to develop in students "an understanding of and concern for balanced

development and global environment" (AEC, 1994, p. 43). This rather weak goal was already taking on the political, cultural, and economic logic of neoliberalism (Hursh, Henderson, & Greenwood, 2015) consistent with a focus on treating the environment as a commodity (Shiva, 1991) in its reference to "balanced development". However, that the goal existed was sufficient to stimulate a range of environmental education activities by departments of education around Australia (see Gough 1997, 2002) that are beyond the scope of this chapter.

Another decade on, the April 1999 Adelaide Declaration (*National Goals for Schooling in the Twenty-first Century*) included a goal that "when students leave school they should … have an understanding of, and concern for, stewardship of the natural environment, and the knowledge and skills to contribute to ecologically sustainable development" (MCEETYA, 1999, p. 1). The Adelaide Declaration goal had a companion and cross-referencing document, Environment Australia's (2000) national action plan *Environmental Education for a Sustainable Future*, which (re)defined environmental education "in its broadest sense to encompass raising awareness, acquiring new perspectives, values, knowledge and skills, and formal and informal processes leading to changed behaviour in support of an ecologically sustainable environment" (p. 3). Importantly, a key element in the plan was seen as "providing people with the knowledge, values and skills to actually make a difference to the protection and conservation of Australia's environment" (p. 5). Addressing environmental challenges was understood in a holistic way because "the challenges themselves frequently have social, scientific, cultural, economic and ethical aspects, all of which must be considered for their effective management" (p. 4). The vision for environmental education in this national action plan, as well as the Adelaide goal, were consistent with earlier international environmental education discourses, with their references to "stewardship of the natural environment" (Environment Australia, 2000, p. 6) and "actions which result in better environmental outcomes" (p. 4).

The *Melbourne Declaration on Educational Goals for Young Australians* was released in 2008, and it included as Goal 2, "All young Australians become successful learners, confident and creative individuals, and active and informed citizens … [and] work for the common good, in particular sustaining and improving natural and social environments" (MCEETYA, 2008, pp. 8–9). However, the only action related to the environment included in the Declaration document was "a focus on environmental sustainability will be integrated across the curriculum" (MCEETYA, 2008, p. 14), which was part of the recommendations for framing what became the Australian Curriculum (ACARA, 2014a), with a cross curriculum priority of Sustainability (ACARA, 2014b). Interestingly, the Preamble to the Melbourne Declaration intimates that science understanding is important in meeting complex challenges such as climate change but, as discussed below, the Science curriculum does little to educate young Australians to meet these challenges.

A relationship between environmental and science education was also strong in the English national curriculum from 1995, when the cross-curriculum themes were abandoned and environmental education was incorporated within the core subjects

of science and geography (Chatzifotiou, 2006). This association of environmental or sustainability education with science and geography was reinforced in a Department of Education (2013) press release which spelt out how the new National Curriculum would provide pupils with better understanding of all climate issues, including climate change – but the new curriculum no longer refers to sustainable development, and it "has removed any notion of environmental stewardship at just the age when children are most curious about – and in awe of – the natural world they see around them" (Hickman, 2013).

According to the UK National Commission for UNESCO (2013), the "reduced government focus on sustainable development has resulted in increased uncertainties amongst educational institutions and practitioners about how much emphasis to place on sustainability within teaching and learning" (p. 17). There is also a recent reduction of focus on sustainability in the Australian curriculum, which is reflected in Recommendation 17 of the Donnelly and Wiltshire review report (2014): "ACARA reconceptualise the cross-curriculum priorities and instead embed teaching and learning about … sustainability explicitly, and only where educationally relevant, in the mandatory content of the curriculum" (p. 247). In the light of this greater marginalisation of sustainability, as an example of how sustainability is treated in a national curriculum, the following section focuses on the Australian Curriculum.

The Australian Curriculum about Sustainability

Although the Australian Curriculum statement about Sustainability is consistent with the holistic approaches to environmental education and sustainability outlined earlier, the actual content of the four core areas of the Australian Curriculum (English, History, Mathematics, and Science) does not enact the statement's intent, nor is there guidance for teachers in implementing the Organising Ideas for Sustainability (ACARA, 2014b) – see Table 1.

These organising ideas are particularly interesting for their valuing of the environment for its own sake, rather than just as a resource for exploitation, which, as discussed earlier, is where the international statements are now focused. However, there is a mismatch between the Sustainability cross curriculum priority statement and these organising ideas.

There is a specific symbol () to indicate particular content where the Sustainability cross curriculum priority is appropriate in each of these four core curriculum statements. However, this symbol rarely occurs across the eleven years of schooling covered by the curriculum statements (not at all in English and Mathematics; five times in History where it is only associated with teaching about "The environment movement (1960s to present)", which is one of three electives in one of three depth studies in Year 10; and eight times in the Science curriculum across six year levels). The year level descriptions in English from Year 5 onwards refer to students studying texts that explore themes of interpersonal relationships

Table 1. Sustainability organising ideas in the Australian curriculum (ACARA, 2014b)

Systems	
OI.1	The biosphere is a dynamic system providing conditions that sustain life on Earth.
OI.2	All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.
OI.3	Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems.
World views	
OI.4	World views that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice are essential for achieving sustainability.
OI.5	World views are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability.
Futures	
OI.6	The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future.
OI.7	Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments.
OI.8	Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgments based on projected future economic, social and environmental impacts.
OI.9	Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments.

and ethical (and global in Years 9 and 10) dilemmas in real-world and fantasy/fictional settings, but there is no specific guidance to teachers for implementing the Sustainability organising ideas.

None of the content descriptions associated with the symbol relate the content to the Sustainability overview statement that, "Education for sustainability develops the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living" (ACARA, 2014b, para. 6).

The five content descriptions in History can be interpreted as addressing several of the Sustainability Organising Ideas (see Table 1) but, because "The environment movement (1960s to present)" is an alternative elective to "Popular Culture (1945–present)" and "Migrant experiences (1945–present)" (ACARA, 2014c), the numbers of teachers choosing to study the environment movement could be low.

The eight times that the symbol appears in the Science Curriculum are as follows (ACARA, 2014d):

- people use science in their daily lives, including when caring for their environment and living things (Year 2, Science as Human Endeavour strand, Use and influence of science, para. 1);
- Earth's surface changes over time as a result of natural processes and human activity (Year 4, Science Understanding strand, Earth and space sciences, para. 1);
- interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (Year 7, Science Understanding Strand, Biological sciences, para. 2);
- multi-cellular organisms contain systems of organs that carry out specialized functions that enable them to survive and reproduce (Year 8, Science Understanding Strand, Biological sciences, para. 2);
- People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (Year 8, Science as a Human Endeavour Strand, Use and influence of science, para. 2);
- ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (Year 9, Science Understanding Strand, Biological sciences, para.2);
- chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer (Year 9, Science Understanding Strand, Chemical sciences, para.3); and,
- global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere (Year 10, Science Understanding Strand, Earth and space sciences, para.2).

That environmental education has been reduced to these eight areas of content in the national Science curriculum is a travesty compared with the initial framing statements for the field, given that, to meet the challenges of complex environmental, social and economic pressures, "Australians must be able to engage with scientific concepts and principles and approach problem solving in new and creative ways" (MCEETYA, 2008, p. 5). Although cross-curriculum in name, there are no strategies for supporting teachers to collaborate and involve "all students and all subjects at all levels" (Greenall, 1980, p. 5) – the emphasis in this curriculum is very much on subject silos.

Unfortunately, a comparison of the Sustainability organising ideas (which give more prominence to "environment" than most other recent statements in Australia) with the most recent UNESCO statements about education for sustainability is a futile exercise because, as discussed above, the content of the four core Australian Curriculum statements (English, History, Mathematics, and Science) does not match the ideals of the organising ideas, which makes the organising ideas unlikely to be implemented, and it has recently been announced by the Education Council (ACARA, 2015a) that the curriculum's presentation is being simplified and that "references to indigenous culture, environmental sustainability and Asia – which are included

throughout the existing curriculum, including in maths – had been cut back to "where they naturally fit", with an emphasis on history, geography and art" (Randall, 2015, as cited in Bita, 2015, p. 10). That there is an important relationship between environmental sustainability and science education seems to be totally overlooked in this simplified curriculum, which is not surprising given the minimal relationship between science and sustainability in the current version of the Australian Curriculum discussed above. Thus, although the organising ideas promised the possibility of environmental sustainability becoming part of the Australian Curriculum, one can only be disappointed, not surprised. The simplification of the Australian Curriculum to a focus on "phonics, coding and faith as nation's schools go back to basics" (Bita, 2015, p. 1) is an example of what Foucault (1978) calls bio-power, which is not just governmental power, but a power that is invisible, plural, discursive, pervasive and enforced, via a plethora of power relationships, to manage human life, bodies, and species for economic and political ends.

TENSIONS WITH TEACHING ENVIRONMENTAL SUSTAINABILITY

Since its early formulations, environmental education it has struggled to find a place in the school curriculum. Some of these tensions have been in its relationship with science education, and, as noted earlier, from proponents of environmental education seeing it as multidisciplinary and holistic. It is this latter approach that was adopted in the Australian Curriculum (ACARA, 2014b), and I have already discussed the tensions inherent in incorporating sustainability into this new curriculum. I will now focus on the tensions with science education before moving on to some examples of the successful implementation of environmental sustainability in schools.

Environmental Sustainability and Science Education

As noted earlier, the field that has become environmental education arose out of the growing awareness of the threat of environmental degradation in the 1960s. Increasingly throughout that decade, scientists such as Rachel Carson (1962) drew attention to the growing scientific and ecological problems of the environment and the need for greater public awareness of these problems, such as the increasing contamination of land, air and water; the growth in world population; and the continuing depletion of natural resources. The scientists' calls were for more information about the environment for the public, and for education.

In the wake of publicity and political actions attending these concerns, environmental education initially entered school curricula in the early 1970s through science education (Gough, 1997). Indeed, at that time there was a broad acceptance in society that threats to human well-being and the environment could be countered through further scientific research and the application of technology. Such a belief is exemplified in the Tbilisi Declaration (UNESCO, 1978) where it states "Education

utilising the findings of science and technology should play a leading role in creating awareness and a better understanding of environmental problems" (p. 24).

In its early formulations, the explicit aims of environmental education were often concerned with stimulating a sense of individual responsibility for the physical and aesthetic quality of the total environment based on a knowledge of general ecological principles, an understanding of the impact of human society on the biosphere, and an awareness of the problems inherent in the environmental change. The underlying belief seemed to be that "if you provide people with accurate information about a situation, their values, attitudes, and behavior change for the better" (McInnis, 1975, p. 54), and this belief was enacted in the curriculum development strategies used by environmental educators. For the most part, they simply translated scholarly scientific material into subject matter to be taught and learned, generally through science education, because the construction of school environmental knowledge in the science curriculum was seen to be a direct outcome of scientific production.

However, during the 1970s, the goals and objectives for environmental education changed to emphasise more explicitly values and attitudes clarification, decision-making skills, and an action component, and it was increasingly recognised that the traditional formulations of the academic disciplines are individually inadequate for achieving the aims of environmental education. Environmental education was seen as requiring an interdisciplinary approach rather than a new or separate subject. For example, Buzzati-Traverso (1977) argued that:

> The field under discussion is vast and multifaceted; it should be approached with a holistic attitude in that man [sic] and the innumerable components of his [sic] physical and cultural environment should be examined together in order to identify the complex and often hidden interactions that determine the pattern of human concerns. (p. 13)

These aspects of environmental education did not sit comfortably with conventional representations of science in science education as an objective, rational, and value free search for "one true story" (Harding, 1986, p. 193), and some science educators began to question the relationship between science education and environmental education. For example, Hall (1977) claimed "science teachers will do environmental education a grave disservice if they try to take it over" (p. 76). Others, including Greenall (1979) and Fensham and May (1979), argued for a closer relationship between environmental education and a reformed science education that they envisaged as being distinctly different from the version practiced in classrooms of the period.

Lucas (1980) adopted a different stance, expressing concern that "too many science educators seem to believe that their discipline is the vehicle for environmental education" (p. 1). He saw an "omnipotent disciplinary chauvinism" (p. 6) in assertions that science teachers could teach topics on society (beyond the social issues that arise from the application of science) – "will their worldviews as empirical experimenters

seriously distort the nature of historical understanding and aesthetic judgement?" (pp. 8–9) – and yet concluded that "science educators must not ignore the other forces acting to promote environmental wisdom, and must begin to look beyond the confines of their own and other educational literature for inspiration for research and practice" (p. 21). At that time, as now, many environmental educators were concerned with the political character of environmental problems and the implications of this for the type of education they were advocating. Their argument was that science and environmental education were incompatible and that environmental education could more appropriately be implemented in curriculum areas other than science, because the science curriculum of the time was inhospitable to engaging with social issues.

Concerns about the relationship between science education and environmental education have continued. For example, Ashley (2000) discussed the limitations of current science education practices and argued, "A scientific education for all that is more likely to result in [a more responsible attitude to science] therefore has to be a key objective for environmental education" (p. 275). More recently, Dillon (2016) has argued that, "Both science and environmental education can play a part in facilitating change and they must if we are to address global issues such as biodiversity loss, poverty and climate change" (p. 122).

As noted earlier in this chapter, in the 21st century, from an environmental education perspective, discussions about the relationship between science education and environmental education have almost been subsumed by the shift in discourse from environmental education to education for sustainable development. However, the importance of understanding the scientific concepts that underpin sustainable development continues to be re-affirmed. For example, the "environment" pillar of education for sustainable development is described as "an awareness of the resources and fragility of the physical environment and the effects on it of human activity and decisions, with a commitment to factoring environmental concerns into social and economic policy development" (UNESCO, 2004, p. 4).

From a science education perspective, environmental education continues to be the elephant in the room. A relatively recent review of science education in Australia (Tytler, 2007), whether intentional or not, neatly explicated the tensions in the relationship. In developing his argument for emphasising the "working scientifically" or "investigating" strands of Australian school science curricula, Tytler refers to the importance of citizens being able to engage with evidence in science in their personal lives and community issues – a central concern of environmental education:

> By engaging in investigations that involve a consideration of what constitutes reliable and valid evidence and how this evidence is used to establish knowledge, students will gain important skills in a variety of ways of reasoning, and develop a capacity to make judgments about evidence in scientific argument. There are many social issues that involve appeals to scientific evidence, such as the effects of waste disposal policies on the environment, of tourism on the Great Barrier Reef, or of personal lifestyle factors on cancer risk. An understanding

> of how such knowledge is generated and evaluated is therefore a powerful aim for science education. (p. 45)

In a similar vein, Jenkins and Pell (2006) concluded that:

> Given that many environmental problems (and their solutions) are science related, there is clearly a role for school science education in such an engagement. However, environmental education is not simply a matter for science educators. To the extent that such education requires the accommodation of the personal, social, and economic with the scientific as an integral whole, it constitutes a challenge to a conventional subject-based curriculum and pedagogy. (p. 777)

Herein lies some hope for reconstructing science and environmental education for mutual benefit.

One reason for developing a different relationship between science education and environmental education arises from the need to respond to students' declining interest in science, despite their high levels of environmental concern and desire to know more about the environment. As Coffey (2008) reported from his investigation into young Australians' level of understanding and excitement about careers with a sustainability focus: "High school students are very aware of environmental issues and concerns … They are hungry for credible, big picture, action oriented information/resources on long term environmental issues, especially on whether and how to respond" (p. 3). However, he also found that "school is a significant potential site for awareness and activism, though underdeveloped" (p. 4) and that "Students want practical, hands-on experience, "getting out" into the environment… [they] need to see how their own local, personal actions will contribute to the local picture" (p. 5).

Overcoming Resistance to Environmental Sustainability

All is not gloom and doom. There are examples of successful implementation of environmental sustainability in schools where there has also been better student engagement with their science education as well as educational, economic, environmental, and social outcomes for the students and schools.

Primary school teachers often struggle to teach science because they lack confidence and competence in science content, and they have difficulty finding a place for science in what they perceive as an already overcrowded curriculum. In contrast with this observation, Gough and Sharpley (2005) provided several stories of primary school teachers' and students' experiences of implementing new science teaching and learning strategies that have also led to more environmental education occurring in the schools' curriculum.

Another success story for science in primary schools is associated with the Australian Sustainable Schools initiative (DSEWPC, 2013) – although this was not necessarily the intended outcome. Sustainable Schools are the equivalent of Green

Schools or Eco-schools in other parts of the world. Sustainable Schools take a whole school approach:

> … whole-school approaches are advocated as best supporting the implementation of Environmental Education in a way that reflects the goals, aims, and purposes of this area … Whole school approaches also appear to be most successful when they build on the existing culture, priorities, and values of schools and their communities. (Bolstad, Baker, Barker, & Keown, 2004, p. 95)

The Sustainable Schools initiative integrates changes to the practical operations of the school with sustainability issues in the curriculum and helps to build links to local communities. The four theme areas that are implemented are:

- "Waste" (waste and litter minimisation, green purchasing, recycling, and composting);
- "Energy" (energy efficiency, renewable energy, and reduction in greenhouse gas emissions);
- "Water" (water conservation, stormwater control, and freshwater ecology); and
- "School Grounds/Biodiversity" (developing a whole school Masterplan which may include indigenous gardens that attract native butterflies and birds, and special theme gardens and habitats).

Participating schools are able to choose all or some of the four optional themes. Each of these themes is science related and so the science content of the curriculum in Sustainable Schools – which are predominantly primary schools – is greatly increased as a result of an environmental education intervention. At the same time, the students have acquired relevant knowledge and skills related to environmental sustainability.

Similar positive stories about sustainable school initiatives come from many countries (Henderson & Tilbury, 2004). For example, the UK Sustainable Schools Alliance "encourages schools to put sustainability at the heart of their thinking", however, although "commitment on the ground is strong, [it is] rarely part of mainstream practice" (UK National Commission for UNESCO, 2013, p. 17). For example, the UK Department for Education and Skills (2006) wanted all schools to be sustainable schools by 2020. In 2010, the government announced that they would no longer directly support the Sustainable Schools initiative in England "based on the belief that schools perform better when they take responsibility for their own improvement" (Hill, 2010, p. 1). A similar situation has happened in Australia where national funding for the Australian Sustainable Schools initiative was discontinued by the Australian Government in 2013, although some states are continuing to fund the state level programs.

Of course, science is not the only place for environmental sustainability in the curriculum. Geography has claims on the area too (ACARA, 2015b):

> In a world of increasing global integration and international mobility, it is critical to the wellbeing and sustainability of the environment and society that young Australians develop a holistic understanding of the world … (para. 1)
>
> The Australian Curriculum: Geography empowers students to shape change for a socially just and sustainable future … (para. 2)
>
> Geography helps students to be regional and global citizens capable of active and ethical participation. (para. 4)

Indeed, in a context of global citizenship education, as developed in the Australian Curriculum, Geography would seem to be much better placed than Science for developing students' knowledge and skills to understand environmental sustainability and be global citizens. The English National Curriculum also includes sustainability and climate change in Geography (Department of Education, 2013). However, students also need to understand ecological processes and how human actions impact on these, which is recognised in many international documents such as *Our Common Future* (WCED, 1987) and the implementation scheme for the *United Nations Decade of Education for Sustainable Development* (UNESCO, 2004), both of which envisaged a positive role for science and technology and a relationship between scientific knowledge and environmental education for sustainable development.

For example, *Our Common Future* included statements such as "our technology and science gives us at least the potential to look deeper into and better understand natural systems" (WCED, 1987, p. 1), "the promotion of sustainable development will require an organized effort to develop and diffuse new technologies" (p. 87), and "unless action is taken to accumulate biological knowledge, valuable information …. will be lost forever" (p. 88). Education is given the task of providing "comprehensive knowledge, encompassing and cutting across the social and natural sciences and the humanities, thus providing insights on the interaction between natural and human resources, between environment and development" (p. 113).

Similarly, the Decade Implementation scheme (UNESCO, 2004) stated that:

> The role of science and technology deserves highlighting as science provides people with ways to understand the world and their role in it. ESD needs to provide a scientific understanding of sustainability together with an understanding of the values, principles, and lifestyles that will lead to the transition to sustainable development. Science should be regarded broadly to include social sciences as well as natural sciences and traditional approaches to learning and understanding as well as formal science. (p. 16)

It is this broader view of science – incorporating social as well as natural sciences – in providing a scientific understanding of sustainability and developing informed global citizens that is a challenge for the future development of environmental sustainability in schools.

CHALLENGES FOR THE FUTURE

The post-Millennium Development Goals agenda (United Nations, 2013b) sets a number of challenges for education, but ones we cannot ignore. As the Introduction to the Decade implementation scheme stated (UNESCO, 2004):

> There can be few more pressing and critical goals for the future of humankind than to ensure steady improvement in the quality of life for this and future generations, in a way that respects our common heritage – the planet we live on. As people we seek positive change for ourselves, our children and grandchildren; we must do it in ways that respect the right of all to do so. To do this we must learn constantly – about ourselves, our potential, our limitations, our relationships, our society, our environment, our world. Education for sustainable development is a life-wide and lifelong endeavour which challenges individuals, institutions and societies to view tomorrow as a day that belongs to all of us, or it will not belong to anyone. (p. 7)

The challenge for educators is to reconstruct our curricula so that our students, as citizens of the world, understand and respect the planet we live on. With respect to environmental sustainability, this means a different curriculum from that which we currently have – particularly the current version of the Australian Curriculum, which seems to be doing its best to remove sustainability from consideration.

Sadly, Australia and England are not the only countries to be treating sustainability, and related issues such as climate change, as the elephant in the room in education. Most countries need to make changes to their curriculum if we are to empower "learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity" (UNESCO, 2014, p. 12), and achieve a socially just and environmentally sustainable world.

NOTES

[1] Before continuing with this discussion I need to draw attention to a persistent practical problem for this chapter, namely, the frequent use of the term 'man' to refer to persons of both sexes in the early literature related to the environment and environmental education. This practice is a focus of feminist concern, however the frequent use of '[sic]' in quotations from the literature is tedious. Therefore I will quote relevant passages from these texts, as appropriate, without the intrusion of '[sic]' after each use of 'man', but readers should understand that such terminology is not my preference.

[2] The other four are: leave no one behind ("We can be the first generation in human history to end hunger and ensure that every person achieves a basic standard of wellbeing" [United Nations, 2013b, p. iv]), transform economies for jobs and inclusive growth ("We call for a quantum leap forward in economic opportunities and a profound economic transformation to end extreme poverty and improve livelihoods" [United Nations, 2013b, p. iv]), build peace and effective, open and accountableinstitutions for all ("We arecalling for a fundamental shift – to recognise peaceand good governance as core elements of wellbeing, not optional extras" [United Nations, 2013b, p. v]), and forge a new global partnership ("Perhaps the mostimportant transformative shift is towards a new spiritof solidarity, cooperation, and mutual accountabilitythat must underpin the post-2015 agenda" [United Nations, 2013b, p. v]).

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SECTION 2

AFFECTIVE DOMAIN, MOTIVATION AND ENGAGEMENT IN 21ST CENTURY EDUCATION

PAM MACINTYRE

7. READING IN THE TEACHER EDUCATION CLASSROOM

The Affective Reader and the Effective Teacher

ABSTRACT

In an increasingly diverse and complex global society, the education system has a responsibility to foster and develop members of society who are compassionate and have a broad understanding of varied human experiences. Cognitive criticism and neuroscience research provide evidence that deep, nuanced reading of literary texts can be transformative. Prerequisite to this transformation to be enacted in school classrooms, are the literary experiences of pre-service teachers. Thus, this chapter outlines detailed readings of selected texts on a developmental continuum from early picture books through to sophisticated and ambiguous young adult fiction, as models for such literary encounters in initial teacher education courses.

Keywords: Pre-service teachers, deep reading, effective literary experiences

INTRODUCTION

> *Readers are made, not born*. (Aidan Chambers)
>
> *Fiction allows us to do something that nothing else quite does. It allows us to enter fully into the lives of other human beings*. (Katharine Paterson)

In an increasingly globalised and diverse 21st century society, the capacity for empathy and compassion is essential for social cohesion and inclusivity. Thoughtful, purposeful reading of literary texts provides insight into lives beyond the reader's personal experiences. Such vicarious encounters are especially valuable to young readers whose worlds are necessarily limited. Perceptive explorations of well-chosen literary texts provide opportunities for the expansion of individual reading repertoires and the widening of world views. While this chapter is framed by a particular Australian context, the universal emerges from the particular. As the Australian Curriculum, English expresses, "through engagement with literature, students learn about themselves, each other and the world" (ACARA, 2014, p. 11). Additionally, consistent research identifies the direct correlation between recreational reading beyond the classroom and academic performance (Cullinan, 2000;

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 105–120.

Krashen, 2004, 2011; Thomson, De Bortoli, Nicholas, Hilman, & Buckley, 2010). However, reading among young people in Australia continues to decline in terms of performance (Thompson et al., 2010; Mullis, Martin, Foy, & Drucker, 2012). Allied to this is Australian students' documented dislike of and disengagement from reading (Dickenson, 2014). Given these disparities, there are challenges for teacher educators who seek to communicate the life-long benefits and pleasures of being a committed reader to their pre-service students. We are failing not only them, but their future students if we do not seek to provide the experience of the power of literature to affect, challenge and transform.

To explore one way in which rich encounters with literature might be facilitated, and drawing on cognitive and affective theory (Nikolajeva, 2014), this chapter aims to take the reader on a "developmental journey" through close readings of picture books that target young inexperienced readers, through to young adult fiction with its complexity, ambivalence and ambiguity. These close readings are offered as opportunities for our pre-service teachers to experience the effects of deep reading on their literary and human experience. In turn, such readings might inform and inspire similar classroom encounters for their young readers. Literature can be transformative.

CONCEPTUAL FRAMING

Deep, nuanced reading of well-chosen texts to foster empathy and broaden repertoires of young readers is an issue of concern for teacher educators as well as for classroom teachers. The need for skilful, nuanced reading is apparent in the following anecdote. Students undertaking a subject, Teaching Reading, in the first year of their four-year Initial Teacher Education Course leading to a Primary teaching qualification, were encouraged to develop understandings of themselves as readers, and as teachers of reading. They had completed a small questionnaire about their reading attitudes and behaviours for an assessment task early in the subject, and the teaching staff was surprised by the number of them who revealed that they found little time for reading or little satisfaction in it as a pastime. Passionate readers ourselves, we determined to address this, and aimed to develop a reading culture with the first year students that would be built on over the four years of their education degree.

Part of each tutorial in this subject was devoted to providing students with strategies to assist them in thinking about and exploring their responses to particular texts, and to share these. Each week, a sophisticated picture book was read aloud, and an approach to thinking, talking about and analysing the reading experience and response was modelled as a frame for discussion. What became apparent for some students was an ignited or reignited pleasure in reading. The re-engagement with reading came from a deeper understanding of what it is a reader does: those active processes to bring a text alive. Observed was the students' enjoyment in knowing about the way a text is crafted, and in thinking about – and often questioning – the ideas in the text. For some students, this appeared to be the first time these strategies

for thinking about what they were reading had been practised, or presented to them. For others it was the first time that they had enjoyed sharing a close, deep reading. For the staff it reinforced what Nodelman and Reimer (2003) espoused, that greater understanding and analysis of what we read deepens engagement and pleasure. An example of the enacted experience is recounted here.

Shaun Tan's (2013) *Rules of Summer* was the picture book chosen by three young women as their book to read, think, and talk about during a class. They were attracted by Tan's reputation and by an earlier class experience with *The Arrival* (Tan, 2006) as well as by the strong visual and aesthetic appeal of the book itself. However, when I walked to their table, the book was lying closed, and the three students were sitting silently. When asked about their reactions, it was clear that their initial reading and response was that they had not understood what the book was about. This had surprised and unsettled them – it was a picture book after all. There was no intention or excitement on their behalf to explore further. Perhaps they did not have a ready mechanism to unpack its meaning or to enjoy thinking about why the book was such a puzzle for them.

The strategy for that week's tutorial was simple: write down two questions you have about the book and use these as a basis for discussion at your table. We had spoken earlier about one of the pleasures of literature being in its opening up of questions, the invitation to puzzle out our own meanings, and that rich texts provide space for the reader and are polysemic: they support multiple interpretations. For these three students finding meaning in the sophisticated picture book seemed a task too difficult … until they did it. All three had noticed the birds on each page and were intrigued by their significance. When prompted to think about this more, each student wrote a question about what that significance might be. Using their questions as impetus, they went back into the book for a much closer, focussed exploration of the visual text. They engaged in discussion about what the birds were doing on each page, and how their actions related to the events for the two boys in the story. By the end of the class, each student had come to a shared, well-articulated, symbolic understanding of what the birds were doing in the story. Their delight in their achievement was palpable. They now had an experience of reading they could build on and extend: they had experienced insight.

Even if readings are engaged, deep and nuanced, Nodelman and Reimer (2003) raised the common difficulty of readers being able to describe particular reading pleasures (pp. 22–23). If this is difficult for expert readers, we can recognise how much more challenging it must be for young readers whose vocabulary is still developing along with their control over syntax. Nodelman and Reimer suggested that Barthes' distinction between plaisir (pleasure), which he links to texts that provide a "comfortable practice of reading", and jouissance (bliss), which unsettles (Barthes, 14 as cited in Nodelmanand Reimer, 2003, pp. 23–24), is useful to readers in articulating particular reading pleasures. Some of our undergraduate students found this helpful in identifying why some texts were more enjoyable than others, and in understanding their own responses. These student teachers have to adopt dual

roles to be successful teachers of reading: they need to be aware of themselves as readers, of their tastes and reading behaviours. Additionally, they need to support young readers to gain emotional and aesthetic engagement with texts, and to learn how to appreciate the ways in which literature itself enlightens the reader (Nikolajeva, 2014).

Skilled, nuanced reading develops with experience and practice, and increases reading engagement and enjoyment. It becomes pleasurable to think about ideas and responses and to share these with others. However, as the Chambers' quote at the beginning of this chapter indicated, and as Nikolajeva (2014) expressed in her discussion of "deep reading", it is not an automatic consequence of being able to read: "it is a common misconception that understanding of and engagement with texts, whether oral, written, visual or multimodal come naturally and do not need further attention" (p. 1). Neuroscientist Wolf (2008) concurs in her book about how reading happens in the brain. She documents how reading develops in a brain not, in evolutionary terms, designed for reading. There are significant differences in what the novice reader is capable of compared to the complex, "cognitive, linguistic and affective transformations" processed simultaneously in the brain of the expert reader (Wolf, 2008, pp. 144–145). Developments in neuroscience have shown how important early experiences with oral language and story are to reading success, and how practising reading is essential to ongoing literacy success.

At the same time that I was taking classes in Teaching Reading, I was reading Terry Eagleton's *How to Read Literature* (2013). He opened with an imagined discussion in which a class of tertiary literature students talk about *Wuthering Heights* as if they were gossiping about a group of friends. This resonated strongly. I had become concerned (well, irritated) with the ubiquity of the word "relatable" in relation to the value of reading for young people, as the basis for recommending texts, and for what the expectations of response would be. It was more than an irrational aversion to the word itself. Certainly, to become readers, children and young adults need to find their experiences mirrored in what they read. But as experienced readers, we don't want to leave our young readers stranded in such a place, where their only motivation is to read about lives similar to their own, or characters like themselves. We do not want, as Nikolajeva (2014) expressed it, to fail to move them beyond "immersive identification" (p. 163). As experienced readers we know what reading offers in expanding our repertoire: confirming, unsettling, and challenging our views of the world and of others unlike us. We don't have to relate to the characters; we don't even have to like them. (Does any reader like Anna Karenina or Emma Bovary?) Part of how we share texts with our undergraduate student teachers is to focus on how texts are crafted and created by language: characters live only in the text, and texts are "patterns of meaning" (Eagleton, 2013, p. 46). Learning to understand and appreciate the creation of those patterns of meaning, and the uses of literary devices, deepens reading engagement and pleasure.

None of this is new thinking about reading, but as indicated earlier, recent research indicates that fewer school students are finding pleasure in reading

(Dickenson, 2014; Mullis et al., 2012) even if they regard it as an important skill. This chapter suggests that an important aspect of improving children's reading skills, attitudes and enjoyment, lies in the types of reading experiences offered to them in classrooms. This in turn depends on the types of reading experiences teachers have had, especially in their pre-service, teacher education courses, and the skills and strategies they have learned and practised as deep readers. In a small scale study of the impact of teacher education students' experiences of reading, and the potential impact on their teaching of reading, Perkins (2013) asked her students what were the implications for their teaching of reading if they had not experienced rich engagement with literary texts themselves. The participants in the study recognised that they could not enact such experiences with their students, even if the importance of reading success and enjoyment were central to their aims as a teacher. This small study concluded that these teacher education students had to enjoy having questions about what they were reading, be comfortable with the uncertainty that literature provokes rather than having to know the "answers". Also crucial was their appreciation that sometimes children's responses would be more insightful than theirs. What this research did not pursue is how these student teachers might develop those engaged encounters with literary texts.

The choice of texts for study in subject English is rightly given much attention in the literature (e.g., Hastie & Sharplin, 2012; McLean-Davies, 2012) and in schools, but clearly this is only the beginning of successful and engaged reading. Reading exists in a postmodern world where critical, thoughtful, analytical and questioning readings of all texts are increasingly important. The ubiquity of the digital world and the greater interactivity required by electronic texts are often cited as reasons for decline in the reading of literary texts (Dickenson, 2014). This report by the Australia Council, *Children and Reading* (Dickenson, 2014), identifies that there has been a significant fall in children's pleasure reading from 2006 to 2012. While the decline is across formats, the author of this extensive literature review concludes that "it is possible that the decline has occurred more strongly or even exclusively, in the reading of traditional paper texts" (Dickenson, 2014, p. 9). When this data is put together with data from PISA (Thompson et al., 2012) that reading performance success is most closely aligned with reading fiction, and that the single most important factor in reading success is frequent engaged reading for enjoyment (it almost dissolves gender differentials), an imperative becomes evident.

A widely practised and effective strategy used to support novice readers to deepen engagement and appreciation of texts is to draw on personal experiences to assist with understanding what is read: for readers to think about the self-to-text, text-to-text, and world-to text connections they make as they read (Keene & Zimmerman, 2007). However, the effectiveness of these strategies can be constrained for those readers with limited experience, knowledge, and vocabulary, especially children. This analysis will argue that these connection strategies can be supported by inviting readers to employ an additional or alternative strategy: to consider what they might learn about the real world from reading particular

texts. This is one of the fundamental reasons we read: to learn about the world, or to expand our repertoire (Nodelmanand Reimer, 2003). Content knowledge is an aspect of this, but more importantly, theory of mind – the ability to assume beliefs, desires, intentions through observing behaviour and actions of others (Boyd, 2009; Nikolajeva, 2014) – and empathy can be developed through thoughtful reading (Nikolajeva, 2014). Books that support such an exploration can be fruitful in the globalised 21st century to help children be able to see through another's eyes and experiences. Rich texts offer these explorations and space for individual responses.

This chapter sees these factors as a challenge: how to promote and model to our student teachers the deep pleasure that is brought by nuanced, deep reading of literary or "traditional" texts. Close attention to literary form and technique, to the pleasures and understandings reading brings, to the enjoyment of language and admiration of those who use it to move us, to understandings of what literature teaches us about life and our world, are what is proposed. We want our students to enjoy the appreciation of literature, the felt experience of language, not just the practical use of it: to quote Eagleton (2013), "not just the meaning of experience, but the experience of meaning" (p. 192). It is imperative that we move students from a view of reading as a submission to the text, devoid of the active questioning of its ideas, style, ideology and intent. What we aim for is succinctly evoked here by Mohsin Hamid (2014), who in his recent collection of essays, wrote about a favourite book and what made it so memorable: "we [readers] are unsettled and given more to do. An unexpected narrative space opens up before us, nags at us, seduces us…. The lessons [the book] teaches us are about how fiction has the power to transform" (p. 66). This is Eagleton's and Nikolajeva's point precisely and one that can enrich the reading experience for our student teachers and their young readers in classrooms. Let us make certain that we are initiating them into what literary texts demand: "a peculiarly vigilant type of reading", (Eagleton, 2013, p. 2) one that acknowledges and values "the knowledge, experience, memories, feelings and emotions that the reader brings to a reading of the book" (Stockwell, 2002, p. 136 as cited in Nikolajeva, 2014, p. 13).

The following sections of this chapter propose to offer sample analyses of fictional texts for young people that might inform their use in teacher education classrooms to support less experienced readers to deepen their understanding and engagement. What follows is premised on the understanding that reading is "indispensable for our human existence" (Nikolajeva, 2014, p. 225). Deep reading is learned and honed through practice.

TEXT ANALYSIS

Bear Hunt (Browne, 1979)

As young readers are being supported in learning to read, ideally they can also be introduced to playful, metafictive picture books that demonstrate the different ways

stories can be told. Wolf (2008) pointed to the value of such reading experiences for early readers: "Reading is a neuronally and intellectually circuitous act, enriched as much by the unpredictable indirections of a reader's inferences and thoughts, as by the direct message to the eye from the text" (p. 16). In *Bear Hunt*, Bear, stalked by two hunters, walks through a jungle landscape abundant with surprising, surreal images. At moments of danger, the conventional third person narration is interrupted by a voice which intervenes in the story to warn Bear of imminent danger. Anthony Browne's third picture book contains only 81 words in simple sentences, such as "One day Bear went for a walk. Two hunters were hunting. They saw bear" (n.p), appropriate for an emergent reader. Suddenly, there is a change of voice: "Look out! Look out, Bear!" On the page following the warning, the rich jungle background of the previous pages disappears as Bear, using his pencil, draws himself out of trouble on a blank background.

Intriguing visual details are here for novice readers to notice and enjoy puzzling out: in the jungle, grass blades are adorned with collars and multicoloured ties. There are lip-like leaves which grin delightedly on the final page as Bear flies to safety on a white bird – perhaps in an intertextual nod to Hansel and Gretel. Leaves are made of shoes. Fish float through the landscape unperturbed by a large purple finger, a spectacle-wearing rock, and a cup shaped as a flower, to give a few examples. Reading this book demands "close noticing" (Woods, 2009, p. 43) of those detailed jungle images and why they disappear when Bear draws. It prompts recognition that the author can shift from narrating events as in conventional stories, to intervening and warning Bear that he is in danger. Young readers will enjoy joining in verbalising the warning, and can be prompted to think about why the author might do this, and why the author might allow a character to shape the story itself. Bear in some respects is creating the story before the child's eyes (van Renen, 2011, p. 18).

Seeking out such metafictive texts (*Wait! No Paint*, by Whatley, 2001, and *Bad Day at Riverbend* by Van Allsburg, 1995, are two other outstanding examples) to enjoy and to share, allows teacher education students to build up their skills as experienced readers, and to think about the ways in which these books might delight and support their novice readers. They might also recognise that such books are responding to wider changes in our culture. As Goldstone (2001) said, "[t]he better children comprehend these postmodern picture books the better they will understand the highly complex world around them" (p. 370). This notion of the value of learning about life from fiction will be taken up in the discussion of the next text.

The Boy and the Toy (Harnett & Masciullo, 2010)

This evocative picture book tells of an unnamed boy who lives with his father at the end of a pier, in a house-cum-lighthouse that resembles a static *Howl's Moving Castle* (Wynne Jones/Miyazaki). Before his father departs on a journey, he makes the boy the "best toy in the world". The toy is to keep the boy company while his father is away. At first all proceeds happily, and the boy enjoys his clever toy, which does

whatever he asks it. But then it becomes apparent that the toy is perhaps smarter than the boy thought it was, and competition enters their relationship. The toy wants to play all the time, and when the boy ignores it, it becomes destructive in the manner of a thwarted, jealous child. The boy devises a plan to deceive the toy, preserve his independence, and seek help from his father. When the father returns, he examines the toy and discovers something essential is missing. He presents his son with a true friend, which alert and experienced readers will already have guessed from the clues in the illustrations is a puppy. That essential missing "something" is not divulged to the reader. Young, novice readers are given the space to determine what they think the missing ingredient might be.

The positioning of the reader to notice and be active in the reading is apparent from the invitational cover images: a smiling boy places a hand gently onto the head of a cheerful-looking toy. Behind them at the end of a pier is a strange "house". The sky is blue, the sand golden. A man in a flying boat is moving towards the boy and the toy, observing them closely through his telescope. Is his expression alarm or delight? This ambiguity sets the tone of a story in which young readers are invited to make their own meanings, looking closely at the clues in the illustrations, filling the gaps left in the written text, and using their developing theory of mind. This deceptively simple story also encourages the reader's empathy as a complex relationship between the boy and his toy develops. Practising empathy and theory of mind are important strategies for the engaged, expert reader. They require explicit modelling and exploration for developing readers.

There are many opportunities in this book to model what experienced readers might notice: the images that the boy has drawn on the wall; the use of colour and perspective to signify relationships and to create mood and tone; the opportunities to predict events in the narrative; and the evocative language. But in thinking about what is missing for the toy, and why the friendship breaks down, this text requires readers to activate their theory of mind. In so doing novice readers extend their understanding that not only do we bring our existing learning to the reading of the book, we can learn about real life and increase our understanding of the human condition from such a text.

Much of the nuance of the narrative is carried in the images which bear close examination. For instance, the opening endpapers picture a sad-faced boy on a lonely beach, accompanied only by a seagull, and his quirky lighthouse home visible at the end of a long pier. The sand is a warm yellow, but the sea and sky are tinged grey rather than blue. Apprentice readers can easily describe this scene and be encouraged to consider how they think the boy is feeling in that landscape and how they know. Theory of mind allows us to intuit the thoughts and feelings of others from their actions and behaviours. This small narrative is deliberately and delightfully ambiguous and open for young readers to explore their own interpretations, as they are encouraged to use their developing theory of mind and empathy. We are only given the events, and young readers need to draw on their knowledge and experience to think about why the toy throws away the boy's other toys and the puzzle that is

too difficult for it. Also worth drawing attention to is why it does this at night when the boy is asleep. Is the boy self-absorbed and only likes the toy when it does what he wants and in the way he wants? Or is the toy too demanding, selfish and naughty? Readers will decide with whom they most identify, and whether the toy is a true friend.

As a coda to the story, the final endpapers deserve close scrutiny. They reveal that the boy and his dog are happy playing together. What about the toy? Young readers have the opportunity here to empathise with one or both of the central characters, and to extrapolate to their own lives, what they have understood about how people behave. As Nikolajeva (2014) said, "…the main attraction of fiction is the possibility of learning and understanding people in a way unattainable in real life" (p. 75).

Coraline (Gaiman, 2002)

An examination of the craft of writing and the power of language used in the service of creating stories that are able to move us, provides another valuable exploration for readers developing their reading skills and strategies. Analysing the language, images, motifs and literary devices used by writers of specific genres is fruitful to developing an understanding of structure and craft, and that these combine to convey subtle ideas. *Coraline* by Neil Gaiman (2002) affords and rewards such an analysis.

Despite its being written in what Gaiman calls *plain prose*, *Coraline* is a powerful, gothic story for children. The appeal of the gothic is evident across fiction, television and film, and persistently over time in children's texts, such as *The Secret Garden* (Hodgson-Burnett, 1911), *A Series of Unfortunate Events* (Snicket, 1999–2006) in a darkly comic version, and most famously in the *Harry Potter* (Rowling, 1997–2007) series of books set in the gothic Hogwarts Castle peopled with evil and creepy characters such as Moaning Myrtle.

Coraline is an especially significant example of the gothic to explore in the development of the skills of "rich reading", and the ideas that open up from a close examination of the author's choices. Apprentice readers are likely to read this text as an exciting, at times spooky adventure, centred round a brave and determined girl. Coraline is a lonely, but feisty, only child who moves with her busy, distracted parents to a flat in an old house inhabited by a rich assortment of eccentric characters: the aged, former actresses, Miss Spink and Miss Forcible, and their assortment of Highland terriers, and Mr Bobinsky, a "crazy old man" who is training a mouse circus no one has seen. On a rainy day, when a bored Coraline must stay indoors, she explores the house to find a large carved door in a corner of the drawing room. It is locked. Her mother unlocks it with a large black key to show Coraline that it goes nowhere: the door opens onto a brick wall. It is clear from the opening sentence of the story, "Coraline discovered the door a little after they moved into house" (p. 1) that what Coraline is going to uncover beyond the bricked doorway is significant. Gaiman has made it clear to the reader that the door is closed to Coraline's mother,

the implication being that Coraline alone will unlock its secrets. At this early stage of the narrative a central premise is introduced for the alert reader.

One day when her parents leave her home alone, despite Mr Bobinsky's warning of "Don't go through the door" (p. 22), and Miss Spink telling her she is "in terrible danger" (p. 26), Coraline unlocks it. This time, the door opens onto a dark hallway that "smelled like something very old and very slow" (p. 33). Coraline discovers she is in a world very like her own, but not quite. She also finds someone who looks like her mother:

> Only her skin was white as paper.
> Only she was taller and thinner.
> Only her fingers were too long, and they never stopped moving, and her dark-red fingernails were curved and sharp.
> "Coraline?" said the woman. "Is that you?"
> And then she turned round. Her eyes were big black buttons…
> "Who are you?" asked Coraline.
> "I'm your other mother," said the woman. (pp. 34–35)

Initially, Coraline enjoys being in this world – the roast chicken, fried potatoes and cheese omelettes are more to her taste than her father's "recipes"; her "other parents" are more interested in her, are never too busy to spend time with her, and her toys are animated and wonderful. Mr Bobinsky from upstairs is in the parallel world but with buttons for eyes, and rats rather than mice as pets. The black cat that had been aloof in the real world speaks in this one and advises Coraline that she has been wise to bring protection – the small stone with a hole given to her by Miss Spink. Miss Spink and Miss Forcible's room is now a stage, on which younger versions of themselves perform perpetually. The Scottie dogs, like the cat, speak. The "other mother" wants Coraline to stay in her world forever, but this means Coraline must have black buttons sewn into her eyes. This horror propels Coraline back into the real world where she finds her parents are missing, trapped behind a mirror by the increasingly evil other mother. She realises that while she finds her parents annoying and distant, she loves them, and must work to free them, and also the ghostly children she finds, similarly trapped by the progressively more sinister and grotesque other mother. It is also apparent that while her desires are met in the parallel world, her individuality is curbed by the other mother.

The idea of buttons for eyes is an arresting, if not disturbing one, and young readers can be prompted to think about what eyes are used to symbolise, such as being "windows to the soul". They will recall that often toys have buttons for eyes. Beginning with noticing such details, novice readers can then be introduced to the exciting and powerful concept of the doppelganger employed by Gaiman. This concept helps them to understand that meaning lies behind the words, beneath the surface. During reading, it is likely that they will notice that while the other characters in the novel have doppelgangers in the parallel world, there are two who do not: Coraline and the cat. The more experienced reader can prompt questions

about why this might be, which might lead readers to the central idea of who and what caused the appearance of the other mother.

Readers can be assisted to identify the motifs of the gothic that Gaiman draws on to create atmosphere and mood: the setting in an old house in a run-down garden, "stunted, fly blown rose bushes… a rockery that was all rocks…a fairy ring, made of squidgy brown toadstools which smelled dreadful…" (p. 11). Coraline experiences screeches in the night and hears something that "scuttled down the darkened hall, fast, like a little patch of night" (p. 17). Gaiman also employs foreshadowing to create suspense and sense of foreboding from the first page: readers' attention will be drawn to mention of the door in the opening sentence of the book, which signals its importance later in the story. The aging actors Miss Spinks and Miss Forcible read, in Coraline's tea leaves, that she is in terrible danger. "Coraline, who was standing in the doorway, cast a huge and distorted shadow on the drawing room carpet – she looked like a thin, giant woman" (p. 18).

But beyond these classic elements of threat and fear, there are more subtle elements whose presence leads to a deeper reading. For instance, attention can be drawn to the word in chapter two that a bored Coraline writes when her parents are too busy to spend time with her:

M S T
I

Activating their theory of mind, readers can consider how Coraline is feeling as she writes this word. Focussing on the language Gaiman has chosen, and its physical representation in the text, leads to the idea that perhaps the word can be read as a pun, "missed". The significance of the deliberate use of the dropped down letter "I" then can be considered in this context. The I's aloneness signifies Coraline's loneliness, but also her individuality, which we are aware of from the way she dresses, and the discussion she has with her mother about gloves for her new school. "But Mum. Everybody at school's got grey blouses and everything. Nobody's got green gloves. I could be the only one' (p. 29). When we first meet Coraline she is wearing "a blue coat with a hood, her red scarf and her yellow wellington boots" (p. 20). Inexperienced readers will understand how these choices by Gaiman underscore Coraline's individuality (as does her name), and a richer reading can lead them to consider how this is essential to her resistance of the other mother whose motivation is to absorb Coraline into her own desires. "… the other mother loved her. But she loved Coraline as a miser loves money, or a dragon loves its gold. In the other mother's button eyes, Coraline knew she was a possession, nothing more" (p. 114). As has been indicated earlier, Coraline is the only character without a doppelganger in the parallel world, apart from the black cat, which is nevertheless an altered creature in that it can talk. While wanting a closer relationship with her parents, Coraline's experiences in the parallel world reveal that getting everything you want takes away its value and sense of achievement: "I don't want whatever

I want. Nobody does really. Not really. What kind of fun would it be if I just got everything I ever wanted? Just like that, and it didn't mean anything. What then?" (p. 128). To save her parents and the ghost children, and to thwart the other mother, Coraline must rely on her own common sense, with occasional help from others. At the conclusion of this short novel, with careful, thoughtful reading, young readers can be prompted to understand that Coraline is the primary person responsible for her difficulties, so also for redeeming herself.

In addition to the dedication's nod to Coraline's fairytale antecedents: "Fairytales are more than true: not because they tell us that dragons exist, but because they tell us that dragons can be beaten" (Chesterton, 1909, p. xvii), Coraline alludes to other stories, introducing readers to the network of connections in literature. The most obvious are to the mirror, the cat, and the transformations in Carroll's (1865) *Alice's Adventures in Wonderland* and *Through the Looking-glass and What Alice Found There* (1871). Coraline is the same age as Alice. The chant of the rats is also reminiscent of Gollum's sibilant refrain in Tolkien's (1954) *Lord of the Rings*:

> We have eyes and we have nerveses
> We have tails, we have teeth,
> You'll all get what you deserveses
> When we rise from underneath. (p. 125)

Descriptions of the hair of the other mother as "wriggling like lazy snakes on a warm day" (p. 96) evoke Medusa. Miss Spink and Miss Forcible quote Shakespeare's *Macbeth* and *Romeo and Juliet*. Through such connections, young readers can come to learn to enjoy the pleasure of recognising associations and then contemplating their relationship to the story being told.

An examination of the employment of plain prose in the skilled hands of Gaiman is a reading pleasure and something novice readers can be invited to look at closely for its power. Readers can enjoy alliteration, such as "helping hand", "curled on the couch"; analogy, such as "she popped another black beetle into her mouth, and then another, like someone with a bag of chocolate covered raisins" (p. 87); assonance, such as "slippery to grip"; metaphor, such as "the world she was walking through was a pale nothingness" (p. 8 0); and personification, such as it was the kind of rain that "threw itself down from the sky and splashed where it landed" (p. 13). Readers can see how noticing the careful decisions the writer has made in terms of language and structure can direct thought to the central, challenging ideas.

With careful prompting, drawing on a more expert reading, teacher education students and their child readers can be led to see the profound questions Gaiman is asking, especially if they have already explored texts in terms of theory of mind. Such a reading will prompt readers to develop the awareness that Gaiman suggests, that evil is not external: it is not a force that acts on us, but comes from within us. Through close reading and thinking about the decisions Gaiman has made in telling his story, inexperienced readers can come to an awareness that perhaps Coraline is in some way responsible for the appearance of the other mother, and that therefore

she is responsible for ridding her world of this embodiment of evil. This is a reading of the text that novice readers are unlikely to come to on their own, without adopting the skills of a "forensic" reader.

Butterfly (Hartnett, 2009)

When readers have developed their skills of deep reading, they are ready for the challenges and pleasures of a writer who respects and expects her readers to be active in creating their experience of her stories.

> I write for people who like to think about what they're reading, so I litter the books with falsehoods and unanswered questions and minor suggestions of major events. I really hate the idea that I must tell the reader everything in clunking detail. The reader is part of the experience that is a book, and I like the reader to have some input into the creation of the work – to decide what happens in the end, if need be…Every thoughtful reading is a correct reading as far as I can see. (Sonya Hartnett in *Readings Monthly*, February 2009, p. 8)

In *Butterfly*, Ariella (Plum) Coyle lives in the suburbs in the 1980s with her embarrassing parents, Fa and Mums, and her adored older brothers, Justin and Cydar, in a "humiliating", rambling house filled with antiques. Plum longs for white shag pile carpet. Each family member lives their separate lives; each sibling with secrets. Plum is about to turn fourteen, and is uncertain about her place in the world. She shifts from child to adolescent and back again. In a briefcase under her bed, Plum keeps a collection of talismans (stolen from her friends) in her briefcase (pp. 48, 77, 80) and imagines that they give her power within her catty friendship group at school. She keeps talismans. Next-door neighbour, Maureen, takes Plum under her wing. Maureen has an often-absent husband and a four-year-old son, David, whom Plum occasionally babysits. While we know Maureen's motives are not as altruistic as they seem, Plum doesn't. As a result of Plum's catastrophic fourteenth birthday party, secrets and lies are uncovered that mark endings and beginnings.

Butterfly puts a close lens on its characters, who are the cause, and suffer the effects, of events. None of them is totally empathetic or admirable, but they are compelling in their ambivalence. Readers developing and honing their deep reading skills are required to let go of the need to like the characters in this story. Plum is a tall, solid girl who is consumed with self-hate. She is unhappy at school, feeling she is the lowest in the pecking order of her friendship group. She determines to be someone other than who she is: "she is meant to start becoming what she wants to be" (p. 9) and announces to the family that she will no longer attend church. She is a liminal character – between child and adolescent, as evidenced in the posters on her bedroom wall: David Bowie vies for space with images of kittens. At Maureen's instigation, she changes her name to Aria to be "less ordinary". Complexity, ambiguity and ambivalence are powerful aspects of the writing and the reading experience, no more so than in relation to Plum. She is a particularly vulnerable

character, whom the narrator says is an "isolated, writhing repulsive creature" (p. 163). Easily manipulated by the older Maureen, Plum thinks the friendship is special, "like a white unicorn in a forest, or maybe a ruby in a cloud" (p. 82). The reader is unsettled and anxious on her behalf for being so easily taken in.

The cool, distant, ironic tone is important to the reading, as is the dual method through which we receive events. Most are focalised through Plum, but they are also commented on by the narrator, who dissects each situation and moves the story forward. Close reading demands an awareness of the narrator's view of events and characters, and readers need to consider how the narrator's views affect their reactions to characters and events. For instance, in describing Plum's prepubescent school friends, the narrator intones:

> They laugh because they're sure they know everything able to be known and life holds no further mystery for them, not even about things they haven't yet known and will not know for years – first touch, first defeat, nights shared, days forgotten, mistakes made words unsaid, the saying of too many words. The heaviness of success, the grey valleys of loss, the clay feet of love, the greediness of time. (p. 142)

Although the title is *Butterfly*, the tone of the book is of endings rather than the rebirth that metamorphosis implies. For example, Maureen says "There's so much …poignancy in the air. As if summer were a living thing that's drifting gently into death" (p. 21). Awareness of the significance of the setting is central to unravelling the narrative. The events are set at the end of summer, the season is transitioning to autumn: "These end-of-summer dusks never want to finish" (p. 65). In a premonition, Maureen thinks "it feels like something lovely is ending, and all that's coming is coldness…" (p. 84). The reference to "cold" is used on the last page of the book, leading the reader to connect the two occurrences of the word in a potentially devastating revelation.

Just as the seasons inevitably change, the tenor of *Butterfly* is one of unavoidable, if not catastrophic change, evocative of the inevitability of the fate of Anna Karenina. The reader contemplates whether the characters make choices, or whether fate enacts itself on them, and considers that if the tone is one of pessimism about the future, is then the title of the book ironic, mocking?

As for Gaiman, evocative, figurative language and imagery are a hallmark of Hartnett's writing, with every word carefully placed. Readers will find much pleasure in having their reading interrupted by images and adages that cause them to pause, such as Plum's stomach being "the colour of uncooked dough…her cheeks are the pasty yellow of cereal left all day to float in milk" (p. 3); Mums' mouth twists, "as if her daughter is something bitter she expected to be sweet" (p. 9); Cydar comes to the dinner table: "a hawk whistled down from the sky" (p. 5).

However, Hartnett's story is not all about the surface features of language, but to quote Eagleton (2013) again, explores "the experience of meaning" (p. 192). She probes the institution of the family and the complexity of how individuals construct

identities within or despite it: "It occurs to [Plum] that she lives in a house with people she only knows from the outside … everything she thinks she knows about them has been a guess" (p. 117). While Plum is the focaliser, Cydar is the perceptive, analytical family member. Far from feeling rivalry or jealousy, Cydar feels love for Plum "from the moment he saw her on the day she was born" (p. 57). The narrator intervenes to tell us the implications of this love for Cydar: "His existence will never be all it can be if Plum stands in its corner, happy for and proud of him, but misaligned and alone. She will stunt him and he will let her" (p. 58). Cydar realises that everyone in his family is sad: Mums and Fa are "living lives that never managed to rise above the ordinary" (p. 98) Plum and Justin are "aware of the peril, but neither of them clever enough to avoid a similar fate" (p. 98), and "Cydar himself, who will achieve enough for all of them, but will never feel rightly made for the world" (p. 98). Readers might consider that Hartnett suggests there is price for not being ordinary.

Power, responsibility, friendship, and betrayal are other aspects of *Butterfly* that reveal themselves through a close reading of a narrative that "unsettles". *Butterfly* is an example of Hamid's (2014) description of what makes a text memorable: "an unexpected narrative space opens up before us, nags at us, seduces us…" (p. 66) ready for experienced readers to probe and enjoy. It is a long way from *Bear Hunt* to *Butterfly* but the learning journey is one well worth making for the rewards it offers.

CONCLUSION

Reading exists in a postmodern world where critical, thoughtful, analytic, and questioning readings of all texts, not only literary ones, are increasingly important. Hence this chapter has argued that necessary to reading success and engagement in reading for students, are thoughtful, insightful readings of literary texts, which have the capacity to take young readers beyond their everyday worlds into the lives of others. Such literary encounters expand readers' capacity for empathy and understanding as evidenced by recent neuroscience research. Education has a vital role to play in the development of a just, inclusive society so needed in the globalised 21st century. Honing capacities for compassion through careful, nuanced readings of well-chosen texts for pre-service students will equip these future teachers to share parallel reading experiences in their classrooms, ensuring not only an expansion of reading and academic performance, but more importantly of humanity.

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TASOS BARKATSAS, VASILIS GIALAMAS AND
CLAUDIA ORELLANA

8. SECONDARY STUDENTS' ATTITUDES TOWARD LEARNING MATHEMATICS WITH COMPUTER ALGEBRA SYSTEMS (CAS)

A Structural Equation Model

ABSTRACT

This chapter reports the responses of 1088 students in Victoria, Australia. The Mathematics and Technology Attitudes Scale (MTAS) for secondary students was used to monitor five variables relevant to learning mathematics with technology: attitudes to learning mathematics with CAS, mathematics confidence, confidence with technology, and behavioural and affective engagement in mathematics learning. Principal Components Analysis, ANOVA with post hoc comparisons, and Structural Equation Modelling (SEM) techniques were used for the analysis of students' responses. The findings revealed that there is a complex nexus of relationships between secondary mathematics students' mathematics confidence, technology confidence, attitude to learning mathematics with CAS, affective engagement and behavioural engagement, achievement, CAS experience, gender, year level, and learning setting. Statistically significant differences were found between a number of the variables and overall students demonstrated higher levels of technology confidence compared to their attitudes to learning mathematics with CAS.

Keywords: Mathematics, Computer Algebra Systems (CAS), confidence, engagement, achievement, gender, CAS experience, SEM, Path Model

INTRODUCTION

The use of CAS in mathematics classes and the effects of attitudes and behaviours on learning mathematics with computer tools have attracted a broad range of attention from researchers in many parts of the world in the past decade (Artigue, 2002; Drijvers, 2000; Guin & Trouche, 1999; Pierce & Stacey, 2004; Reed, Drijvers, & Kirtschner, 2010). Information and communications technologies (ICT), or digital technologies, offer exciting opportunities for new approaches to teaching and for the enhancement of students' mathematical understanding at all levels. Referring

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 121–137.

to a number of recent studies, Reed, Drijvers, and Kirtschner (2010) however, observed that:

> Although the use of computer tools in schools is widespread, actual outcomes of employing such tools have been disappointing. While computer tools are purported to enhance the learning experience and to bring learners to higher levels of understanding, motivation, engagement and self-esteem, they are often marginalised within existing classroom practices, or used only for repetitive, delimited activities, rather than to promote complex learning. In mathematics education also, research has shown that the potential benefits of employing mathematical computer tools are not always realised. (p. 1)

The authors found that promoting learning with mathematical tools must take several factors into account simultaneously, including the improvement of student attitudes, learning behaviours, and providing ample opportunity for the construction of new mathematical knowledge from acquired tool mastery. Embedding tool use in meaningful mathematical discourse in which ideas are discussed and reflected upon, was considered the most important aspect in this process. The study also found students' attitudes and behaviours to be influenced by school and classroom factors, in agreement with the outcomes of the present study.

Reed et al.'s (2009) view was shared by Bennison and Goos (2010), who claimed that: "previous research indicates that effective integration of technology into classroom practice remains patchy, with factors such as teacher knowledge, confidence, experience and beliefs, access to resources, and participation in professional development influencing uptake and implementation" (p. 31).

CAS has been an example of one such technology which has faced various obstacles in its integration within the school mathematics domain. "In spite of the long history of work with CAS in educational settings, the impact of technology on school mathematics has to date been marginal, and the incorporation of CAS in classrooms has been even slower" (Heid, Thomas, & Zbiek, 2012, p. 599). As with ICT in general, student attitudes, beliefs, and the technical skill required to operate CAS technology are just some of the factors which have made CAS integration within school mathematics difficult to achieve successfully (Barkatsas, Kasimatis, & Gialamas, 2009; Drijvers, 2000; Schmidt, 2010). Despite the widespread availability of this technology, Özgün-Koca (2010) noted that:

> Even though graphing calculators with symbolic manipulation capabilities [CAS calculators] have been commercially available for more than a decade, they have not impacted the study of symbolic algebra in mathematics classrooms to the same extent that handheld calculators have influenced the study of graphs. (p. 49)

Heid and Edwards (2001, as cited in Özgün-Koca, 2010) proposed four possible roles of CAS in mathematics education:

- CAS as the primary producer of symbolic results in which CAS makes computations in order for the user to focus on the concepts,
- CAS as an assistance for students to generate many examples in order to search for symbolic patterns,
- CAS as a generator of results for problems posed in abstract form, and
- CAS as a pedagogical tool, which creates and generates symbolic procedures to assist students in constructing conceptual understandings.

However, despite the various roles proposed by Heid and Edwards (2001), Ball and Stacey (2005) found that, in an examination context, students mainly utilised CAS for its efficiency and for checking answers. These were also common reasons cited by students for using CAS technology in a more recent study by Pierce and Bardini (2015). It was reported that graphing, hard calculations, and application questions were additionally some of the main purposes for using this technology. While Pierce and Bardini (2015) found that surveyed students made considerably greater use of CAS than their teachers, the more complex forms of CAS use, which promote mathematical thinking and understanding, were less prominent. The authors suggested that this may be attributed to the inadequate modelling of effective CAS use by teachers. However, the more complex forms of CAS use can take time to develop as students must not only become familiar with the technical aspects of the device, such as its functions and notation, but also need to be aware of when to use the CAS, acknowledge its limitations, and have sufficient mathematical knowledge to formulate input and interpret output (Pierce & Stacey, 2002; Thomas & Hong, 2004; Thomas, Monaghan, & Pierce, 2004).

Artigue (2000, 2002) also described the role of technology through the *instrumental approach*. In this view, an instrument is considered "a mixed entity, part artifact, part cognitive schemes" (Artigue, 2002, p. 250). The artifact is the tool for learning and the schemes are the techniques developed and applied by the user when utilising the artifact (Trouche & Drijvers, 2010). The process by which an artifact becomes an instrument is called *instrumental genesis*, which highlights the bidirectional relationship between the user and the tool (Artigue, 2000). The way the tool is used is heavily influenced by a student's knowledge which also shapes the tool, called *instrumentalization*, while the limitations and affordances of the tool "influence the student's problem solving strategies and the corresponding emergent conceptions" called *instrumentation* (Drijvers et al., 2010, p. 109). For instrumental genesis to take place, students need to be guided by the teacher through the process of *instrumental orchestration*, which is defined as the organisation of the artifacts available in the classroom and how they can be exploited during different mathematical activities (Trouche, 2004). The use of the instrumental approach to describe interactions between students and CAS technology has been applied in studies such as Guin and Trouche (2002), Kieran and Drijvers (2006), and Stewart, Thomas, and Hannah (2005).

Over the last thirty years, mathematics and statistics attitudes have been studied extensively. McLeod (1992) claimed that affective issues play a central role in mathematics learning and that "mathematics education research can be strengthened if researchers integrate affective issues into studies of cognition and instruction" (p. 575). Research affirms that affective factors and beliefs impact on student learning: in general, positive attitudes and beliefs and intrinsic motivation are reflected in increased effort in learning and greater persistence. Attitudes are commonly distinguished from beliefs in that attitudes are moderate in duration, intensity, and stability and have an emotional content, while beliefs become stable and are not easily changed (McLeod, 1992).

Vale and Leder (2004) and Forgasz (1995) viewed students' attitudes to technology (computers in their study) as being defined by the students' perceptions of their achievement (self-efficacy) and their aspiration to achieve in these disciplines. Galbraith and Haines (1998) adopted a different view, seeing technology confidence (computer confidence in their case) as evidenced by students who "feel self-assured in operating computers, believe they can master computer procedures required of them, are more sure of their answers when supported by a computer, and in cases of mistakes in computer work are confident of resolving the problem themselves" (p. 278).

Gender differences in attitudes to mathematics have long been of interest (Barkatsas, Forgasz, & Leder, 2001; Barkatsas, Kasimatis, & Gialamas, 2009; Fennema & Sherman, 1976; Forgasz et al., 2008; Forgasz, Leder, & Barkatsas, 1998, 1999; Pierce, Stacey, & Barkatsas, 2007) and a question of current interest is whether using technology to learn mathematics exacerbates differences.

A theory of student academic engagement has been articulated by Newmann (1989). The researcher proposed three dimensions of student engagement: (1) students' need to develop and express competence, (2) students' full participation in school activities, and (3) students being immersed in authentic academic work. It is believed that most students commence their school life being inherently motivated, but for many of them this motivation diminishes or entirely disappears because the students are involved in routine and boring activities and they try to get by with as little effort as possible.

Fredricks, Blumenfeld, and Paris (2004) assumed that school engagement is a concept that is malleable, responsive to contextual features, and amenable to environmental change. They claimed that research literature considers engagement as a multidimensional concept or even as a "meta" construct. They proposed the following three dimensions: behavioural engagement, which draws on student participation; emotional engagement, encompassing both positive and negative reactions to staff and the school in general; and cognitive engagement, which draws on the principle of students making an investment in learning (p. 60). Two of the dimensions of this framework, behavioural engagement and affective (emotional) engagement, form part of the MTAS instrument.

Student engagement with the intellectual work of learning is, according to Marks (2000), an important goal for education, leads to achievement, and "contributes to students' social and cognitive development" (p. 154). Our findings agree with those of Marks' (2000), who claimed that:

> Although research examining effect of engagement on achievement is comparatively sparse, existing studies consistently demonstrate a strong positive relationship between engagement and performance across diverse populations. (p. 155)

The findings of this study demonstrate that there is a strong positive relationship between engagement and performance.

It is our contention that technology confidence is a very different construct to that of mathematical confidence. Mathematical confidence is an affective dimension closely associated with mathematics achievement. Galbraith and Haines (1998) conceptualised mathematics confidence as evidenced by students "who believe they obtain value for effort, do not worry about learning hard topics, expect to get good results, and feel good about mathematics as a subject" (p. 278).

The role of motivation, intrinsic values, and gendered mathematics related self-perceptions were considered by Watt (2006) as the major influences on: "gendered educational participation in senior high school mathematics, which subsequently predicted maths-related career aspirations over and above prior mathematical achievement" (p. 305).

Barkatsas, Kasimatis, and Gialamas (2009) investigated the relationship between students' mathematics confidence, confidence with technology, attitude to learning mathematics with technology, affective engagement and behavioural engagement, achievement, gender, and year level. They reported that high achievement in mathematics was associated with high levels of mathematics confidence, strongly positive levels of affective engagement and behavioural engagement, high confidence in using technology, and a strongly positive attitude to learning mathematics with technology.

AIMS OF THE STUDY

The aims of the study were to investigate:

- the development and assessment of an SEM model;
- the factorial structure of the MTAS by gender.

RESEARCH METHOD

Sample

The participants were 1088 Year 9–12 students (Table 1), from 11 independent schools, in Victoria, Australia.

Table 1. Sample by year level and gender

		Gender		
		Male	*Female*	*Total*
Year Level	Year 9	59	58	117
	Year 10	180	148	328
	Year 11	213	202	415
	Year 12	83	115	198
Total		535	523	1058

Note: 30 students did not declare their gender

The Head of Mathematics in each school selected students from Year 9–12 classrooms that had CAS calculator experience for one or more years (three schools commenced using CAS calculators in Year 9, four schools in Year 10, three schools in Year 11, and one school in Year 12). The maximum number of years of CAS experience in this study was three years. The study took place at the end of 2009 in nine schools, and in the beginning of Term 1, 2010, in two schools. Students were asked to record their overall mathematics grade for 2009. The grade categories used in the study were the following: A (80–100%), B (70–79%), C (60–69%), D (50–59%) and E (<50%).

Instrument

For our research we used the Mathematics and Technology Attitudes Scale (MTAS) developed by Pierce, Stacey, and Barkatsas (2007). The instrument consists of 20 items. A Likert-type scoring format is used for each of the subscales: *Mathematics Confidence [Mcon], Technology Confidence [Tcon], Attitude to learning Mathematics with Technology (whether computers, graphics calculators or computer algebra systems in the original scale – CAS in this study) [MT], and Affective Engagement [AEn]*. Students are asked to indicate the extent of their agreement with each statement on a five point scale from Strongly Agree to Strongly Disagree (scored from 5 to 1).

A different but similar response set is used for the *Behavioural Engagement [Ben]* subscale. Students are asked to indicate the frequency of occurrence of different behaviours. A five-point system is again used – Nearly Always, Usually, About Half of the Time, Occasionally, or Hardly Ever (scored again from 5 to 1). The rationale for the selection of the items and the naming of the subscales, as well as the psychometric properties of the scale, may be found in Pierce et al. (2007) and Barkatsas (2005). The data analysis is presented in the next section.

DATA ANALYSIS AND DISCUSSION

There were a number of stages in the data analysis process. The statistical analyses may be summarised as follows:

- Principle Components Analysis (PCA)
- Input Variables: 20 items of the MTAS scale
- Component extraction method: Maximum Likelihood
- Rotation method: Varimax
- Result: Five factors identical to the five factors of the original MTAS study (Barkatsas, 2005; Pierce et al., 2007)
- Confirmatory factor analysis, measurement and structure invariance by gender, and Multiple Indicators and Multiple Causes (MIMIC) model.

A Confirmatory factor analysis was conducted. A factorial invariance by gender and a Multiple Indicators and Multiple Causes (MIMIC) model were used to examine the impact of attitudes towards mathematics (*ATM*), CAS experience (*casexp*), Affective Engagement (*AEn*), Behavioural Engagement (*Ben*), Mathematics Confidence (*Mcon*), and Technology Confidence (*Tcon*), on Learning Mathematics with Technology (MT).

Principal Components Analysis (PCA)

The questionnaire items were initially subjected to a Principal Components Analysis (PCA, extraction method: maximum likelihood). The PCA analysis, using data from 1088 students' responses to the 20 items forming the MTAS, indicates that the data satisfy the underlying assumptions of the PCA and that together the five components (each with an eigenvalue greater than 1) explain 69.75% of the variance, with 29.15% of the initial eigenvalues (extraction sums of squared loadings) and 16.3% of the rotated sums of squared loadings attributed to the first factor – Mathematics Confidence (*Mcon*) – and a further 16.87% of the initial eigenvalues and 14.90% of the rotated sums of squared loadings attributed to the second factor -Attitude towards use of CAS for learning mathematics (*MT*). The communalities for 19 of the items were greater than .6 and the lowest communality for one Behavioural Engagement (*Ben*) subscale item was .502. The communalities represent the proportion of variance in each item that may be explained by each component.

Further, according to Coakes and Steed (1999), if the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is greater than 0.6, and the Bartlett's Test of Sphericity (BTS) is significant, then factorability of the correlation matrix is assumed. The KMO Measure of Sampling Adequacy is .874, which is very good and BTS< .001, which indicates that there are significant correlations between the

variables, so factorability of the correlation matrix is assumed. Reliability of the subscales was also examined. Cronbach's alpha should be at least .70 for scale reliability (Stevens, 2002). In this study, the alpha values for each subscale are: *Mcon*, .93; *MT*, .90; *Tcon*, .88; *Ben*, .78; and *AEn*, .70. This indicates a strong or acceptable degree of internal consistency in each subscale. The five components' loadings have been reported in Barkatsas (2015).

Confirmatory Factor Analysis, Measurement and Structure Invariance by Gender, and Multiple Indicators and Multiple Causes (MIMIC) Model

A Confirmatory factor analysis was conducted. A factorial invariance by gender (Figures 1 and 2) and a Multiple Indicators and Multiple Causes (MIMIC) model were used to examine the impact of attitudes towards mathematics (*maths attitudes*

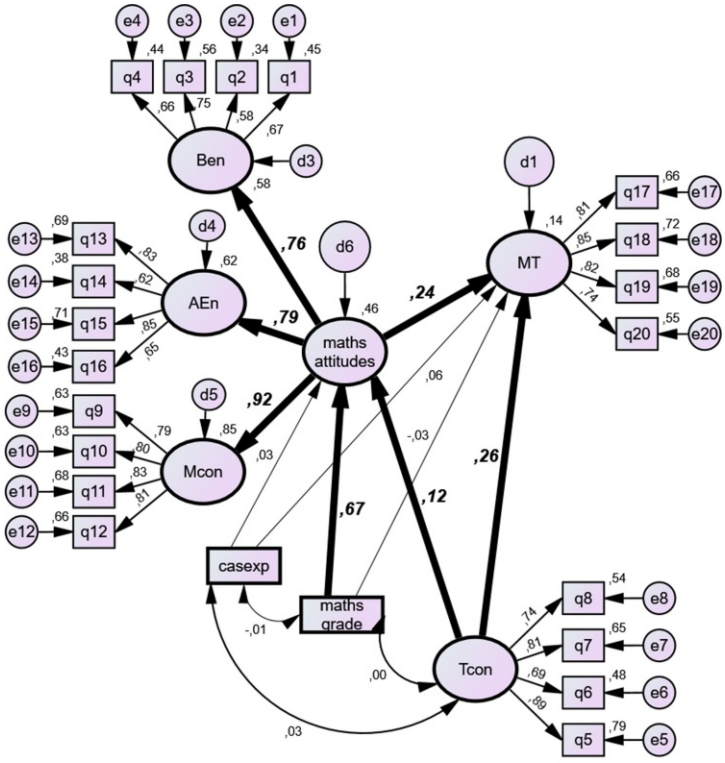

Figure 1. Path diagram and model indices for boys

in Figures 1 and 2), CAS experience (*casexp* in Figures 1 and 2), Affective Engagement (*AEn* in Figures 1 and 2), Behavioural Engagement (*Ben* in Figures 1 and 2), Mathematics Confidence (*Mcon* in Figures 1 and 2), and Technology Confidence (*Tcon* in Figures 1 and 2), on Learning mathematics with technology (MT in Figures 1 and 2).

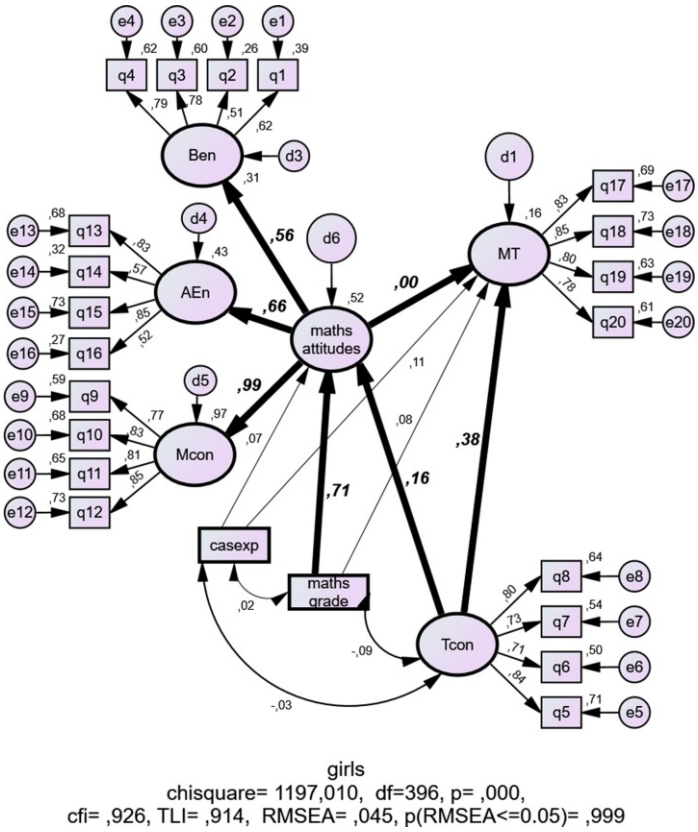

Figure 2. Path diagram and model indices for girls

Measurement and Structure Invariance by Gender

Table 2 shows the comparison of sequential Models (the latter is nested within the former) used for testing factorial invariance between genders. In comparing two sequential Models, the difference $\Delta\chi^2$ in χ^2 values, distributed as χ^2 with Δdf degrees of freedom, is used. In addition, the change in the comparative fit index (CFI) is used. Values of ΔCFI less than −.005 indicate statistically significant fit decrement after having imposed equality in parameters between the two populations. In the first

step (Model 1), the fit of the five factors Model without any constraints across the two populations was examined. It can be seen that the fit of the Model was good. In Model 2, factor loadings were constrained to be equal across the two populations. Loss in fit was not significant, $\Delta\chi^2(15) = 49.5$, $p < 0.05$, $\Delta CFI = -.004$, and it was concluded that factor loadings were equivalent across groups.

Table 2. Test of factorial measurement invariance between males and females for the five factor model

Model	χ^2	*df*	*Reference Model*	$\Delta\chi^2$	*Δdf*	*CFI*	*ΔCFI*
1. Same structure (2 factors)	636.8	320				.946	
2. Equal factorial loadings	674.5	335	1	49.5*	15	.942	−.004
3. Equal intercepts	761.1	350	2	135.5*	15	.929	−.013*
4. Equal intercepts except Q16, Q7	696.4	346	2	28.3*	11	.940	−.002
5. Equal error terms variances	717.9	366	4	31.9	20	.939	−.001
6. Equal factor means	774.6	351	4	128.9*	5	.927	−.013*
7. Equal factor variances	727.2	371	5	12.0	5	.939	.000
8. Equal between factor covariance	742.8	381	7	19.7	10	.938	−.001

Note: $\Delta\chi^2$, Δdf, and ΔCFI: differences in the corresponding χ^2, df and CFI values between two nested models

** Significant differences in Model fit (p < .05)*

In Model 3, intercepts of factorial equations were constrained to be equal across the two populations. Model 3 shows a significant loss in fit, $\Delta\chi^2(15) = 135.5$, $p < .05$, $\Delta CFI = -.013$, in relation to Model 2. Scrutiny of the modification indices suggested that the items q16 (on factor *AEn*) and q7 (on factor *Tcon*) may have had different intercepts for boys and girls. Model 4 of partial scalar invariance, releasing the invariance constraints for the intercepts of q16 and q7, fit as well as Model 2, $\Delta\chi^2(11) = 28.3$, $p < .05$, $\Delta CFI = -.002$. Partial invariance (Model 4) cannot dramatically affect the measurement equivalence across the two groups, because more than one item showed invariance in both loading and intercept.

In Model 4, error variances were constrained to be equal across the two genders. Loss in fit was not significant, $\Delta\chi^2(20) = 31.9$, $p < .05$, $\Delta CFI = -.001$, and it was concluded that error variances were equivalent across populations/groups.

In order to explore the structure invariance, the five factor variances constrained to be equal across the two genders in Model 7, nested in Model 4, resulted in a not important change of fit, $\Delta\chi^2(5) = 12.0$, $p < .05$, $\Delta CFI = .000$. Finally, in Model 8, the covariances were constrained to be equal among factors across the two genders. The change in fit in comparison to Model 7, was not significant, $\Delta\chi^2(10) = 19.7$, $p < .05$, $\Delta CFI = -.001$.

The differences in means between the two populations were investigated by setting the common factor means equal to zero for the teacher group in Model 6. Since the boys' means were already fixed at zero in Model 4, equality between boys' and girls' means resulted in setting the girls' means equal to zero as well. Model 6 showed a significant loss of fit in relation to Model 4, $\Delta\chi^2(2) = 128.9$, $p < .05$, $\Delta CFI = -.035$.

Multiple Imputations

In this study, because of the important rate (32%) of missing values presented in *overall mathematics grade*, we applied a multiple imputation technique using Bayesian estimation of model parameters. Our imputation model reflects the set of fifteen correlations between *MT*, *Mcon*, *AEn*, *Ben*, *Tcon* (all factors with four reflective indicators each), *overall mathematics grade*, and *CAS experience*. In order to preserve possible differences in covariance matrices between genders, we fit the multiple imputation models for each gender separately. By this procedure, 30 completed data sets were produced. All imputed values vary from one completed data set to the next. After each new set was analysed separately by maximum likelihood estimation, 30 sets of estimates and standard errors were figured, combined in a single set of results.

Path Model

In order to explore the impact of various factors that emerged in this study on *MT*, we tested a Path Analysis model (Figures 1 and 2) by multiple group analysis using maximum likelihood estimation. The grouping variable was gender. The endogenous latent variables were entered in the model in the following hierarchical order: *Tcon*, *Attitudes Towards Mathematics* (*ATM*, a second-order factor reflected by three first-order factors e.g., *MCon*, *AEn*, *Ben*), and *MT*. Exogenous variables in the model, were *Mathematics Grade* and *CAS experience* (Low: 1 year, High: 2–3 years). Model 1 (Table 2), fits the data reasonably well (goodness of fit and incremental indices: $\chi^2(422) = 808.23$, TLI = .921, CFI = .928, RMSEA = .045, based on the guidelines recommended by Hu and Bentler (1999). Path weight estimates (Table 3), indicated a significant and positive effect of *Tcon* on *MT* for both genders (standardised weights: .26 and .36 for boys and girls respectively). The *ATM* effect on *MT* was positive and significant only for male students (standardised weights: .27 and .04 for boys and girls respectively). A small positive *CAS experience* effect on *MT* was found only for girls (standardised weight: .12). There was no effect of grades on *MT*.

Table 3. Path analysis models: Regression weights, correlations, squared multiple correlation

Variable pair			*Boys (N=459)*	*Girls (N=451)*
Independent – Dependent pair			*Regression (Standardised) weight*	
Tcon	–>	MT	.34 (.26)*	.44 (.36)*
ATM	–>	MT	.39 (.27)*	.05 (.04)
Grade	–>	MT	−.02 (−.02)	.04 (.04)
CAS Exp.	–>	MT	.06 (.03)	.20 (.10)*
TC	–>	A.T.M	.10 (.11)*	.17 (.17)*
Grade	–>	A.T.M	.37 (.59)*	.49 (.66)*
CAS Exp.	–>	A.T.M	.13 (.09)*	.20 (.12)*
Latent− Indicator pair			*Regression (Standardised) weight*	
ATM	–>	MC	1.00 (.88)*	1.00 (.95)*
ATM	–>	AE	1.08 (.81)*	.72 (.68)*
ATM	–>	BE	.71 (.78)*	.45 (.57)*
Ben	–>	Q1	1.00 (.63)*	1.00 (.67)*
Ben	–>	Q2	1.03 (.56)*	1.03 (.57)*
Ben	–>	Q3	1.36 (.76)*	1.36 (.78)*
Ben	–>	Q4	1.25 (.71)*	1.25 (.73)*
MC	–>	Q9	1.00 (.77)*	1.00 (.77)*
MC	–>	Q10	.90 (.79)*	.90 (.83)*
MC	–>	Q11	.89 (.83)*	.89 (.81)*
MC	–>	Q12	1.04 (80)*	1.04 (.84)*
Aen	–>	Q13	1.00 (.85)*	1.00 (.82)*
Aen	–>	Q14	.80 (.63)*	.80 (.62)*
Aen	–>	Q15	1.02 (.84)*	1.02 (.85)*
Aen	–>	Q16	.78 (.66)*	.57 (.51)*
Tcon	–>	Q5	1.00 (.86)*	1.00 (.85)*
Tcon	–>	Q6	.74 (.71)*	.74 (.69)*
Tcon	–>	Q7	1.19 (.83)*	.95 (.73)*
Tcon	–>	Q8	1.07 (.80)*	1.07 (.80)*
MT	–>	Q17	1.00 (.83)*	1.00 (.81)*
MT	–>	Q18	.98 (.85)*	.98 (.85)*
MT	–>	Q19	.94 (.80)*	.94 (.81)*
MT	–>	Q20	.92(.74)*	.92 (.78)*

Table 3. (Continued)

Exogenous pair			*Covariance (correlation)*	
Tcon	<—>	Grade	.01 (.01)	−.08 (−.10)
Tcon	<—>	Cas Exp.	.01 (.02)	−.00 (−.00)
Grade	<—>	Cas Exp.	−.01 (−.02)	.01 (.02)
			Squared multiple correlation	
		A.T.M	.37*	.46*
		MT	.15*	.15*

**p<.05*

A comparison test in path weights between genders was performed by imposing equality constrains on seven path weights across two genders (Model 2). Wald statistic indicated a significant loss of fit (Wald = 18.4, $p < 0.01$) in Model 2 due to the direct effect of *ATM* on *MT*.

CONCLUSIONS AND IMPLICATIONS

In this chapter, the complex relationship between middle and senior secondary mathematics students' confidence, engagement, and attitudes toward learning mathematics with CAS was investigated.

The findings reveal that there is a complex and interconnected nexus of relationships between secondary mathematics students' mathematics confidence, technology confidence, attitude to learning mathematics with CAS, affective engagement and behavioural engagement, achievement, CAS experience, gender, and year level.

In the Path Model, path weight estimates (Table 3) indicated a significant and positive effect of *Tcon* on *MT* for both genders (standardised weights: .26 and .36 for boys and girls respectively). The *ATM* effect on *MT* was positive and significant only for male students (standardised weights: .27 and .04 for boys and girls respectively). A small positive *CAS experience* effect on *MT* was found only for girls (standardised weight: .12). There was no effect of grades on *MT*.

It may be argued that students demonstrate more confidence with other forms of technology because they do not associate them with school and/or mathematics work. Reed, Drijvers, and Kirschner (2010) argued that in promoting mathematics learning with ICT we must take into consideration the following factors simultaneously: "improving student attitudes, raising levels of goal-oriented learning behaviours, and giving sufficient opportunity for constructing new mathematical knowledge from acquired tool mastery" (p. 12). The use of CAS-related technology may require changes in instructional practices. Less teacher instructions and more student autonomy could become the mode in classes where CAS calculators or other CAS software is being implemented.

Teachers require extensive training in identifying and implementing appropriate teaching and learning approaches, strategies, and behaviours that will enable them to avoid reinforcing female students' learned helplessness in mathematics in order to close the gender gap in mathematics achievement since, according to Watt (2006), previous analyses have established that: "boys maintained higher intrinsic value for maths and higher maths-related self-perceptions than girls throughout adolescence" (p. 319).

In analysing teacher mediation of ICT and other resources in the classroom, Tanner, Jones, Beauchamp, and Kennewell (2010) argued that the idea of *orchestration* could be helpful. The authors claimed that:

> This construct extends the idea of scaffolding and concerns the planned and responsive manipulation by the teacher of the features of the classroom setting (including students, resources, and less tangible features such as culture and ethos) to support the goal-related actions carried out by students and the development of common or collective knowledge. (p. 548)

Tanner et al. (2010) further claimed that: "the impact of interactive whole-class technologies (IWCTs) on learning is dependent on the mediating role of the teacher" and that "effective teaching and learning is often based on serendipity and improvisation" (p. 547).

The origins of attitudinal gender differences in mathematics motivation, engagement and achievement, and in the use of ICT in mathematics, as well as their interrelationship, requires further investigation in an era of ICT-driven mathematics curricula. It is well known that more males than females study the most demanding mathematics courses at the senior secondary level. Males choose to enrol in more mathematically oriented tertiary courses, and mathematics-related careers are still considered more appropriate for males (Forgasz & Leder, 2001). Modifying dominant personal and societal attitudes and deeply-rooted beliefs about mathematically challenging courses, and about careers requiring highly technical quantitative skills, has proven to be a persistent and extremely difficult area in both research and policy. Contemporary education systems have to find ways to address the gender inequity in highly sought-after careers, which require a strong mathematical orientation.

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GRANT COOPER, TASOS BARKATSAS AND ROB STRATHDEE

9. THE THEORY OF PLANNED BEHAVIOUR (TPB) IN EDUCATIONAL RESEARCH USING STRUCTURAL EQUATION MODELLING (SEM)

ABSTRACT

The authors of this chapter make the argument that educational researchers need to critically examine the quickly evolving cultural, social, and organisational dynamics of 21st century learning environments and learners. In order to do this, it may be necessary to investigate the behaviours and intentions of others, including, but not limited to school administers, teachers, and of course students. While researching the "drivers" of behaviour can be complex and challenging, a framework detailing the salient psycho-social predictors of behaviour may be particularly helpful in helping researchers investigate and explain intention and/or behaviour. The purpose of this chapter is to discuss how the Theory of Planned Behaviour (TPB) (Ajzen, 2005) may be used in Education Research as a framework to further understandings of teachers', students', or others' intentions and/or behaviour.

Keywords: Theory of Planned Behaviour, Structural Equation Modelling, behaviour frameworks, psycho-social predictors of behaviour, education research

INTRODUCTION

21st century learners are no longer confined to school classrooms. Evolving Information and Communications Technology (ICT), the rise of "modern societies" and the dawn of the Asian century, are several examples of a rapidly changing education landscape. Now, learning is possible anywhere and anytime and students are now growing up in what has been typically defined as the knowledge age. The authors of this chapter make the argument that educational researchers need to critically examine the quickly evolving cultural, social and organisational dynamics of 21st century learning environments and learners. In order to do this, it may be necessary to investigate the behaviours and intentions of others, including, but not limited to school administers, teachers and of course students. Examining what factors underpin behaviour can be complex and challenging, especially for educational researchers who may not have particular expertise in this area. While researching the "drivers" of behaviour can be complex and challenging, a framework detailing the salient psycho-social predictors of behaviour may be particularly helpful in helping

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 139–162.

researchers investigate and explain intention and/or behaviour. The purpose of this chapter is discuss how the Theory of Planned Behaviour (TPB) (Ajzen, 2005) may be used in Education Research as a framework to further understandings of why teachers, students or others behave the way they do. In order to complement and build on existing literature, this chapter particularly focuses on how one may design and conduct a TPB-aligned study using SEM analysis.

A Social Cognitive Explanation of Behaviour

Social cognitive behavioural models have been used in different fields (e.g., psychology and medical research) to predict, explain and change human behaviour (Ajzen, 2005). Such models relate one's behaviour in, and interaction with, their societal milieu (Hogg & Cooper, 2003). The individual may not be fully aware of this relationship with their environment and how thoughts and behaviours may be influenced by the actual, imagined, or implied presence of others (Allport, 1986; Aronson, Wilson, & Akert, 1994). One of the most prominent models in the social cognitive field is the Theory of Planned Behaviour (TPB) (Ajzen, 1991). The theory posits that one's intention is a direct antecedent of behaviour. Intentions are assumed to "…capture the motivational factors that influence a behaviour, they are indicators of how hard people are willing to try, of how much effort they are planning to exert, in order to perform the behaviour" (Ajzen, 1991, p. 181). One's behavioural intention is accepted as a salient variable determining how they behave.

Behavioural intention (used interchangeably with the term "intention" herein) is formed by a number of beliefs representing the perceptions that people have about a behaviour including its likely consequences, the normative expectations of others, and the likely barriers of performing a particular behaviour (Ajzen, 1991; Ajzen, 2005; Fishbein & Cappella, 2006; Kautonen, Van Gelderen, & Tornikoski, 2013). The author of the theory, Icek Ajzen posits that behaviour is influenced by a range of other factors (e.g., social, cultural, and personality factors), but argues that the effects of such distal factors are largely mediated by the proximal factors specified by the TPB model (Ajzen, 2005). Compared to the distal factors, the proximal factors are more amenable to change (Ajzen, 1991). Eliciting the proximal determinates of behaviour has the potential to explain and predict typically salient beliefs of a population that may ultimately be used to change future behaviours (Ajzen, 2005). If one can identify the salient beliefs forming students' intentions and/or behaviours, it serves to reason that the application of the TPB model may be of considerable value to policy makers, researchers and other stakeholders. Before further discussion of this idea however, it may be useful to examine the research that the TPB is built upon in order to get a better sense of this association between intention and behaviour.

Research examining the link between intention and behaviour has its origins in Expectancy-Value Theory (EVT) (Porter & Lawler, 1968). The EVT model has primarily been used to examine the beliefs of why individuals chose a particular behaviour over another. The strength of these beliefs was typically impacted by

self-efficacy, an individual's past experience, and the perceived difficulty of the goal (Porter & Lawler, 1968). In the mid-1970s, Fishbein and Ajzen (1975) used the ideas of the EVT to create a model that explained human behaviour called the Theory of Reasoned Action (TRA). The TRA hypothesized that behaviour is predicted by an individual's intention to perform a particular behaviour. Intention, in turn, was hypothesised to be formed by two factors, the individual's attitude towards the outcome of the behaviour and by the social norms of significant others, which Fishbein and Ajzen (1975) called subjective norm. In the mid 80's Ajzen proposed a revised model of the TRA, adding the concept of perceived behavioural control, which originates from Bandura's (1977) research concerning self-efficacy. The revised model was called the Theory of Planned Behaviour (TPB) (Ajzen, 1991).

The TPB (Figure 1) has been used as a framework in studies examining intention and entrepreneurial behaviour (Kautonen, Van Gelderen, & Tornikoski, 2013), environmental conservation intent (Wauters, Bielders, Poesen, Govers, & Mathijs, 2010), safe sex practices (Fisher, Fisher, Bryan, & Misovich, 2002; Sutton, McVey, & Glanz, 1999), exercise behaviours (Ickes & Sharma, 2011), sleeping patterns and intentions (Knowlden, Sharma, & Bernard, 2012), dangerous driving behaviours (Elliott, Armitage, & Baughan, 2003) and drug use (Hu & Lanese, 1998; Norman, Conner, & Bell, 1999). Researchers have used the TPB in a number of ways to predict and explore reasons for different human behaviour.

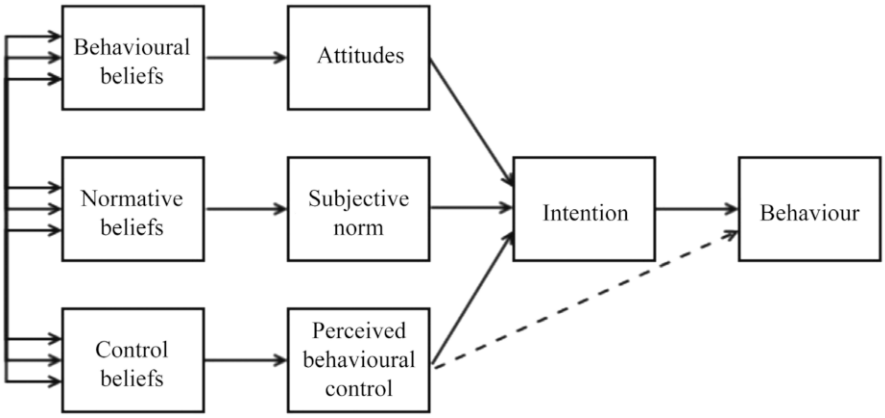

Figure 1. Theory of planned behaviour (Ajzen, 1991)

Use of the TPB in Education Research

The TPB has been used in a number of ways within the domain of education research. It was used during the 1990's to explain and predict teachers' behaviour and intentions including, for instance, studies examining teaching methods (Crawley, 1990), and the intention to teach environmental issues (Zint, 2002). These studies

reported that the TPB was an effective model for eliciting salient teacher beliefs in relation to their intentions about a range of issues (Crawley, 1990; Zint, 2002). More recent examples of its use include studies that investigated the intentions of primary pre-service teachers to teach science. The TPB highlighted the linkage between the intentions of the pre-service teachers to teach science, and their awareness of and experiences of science during their education studies (Cooper, Kenny, & Fraser, 2012). Cooper (2011) found that the TPB was effective in eliciting beliefs, seeking motivations, and exploring participants' underpinning attitudes, subjective norms and belief of control in relation to behaviour within an educational context. Other noteworthy research includes the use of the TPB to examine teachers' intentions regarding the use of educational technology (Lee, Cerreto, & Lee, 2010) and adoption of new technology (Sugar, Crawley, & Fine, 2004).

Beyond the use of the TPB to explore pre-service and in-service teachers' intentions and behaviours, other researchers have used this model to explain students' intentions and/or behaviours in education. For example, Freeney and O'Connell (2012) elicited a sample of >1300 Irish high school students on their intention to leave school early. Elements of the TPB towards school completion, students' academic attainment, ability to defer gratification, along with SES measures were collected. Analysis indicated that attitude, in addition to parents' and teachers' subjective norm, were crucial to students' intention to remain in school (Freeney & O'Connell, 2012). Other studies have used the TPB in a similar fashion. For instance, Taylor (2014) conducted a study of over 550 students using the TPB to understand students' subject choices in senior high school. Taylor found that the TPB measures were able to explain 68% of the variance in intentions to study Media Studies and 66% of the variance in intentions to study Physics. Taylor stated that the efficacy of the TPB factors was likely to be because of the high stakes nature of the consequences involved in making a poor decision about subject choice and thus, the behaviour may be highly planned. The stakes are perhaps even higher when students form the intention to attend university. The resulting consequences of a poor decision may result in substantial loss of money, time and effort. Consistent with Taylor's earlier comments, the highly planned nature of forming an intention to study at university is a serious decision and it's precisely because of the high stakes nature of this behaviour that the TPB factors may be particularly effective in understanding students' intentions to study at university. The former are examples of studies using the TPB to explore students' participation in school-related behaviours and informs part of the rationale for using these predictors in future research.

Criticisms of the TPB

Despite extensive use of the TPB, the model has at times been criticised for ignoring emotional determinants of behaviour (Gibbons, Gerrard, Blanton, & Russell, 1998; Pligt & De Vries, 1998). "Beliefs are largely cognitive in nature, and are developed

over a relatively long period of time. Emotions, on the other hand, may involve little cognitive appraisal and may appear and disappear rather quickly" (McLeod, 1992, p. 579). Compared to affective processing models, the TPB discounts emotional variables such as anxiety, fear and mood as proximal determinants on behaviour (Armitage & Conner, 1998). Ajzen (2005) responded to such criticism by stating emotions are considered background variables in the TPB, and emotions would be expected to influence intentions and behaviour through their impact on attitudes and perceived control of behaviour.

Others have critiqued the TPB because they claim that it is underpinned by an assumption of too much rationality in people's behaviour (Sniehotta, 2009). In reply, Ajzen (2011) stated that:

> … there is no assumption in the theory that people carefully and systematically review all their beliefs each time they are about to perform a particular behaviour. On the contrary, the theory recognises that most behaviour in everyday life is performed without much cognitive effort. (p. 66)

Readers with a more nuanced understanding of the TPB will understand that the model does not imply that individuals always deliberate carefully and always make optimal decisions. Individuals may make rapid decisions based on a few salient considerations. Having made a decision, people do not necessarily weigh up the pros and cons again unless circumstances change; they may simply retrieve their previously formed intention from long-term memory and act on it (Ajzen, 2005). It could therefore be argued that the TPB model implies a more limited rationality than is sometimes suggested by critiques of the model (Francis et al., 2004).

Direct and Indirect Measurements

The TPB comprises of both direct and indirect measures (Ajzen, 1991). The direct measures are attitudes, subjective norms and perceived behavioural control. The indirect measures are the behavioural beliefs summed by the individual's evaluation of that consequence, normative beliefs summed by their motivation to comply with the referent, and control beliefs summed by the strength of the particular belief. Direct and indirect measurement approaches make different assumptions about an individual's underlying cognitive processes. For instance, direct measurement assumes that people can accurately report their beliefs that may actually consist of a range of positive and negative beliefs. Conversely, indirect measures are underpinned by a supposition that individuals cannot give a summary estimate of their beliefs about behaviour. However, it assumes that people can report the relative weightings of their beliefs. By measuring constructs by both methods, the variables may explain more variance of intention in this study and, as a result, increase the validity of this study (Francis et al., 2004). Measuring the indirect and direct measures of the TPB is likely to improve the validity of this study's results as recommended in previous research (Armitage & Christian, 2004; Sutton et al., 2003).

Attitudes and Behavioural Beliefs

Attitude is defined in the TPB model as the perceived positive or negative evaluation of the behaviour in question (Fishbein & Ajzen, 1975). For example, a person who strongly believes that a particular behaviour is likely to produce a favourable outcome is more likely to perform that behaviour. Likewise, if a person strongly believed that a particular behaviour would result in a negative outcome, that person would have negative attitudes towards that behaviour and therefore be less likely to perform the particular behaviour. To improve the reliability of the model, attitude, subjective norm and perceived behavioural control are measured directly and indirectly. Both direct and indirect measures of attitude can be described as:

$$A \approx \sum b_i \, e_i \tag{1}$$

According to the TPB, attitude (A) is assumed to be approximate (≈) to the indirect measure of attitude. First, the indirect measure of attitude consists of the expected consequences of performing the behaviour, (also described as behavioural beliefs) and second, the evaluation of consequences. Where b_i is the perceived probability that the behaviour will lead to a positive or negative consequence, e_i represents the individual's evaluation of that consequence. For example, a student might perceive that enrolling at university (the behaviour) will lead to a better job after graduation (consequence of behaviour) and the evaluation of this consequence is positive (evaluation of consequence). b_i and e_i are multiplied as shown in the algorithm above. For any particular behaviour, an individual is believed to draw on between four and 10 salient behavioural beliefs (Ajzen, 2005; Hughes, Weiler, & Curtis, 2012). Although an individual is likely to have more than four to 10 beliefs regarding a particular behaviour, it is reported that between six to 10 behavioural beliefs is the maximum number of behavioural beliefs an individual draws on before executing a particular behaviour (Ajzen, 2005). One's attitude, and the beliefs that underpin it, is salient in determining the behaviour, and therefore the intention, of an individual.

Subjective Norm and Normative Beliefs

The second construct underpinning intention is subjective norm. Subjective norm is determined by the person's beliefs about how important others think about the specific behaviour and whether important others would approve or disapprove of a given behaviour (Ajzen, 2005; Fishbein & Ajzen, 1975). There is a strong body of research that suggests behaviours are shaped strongly by the social context in which one lives (Ajzen, 2005; Fishbein & Cappella, 2006; Gale, Parker, Rodd, Stratton, Sealey, & Moore, 2013; Norman, Conner, & Bell, 1999). According to the TPB, subjective norm (SN) is assumed to be approximate to (≈) to its indirect measure.

The indirect measure is comprised of two elements. First, the individual's beliefs of how significant others like or dislike the individual performing this behaviour (also referred to as normative beliefs), and second, to what extent is the individual motivated to comply with significant others (motivation to comply). For example, a high school child may feel pressure from his parents do his homework every night after he gets home from school. While the child's perception of this pressure from his parents (normative beliefs) may be high, if he has little motivation to comply with the normative belief, he is not likely to do his homework after school. Research indicates that social influences vary according to the behaviour being examined (Ajzen, 2005). Depending on the behaviour in question, important others may include family, friends or spouse (Ajzen, 1991). In professional fields, important others may include job supervisors (Renzi & Klobas, 2008) or lecturers in a university environment concerning students (Cooper, Kenny, & Fraser, 2012). Taylor (2014) reported that the two main normative influences on students' subject choices in her study were parents and teachers. Similar observations were made in Freeney and O'Connell (2012). The indirect measure of subjective norm is described as:

$$SN \approx \sum n_i \, m_i \tag{2}$$

where n_i, is the belief that behavioural performance will be approved by a specific referent, and m_i reflects the motivation to comply with that referent. The two elements n_i and m_i are multiplied for every referent, and the sum of the products determines the indirect measure of subjective norm (normative beliefs). Normative beliefs can also be categorised into two different forms, including what important people think a person should do (injunctive norms) or what important people actually do (descriptive norms). In addition to a person's attitude and subjective norm, another salient influence is their perceived control in relation to the behaviour.

Perceived Behavioural Control and Control Beliefs

The third construct of the TPB is Perceived Behavioural Control (PBC). PBC is defined as the person's own perception of how easy or difficult it is to perform a particular behaviour (Ajzen, 2005). In other words, PBC measures an individuals' perception that they are sufficiently knowledgeable, skilful, disciplined, and able to perform a particular behaviour (Ajzen, 2005; Kraft, Rise, Sutton, & Roysamb, 2005). Ajzen (1991) stated that the framing of perceived behavioural control stemmed from the concept of self-efficacy. Likewise, Fishbein and Cappella (2006) stated that PBC and self-efficacy are the same concept. PBC is underpinned by control beliefs that represent the individual's perception of how different facilitating or inhibiting factors may appear when they perform the behaviour (Ajzen, 2005), multiplied by the perception of the strength of each facilitating/inhibiting factor. The indirect measure of PBC is described as:

$$PBC \approx \sum c_i \, s_i \tag{3}$$

where c_i is the perception of how many different facilitating or inhibiting factors (control beliefs) there may be, and s_i is the perceived strength of these factors. The addition of the PBC resulted in the formation of the TPB model which can be represented as:

$$I = A + SN + PBC \approx \sum b_i \, e_i + \sum n_i \, m_i + \sum c_i \, s_i \tag{4}$$

Methodology and Associated Methods in TPB Research

In the domain of methodology, traditionally, the two main perspectives have been positivist and interpretivist approaches (Creswell, 2008). The positivist approach places value on quantitative measurements, correlations, statistical logic and verification (O'Leary, 2012). The interpretivist approach places greater importance on the subjective experience of individuals and typically employs the use of qualitative methods such as interviews or focus groups (Creswell, 2008). Both positivist and interpretivist approaches have strengths and weaknesses and dichotomising these approaches limits the potential of researchers to build their methodological designs from their questions (Onwuegbuzie & Johnson, 2004). Accordingly, it is the author's view that a pragmatist paradigm is typically an effective methodological approach to use with the TPB. Pragmatists believe that research methods should be mixed in ways that offer the best opportunities for answering the research questions (Onwuegbuzie & Johnson, 2004; Tashakkori & Teddlie, 2010). Depending on the phase of research, different methodology and methods may be warranted.

Typically, qualitative methods are used during TPB studies to elicit the salient modal (behavioural, normative, control) beliefs in order to incorporate these into a survey instrument in the subsequent phase of research. There are, however, examples of it being used as the only method used in studies (Cooper, Kenny, & Fraser, 2012; Renzi & Klobas, 2008). Qualitative methods may be chosen for a number of reasons including, but not limited to, the available data, availability of only a small sample and/or the epistemological position of the researcher. Few published studies have used qualitative research methods with the TPB (Renzi & Klobas, 2008) and there are limited details about the process adopted by the researcher to obtain such results. Further advice on this process and its potential to elicit important beliefs underpinning intentions and behaviour are discussed in the Renzi and Klobas (2008) paper.

In the bulk of studies concerning the TPB, priority has been given to quantitative data and subsequent analysis. Epistemological and ontological paradigms underpinning the bulk of social cognitive research mean that the use of numbers may

be preferred and valued over the analysis of words. Regardless of whether a researcher is aware or not, they will make decisions about their study within a set of beliefs and assumptions about reality and/or how the world operates (Preston & Kuhn, 2008). Related to this issue is the considerable use of the TPB in medical and health sciences, disciplines that commonly value quantitative over qualitative research. Examples of use in these fields includes using the TPB to predict and/or explain safe sex practices (Fisher, Fisher, Bryan, & Misovich, 2002; Sutton, McVey, & Glanz 1999), exercise behaviours (Ickes & Sharma, 2011), and sleeping patterns and intentions (Knowlden, Sharma, & Bernard, 2012). Researchers in education and other fields often conduct mixed methods research, thoughtfully and carefully combining quantitative and qualitative methods to answer questions.

Although there are no hard and fast rules about these matters, and researchers need to think carefully about the specifics of their research, methodology and methods should be chosen that most effectively answer the research question being asked. In relation to a TPB study, it may be that the elicitation of modal salient beliefs, which will be discussed soon, is most effectively gathered using interviews and qualitative data analysis. Following the input of beliefs into a survey, it may be appropriate to test the internal consistency of this survey during piloting and then administration of the final instrument. Regardless of the method chosen, it is important to, at the very least, be aware of issues and procedures that may increase the validity of your TPB research. A brief explanation of important issues to be aware of when using the TPB is discussed below.

Define Population of Interest

It is important to define a specific population of interest when using the TPB. By defining a specific population of interest (e.g., Year 12 students in the state of New South Wales), it allows researchers to think about how best to select a representative sample from this population. This may be impacted by the method selected by the researcher.

Define the Behaviour Carefully

Defining behaviour of interest carefully with consistency across constructs is a crucial element of research validity when using the TPB (Ajzen, 1991). Failure to define the behaviour of interest carefully and with consistency across elements is likely to substantially impact, or void, the validity of the results (Ajzen, 2005). The behaviour of interest is defined in terms of its Target, Action, Context, and Time (TACT) elements. Take, for example, a study investigating students' intention to enrol in a degree course within the next three years, shown in Table 1:

Table 1. Target, Action, Context, and Time (TACT) elements

TACT element	*Description*
Action:	Enrolling in a university degree course
Context:	University institution
Timeframe:	Next three years (chosen as the timeframe because students may delay university enrolment until some point after year 12

Eliciting the Salient Modal Beliefs

Borrowing heavily from Francis et al.'s (2004) design guidelines of eliciting modal beliefs, the following may be helpful for eliciting the modal salient beliefs from your sample. As before, the behaviour of interest was students' intention to enrol in a degree course:

Indirect measure of attitudes (behavioural beliefs). The participant's behavioural beliefs are elicited by asking them the perceived advantages and disadvantages of performing the behaviour, for example:

- What do you think might be some advantages to study for a degree at university within the next three years?
- What do you think might be some disadvantages to study for a degree at university within the next three years?
- Is there anything else you associate with study for a degree at university within the next three years?

Indirect measure of subjective norms (normative beliefs). Normative beliefs are elicited by asking:

- Are there any individuals or groups who would approve of you studying for a degree at university within the next three years?
- Are there any individuals or groups who would disapprove of you studying for a degree at university within the next three years?
- Is there anything else you associate with studying for a degree at university within the next three years?

Indirect measure of PBC (control beliefs). Control beliefs are elicited by asking:

- What factors or circumstances enable you to study for a degree at university within the next 3 years?
- What factors or circumstances make it difficult or impossible to study for a degree at university within the next 3 years?
- Are there any other issues that come to mind when you think about studying for a degree at university within the next 3 years?

Once the salient modal beliefs have been elicited, researchers commonly identify the salient beliefs in each belief category ready to start the task of creating a TPB survey instrument. A brief description of the process involved in making a TPB survey instrument follows.

Survey Instructions

It may be a good idea to write a short introduction for your TPB survey. Use simple, clear language to briefly explain the topic and purpose of the survey. Write an introduction with the assumption that respondents don't know much, if anything, about the topic of your survey. In relation to a TPB survey, it is particularly important that you define the behaviour of interest carefully, as explained previously, and any considerations you would like participants to think about when they are answering the survey instrument. For example:

> Thank you for participating in this study. If you are taking a gap year or a break from study, this should not affect how you answer these questions. Please answer what you intend to do within the next 3 years.
>
> A genuine intent to study at university is indicated by enrolling in a degree course. When questions in this survey ask you about studying at university, *I want you to think about your intention to enrol in a university degree course in the next 3 years.* It is important to point out that there are no right or wrong answers; I'm interested in your beliefs about your future pathway.

From the instructions above, the reader may notice that the survey instrument has a clear definition of the behaviour of interest (in italics). Moreover, the behavioural timeframe of interest (next 3 years) is stated clearly at the beginning of the survey so that the length of the questions in the survey are minimised.

Incorporating Intention into Survey Instrument

As discussed, intention is formed by a number of beliefs representing the perceptions that people have about a behaviour including its likely consequences, the normative expectations of others, and the likely barriers of performing a particular behaviour (Ajzen, 1991; Ajzen, 2005; Fishbein & Cappella, 2006; Kautonen, Van Gelderen, & Tornikoski, 2013). Table 2 shows question starters, highlighted in bold, that may be used to structure the intention component of their TPB survey instrument. It is also strongly recommended that you refer to Ajzen (2005) and/or Francis et al. (2004) as these two papers expand on this brief discussion. Another important point to make is that, for reader ease, the tables in this chapter show questions that have strongly disagree/agree in the same columns. Depending on your research and participants, it may be necessary to switch these end points randomly to make it less likely that your sample will mindlessly answer the survey.

Table 2. Intention questions

I expect to study a degree at university	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
I want to study a degree at university	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
I intend to study a degree at university	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
I plan to study a degree at university	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
Studying a degree at university *is something I will try and do*	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

Incorporating Attitudes into Survey Instrument

As discussed, attitude is defined in the TPB model as the perceived positive or negative evaluation of the behaviour. According to Ajzen (2005), attitude can be categorised into two different types. Experiential items (how it feels to perform the behaviour, e.g., studying a degree at university will be: Unpleasant/Pleasant) and instrumental items (whether the behaviour achieves something, e.g., I believe studying a degree at university will be: Useless/Worthwhile) are advised to be used by Ajzen (2005). Examples of questions to elicit direct measures of attitude are shown in Table 3. Again, it is also strongly recommended that you refer to Ajzen (2005) and/or Francis et al. (2004) as they expand on this explanation.

Table 3. Direct measures of attitude

I believe studying a degree at university will be:	Bad for me	1	2	3	4	5	6	7	Good for me
I believe studying a degree at university will be:	Useless	1	2	3	4	5	6	7	Worthwhile
Studying a degree at university will be:	Unpleasant	1	2	3	4	5	6	7	Pleasant
I believe studying a degree at university will be:	Unenjoyable	1	2	3	4	5	6	7	Enjoyable

Incorporating Behavioural Beliefs into Survey Instrument

Once the behavioural beliefs have been elicited in interviews as discussed above, it is now time to incorporate these beliefs into a survey instrument. Below, one can

see three behavioural beliefs associated with the intention of studying a university degree. As shown in Table 4, the instrument is trying to elicit the participants' perceived probability that the behaviour (attending university) will lead to the consequences (finding it easier to get a job they think they will enjoy, learn something they are interested in, graduate premium).

Table 4. Behavioural beliefs

If I study a degree at university, I will find it easier to get a job I like	Very unlikely	1	2	3	4	5	6	7	Very Likely
If I study a degree at university, I will get the opportunity to learn things I am interested in	Very unlikely	1	2	3	4	5	6	7	Very Likely
If I study a degree at university, I will have more money in the future	Very unlikely	1	2	3	4	5	6	7	Very Likely

Following elicitation of the perceived probability that the behaviour will lead to the noted consequence, Table 5 represents the individual's evaluation of that consequence.

Table 5. Outcome evaluations

Finding a job I like is:	Extremely undesirable	−3	−2	−1	0	1	2	3	Extremely desirable
Learning things I am interested in is:	Extremely undesirable	−3	−2	−1	0	1	2	3	Extremely desirable
Having money is:	Extremely undesirable	−3	−2	−1	0	1	2	3	Extremely desirable

Following the relevant component of the algorithm stated earlier ($\sum b_i e_i$), question b_i= (If I study a degree at university, I will find it easier to get a job I like) will be multiplied by e_i (Finding a job I like is). This process is followed for all behavioural beliefs (b_i) and outcome evaluations (e_i). Following the multiplication of all behavioural beliefs by outcome evaluations, scores are added together to get one score. If this score is positive, the participant has an overall positive attitude towards attending university. Conversely, if the score is negative, the participant has an overall negative attitude towards attending university.

Incorporating Subjective Norm into Survey Instrument

As discussed, subjective norm is determined by the person's beliefs about how important others think about the specific behaviour and whether important others

would approve or disapprove of a given behaviour. As shown in Table 6, one can see how the questions are listed without specific referents in order for the participant to evaluate their general perception of social pressure to behave in a particular way.

Table 6. Direct measures of subjective norm

Most people who are important to me think that I:	Should not study a degree course at university	1	2	3	4	5	6	7	Should study a degree course at university
It is expected of me to study a degree course at university	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
People who are important to me want me to study a degree course at university	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

Incorporating Normative Beliefs into Survey Instrument

Like behavioural beliefs, incorporating normative beliefs into the survey instrument follows a similar procedure. As shown in Table 7, the survey instrument should be designed to elicit the participants' belief that behavioural performance (attending university) will be approved by a specific referent.

Table 7. Normative beliefs

My parents/ guardians generally think I:	Should not study a degree course at university	−3	−2	−1	0	1	2	3	Should study a degree course at university
My teachers generally think I:	Should not study a degree course at university	−3	−2	−1	0	1	2	3	Should study a degree course at university
My friends generally would:	Disapprove of me studying a degree at university	−3	−2	−1	0	1	2	3	Approve of me studying a degree at university

Table 8 shows questions that seek to identify the participants' motivation to comply with the specific referent.

Following the relevant component of the algorithm stated earlier ($\sum n_i m_i$), question n_i = (My parents/guardians generally think I: Should/should not study

Table 8. Motivation to comply with referent

My parent's/guardian's approval is important to me:	Not at all	1	2	3	4	5	6	7	Very much
What teachers think I should do matters to me	Not at all	1	2	3	4	5	6	7	Very much
What friends think I should do matters to me	Not at all	1	2	3	4	5	6	7	Very much

a degree course at university) will be multiplied by m_i (My parent's/guardian's approval is important to me). This process is followed for all normative beliefs (n_i) and motivation to comply with referents (m_i). Following the multiplication of all normative beliefs by motivation to comply questions, scores are added together. If the score is positive, the participant has overall social pressure to attend university. Conversely, if the score is negative, the participant has overall social pressure not to attend university.

Incorporating PBC into Survey Instrument

PBC is an individuals' perception that they are sufficiently knowledgeable, skilful, disciplined, and able to perform a particular behaviour (Ajzen, 2005; Kraft, Rise, Sutton, & Roysamb, 2005). As discussed, it has been stated that PBC and self-efficacy are essentially the same construct. Theoretically, PBC is not only is a predictor of behaviour meditated via intention, but also a direct predictor of behaviour and hence, has the potential to inhibit or control behaviour performance in a relatively salient way. Table 9 shows example questions for how to structure the questions eliciting the direct measures of PBC in the survey instrument. From

Table 9. Direct measures of PBC

I am confident that I could study a degree course at university if I wanted to	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
If I wanted to, I feel in complete control of whether to study for a degree at university	Completely false	1	2	3	4	5	6	7	Completely true
Whether I decide to study for a degree at university is entirely is up to me	Completely false	1	2	3	4	5	6	7	Completely true

the questions, one can hopefully get an indication of the perceived control that the participant thinks they have over the future behaviour. As before, it is also strongly recommended that you refer to Ajzen (2005) and/or Francis et al. (2004) as they expand on this explanation.

Incorporating Control Beliefs into Survey Instrument

Lastly, it is necessary to incorporate control beliefs into the survey instrument. Again, this process is similar to incorporating behavioural and normative beliefs into the survey instrument. As shown in Table 10, the survey instrument should be designed to elicit the facilitating or inhibiting factors and the perceived strength of these factors (Table 11):

Table 10. Control beliefs

Having access to enough money (e.g., savings/parent's help) is important in order to study a degree at university	Very unlikely	1	2	3	4	5	6	7	Very Likely
My confidence in successfully passing university in the future is important in order to study a degree	Very unlikely	1	2	3	4	5	6	7	Very Likely
Getting the final high school results needed for university entry is important in order to study a degree	Very unlikely	1	2	3	4	5	6	7	Very Likely

Table 11. Control belief strength

My access to money (e.g., savings/parent's help) means that I am:	Less likely to study a degree at university	−3	−2	−1	0	1	2	3	More likely to study a degree at university
My confidence in successfully passing university in the future means I am:	Less likely to study a degree	−3	−2	−1	0	1	2	3	More likely to study a degree
The final high school results I expect to receive overall mean I am:	Less likely to study a degree at university	−3	−2	−1	0	1	2	3	More likely to study a degree at university

Following the relevant component of the algorithm ($\sum c_i s_i$), question c_i = (Having access to enough money, e.g., savings/parent's help, is important in order to study a

degree at university) is multiplied by s_i (My access to money, e.g., savings/parents' help, means that I am Less/More likely to study a degree). This process is followed for all facilitating or inhibiting factors (c_i) and the perceived strength of these factors (s_i). Following this, scores are added together to get one number. If this number is positive, the participant overall feels in control of attending university. Conversely, if the score is negative, the participant does not feel in control of attending university.

Internal Consistency

Following the construction of questions, it is recommended to firstly pilot the survey instrument for internal consistency. Internal consistency is a form of construct reliability associated with how similar or different items are answered (Hair, Black, Babin, & Anderson, 2014). Minimum thresholds for direct TPB items, $\alpha = \geq.7$ and corrected item-total correlation of $\geq.3$, align with Ajzen's (2005) and Francis et al.'s (2004) recommendations. Important in the context of a TPB study, people can quite logically hold both positive and negative beliefs about the same behaviour and hence it is not appropriate to assess the internal consistency of indirect measures (e.g., behavioural/normative/control) (Francis et al., 2004). For example, someone may believe that studying at university will result in a higher chance of getting a satisfying job and therefore report a positive behavioural belief (e.g., perceived advantages to performing the behaviour) about performing the behaviour. At the same time, this individual may believe that studying at university will accrue a large study debt and therefore report a negative behavioural belief (e.g., perceived disadvantages to performing the behaviour).

> It is generally agreed that expectancy–value models aim to represent the cognitive processes by which expected benefits, advantages or positive evaluations are weighed against expected costs, disadvantages or negative evaluations. That is, attitudes or other constructs involving evaluations are composed of positive and negative components, with negatives subtracted from positives to give an overall evaluation. In other words, such constructs as attitudes are not necessarily internally consistent. (Francis et al., 2004, p. 68)

To test the internal consistency of indirect beliefs, Francis et al. (2004) suggested a test-retest procedure.

Data Analysis

Multiple regression procedures have been favoured in studies underpinned by the TPB framework (Francis et al., 2004). In particular, hierarchal linear regression analysis has commonly been used (Ajzen, 2005). More recently, researchers have started to use more sophisticated analysis in TPB research such as Structural Equation Modelling (SEM) (Mayhew, Hubbard, Finelli, Harding, & Carpenter, 2009; Topa & Leon, 2010). SEM is a collection of statistical models that seeks to clarify and

explain relationships among multiple latent variables. SEM allows researchers to examine both the measurement and structural components of a model by testing the relationships among multiple independent and dependent constructs simultaneously (Tabachnick & Fidell, 2007). In the context of TPB research, constructs of the TPB are theorised to have causal links (e.g., attitudes → intention) and SEM analysis allows researchers to examine if, and by how much, the TPB independent variables (attitude, subjective norm) predict the TPB dependent variables (Intention/Behaviour). While there are numerous examples and descriptions of how to use multiple regression procedures with the TPB (e.g., Ajzen, 2005; Francis et al., 2004), there is much less literature concerning the use of the TPB with SEM analysis. Specifically, in relation to educational research, the author is unaware of any resources which attempt to explain how to analyse a TPB-aligned study using SEM. In order to complement and build on existing literature, this rest of this chapter particularly focuses on how one may design and conduct a TPB-aligned study using SEM analysis.

SEM Analysis

Anderson and Gerbing (1988) proposed a two-step model-building approach for SEM that emphasized the analysis of two conceptually distinct models: a measurement model followed by the structural model. This section specifically focuses on the measurement model. The measurement model, or factor model, specifies the relationships among measured (observed) variables underlying the latent constructs. In order to specify the relationships among observed variables, this stage examines the unidimensionality, validity and reliability of latent constructs using Confirmatory Factor Analysis (CFA). For instance, (1) initially factor loadings may be modified as per the process described below; (2) validity and reliability is measured; and (3) goodness of fit (GOF) indices are used as recommended by Hair et al. (2014). Items and/or constructs that do not meet the following minimum thresholds for factor loadings, validity and reliability meet the criteria for change via the modification indices and/or deletion. Procedures and conventions related to factor loadings, validity and reliability, and GOF indices are discussed below.

Standardised Factor Loadings

Factor loadings are the means of interpreting the role of each item in defining a factor (Hair et al., 2014). "Although factor loadings of ±.30 to ±.40 are minimally acceptable, values greater than ±.50 are generally considered necessary for practical significance" (Hair et al., 2014, p. 116).

Validity and Reliability

Validity and reliability are measured in this SEM component of this study using convergent validity, discriminant validity, and composite reliability. Validity

and reliability in this context is defined as the extent to which a construct and its corresponding measurement indicators are related, and the extent to which these set of items actually reflect the construct they were designed to measure (Hair et al., 2014). Specific tests used include:

- Composite Reliability;
- Convergent Validity; and,
- Discriminant Validity.

Composite reliability (CR) is a measure of the overall reliability of a collection of items forming the latent variable (Fornell & Larker, 1981). According to Hair et al. (2014), the CR should be >.7.

Convergent validity is the measure of how much an observed variable shares variance in common with different observed variables on a different latent variable (Hair et al., 2014). Convergent validity in indicated by calculating the CR score and the Average Variance Extracted (AVE). The AVE measures the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error (Hu & Bentler, 1999). As discussed in Hair et al. (2014), AVE estimation should be greater than ≥.5, and CR estimates ≥.7 to show adequate convergent validity. Hair et al.'s recommendations were adhered to in the present study.

Discriminant validity assumes that items claimed to measure the same construct correlate higher among them compared to items from different constructs that are theoretically supposed not to correlate (Hair et al., 2014). To test the discriminant validity of the model, the Maximum Shared Variance (MSV) should be less than the AVE (MSV<AVE), the Average Shared Variance (ASV) should be less than the AVE (ASV<AVE), and the square root of the AVE for each construct is less than one absolute value of the correlations with another factor (Hair et al., 2014).

Goodness of Fit Measures

GOF indices, as shown in Table 12, indicate the degree to which the sample variance covariance data fit the structural equation model (Hair et al., 2014). There are three different kinds of GOF measures used in the present study including absolute fit indices (χ^2, χ^2/df, RMSEA, AGFI), incremental fit indices (SRMR, CFI, TLI) and parsimony measures (PGFI, PNFI). Absolute measure of fit presumes that the best fitting model has a fit of zero and the associated GOFs (χ^2, χ^2/df, RMSEA, AGFI) determine how far the model is from perfect fit (Kenny, 2016). Basically, absolute fit indices determine how well an a-priori model fits the sample data (McDonald & Ho, 2002). Incremental fit indices are a group of indices that do not use the chi-square in its raw form but compare the chi-square value to a baseline model (Hair et al., 2014). For these models the null hypothesis is that all variables are uncorrelated (McDonald & Ho, 2002). Parsimony indices refer to the number of estimated parameters required to achieve a specific level of model fit. Essentially, an over-identified model is

Table 12. Goodness of fit measures

GOF measure	*Abbreviation*	*Acceptable thresholds*
		(>250) (Hair et al., 2014)
Absolute fit indices		
Chi-square	χ^2	(p>0.05)
Chi-square/df	χ^2 /df	≤0–3
Root Mean Square Error of Approximation	RMSEA	≤.08
Adjusted Goodness-of-Fit Index	AGFI	≥.80
Incremental fit indices		
Standardized Root Mean Square Residual	SRMR	≤.09
Comparative Fit Index	CFI	≥.95
NNFI	TLI	≥.95
Parsimony Goodness-of-Fit Index	PGFI	^
Parsimony Normed Fit Index	PNFI	^

^ = *No specific recommendations: Score ranges between: 0=poor fit-1=very good fit (Mulaik et al., 1989)*

compared with a restricted model. Collectively, the GOF measures will summarise the discrepancy between observed values and values expected. GOF measures are typically reported for the measurement and structural SEM models.

Modification Indices

For all constrained parameters in the model, AMOS calculates a modification index. Modification indices offer suggested remedies to discrepancies between the proposed and estimated model. Modification indices indicate how much the chi-square value of a model would drop if the parameter were free instead of constrained. Examination of the modification indices typically suggests that the fit of the model can be improved by allowing the error terms to be correlated. Following conventions by Kenny (2016), error terms are only considered eligible for co-variance if they were on the same factor.

Converting the Measurement Model into a Structural Model (Path Analysis)

Assuming the results met the expected minimum thresholds of the measurement model discussed above, one can convert their measurement model in a structural model. The structural model is used to measure how much of the total variation of the dependent variable (intentions and/or behaviour), is explained by independent

variables (attitude, subjective norm, PBC) within the model. This explained variance is indicated by the coefficient of determination (R^2). GOF indices are once again measured using the same thresholds discussed earlier. Hypothesised relationships between the latent constructs in the models are measured using critical ratios (t value). Estimates of $t \geq 1.96$ suggest significance ($p<.05$) of the causal path between latent constructs. Standardised Regression Weights (β) are used to indicate magnitude of the hypothesised causal connections between variables in both models.

CONCLUSION

This chapter has discussed how the TPB may be used in education research as a framework to further understandings of why teachers, students or others behave the way they do. This chapter compliments existing resources such as Ajzen (2005) and Francis et al. (2004) by discussing the context of TPB specifically in relation to education research. The structure of the TPB was discussed, along with reported strengths and criticisms of this model. Following this discussion, important considerations including defining populations and behaviours of interest were examined. Subsequently, example questions and procedures were discussed in relation to eliciting salient model beliefs. Survey considerations and example questions were also discussed, along with a procedure of how questions may be constructed using question starters recommended by Ajzen (2005). Considerations regarding the piloting of TPB surveys were also discussed with a particular emphasis on considerations related to measuring internal consistency of the survey instrument. In order to complement and build on existing literature, this chapter particularly focused on how one may design and conduct a TPB-aligned study using SEM analysis. Use of the TPB may be an effective theoretical framework to promote stakeholder's understandings of salient variables related to explaining, predicating and changing intentions and behaviours of educator stakeholders and students.

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SECTION 3

INCLUSION AND SOCIAL CONTEXT

RACHEL PATRICK AND NIKKI MOODIE

10. INDIGENOUS EDUCATION POLICY DISCOURSES IN AUSTRALIA

Rethinking the "Problem"

ABSTRACT

Despite small improvements in Year 12 attainment for Aboriginal and Torres Strait Islander students over the past 10 years, convergence with non-Indigenous achievement remains slow and narratives of deficiency continue to dominate public discourse and policy in this area. This chapter examines recommendations and goals across three policy periods, identifying prevailing and shifting discourses and their effects on achieving intended aims. Our analysis illustrates that little has changed in the discourses and the effects of Commonwealth policy in this area over the past 50 years. That is, while numerous attempts have been made in policy and practice to address participation and attainment levels, the effects of these initiatives have been limited in terms of outcomes. We argue that going forward into the 21st century, a major rethink of the representation of the "problem" is required. This historical analysis enables us to identify how policy might be enacted in the future, and to provide suggestions for how to move forward productively in order to enhance the learning and lives of indigenous people.

Keywords: education policy analysis; policy discourse; indigenous education; Aboriginal and Torres Strait Islander

INTRODUCTION

Indigenous education is a highly contested space in Australia and globally. In colonised nations such as Australia, New Zealand, Canada and the USA, the rights of First Nations peoples have been a site of activism and policy reform since settlement, with a focus on addressing inequities for education, health and welfare of each nation's indigenous population. In recent years, it has become increasingly one of the most pressing equity concerns. This chapter examines Australian education policy in this area as a way of:

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 165–184.

- explicating the embedded narratives or discursive moves in policy in Australia; and
- offering potential ways to think about policy and what is needed in order to change its effects in practice.

While the focus in this chapter is on Australia and the local specificities of this site, the debates and issues for indigenous education raised here have broader application for other colonised countries. In addition, the analysis and approach we provide here offers possibilities for similar studies within and across such nations.

Indigenous education[1] has been a policy priority for the Commonwealth of Australia since the 1940s. Prior to this, it was largely the responsibility of colonies, states and territories. In the past 50 years, policy moves have focused on strategies to address the persistently lower educational achievement of Aboriginal and Torres Strait Islander learners compared to their non-Indigenous counterparts. Although there have been small improvements in Year 12 attainment, convergence between Indigenous and non-Indigenous students remains slow, and narratives of failure dominate public discourse and policymaking in this area (Altman, Biddle, & Hunter, 2009).

This article examines three key policy periods since 1967 leading up to the current moment. We identify the shifting discourses in policy for Indigenous education in Australia, and examine the extent to which successive recommendations and goals from reviews and schooling policy have achieved the intended aims.

Following a brief background to policy since 1967, recommendations, actions and principles of three reviews of Indigenous education (Hughes, 1988; National Aboriginal Consultative Group [NACG], 1975; Yunupingu, 1995) are analysed to identify aims and underpinning discourses in Indigenous education from 1975–1995.

This is followed by an examination of three overarching Commonwealth policy statements (Ministerial Council on Education Employment Training and Youth Affairs, 1989, 1999, 2008) on the education of young Australians in relation to their respective goals for Indigenous education. These Council of Australian Governments (COAG) Declarations set the goals for schooling, each driving Federal and State policy from 1995 until the 2010s.

A brief analysis is then provided of the goals, discourses and foci of two policies central to the implementation of Declaration goals for Aboriginal and Torres Strait Islander education in Australian schools—the Professional Standards for Teachers (Australian Institute for Teaching and School Leadership, 2016) implemented in 2011, and the Australian Curriculum (Australian Curriculum Assessment and Reporting Authority, 2016) implemented in stages since 2012. The standards and the curriculum articulate the role of schools and teachers in addressing education for and about Aboriginal and Torres Strait Islander peoples, histories, and cultures in Australia since 2008.

Our analysis illustrates how little education goals and strategies have changed over the past 50 years of Commonwealth policy in this area. We demonstrate

the persistent problematic nature of the ways in which Indigenous education and education for Aboriginal and Torres Strait Islanders are framed in policy. In the final section, we argue for the urgent need to think differently about what the "problems" are and how policy might be enacted in this area.

POLICY ERAS OF INDIGENOUS AFFAIRS IN AUSTRALIA

An examination of the three policy moments we outline here reveals that vestiges of well-recognised historical eras of policy in Indigenous affairs are reflected by educational policy for Aboriginal and Torres Strait Islanders. It is interesting to note and compare parallel policies in other colonised counties such as New Zealand and Canada. However, that is beyond the scope of this chapter. What is offered here is, however, useful for similar research in these nations and comparative studies across nations.

The *Review of Aboriginal Customary Laws* (Australian Law Reform Commission, 1986 (updated 2012)), identified four eras of policy that are recognised by researchers as representing the history of policy moves in Indigenous affairs in Australia. In addition, Sullivan (2011) argued that we are now in a fifth policy era, marked by the Northern Territory Emergency Response ("The Intervention") and the abolition of the Aboriginal and Torres Strait Islander Commission. The five eras are referred to as: "protection", "assimilation", "integration", "self-determination" and "normalisation".

Policies that are now viewed as "protection policies" came into place from 1837, including the appointment of "Aboriginal protectors" and policies aimed at protecting Aboriginal people from abuse and providing rations, blankets and medicine (Australian Law Reform Commission, 1986 (updated 2012)). Such policies were based on the assumption that Indigenous people were to be treated as British citizens and act within British laws. At this time, missions and reservations were set up to promote Christian ideals and train Aboriginal people as domestic workers and labourers. It was "much later in the century that more formal and extensive policies of protection were formulated, aimed at isolating and segregating "full-blood" Aborigines on reserves and at restricting contact (and interbreeding) between them and outsiders" (Australian Law Reform Commission, 1986 (updated 2012), p. 19). Rather than "protection", the Acts and policies in this era were characterised by extraordinary controls being placed on all aspects of Aboriginal people's lives.

Approximately a century later, policies began to take on different underpinning assumptions and are usually referred to as "assimilation policies" (Australian Law Reform Commission, 1986 (updated 2012)). The policy of removing Aboriginal children from their families (the "Stolen Generations") was the ultimate reflection of this policy era. Policies were based on beliefs that Aboriginal and Torres Strait Islanders should adopt White Australian social, cultural and economic practices, thus removing any trace of Indigeneity from the cultural, biographical, social and political landscape.

For a short period of time in the 1960s, integrationist policies were developed based on the principles of "recognition" and "rights". Integration policies challenged assimilationist assumptions and arrogance on the basis that they took no account of the value or resilience of Aboriginal peoples. Such policies "recognised the value of Aboriginal culture and the right of Aboriginals to retain their languages and customs and maintain their own distinctive communities" (Australian Law Reform Commission, 1986 (updated 2012), p. 20) within Australian society.

In 1968, the first Minister for Aboriginal Affairs was appointed. This followed immediately after the 1967 Referendum (*Constitution Alteration [Aboriginals]*, 1967) that brought about a constitutional alteration to include Aboriginal and Torres Strait Islander people in State and Commonwealth census counts. In 1972, a Federal Department of Aboriginal Affairs and a Royal Commission were also established to investigate land rights.

Policies in this era of "self-determination" recognised "the fundamental right of Aboriginals to retain their racial identity and traditional lifestyle or, where desired, to adopt wholly or partially a European lifestyle" (Viner, 24 November, 1978). This era was based on the understanding that Aboriginal and Torres Strait Islander people manage their own lives in culturally relevant ways. It aligns with other de-colonising work of the late 20th Century in countries such as Australia, Canada, South Africa, and New Zealand.

More recently, Sullivan (2011) has argued that we are now in a fifth policy era that he refers to as "normalisation". This phase effectively overturns self-determination and aims to recalibrate the relationship between Indigenous Australians, the market, and the state (Altman, 2010; Sullivan, 2011). This era of statistical equality and accountability to the state signifies a total and complete subsumption of Indigenous autonomy by neoliberal market forces (Altman & Fogarty, 2010), by redefining citizens as clients to be managed rather than citizens with rights. As Connell (2013) pointed out, the impact of neoliberalism on schooling has resulted in increased state control through measures such as a "system of tests and examinations [that measure] a set of skills and performances defined within the dominant Anglo upper-middle-class practices of living … [Thus] the school system's capacity for cultural and class diversity is quietly but powerfully constricted" (p. 107).

Current policies are referred to by the Government under the broad umbrella of "Closing the Gap" which is aimed at reducing Indigenous disadvantage. Policies within this framework are aimed at achieving convergence in education, health, housing, and employment levels of Indigenous and non-Indigenous Australians, which the Commonwealth will monitor through measurable targets. Sullivan (2011), however, argued that such policies should be termed "normalisation" policies because they "[encapsulate] the development dilemma for Aboriginal people" (p. 112). That is, while a positive possible outcome of such policy intervention would be that Aboriginal and Torres Strait Islander people could expect the same living conditions as those viewed as achievable by all Australians, a significant challenge is a possible loss of identity as a result of an expectation of social and

cultural conformity with the "mainstream". Thus, in the early part the 21st century, any vestiges of the Australian Government's commitment during the 1970s and 1980s to self-determination have been eroded by these neoliberal policy discourses, with the neoliberal shift to individual as opposed to collective responsibility.

This chapter will explore educational policy moves with reference to these eras, with a view to identifying alternative ways in which schooling policy might be envisaged.

ANALYTICAL APPROACH

Over the past decade, there have been a number of policy analyses focused on schooling for Indigenous Australians. Burridge, Whalan, and Vaughan's (2012) analysis, for example, provided a detailed history of schooling policy for Aboriginal and Torres Strait Islander children from the pre-Federation colony of New South Wales until the early 21st century. They provide a historical listing with commentary on the effects of the policies from settlement until the 1930s.

Beresford and Gray (2006) also examined models of policy development in Aboriginal education. They argued in support of a new governance model for "Indigenous education involving both horizontal and vertical policy-making structures" (Gray & Beresford, 2008, p. 197) to address the lack of progress in Indigenous educational achievement and the under acknowledgement of the complexity of multiple contributing factors. Vass (2014, 2015) also pointed to the failure of successive policies and reviews of the education of Aboriginal and Torres Strait Islander students to bring about greater improvements in achievement and experience and argued that this is due in part to the problematic deficit discourse of Aboriginal and Torres Strait Islander peoples embedded in these policies. Through a Critical Race Theory lens, he argues for reframing the "problem" as the racialised nature of Indigenous education and affairs in Australia, rather than "Indigenous education" as such.

In this article, we continue in this tradition of policy analysis by problematising the discourses embedded in policies, reviews, and strategies aimed at addressing inequitable educational outcomes. We take the position that policy is text, and as such analyse it in order to uncover discourses—overt and hidden—and their effects. Discourse is understood here in the poststructuralist tradition—rather than the linguistic tradition (Bacchi, 2005; MacLure, 2003). Thus, this chapter is an "analysis of discourse"—that is, an analysis of social and political narratives—rather than a "discourse analysis" or language analysis (Bacchi, 2005). We focus on analysing ways in which issues of Indigenous education are given particular meaning through policy, in particular in Australia in the 21st century. Our aim is to understand broader socio-cultural representations of the "policy problem"—what Gee (1999, p. 26) referred to as "Discourse with a capital 'D'". This understanding and our approach draws on Foucauldian understandings of discourse as a set of ways to think and represent a particular topic (Foucault, 2002).

Our approach is also informed by Blackmore and Lauder's (2011) case for viewing policy as text, and analysing the text to uncover discourses in political decisions, programmes, or outcomes. It is also influenced by Bacchi's (2009) Foucauldian approach in that we aim to uncover the "problems" represented in policy. Thus, we analyse policy discourses to understand what is said, what is not said, and what cannot be said; the particular social conditions under which discourses arise; and their effects.

Bacchi's (2009) "What's the problem represented to be?" approach is useful to guide such an analysis. It requires six interrelated steps, which she posed as questions (summarised below) to ask of a particular policy (or in our study, a set of policies):

- What's the problem represented to be?
- What presuppositions and assumptions underlie this representation of the "problem"?
- How has this representation come about?
- What is left unproblematic? What are the silences? Can the "problem" be thought about differently?
- What are the effects produced by this representation?
- How has this representation been produced, disseminated and defended? How could it be questioned, disrupted and replaced?

We apply these questions through an integrated discussion throughout the chapter, finishing with a discussion in the concluding section of the chapter about possible productive ways forward when writing and implementing policy in this area.

The purpose of our policy analysis, then, is to explicate the problematic, dominant, enduring representations of Aboriginal and Torres Strait Islander learners and education in policy over the past 50 plus years; identify the effects of these policy discourses; and present a case for a shift in thinking.

POLICY RECOMMENDATIONS: FROM THE 1967 REFERENDUM TILL 1995

Since the 1967 Referendum, the Commonwealth Government has increasingly taken leadership for policy and legislation related to Aboriginal and Torres Strait Islander education. In the 20 years between 1975 and 1995, there were three major reviews of Indigenous education, each reflecting their particular historical and political context (Schwab, 1995). The purpose of this section is to: summarise the key foci in Indigenous education policies at this time; identify the recommendations arising from the reviews; and discuss the impact of the policies.

The Education for Aborigines review (National Aboriginal Consultative Group (NACG), 1975) recommended an increase in the number of Aboriginal decision-makers and administrators in educational policy environments. There was also a focus on increasing participation of Indigenous Australians in education professions,

and addressing "educational needs" and "opportunities". This was common language in the field of education at this time, and the beginning of international moves to recognize indigenous people's rights and government responsibility. The "rights" framing in education, drawing on critical pedagogy, commonly focused on fixing the deficits in access and opportunity, shifting in the 1980s to a "self-determination" focus on autonomy and cultural recognition.

This was the start of the development of a national Indigenous education policy (Schwab, 1995) and represented a critical shift in policy focus from assimilation to integration (Australian Law Reform Commission, 1986 (updated 2012)).

Applying Bacchi's (2009) analytical approach, we can say that the "needs" and "opportunities" discourses that underpin the recommendations in this review represent the "problem" in deficit terms. Following Bacchi's six analytical steps, we present an analysis of policy that illustrates our argument that: the problem is represented as sitting with individual learners (Step 1). This presupposes (Step 2) a deficiency of achievement that has come about (Step 3) through lack of participation (at best). What remains unproblematic (Step 4) are the wider historical, social, and political conditions that have contributed to this underachievement. The effects of such a representation (Step 5) are that policy measures required educators to "fix" individual deficiencies situated with Indigenous people. The kind of policy discourse summarised here has been ineffective over decades in achieving its aims, because such discourses fail to problematise the particular social, historical, and political conditions in which the policy discourses are located (Bacchi, 2009)—that is, the differential economic, geographic, and social position of Indigenous people and systemic barriers to participation and success. A more productive rethinking or questioning of such representations of the problem (Step 6) therefore would consider the education system and Australian politics more broadly (rather than individuals). This will be discussed further later in the chapter.

The *Report of the Aboriginal Education Policy Task* (Hughes, 1988) made recommendations aimed at achieving "broad equity in Aboriginal participation and retention rates and educational outcomes by the year 2000" (p. 2). The Task Force recommendations focused largely on equity and community involvement, as well as moving towards involvement of the community, policy implementation, and strategies and resourcing for schools and tertiary institutions. With the implementation of policies specific to Aboriginal and Torres Strait Islander education, there were now the beginnings of a shift of focus to achieving equity of educational outcomes, in addition to equal education access and opportunity, and an associated commitment to resourcing these changes.

This approach also reflects moves of that time towards recognition of cultural diversity in the Australian population. While there is an increased focus on equity of outcomes and community involvement, the emphasis on multiculturalism signals an erosion of sovereignty by equating Indigenous and new migrant experiences. The policy discourses here continue to position the "problem" as one of "fixing"

deficiencies with little consideration of the effects of social context—in this case, on access and outcomes. We suggest that this era foreshadows the "closing the gap" policy agenda of the early 2000's.

The National Review of Education for Aboriginal and Torres Strait Islander Peoples (Yunupingu, 1995) is more specific in its recommendations than previous reviews, and draws on language of self-determination, outcomes, and evaluation. This aligns with contemporary political debates about sovereignty. These recommendations continued to promote Aboriginal involvement in policy development and decision-making, with specific reference to "self-determination" and a stronger emphasis on equity of both access and outcomes. From the late 1980s, we also start to see Indigenous education policy focus on accountability and reporting, alongside the increasing adoption of neo-liberal policies, deregulation, and privatisation in public policy.

The timing of this review occurred immediately before the change of government in Australia, from Paul Keating's Labor Government to John Howard's conservative Liberal-National Coalition Government. The Howard Government's approach to Indigenous affairs, characterised by the abolition of Aboriginal and Torres Strait Islanders Commission (ATSIC), the Native Title Amendment Act 1998, and later the Northern Territory Emergency Response ("The Intervention"), represented a dramatic reshaping of Indigenous affairs and the adoption of "crisis rhetoric" (Maddison, 2012) used to justify extraordinary interventions into the daily lives of Indigenous Australians. Against this reshaping of the relationship between Indigenous Australians and the state, the move to self-determination in education recommended by the Yunupingu Review did not proceed. Instead, it was arguably replaced with a return to protectionism and the heralding of Sullivan's (2011) normalisation era.

Summary: Effects of the Policy Recommendations from 1967 Until 1995

The foci of recommendations from reviews during this period included: increased input from Indigenous people in decision-making, the development of curriculum for Indigenous students and to enhance cultural awareness, involvement of Indigenous communities in education support systems, the development of responsive pedagogies, and increased employment of Indigenous teachers and educational support staff (Schwab, 1995). Despite these commendable aspirations, there have been only small shifts in educational outcomes for Aboriginal and Torres Strait Islander students, and recommendations did not change substantially in content or direction over that time. We would argue that the recommendations outlined above are critical for supporting the achievement and participation of Indigenous learners. However, they cannot be effective unless the broader social, political, and historical legacies for Indigenous people are acknowledged and considered in the implementation of policy. Foucault's (2002) understanding of how discourse works and Bacchi's framework of questions, therefore, offer us potential to rethink

and reframe the "problem". This will be discussed in more detail in the discussion section of this chapter.

Given the limited effects of policy and the recommendations of the three reviews, it was clear at the time that significant change was needed, not only in the focus of the policies, but also in the way policymakers and educators represented the "problem" of Indigenous achievement (Bacchi, 2009). Thus, policy in this area was in need of major reform, not only in terms of its approach but also in terms of the underpinning discourses driving it. As Schwab (1995) argued in his review of policies during this period, it is essential for policymakers to take account of historical exclusion and marginalisation, the demographic of Indigenous Australians, the locational disadvantage for many, and the lack of recognition, inclusion, and respect evident in many Australian schooling contexts.

Now—a further 20 years on—the educational achievement of Indigenous learners continues to be presented as a policy problem, for example, in the "Close the Gap" strategy (Council of Australian Governments, 2012), which represents the "problem" as one of individual responsibility and follows a neoliberal accountability agenda. It is, therefore, timely to review the effectiveness of key policies and initiatives that have targeted change and to consider what further reforms would bring about the desired shifts. The analysis that follows examines both persistent discourses about the education of Aboriginal and Torres Strait Islanders, and also the focus of policy through an examination of three overarching educational policy statements that guided schooling over the following 20 years.

A FURTHER 20 YEARS OF COMMONWEALTH EDUCATIONAL POLICY: 1995 TO THE PRESENT

Since the period discussed in the previous section—1967–1995—many more reviews and strategies have been published in relation to Indigenous education (such as, Buckskin, Hughes, & Rigney, 2009; Department of Education Science and Training, 2003; Hughes, 1996; Ministerial Council on Education Early Childhood Development and Youth Affairs & Education Services Australia, 2010; Ministerial Council on Education Employment Training and Youth Affairs, 2000). Recommendations variously focus on outcomes, educational action plans, directions and strategies, literacy and numeracy targets, and education and training opportunities for staff.

Framed by the "Closing the Gap" strategy (Council of Australian Governments, 2009), under the National Indigenous Reform Agreement (NIRA), education and other social policies have been developed almost exclusively within the discourse of statistical equality—that is, equal educational achievement. During this period, schooling policies more broadly have been driven by three Commonwealth Declarations (Council of Australian Governments, 2012). These Declarations incorporate recommendations for Indigenous education from broader national

policies and reviews, including "Closing the Gap", and are the focus of the following section of this article.

The Declarations (1989, 1999, and 2008)

Having shown in the earlier section that the policies from 1967–1995 had little significant effect on the achievement levels of Indigenous students, we now examine what, if anything, has changed in policy discourses and effects in the past 20 years.

Building on previous policy work by Beresford and Gray (2006) and Vass (2014), we articulate discourses and themes in Commonwealth Indigenous education policy in this period. What follows is, first, a summary of the goals from Declarations (Ministerial Council on Education Employment Training and Youth Affairs, 1989, 1999, 2008) and how they position Aboriginal and Torres Strait Islander peoples and cultures in relation to education. We see these as sitting within three broad discourses—multiculturalism, equal access, and equity of outcomes. The summaries are followed by a discussion of the extent to which the goals reflect or extend on the recommendations in the reviews of the previous period. We finish with a mapping on to the historical policy eras outlined in the introduction, and the themes in the recommendations from the 1975, 1988, and 1995 reviews (Hughes, 1988; National Aboriginal Consultative Group (NACG), 1975; Yunupingu, 1995).

The Declarations, like many other policy statements, look both to the past and to the future of education in Australia. That is, past discourses embedded in policy, practice, and the social and economic context of the previous 9–10 years, inform and influence current policies through a recursive process. At the same time, each Declaration sets out the vision, aspirations and goals for the decade ahead.

Hobart declaration – discourses of multiculturalism. The Hobart Declaration (Ministerial Council on Education Employment Training and Youth Affairs, 1989) included the following statement (Agreed National Goal #8 of 10) about education for and about Aboriginal and Torres Strait Islander students:

> To provide students with an understanding and respect for our cultural heritage including the particular cultural background of Aboriginal and ethnic groups. (p. 2)

Given the successive migrations of refugees from South East Asia in the 1970s and 1980s, and the increasing political activism by and with Aboriginal and Torres Strait Islanders, this statement addressed an important need in Australia—the education of young people to understand and respect peoples with non-White heritage. While recognition of the cultural heritage of Indigenous students was evident in this statement, the conflation of all recent migrant ethnic groups reflects the educational narrative of the time and represents a discourse of multiculturalism. This was an important narrative at the time, given the historical positioning of non-White migrant Australians in such legislation as the "White Australia" policy (*Immigration*

Restriction Act, 1901). However, the effect of such policies in colonised nations is that they can position the experience of First Nations people alongside those of migrants and refugees. This is problematic, as multiculturalism does not recognise First Nations status. That is, whilst all people of colour are subject to racialised representations of a White majority population, the primary issue with including Indigenous peoples, histories, and perspectives in the "cultural diversity" approach is that this is silent on matters of sovereignty and dispossession from the political, economic, cultural, social, and physical landscape (Vass, 2014).

The inclusion of "cultural awareness programmes" in the Hobart Declaration responded, to some degree, to one of the key recommendations emerging from the previous reviews (Hughes, 1988; National Aboriginal Consultative Group (NACG), 1975; Yunupingu, 1995). The Declaration also reflected the historical policy eras of assimilation (by denying Indigenous difference) and integration (by recognising and representing Indigenous peoples in schooling curricula and community involvement). However, it failed to recognise sovereignty and self-determination, thus, taking little account of historical injustices, the impact of the younger demographic and locational disadvantage in the Indigenous population (Schwab, 1995), and the distinct and unique (hi)stories of First Australians.

Thus, while acknowledgement through policy of "cultural appropriateness" in schools can occur through respect and recognition, little can change in terms of educational outcome statistics until fundamental changes are made in the way policymakers frame the "problem" (Bacchi, 2009; Vass, 2014).

Adelaide declaration – discourses of equality of access and opportunity. Ten years later, the Adelaide Declaration (Ministerial Council on Education Employment Training and Youth Affairs, 1999) moved to include a discourse of equal opportunity and access, as described in the following extracts from Goal 3:

> Goal 3: Schooling should be socially just, so that:
>
> 3.3 Aboriginal and Torres Strait Islander students have equitable access to, and opportunities in, schooling so that their learning outcomes improve and, over time, match those of other students
>
> 3.4 all students understand and acknowledge the value of Aboriginal and Torres Strait Islander cultures to Australian society and possess the knowledge, skills and understanding to contribute to and benefit from, reconciliation between Indigenous and non-Indigenous Australians. (p. 3)

By this stage, the policy goals became two-pronged, focusing on (1) addressing access and opportunities for the schooling of Aboriginal and Torres Strait Islander students, and (2) educating all Australians to understand and respect Indigenous histories, peoples, and cultures. These goals continued to reflect the discourses of earlier reviews (Hughes, 1988; National Aboriginal Consultative Group (NACG), 1975) and did not significantly diverge from the goals established by the 1989 Hobart

Declaration. That is, while well-intended and necessary for addressing statistical inequality—the "achievement gap"—the goals continued to be underpinned by assumptions that addressing differences represented in Indigenous learners will affect equitable achievement.

A focus on consultation and Indigenous representation did become increasingly evident with the Adelaide Declaration, along with moves to increase numbers of Indigenous educators and strengthen research in the field (Department of Education Science and Training, 2003; Ministerial Council on Education Employment Training and Youth Affairs, 2000). However, the Declaration did not engage with recommendations to consider culture, or the impact of historical inequities and dispossession (Hughes, 1988; National Aboriginal Consultative Group (NACG), 1975; Yunupingu, 1995). Given that there was little change in the intent or goals of this Declaration, the limited improvement in educational outcomes over this period is unsurprising. "Recognition", "representation" and "access", while critical steps towards equity, are insufficient to bring about equity of educational achievement because they do not take account of the specific social conditions under which the policy discourses arise (Foucault, 2002).

Melbourne declaration – discourses of equitable outcomes. The Melbourne Declaration (Ministerial Council on Education Employment Training and Youth Affairs, 2008), by contrast, more comprehensively addressed the complexity of achieving the goals of equitable educational outcomes, and the mechanisms needed to achieve this. This is reflected in three sections of the Declaration—the Preamble, the Goals, and the Commitment to Action.

The Preamble summarised the two goals as: valuing Australia's Indigenous cultures and addressing the failure "to improve educational outcomes for many Indigenous Australians" (p. 4).

The language used focuses on equity of educational outcomes. This was an important shift, as it implied a recognition that access and opportunity were inadequate in and of themselves to bring about changes in outcomes. The Melbourne Declaration extended this by also including: local cultural knowledge, partnerships, early childhood educational opportunities, and pedagogies informed by local Indigenous knowledges.

What is notable here is that the two Adelaide Declaration (Ministerial Council on Education Employment Training and Youth Affairs, 1999) goals for Indigenous education still drove the 2008 Declaration. However, the more recent Declaration also included more specific detail of what this looks like:

Goal 1 relates to improving the educational achievement of Aboriginal and Torres Strait Islander learners by: building on local cultural knowledge and experience of Indigenous students, promoting high expectations for Indigenous students' learning outcomes, and ensuring these improve to match those of other students.

Goal 2 concerns educating the wider Australian community so that they "understand and acknowledge the value of Indigenous cultures and possess the

knowledge, skills and understanding to contribute to, and benefit from, reconciliation between Indigenous and non-Indigenous Australians" (p. 9).

The Commitment for Action in this Declaration included eight actions to achieve the goals. While these related to all students, three included specific reference to young Indigenous Australians. These involved: developing stronger partnerships—between schools and Indigenous communities, strengthening early childhood education, and improving educational outcomes, participation, community engagement, and support.

This provides us with insights into underpinning principles for the goals. That is, while there was now acknowledgement of the younger demographic and the importance of cultural awareness, the Declaration continued to imply that educational outcomes will be improved by "fixing" the educational experiences of Indigenous Australians by increasing understanding and respect for Aboriginal and Torres Strait Islander peoples, histories, and cultures. Without detracting from an overdue focus on recognising Aboriginal and Torres Strait Islander people, histories, and cultures in curriculum and pedagogy, we also note that teacher quality is the most important within-school factor for improving student outcomes (Hattie, 2002). However, placing the responsibility on to teachers and schools in this way risks locating the "problem" within educational settings rather than the wider social context of Australia.

At the same time as articulating more clearly how educational outcomes for Indigenous learners might be improved, the policy environment had moved by this time well into neo-liberalism with extraordinary levels of State intervention in Indigenous affairs. That is, neo-liberalism's focus on individual responsibility and accountability expectations is evident in the detail of this Declaration with requirements by State and Commonwealth education authorities to provide evidence of achieving objectives associated with its goals. Thus, there is a somewhat paradoxical juxtaposition of a powerful equity agenda with a compliance agenda (Patrick, 2010). As such, we have now clearly entered the fifth policy era of normalisation (Sullivan, 2011).

Summary. While the five recommendations from the reviews of the 1967–1995 period (Hughes, 1988; National Aboriginal Consultative Group (NACG), 1975; Yunupingu, 1995) are embedded across the three Declarations, the language has shifted, in line with an increasingly neo-liberal discourse (Connell, 2013) to a focus on compliance and the idea that consultation, representation, support structures, research, and specific curriculum will bring about these changes (that is, "closing the gap"). However, the discourses continued to reflect those of the earlier recommendations—and the historical discourses outlined in the introduction to this article.

Apart from increased Year 12 attainment rates and scattered increases in educational achievement, there is little evidence that these policies and goals have had an impact to the extent intended: out of the six "Closing the Gap" targets established in 2008, only two are on track to be met (Department of Prime Minister and Cabinet, 2015) (see Table 1). Out of the four education targets, only one is

on track to be met—that is, the aim for a halving of the gap in Year 12 attainment rates. It is pertinent to note that the reportage of this target as "on track" does not specify Year 12 attainment rates for Indigenous and non-Indigenous students, which, in the most recently published Social Trends report, sat at 31% and 76% respectively (Australian Bureau of Statistics, 2011).

It is also interesting to note the addition in 2014 of a new target relating to the gap between Indigenous and non-Indigenous school attendance. In their analysis of attendance and achievement data from the MySchool website, Ladwig and Luke (2014, p. 193) demonstrate, the unlikeliness of current policies around attendance alone to improve achievement.

Table 1. Progress on closing the gap targets

Target	*Target year*	*On track*
Close the gap in life expectancy within a generation	2031	No
Halve the gap in mortality rates for Indigenous children under five within a decade	2018	Yes
Ensure access for all Indigenous four-year-olds in remote communities to early childhood education	2013	No (Expired unmet, new target 2016)
Close the gap between Indigenous and non-Indigenous school attendance within five years	2018	No (New target 2014)
Halve the gap in reading, writing and numeracy achievements for Indigenous students	2018	No
Halve the gap for Indigenous Australians aged 20–24 in Year 12 attainment or equivalent attainment rates	2020	Yes
Halve the gap in employment outcomes between Indigenous and non-Indigenous Australians	2018	No

Source: The Prime Minister's Closing the Gap reports (Department of Prime Minister and Cabinet, 2015, 2016)

The recommendations of earlier reviews discussed in the previous section, and the goals of the Declarations identified critically important measures for changing educational outcomes for Indigenous learners. However, alone they are insufficient, as evidenced by the progress on "Closing the Gap" targets and previous policy analyses. There is also little evidence in the Declarations that policymakers have shifted thinking from models that position Indigenous learners and underachievement as the problem. As such, deficit framing of Indigenous peoples in Australia continues in education policy.

Our analysis of successive goals for schooling and their historical tracings foregrounds current policies that emerged out of the most recent Declaration. The findings of our analysis also support Sanders and Hunt's (2010) analysis of

generational revolutions in Indigenous affairs. Thus, we suggest that Indigenous education policies, which emerged at the end of the self-determination era, have now been reimagined wholly within a discourse defined by narratives of failure, the pursuit of statistical equality, the dominance of ideology over evidence, and the incorporation of Indigenous people into the market economy (Maddison, 2012; Partridge, 2013; Sullivan, 2011; Watson, 2009).

We now turn briefly to the recently endorsed National Professional Standards for Teachers (NPST) (Australian Institute for Teaching and School Leadership, 2016) and the Australian Curriculum (Australian Curriculum Assessment and Reporting Authority, 2016). This provides an illustration of how tracings of past policy discourses manifest themselves in practice.

CURRENT POLICY MOMENT: AITSL STANDARDS AND THE AUSTRALIAN CURRICULUM

While each State and Territory had their own sets of professional standards for teachers, these were replaced in 2011 by national teacher education standards, created following the Melbourne Declaration (Ministerial Council on Education Employment Training and Youth Affairs, 2008). As discussed earlier, the Declarations were both reflective of past policy discourses and aspirational in terms of the implementation of future policy. Thus, current educational policy for schooling, in particular the National Professional Standards for Teachers (Australian Institute for Teaching and School Leadership, 2011, 2016) and the Australian Curriculum (Australian Curriculum Assessment and Reporting Authority, 2016) are a manifestation of the 2008 Melbourne Declaration intent, through implementation in practice.

The professional standards and the Australian Curriculum were implemented to replace previous State and Territory standards and curricula (although States and Territories have developed their own interpretations of the national curriculum document). Two of the National Standards directly refer to Indigenous education with the same two foci as the Melbourne Declaration—that is, teachers are expected to demonstrate competence in using: (NPST 1.4) Strategies for teaching Aboriginal and Torres Strait Islander students, and to (NPST 2.4) Understand and respect Aboriginal and Torres Strait Islander people to promote reconciliation between Indigenous and non-Indigenous Australians (Australian Institute for Teaching and School Leadership, 2016). How teachers demonstrate this varies at each of four career stages, and ranges from developing knowledge in each area to leading initiatives and teaching programmes that address the Standards.

It is too early to judge the impact of these Professional Standards on Aboriginal and Torres Strait Islander students' educational achievement and teacher knowledge and attitudes towards Aboriginal and Torres Strait Islander peoples, histories, and cultures. However, what is of interest to us is the extent to which the policy discourses, recommendations, and goals from the previous 50 years are similar with regards to educational outcomes.

As argued in the previous section, the three Declarations continued to, first, position Indigenous learners as differently deficit and amenable to a "one size fits all" approach to teaching "them". As Vass (2012) has pointed out, the use of the term "Indigenous education" in this context is highly problematic because of the ways in which it is used to racialise and, we would argue, theorise Indigenous students in deficit and essentialist ways. Further, responsibility for addressing inequities in educational opportunity, access, and performance continues to be located with teachers and schools. This is also dangerous within the current neo-liberal climate and successive Governments' criticism of teacher and teacher education quality—that is, an environment of high compliance and low trust.

As demonstrated in this policy analysis and by Schwab (1995), Vass (2014) and others, despite continued attempts, little has changed in terms of educational achievement for many Indigenous learners. This suggests to us that rather than persisting with policy agendas that have proven ineffective over the past 50 or more years, a reframing and rethinking is needed.

WHERE TO FROM HERE? IMPLICATIONS FOR POLICY REPRESENTATIONS

Applying a Bacchian approach to policy analysis (Bacchi, 2009), we have explored the representation of the issue that underlies a range of Australian education policies in this area since 1967, explicating the embedded presuppositions, how the representations of policy problem have come about, what is left unproblematised, and the effects (or lack of effect) of such policies. This analysis of the specificities for one country offers lessons for both local and global learning the 21st century.

In this section we discuss how this policy problem might be disrupted, rethought and reframed, and what this might mean in and for future policy writing. It should be noted that our task in this chapter has been to explicate how policy represents issues, not to address how to "do" Indigenous education in Australia. As such, our offerings in this section relate to three key policy representations and some observations about how we might bring about the desired changes in learning for indigenous learners—both locally and globally—as the 21st century progresses.

We argue that the lack of significant progress in the participation and achievement of Aboriginal and Torres Strait Islander learners is due first to the policy "problem" being represented as one in which Aboriginal and Torres Strait Islander people are deficient when compared to other sections of the Australian population. Secondly, we argue that to address the policy "problem", the place of Indigenous knowledge and sovereignty need to be considered and placed firmly to the fore in schooling. Thirdly, we point out that taking account of a history of exclusion is a critical addition to developing awareness and respect, and strategies for teaching Aboriginal and Torres Strait Islander students.

As Vass (2012) pointed out, use of the term "Indigenous education" alone perpetuates a deficit "regime of truth" that contributes to "sustaining deficit assumptions regarding the engagement and outcomes of Indigenous students within

Australian schools" (p. 85). We similarly contest that successive policies—over at least the past 50 years—contribute to such deficit framing of Aboriginal and Torres Strait Islander learners and learning in Australia. Thus, it is critical to find different ways of framing learners—through policy and in practice.

What is needed, then, is a rethinking and re-representation of relationships between Indigenous and non-Indigenous Australian knowledges, histories, and peoples, for example in curriculum. It also requires a genuine recognition of Indigenous sovereignty through equal partnerships—that is, policies framed by self-determination and sovereignty rather than those that position Aboriginal and Torres Strait Islanders as "deficiently other".

In our analysis, we have argued that the discourses underpinning policy continue to reflect the historical eras of assimilation and its recent manifestation as normalisation (Australian Law Reform Commission, 1986 (updated 2012); Sullivan, 2011). Such discourses have proven to be inadequate for achieving the intended task. We claim that these discourses are problematic because they do not take account of the impact of generational dispossession or Indigenous sovereignty. Further, these discourses function to silence the voices in Australian history that incorporate Aboriginal and Torres Strait Islander people.

It needs to be noted that as long ago as 1995, Schwab (and others) recommended that policymakers take account of historical, demographic, and locational disadvantages for Indigenous Australians, as well as addressing the lack of recognition, inclusion, and respect in Australian schooling contexts. While most of these recommendations are evident in policy, what is missing is a change in the discourses that underpins policy statements. We argue that this is largely because policy continues to position Indigenous learners as differently deficient and places responsibility on individual teachers, schools, and communities to effect change. This, therefore, does not address the broader, complex societal context that is silently racialised.

We have argued, influenced by Bacchi's (2009) Foucauldian approach, that the policy "problem" should be constructed differently in order to enable us to think more clearly about what is needed in practice. What we have demonstrated, through this analysis of historical policy discourses, supports and builds on similar cases presented by Schwab (1995), Beresford and Gray (2012) and Vass (2012), for instance. It was not our intent to provide practice solutions in the chapter—although we recognise that research-informed changes are needed going forward. What is needed, in order for practice solutions to be found, is the rethinking and re-representation of discourses of indigenous learning, learners, and education within policy.

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NOTE

[1] The authors recognize that the terms "Indigenous education", "Indigenous Australians" and "Aboriginal and Torres Strait Islander people" do not respect the diversity of experiences and histories of Australia's First Nations people. We also recognise the contested and contingent nature of these phrases. The terms "Indigenous" and "Aboriginal and Torres Strait Islander people" are used interchangeably to assist readability.

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PHIL DOECKE

11. CONTEMPORARY SPECIAL EDUCATION

ABSTRACT

Current understandings and issues relating to the learning and teaching of children with special needs are considered in this chapter. There is much happening in schools, in nations and regions around the world, with respect to special education. However, the extent and scope of this change varies a great deal. Special education, learning and teaching of children in inclusive schools, specialist schools and mainstream school settings is being embraced by many, yet others are struggling or are not addressing the needs of all children and young people.

This chapter is introduced through a brief presentation of meanings of disability and special education: understandings and misunderstandings. Special education's place and role in education is next considered, followed by short snapshots of learning and teaching in selected countries, illustrated by examples which are discussed to describe how special educational needs are being addressed. Elicited from these examples, five key themes are identified and discussed. These are both global as well as specific to certain localities.

This chapter will be limited to issues which reflect on and impact society, school, and teacher decisions for the learner. There is no attempt to provide teaching content, curriculum or resources.

There are gaps in the discussions possible about this topic. The writer has selected to address the topic of contemporary special education in this way and, if it has whetted your appetite to inquire into and investigate further into special education and inclusion, then this short chapter has served a satisfying purpose.

Keywords: special education, disability, inclusive education

EVOLUTION OF MEANINGS OF DISABILITY AND SPECIAL EDUCATION

'*Special education*' is very much about learners with disability. However there is much discussion in the literature about placing perhaps too much emphasis on the learner with disability (Cologon, n.d.; Grimes, Stevens, & Kumar, 2015). Contemporary literature and discussion seeks to persuade the reader and the educator to consider the learner a child who, like all children, has their individualities and their needs, which are diverse, different, and unique. What can be done to meet

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 185–209.

the individual, personalised learning needs of each learner? How can the learning setting, curriculum, and community engagement with the learner, be addressed and adjusted in ways to have successful learning, growth and development – by both the learner and the community in which the learner lives? Where a student participates fully and completely along with all the other students in the class, then the student – and the learning context – is inclusive. Some may have special, or additional, educational needs for learning. Where teaching is planned and effective, where these special or additional needs are successful, then this is inclusive learning and teaching (Foreman & Arthur-Kelly, 2014).

Questions emerge which contribute to formulating a broader and more comprehensive understanding of inclusion: ensuring that all learners' capacities and capabilities are understood – as best as possible; that best possible practice is put in place to design, develop and implement resourced activities focusing on how learners' needs may be met; that all aspects of their development are considered and addressed, and potential to achieve that potential is supported. Who does this and who is responsible for this is considered later in this chapter. Examples of how some countries do this and illustrations of narratives expressed by folk from those countries are provided.

The field of learning and teaching for learners with special educational needs is diverse, and dynamic. Indeed understandings, beliefs and values associated with children and adults with disability may be traced through the changes in terms and names through history. These reflect this dynamic. Terms such as "retarded", "handicapped", "subnormal", "disabled"; classifications such as "idiot", "moron and "imbecile" are now not used (Gawne, 2011; Hodkinson, 2016). These focussed on conditions which saw the individual as incapable and deficient.

Disability describes a diagnosed condition. The Disability Discrimination Act 1992 defined disability as:

- "total or partial loss of the person's bodily or mental functions; or
- total or partial loss of a part of the body; or
- the presence in the body of organisms causing disease or illness; or
- the presence in the body of organisms capable of causing disease or illness; or
- the malfunction, malformation or disfigurement of a part of the person's body; or
- a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour; and includes a disability that:
  - presently exists; or
  - previously existed but no longer exists; or
  - may exist in the future (including because of a genetic predisposition to that disability); or
  - is imputed to a person" (as cited in Commonwealth of Australia, 2016, p. 5).

To avoid doubt, a 'disability' that is otherwise covered by this definition includes behaviour that is a symptom or manifestation of the disability (Australian Government, 2015).

A condensed look at disability types based upon Foreman & Arthur-Kelly (2014) sees several basic groups:

- Intellectual disability: significant difficulties with reasoning, thinking, and problem-solving.
- Physical disability: difficulty in mobility or movement.
- Sensory disability: an impairment in vision or hearing.
- Behaviour problems: performed behaviours of concern. There is debate as to whether or not these are disabilities, as all children misbehave at various times. Schools' expectations of conformity and compliance by students challenge safe and acceptable classroom management for many teachers.
- Learning difficulty: is often not seen as a disability, rather as possibly having an intellectual disability, or a specific learning disability.

It may be argued that there is an additional disability, that of social disability. This considers how society and its culture might impact the individual, to impede and restrain the child from engaging in learning and developing to their fullest potential. This crucial point is picked up in later discussions on diversity, inclusive education, and cultural views of disability and special education.

UNDERSTANDINGS AND MISUNDERSTANDINGS

Early attitudes towards children with disability were negative; that saw them as though they were afflicted with a major medical illness (WHO, 2011). Definitions of terms and phrases, which demonstrate socio-cultural changes in knowledge, understandings and attitudes, describe the condition(s), disability, impediment, or impairment. In the literature from some countries, nominative and descriptive terms and phrases may still be used, while other regions have "moved on" and may now consider these phrases and terms inappropriate (Singal, 2009).

In past history those with disabilities were often institutionalised, to monitor and manage their condition, and to keep them out of society's way (Foreman & Arthur-Kelly, 2014). They were invisible, and often abused (UNICEF, 2013). This was a highly restrictive practice, to the extreme point that the assessment of a few with profound and often complex disabilities, potentially causing a threat to society, were judged as criminally insane. The contemporary view sees increasing understanding and acceptance of the individual with disability, that they are someone's child – someone who continues to be a part of the family, has parents, siblings, and is a part of the family's culture. Institutionalisation, no matter how well resourced and caring, cannot substitute for a home life (UNICEF, 2013). Ideally, families need to be supported to have their child live at home with them; schools

need to be supported to have this family's child attend the school of their choice, and participate in successful learning and preparation for life.

Therefore, as society continues to evolve and progress in the 21st century two models of viewing disability prevail. The '*medical model*' takes a deficit perspective, whereby the person has a deficiency or impairment which needs attention. The person who *has* the problem, *is* the problem (Kohama, 2012; WHO, 2011). Those around the person do what they can to help them be more "normal". The *social model* finds deficiencies through difficulties of access in and through society which limit each person's – including those with disability – capacity to access what they need. Key barriers for people with disabilities are to the physical environment, community attitudes, and organisational policies and procedures. Removal of these barriers "in the classroom and school … empowers people with disabilities to be independent and contributive, helpful members of an inclusive, barrier-free society" (Kohama, 2012, p. 5). How the leadership of a community views the individual with a disability determines the depth and success of the relationship with that individual. Power, respect, care and value within the relationship describe the success and likely developmental outcomes for each participant in the relationship.

EDUCATION

"Education is the gateway to full participation in society" (UNICEF, 2013, p. 27). Are children with special needs being supported through that gateway to full participation?

The *Salamanca Statement* (UNESCO, 1994) established the foundation which was to direct learning as the right for all. "All children" should mean that schools should accommodate all children regardless of their physical, intellectual, social, linguistics or other conditions" (p. 6). Further, "mainstreaming children with disabilities should be an integral part of nations' plans for achieving education for all" (pp. 17–18).

In February 2013, representatives of 155 nations signed the United Nations Convention on the Rights of Persons with Disabilities, and 127 countries together with the European Union have ratified it (UNICEF, 2013). Other countries have ratified the subsequent Protocol; however, 27 countries have not signed any aspect of the Convention or the Protocol. The countries that have ratified the Convention will ensure that, with respect to students with disability in education, they will provide:

- an inclusive education system at all levels;
- no exclusion from general education because of disability;
- free and compulsory primary education without exclusions, and no exclusion from secondary education based on disability;
- support to effectively engage in education;

- individualised attention through supportive learning settings towards achieving full academic and social potential, towards total inclusion (Hyde, Carpenter, & Conway, 2014).

Within their own government structures, individual nations and regions have developed their own responses and policies, which direct how education will be provided for learners with special learning needs. The international protocols provide the platform upon which a global perspective can – and ought to be – established. Regional and national resources differ significantly. Regional and national socio-cultural attitudes also differ significantly. By signing this document each nation has agreed to address the needs of children, youth and adults who are their citizens. However, for many and diverse reasons, many signatory countries are unable to fulfil or make progress towards meeting their intentions, which motivated them to align themselves with the agreements' purposes.

Schooling for children with special educational needs can broadly take three types (Kohama, 2012). Within these there can be variations (Foreman & Arthur-Kelly, 2014). *Segregated education* sees provision made for learning by those with disability in separate settings from those without disability. These are usually in the form of special schools or separate classrooms. *Integrated education* sees learners with disability in the same learning area with the other learners. However, their learning may be supported only by minimal adaptations and resources (Kohama, 2012). The access to the curriculum, assessment and facilities may have superficial or token acknowledgment of the additional learning needs for the learner. And the learner may not intentionally be able to participate in all aspects of the school's program such as curriculum, assessment, or extra-curricular activities such as excursions or camps.

Inclusive education involves all aspects of the school and its education process. Its culture, policies and practices are taken on so that the diversity of all students can be responded to. The curriculum is adjusted as are the teaching methodologies so that all students learn and benefit.

Hyde, Carpenter and Conway in Diversity, Inclusion and Engagement (2014) undertook an important discussion which explored the difficult nature of understanding the concept of "inclusion", especially in education. They see the use of inclusion as "the right to active participation and achieving equity through engagement in all aspects of daily life" (p. 5). Founded in human rights principles, these rights may fall into three areas:

- moral rights – ethical or moral values held, or accepted by our culture;
- legal rights – administered in courts of law; and,
- human rights – recognised internationally upon the basis of a common global understanding of humanity.

The *World Report on Disability* (WHO, 2011) states that children with disabilities are less likely to attend school than their non-disabled peers. Disability affects

already susceptible populations in far greater proportion. Singal (2007) reported that poverty increases the likelihood that an individual may became impaired, and then disabled. Low income countries have greater levels of disability than in higher income countries (UNESCO, 2010; WHO, 2011). Disadvantage tends to be transmitted from one generation to the next (DWP, 2011). Understanding this, those who have committed to the Convention of the Rights of Persons with Disabilities and its Protocols recognise the potential of "education to contribute to breaking the connection between disability and poverty … not only through learning but also school-based provision of health and nutrition education and services" (Croft, 2010, p. 234).

It is not possible to provide a systematic, balanced and equitable view of how special education for special needs learners is being provided across the world. A survey of published reports from international organisations such as WHO (2011) and UNICEF (2013), and literature on national approaches to special education, shows that, while data collection can provide significant indications of what's happening in most countries of the world, there are many variables in how the data is collected and even reported. One key example is discussed by Cologon (n.d.) in her *Issues Paper Inclusion in Education: Towards equality for students with disability.* She notes the difficulty in determining a single agreed definition and understanding of 'disability'; and of 'inclusion'. Data collection is impacted by the collection, recording, evaluation and interpretation of the information pertaining to these foundational concepts. These are impacted by perceptions and analyses of the local statisticians and evaluators, before they are submitted to the international organisations for evaluation, analysis and comparison. Economically wealthy countries tend to use more diverse and specific definitions, with more technical supported assessment strategies and services in comparison to lower economic countries; the latter, therefore, tend to underreport the prevalence of disability and learners with disability (Worldbank, 2014).

GLOBAL DIRECTIONS AND ACTIVITY IN SPECIAL EDUCATION

The following pages provide examples of how various countries from around the world are addressing the provision and implementation of inclusion for learners with special learning needs. These are a few snapshots which provide a brief overview based upon personal experience of the writer, associates of the writer, or sourced from a narrow literature search; they illustrate the current status of special education in each location: development, successes, and roadblocks.

United States of America

Since the 1970s, the USA has developed a very comprehensive program for children with special educational needs. The *Individuals with Disabilities Education Act*

(IDEA, 2004) requires all US public schools to provide for the special needs for all children aged 3–21. It is up to each of the state authorities to assess and develop the best possible education for learners with special learning needs (Lee, 2014). US law requires children with disabilities to be educated in the same classroom with children who are not disabled. "Special classes, separate schooling, or other removal of [the] child with disabilities from the regular classroom should only occur when the extent of the disability means that the child cannot achieve satisfactory performance with the use of supplementary aids" (http://www.parentcenterhub.org/repository/placement-lre/). The child ought to be a regular member of the class along with their peers.

Numbers of children with disability are reported as high in the USA. However, there is widespread access to multiple assessment strategies. The range of specialised diagnoses available results in high reports, suggesting high rates of disabilities (OECD, 2012). Children with disabilities are identified as quickly as possible to provide each one, their family, and their school, with as much support and additional community and health services as possible. Teacher education programs are diverse and effective, but vary from state to state.

United Kingdom

Harris (S. Harris, personal communication, November 25, 2015), the head teacher of a large special school in London, explains that in the UK many special schools recruit graduates and provide their own specialist instruction. The school of which he is head teacher runs its own specialist education courses on the school's campus. They employ around one hundred teacher assistants, none of whom have an Education degree. There are no initial teacher education courses designed to train teachers to work specifically in special needs education. Teachers are trained to work in mainstream school settings taking into account the learning needs of all students that they will meet in their classrooms. Specialist courses on particular issues in special or additional support needs are offered as continuing professional development for teachers at various levels of academic rigour and qualification standards (European Agency for Special Needs and Inclusive Education, 2016).

In 2012, the final report of the *Inclusive Practice Project* was released by the University of Aberdeen, Scotland (Rouse & Florian, 2012). This project highlights desired changes to initial teacher education in Scotland. Given that they found little consensus regarding an operational definition of 'inclusion', the challenge for each teacher education student is to negotiate the tensions between what they were being taught in the university and what they may observe in schools (Rouse & Florian, 2012). A further dilemma facing teacher educators is to negotiate the tensions between categorical models of special education – as in particular "types" of difficulty – and the emerging wider concepts and practice of inclusive education (Rouse & Florian, 2012).

Chad

While living in Chad, A. Sharp (personal communication, April 11, 2016) saw that children with disabilities who were considered "'useful' to society were the ones who survived," and were able to remain and live in the villages where she lived. "Two friends had mild disabilities like a speech impediment or born with a twisted arm. It is very sad to say that the others in isolated areas are considered to be cursed or hidden away. Many, if able, used to beg for money on the main streets."

> At least in the village I see it as "you work or you die," there's no other option. The only real disabilities I saw in the village were people with mental illness, (who simply could not look after themselves), and the lazy ones. The ones with mental illness are often turned out of home (they can't work so they're no use), they're given the minimum and they depend on begging. If they're dangerous they get chained up, and we suspect, starved. Everyone else works and contributes according to their ability, be it a dry hand, a badly set broken bone, lack of a limb, inability to walk, blindness, and so on. Yes they are "disabled" but they still contribute.

After the rebel attack in 2008, Sharp "noticed a lot more people with missing limbs. One could say that these 'disabilities' are as a result of events, environment, or national economic development (or lack thereof)." She did not see the society in which they lived responding with special treatment. In her view "that society determines what is meant by disability." Cultural views of disability, as well as the low economic status of the country, contribute to very low levels of support available to the families of children with disabilities in much of Africa.

Singapore

Special schools in Singapore were started by expatriate residents who wanted to make a difference in the lives of children with disabilities. For example, the first school for children with autism was set up by philanthropists (R. Seah, personal communication, January 5, 2016). These did not so much provide learning for the child as to support the parents of the child with the disability.

Singapore is a highly regulated society. Meritocracy (Tan & Konza, 2006) is a feature of education in Singapore. Families are highly motivated, strongly driven to success. Teaching is highly intense. Any child with a learning difficulty is likely to struggle to cope, and schools do not provide support for these. If a child with special needs is in a family which is well-off, then special education facilities are available. This starts from elite childcare facilities where early intervention and support programs can begin. However, for those who cannot afford this, the state-run provision is considerably less effective. Most childcare centres won't take children with disabilities, so it is often left up to grandparents or other relatives to care for them.

R. Seah (personal communication, January 5, 2016) explained that teachers in Singapore are mostly highly qualified. However, those who teach children with disabilities tend to only have diplomas or certificates.

Seah continues that specialist classes are available, however, these are offered in special schools for only part of the day. Mainstreaming is not available where children with special learning needs are provided with opportunities to learn alongside non-disabled children.

After 18 years of age, the main option available to them is in a workshop, which is usually run by a charitable organisation.

In Seah's opinion, children are tagged, wearing a label which may accompany them through their schooling years into adulthood. When the child becomes older, they often stay home. In the case of others, they may be institutionalised in sheltered workshops run by welfare organisations, and may actually stay there. Yet others may indeed be abandoned.

More recently the government is providing more funds to support welfare organisations. Specialist teacher training is provided for teachers in mainstream schools. The courses focus primarily on behaviour support and functional skills; increasingly, in the teaching of literacy and numeracy skills. There are now large special schools in Singapore. The percentage of those who attend these, however, will not have their achievement and standings included in comparative international school rankings (R. Seah, personal communication, January 5, 2016).

Currently, it is difficult to see inclusive teaching principles and practices being applied in schools in Singapore. The sense of shame that was once widely associated with the cultural view of disability is diminishing. However, there are ingrained beliefs and values that these children need to be supported and cared for – that they are helpless. The medical model is the dominant view of disability. There is no attempt to recognise their capacity to make choices and decisions which will contribute to the development of self, and that they can constructively contribute to the community.

In the opinion of the respondent, Singapore is very strong on "gifted and talented" students. However, it still has a long way to go in meeting the educational needs and requirements of those with disability.

Malaysia

According to K. L. Ho (personal communication, February 14, 2016), special education is not fully offered and widespread across Malaysia as yet. Staff in schools are trying their best, however, in the opinion of the respondent, they are using inappropriate and minimally successful strategies, as they are not well trained.

Private run facilities are the main providers for special education in Malaysia. The government is providing financial assistance to poorer families of children with special needs. And families who are relatively well-off can fund private schooling for their children. However, families who are not wealthy but whose income is above

the threshold set by the government, will find schooling their children difficult, even unaffordable. Many of their children, therefore, miss out on suitable learning support.

Teacher education for students who are choosing to teach children with special needs does not provide comprehensive learner-focused courses. Many who study special education are therapists and not pre-service teachers (K. L. Ho, personal communication, February 14, 2016). There is little research- or inquiry-based learning; it's not learner-centred.

In K. L. Ho's (personal communication, February 14, 2016) opinion, nationally there is not yet a full understanding about disabilities, and how those with disabilities can contribute to and make choices about their learning and life choices. Visible physical disabilities are known and understood more; however, intellectual disabilities and their impact on life are not yet well understood. There are minimal social and community expectations to support those with disability. Instances of children born with disabilities being abandoned still occur (K. L. Ho, personal communication, February 14, 2016). Many are placed in orphanages. School teachers are still not well informed about learners with disabilities in their classrooms. Steps have been taken; however, socio-cultural attitudes still inhibit understanding and acceptance of inclusion. Segregation continues in schools. There is an evident shortage of workers and teachers for those with special needs. Private providers can be hired for those who can afford it.

India

There are around 27 million people with disabilities in India (S. Halder, personal communication, November 18, 2015; Singal, 2010). The very nature of India is diversity. Throughout the 29 states and 7 territories, special education provision is not well understood and delivered. The administration of many of these states are not yet meeting the challenges that such huge numbers present (S. Halder, personal communication, November 28, 2015). The data collection methods are not systematic or nationally consistent (Singal, 2010).

Interestingly, the segregation of learners with disability in mainstream schools from learners with disability in special schools is amplified at the highest level of government by having these learners administered and funded by separate ministries. The needs of children with disability attending special schools are addressed by the Ministry of Social Justice and Empowerment. The Ministry of Human Resource and Development administers the needs of learners with disability in mainstream schools. As Singal (2010) asserted, this "fragmented approach" demonstrates the contradictory and conflicting messages prevalent in addressing the needs of those with disability in India. 'Inclusion' is purported; however, her 2010 report to UNESCO suggested that the implementation is in reality still integration. Further, that there continues to be an "overly medicalised view of the child with special needs [which] takes away the focus from the learning needs of the child. The emphasis is

largely on efforts directing child related factors through the provision of aids and appliances" (Singal, 2010, p. 14).

Current approaches focusing on identifying children with disabilities are inadequate. Singal calls for reforms in professional development, changes in attitudes and beliefs, and a re-examination of perceptions around the values and purposes of education for children with disabilities. Of additional significance is the "huge discrepancies" in the national and state data that she argued are "inadequate to make sense of what is going on" (p. 15). The main choice that families have at present for their child with disability is whether or not to attend school at all; attendance would, in general, be at a mainstream school. Special schools are privately funded. This leaves access limited to schooling to those who can afford such schools. India's first school for autism (Action for Autism, AFA) was established in New Delhi, coordinated and funded in the first instance by families who had children with autism; these children were struggling to be adequately accommodated in school (S. Bhattacharjee, personal communication, January 4, 2014). By advocating to government leadership, they have raised the profile for recognition and support for learners with Autism Spectrum Disorder (ASD) (M. Barua, personal communication, June 22, 2014).

Many children in India who have a disability face difficulty due to the associated social stigma: the family sees it as a great shame. Often the parents adamantly deny the disability. And families who are poor are unable to meet the child's needs, which exacerbate their poverty (S. Halder, personal communication, November 28, 2016). Visible physical disabilities may be acknowledged, however, developmental and intellectual disabilities may often be overlooked or ignored, which may lead or contribute to low levels of literacy.

In 2010, the AFA entered into partnership with the University of California (Los Angeles) for research into understanding educational development for learners with autism within the Indian culture, structure and context. With research projects under way by an auspicious international university, the profile and ensuing national recognition has promoted education for ASD learners a great deal. Models such as this, that have occurred frequently, have seen outstanding changes and positive growth in education for learners with special needs.

Lao

Another such project is one that took place in the People's Democratic Republic of Lao: *Lao PDR Inclusive Education Project,* 1993–2009 (Grimes, Sayarath, & Outhaithany, 2011). Economically ranked as a very poor country, schooling was not nationally widespread. And there was no provision for any children with special needs until the first one for children with deafness and blindness started in 1992. In response to the United Nations World Programme of Action Concerning Disabled Persons (United Nations Decade of Disabled Persons, 1983–1992), UNESCO and

the Save the Children UK commenced a program to address the need for inclusive education for Lao PDR in 1993. In 2004, Norway took over the project, working in close partnership with the Ministry of Education. Working with diverse language groups was a major hurdle to address cultural perceptions and change of attitudes towards the need for inclusive education for all. However, by slowly working in schools and regions across the country, alongside teachers and ministry officials, and with the support of the nation's leaders, the whole nation had been reached and a new awareness of inclusive education practices had been applied throughout all provinces. Guidance and direction had been provided by the British, then Norwegian, and finally Swedish Education consultants. According to Grimes, Sayarath and Outhaithany, (2011), focussed commitment saw resultant success, in a relatively short period of time.

China

In 1993, a young Englishman travelled to China as a short term mission worker. He was deeply impacted by personal experiences of babies and young children with disabilities being abandoned, in increasing numbers (D. Gotts, personal communication, April 30, 2015). Many parents didn't have the means to support the child. Under the national "one child policy", a child with disability was of little value to the family – the parents needed one healthy child to provide for their future. At that time, the community and the government agencies had no means or provision to assist the family to raise the child. So, many children with disability were abandoned, or left at overcrowded orphanages, with little or no hope for a future. Basic life needs were unavailable, let alone opportunities for an education. Today, the organisation established by this person (International China Concern, founded by David Gotts) has three comprehensive facilities and is working in partnership with the Hunan Provincial Government. This includes training local folk in medical, therapeutic, special education, and vocational education. Increasing numbers of international organisations, including universities, are establishing and providing special education programs and courses for teachers in China. While it might be sporadic, and the numbers of children supported as comparatively few, incremental steps are being taken. Progress towards a widespread systematic approach across the nation is to be supported. Teacher education in-services for regional education authorities are being sought from overseas universities – they are making a difference.

Australia

Special education is receiving increasing attention at this time in Australia. Australian and State government directives require education providers – universities – to submit evidence of the incorporation and delivery of learning and teaching practices where the needs of learners with additional and special needs are addressed. Professional standards (*Australian Professional Standards for Teachers*,

AITSL, 2011) have been published whereby programs for initial teacher education students are required to provide evidence of how pre-service teachers learn about children with special learning needs and meeting those needs, before they are eligible to graduate (*Action Now: Classroom Ready Teachers Report*, Department of Education, 2015). Similarly, serving teachers are required to provide evidence of having undertaken professional development in special learning needs – and applied to their teaching – each year, in order to maintain their registration status and eligibility (Victorian Institute for Teaching, 2015). Implementation varies from state to state, but each state is seeking to respond to their state and national government directives.

The variation in enrolment of students with disabilities in mainstream schools and in special schools is quite marked: Queensland has 97% of all children with special needs enrolled in mainstream schools, whereas in Victoria there are 55% in mainstream schools (S. Poeds, personal communication, January 25, 2016).

Principles of inclusion are central in teacher education courses and programs in Australia. However, there is still significant discussion and argument regarding what type of school is most suitable for children with various conditions of disability and special needs. This discussion revolves around the implementation of programs which formatively and ultimately provide the best outcomes for learners with special needs. Is inclusion in mainstream schools, therefore, an accepted and irrefutable "tenet of education"? Is it arguably the most successful schooling context for all learners? Despite widespread support for the UNESCO and UNICEF Conventions and Protocols, currently in Australia there is not a nationally accepted single perspective on the most successful type of schooling.

Interestingly, at this point in time, enrolments in special schools are steadily increasing across Australia (M. Adams, personal communication, August 10, 2015). It may take a generation for the effects of government policy and directives to manifest in schools, having teachers more fully skilled, and facilities which are better equipped to meet the learning and life-skill needs of children with special needs and disability, before more children with disabilities are enrolled in mainstream schools, and therefore possibly reverse this trend. This discussion is pursued further as the foremost issue in the emergent themes.

Australia's nation-wide educational measuring tool, NAPLAN (*National Assessment Program – Literacy and Numeracy*), does not collect data for children with additional learning needs in special schools; special schools are exempt from NAPLAN testing (M. Adams, personal communication, March 20, 2016). To establish clearer information on students with disabilities for schools' and departmental use, the Department of Education and Training is undertaking a *Nationally Consistent Collection of Data on School Students with Disability* (DET, 2013) project. This is a joint project by all federal, state and non-government education authorities to help schools meet their existing obligations under the Disability Discrimination Act 1992 and the Disability Standards for Education 2005 (DET, 2013). Currently fewer than 47% of Australian school teachers are aware of the Disability Standards for

Education (VEOHRC, 2012). It will further provide information of where children with disabilities are enrolled, and how their educational needs and rights to learn equitably in schools are being addressed.

The Cook Islands

A group of Education students from Australia travelled to the Cook Islands for a 4 week placement at a small island school, to learn about and undertake teaching in another culture. When the residents learned that one of the students was specialising in Education and Disability Studies, they brought a child with ASD to school, who had not previously attended school. He was non-verbal, and presented with occasional concerning behaviours. Within a short period of time, the student contacted Australia, organised a shipment of teaching materials suitable for a learner with ASD, and was able to sit with the parents, the teachers, and the children to discuss and plan ways for this young boy to participate in learning activities in the school and with his peers, from which he had previously been excluded.

Several themes can be seen within these global snapshots. Five have been identified which are central to understanding the escalating field of special education. They have been identified and drawn out for further discussion:

- the dilemma of diversity and inclusive education;
- competitive national educational standards impacting inclusion;
- the increased need for skilled trained teachers in inclusive and special education;
- cultural views of disability and special education; and
- technology and special education.

THE DILEMMA OF DIVERSITY AND INCLUSIVE EDUCATION

There is strong pressure from much of the community for all schools to be fully inclusive for all learners: total inclusion, where all children learn side by side. Schools are expected to make reasonable adjustments to cater for the learning needs of each learner. The curriculum ought to be adjusted so that learners can learn and grow at their greatest potential. However, according to the Victorian Equal Opportunities and Human Rights Commission Report, *Held Back: Students with Disabilities in Victorian Schools* (2012), schools were unable to meet these needs: staffing, staffing skill levels, personalised learning, managing children with behaviours of concern, and more. While this report was a survey of schools in the Australian state of Victoria, this was in a region of the world where education may be considered quite well developed. This report argued that meeting the needs of learners with disability had some way to go.

Other countries also are struggling to meet this requirement. For some countries, meeting the requirements of children with special learning needs is only achieved through expensive private schools. Parents of those unable to afford this for their

children see them left at home in the care of a paid individual or grandparents. Or, in a few instances, at worst – abandoned. In *A Quality Education for All: A History of the Lao PDR Inclusive Education Project 1993–2009*, Grimes (2014) stated that it is vital to demonstrate that the inclusion of children with disabilities in mainstream schools could be undertaken without lowering the quality of education offered to all learners (p. 23). He argued that this is a particular challenge for economically poorer countries, where teachers' training and technical experience and expertise may be limited. Subsequently, he saw a "tension between this way of thinking and attempts to develop a teaching pedagogy based on the rights of all children to a quality education" (p. 23).

Resistance to total inclusion is expressed by many principals, teachers, and parents within special schools, where children are responding well to more individualised learning. Many special schools are highly successful in providing a special education, as the class population numbers are lower, and the children receive more specialised close attention. Key to this success is personalised planning and individualised attention. For example, when a child displays a behaviour of concern, the teachers – together with the supporting team of occupational therapists, and psychologists – and parents/carers – discuss and develop a routine where they understand how best to respond to that child's behaviour, as they have developed an awareness of potential and evident circumstances that trigger these behaviours. The expectation that a child with these additional needs will have them fully met in a mainstream class, by the class teacher, while addressing the needs of all the learners in the class, can be overwhelming. The physical limitations of the school room can impede authentic inclusion. Sometimes necessary adjustments to the physical environment of the classroom can be an issue. Certain children with ASD have needs where the environment is altered to permit access. The quantity and nature of pictures, walls painted bright colours, need to be modified as children with certain autistic responses may be upset by colourful walls, pictures, and learning artefacts which are commonplace on school walls, even hanging from ceilings, in schools everywhere. Access to toilets and bathrooms, and even the classroom itself, is still a structural and financial challenge in some parts of the world. Many schools have large class sizes. Those who hold the view of segregated learning see that it is unreasonable to expect classroom teachers to manage the class and provide successful learning experiences for all children.

The capacity of teachers and schools to meet the needs of all learners under their care, especially those with disabilities such as challenging behaviours of concern and complex impairments in the same learning space, can be the dividing point between being fully inclusive, and the motivation to persist with segregated learning, despite arguments against it.

Barriers to inclusion can be removed. All environments in which children live, move, and experience life can be built to facilitate access and encourage their participation. Children with disabilities can live, work and learn alongside their able-bodied peers. "Differentiation" describes the importance of teacher attention to the

diverse learning goals and needs of all students (Foreman & Arthur-Kelly, 2014). With this in mind, the broader concept of Universal Design was devised by Ronald L. Mace (Mace, Hardie, & Place, 1996). It is recommended by UNICEF to be applied to the conception, design and construction of public and private infrastructure (UNICEF, 2013). This Universal Design is for all, not exclusive or segregated. These apply to all aspects of life, learning, and vocation. The aspects provide all children with opportunities for full and complete access, through to adulthood. The standards and practices are implemented by governments, providing and protecting all children under legislated, administrative, and educational processes and policies. All children will be protected from deviations from socially just, safe, and truly nurturing practices – a key tenet of UNICEF.

It may be argued that proponents of inclusion see the ideal of all learners engaged in learning side by side with their peers. However, the learning needs of some may not be planned, prepared or delivered in as straightforward a manner for some as for others. There are some learners for whom learning is complex and difficult, requiring almost total attention and commitment by a trained education support person during their waking hours. This may be due to the complexities of their sometimes interlinked conditions which require careful, multimodal assessment, responses and management. Many families have made the choice to therefore enrol their child in a school with specialist staff and which is more fully equipped to manage and provide personalised learning experiences for children with more profound needs. The argument is that it is in the best interest of their child to be enrolled in such a school. The argument is further continued by parents whose child does not experience a disability. They hold that their child would be impacted and held back from the best possible learning opportunity to fulfil their potential, if they were to be enrolled in a class which included learners with complex needs. Time, attention, and resources may be directed away from their child and similar children, to be allocated to the child with additional needs. They therefore may hold the view that a child with disability may be better settled in a school with specialist teachers, and with centralised facilities for learners with special learning needs. In effect, they then support the notion of segregated learning – but perhaps with the practice of regular or irregular transitions between the two schools.

This is controversial and sustains the debate about ethics, rights, equity and social justice in education and schooling.

COMPETITIVE NATIONAL EDUCATIONAL STANDARDS IMPACTING INCLUSION

An interesting issue is the selective exclusion of children with disabilities from national and international educational standards data. Coughlan (2015) reported on the OECD PISA survey results (the survey was taken in 2012 of 15 year-old students) that Singapore tops the global education table. However R. Seah (personal communication, January 5, 2016) reported that the students who attend the large

special schools in Singapore will not have their achievements included in comparative global education rankings, as reported in the OECD table. Adjustments are made for learners with disability in Australia's mainstream schools taking NAPLAN tests; however, special schools are exempt from NAPLAN testing (M. Adams, personal communication, August 10, 2015). The Australian Bureau of Statistics' *Profiles of Disability 2009*, released in 2012, stated that "in 2009 there were an estimated 292,600 children with disability attending school in Australia" (p. 1). These "were aged between 5–20 years, and represented 8.3% (approximately one in twelve) of all Australian children attending school in this age group" (p. 1). These are children enrolled in both mainstream schools and special schools. There is, however, a large proportion whose achievements are not included in global testing surveys. Arguably there is an ethical dilemma here in that not all children in a country's schools are being assessed. Of what value then is the matter of conducting an international study of educational results, unless clear statements are made pertaining to the exclusive parameters and scope of the survey, and the publication of the comparative results? It may be asked: does this type of activity align well alongside the UNESCO Conventions for learners with disabilities?

THE INCREASED NEED FOR SKILLED TRAINED TEACHERS IN INCLUSIVE AND SPECIAL EDUCATION

While understanding the argument by many for fully inclusive schools, and some for the need for specialist schools, the need for skilled specialist teachers in schools will always exist (Hodkinson, 2016). Specialist teachers are needed for special schools – for as long as special schools exist. Mainstream schools also require teachers with knowledge and understanding of how to teach children with special learning needs. Given that every class arguably has at least one student with special learning needs (Foreman & Arthur-Kelly, 2014), it is appropriate that teacher education programs are now being directed to ensure teachers are equipped to provide attention to learners who need more than just basic support and attention. Assessment and identification of children as having measurable conditions of disability is increasing. Greater numbers means a greater need for all teachers to be trained and skilled in working with children with disability, and with special needs.

What adjustments can be made to existing curriculum to meet their particular learning requirements? What resources are needed to support the planned learning, and the approach to learning which will provide these learners with an understanding of, and an experience of success? What help is required? Which specialists can assist and contribute to this successful learning – occupational therapists, speech pathologists, the parents – to develop a successful collaborative team approach? Is it possible for the learner themselves to contribute to developing the learning content and purpose? Special schools provide successful educational engagement and learning by students with special needs, and especially those with complex and profound conditions; most are equipped with specialist assistive devices to support

learning, mobility and many other specialist and personal needs. It may be argued that it may yet be a generation or more before all learners are learning in fully inclusive and comprehensively equipped schools. Could all schools be capable of managing those with behaviours or complex physical and intellectual disabilities where on-going one-on-one care may be required?

The Australian example illustrates how national changes to teacher education are being mandated to ensure increased capacity to teach learners with special educational needs. The University of Aberdeen's Inclusive Education Project (2012), is an example of a strong commitment to ensuring inclusive practice is incorporated into initial and postgraduate teacher education courses.

The Malaysia, China and India models show where teachers would benefit from collaboration with international providers and consultants in developing home-grown instruction and guidance in specialisation and inclusion skills, as these skills are not yet widespread.

Alongside teacher education is the curriculum. The Australian Curriculum provides comprehensive guidance and advice on its website under "Student Diversity" (Australian Curriculum, Assessment and Reporting Authority, n.d.). In addressing student diversity, the Australian Curriculum sets out that for a learning program to be inclusive, it requires adaptation and modification to ensure that all children achieve success, through rigorous, meaningful, and dignified learning experiences. Each area of the curriculum therefore ought to be given attention to ensure it provides opportunities for children to participate in rigorous, relevant and engaging learning. Together, teacher education and curriculum are crucial elements for successful special education.

The pressure towards implementing full inclusion is better met by some than others. The reality is that many mainstream schools, while being required to make provision for all children whose parents seek enrolment, are not yet fully or adequately equipped to manage and provide truly inclusive learning activities and experiences. Even many special schools have inadequate skilled, qualified teaching staff; most are indeed caring and compassionate, willing to provide the best possible teaching and support they can. However, having qualified specialist trained teachers is still not widespread, and mainstream schools have fewer skilled, qualified specialist teachers.

"Behaviours of concern" are behaviours displayed by children who, for a range of reasons – including having a disabling condition – make the efficient functioning, pleasant tone, and positive learning of the class difficult. This may impact teachers, very often young and recently graduated teachers, who feel the pressure within the classroom, and may be unable to find adequate strength and support from the school and its leadership. Lumsden (2015) reported on the "news.com.au" website, and Buchanan, Prescott, Schuck, Aubusson, Burke, and Louviere (2013) reported that this lack of support from within the school is a leading cause of high attrition among recent graduates within the first five or so years in the school workplace.

Schools are under pressure to meet and manage these needs. They face a range of challenging attitudes towards learners with disability, including mixed community support, mixed cultural values, attitudes and beliefs, and mixed political attitudes and practices. This is the reality of community and social life in countries like Australia.

There are therefore mixed responses evident in schools and classrooms. Children very often do not understand other children. They observe and often mimic unhelpful modelling by significant adults and others in their community. If they do not understand children who are not the same as them, who may have a disability, they may learn to respond or relate with a variety of behaviours; these could be passive or active behaviours of acceptance, fear, rejection, threat, or bullying – power imbalances which are often considered inappropriate or unhealthy. Authentic inclusion is challenged by these attitudes.

CULTURAL VIEWS OF DISABILITY AND SPECIAL EDUCATION

The world is dynamic and changing. Media portrayals of world and local events, and our own participation in life and education sees huge shifts in standards and behaviours, and the various degrees of viewing, acceptance, and implementation of these through accommodation, adoption, and adaptation. There are those who resist this change with significant and passionate vigour. There are those who promote change with passionate vigour. And there are many points of participation along this continuum. Cultural views impact understandings and acceptance of who each person is, their relationships, ways of living, their values and beliefs. This includes understanding and beliefs about disability, and relationships with those with disability (Foreman & Arthur-Kelly, 2014). Factors which construct this culture include geographic location, which may quickly change. A child may be born in one part of the world, but through oppressive external agencies or events, may have to attempt to find refuge and sanctuary in another part of the world. Forced migration and relocation is very common in the 21st century. The émigré is impacted by the culture into which they move, and the community into which they move is impacted by the incoming influence of the immigrant. The family's initial view, understanding and management of disability are crucial as those who have the greatest influence on the child, his/her growth and development. The family in turn is impacted by broader socio-cultural values, beliefs and understanding from the community and environment where they live. Under this umbrella there are institutional aspects of culture, such as the formalised and applied aspects of their religion, education and schooling, political structures, and economic status and structures, all which confluence to impact and shape how well a child with disability may be accepted and provided with the best possible opportunities to learn, grow and develop to the full extent of their potential (Foreman & Arthur-Kelly, 2014).

There are contrasting concepts evident throughout discourse into disability: acceptance and action; apathy and rejection; and "shame" (S. Halder, personal communication, November 28, 2016).

Those that accept the reality of disability take action in response to being aware of disability in someone in their family or with whom they have some form of relationship. These tend to be those who have a person with disability in proximity.

Conversely, where the presence of individuals with disability may not have a high or significant presence in a community, a significant number of that community may seldom think of or consider issues or other aspects of those with disability. And when they do see or meet someone with disability, there is an apathetic response which may suggest this person and their condition has nothing to do with me. It is argued that an attitude of apathy towards those with special needs is more prevalent in some societies than may be acknowledged, or may be aware.

Cultural views of those with disability may see them as people who will learn and participate in life in ways that may differ, or have adjusted elements to support their lives.

A rigid, inflexible, learning and teaching system which employs teacher-centred learning practices is restrictive and unsuccessful with learners with special needs. For many education systems, which approach education in this way, it has been demonstrated that where educators from countries within a global region gather to discuss successful pedagogy, and where the education folk from within the country can elicit and develop the approach through their own authorship, that this then can progress towards authentic teaching and learning practices (Grimes, Stevens, & Kumar, 2015).

TECHNOLOGY AND SPECIAL EDUCATION

As in all areas of society, community and education, technology is making its way into special education and education for learners with special needs. The emphasis is for such technology to be viewed and used as a key support tool for use by the skilled specialist teacher and the learner. The risk, however, is for technology to be considered the panacea or miracle strategy to assist or guide learning for learners with special needs.

For years, students with special learning needs have been placed in mainstream classes under the supervision and direction of teachers who may consider having such learners in the class as a major challenge and concern. An “easy way” to manage the situation was to procure a series of worksheets and have the student sit at a desk quietly working at these educative activities while the rest of the class carried on with scheduled curricular activities (M. Adams, personal communication, August 10, 2015). In more recent years, the child could be placed in front of a computer to engage in independently managed software-based learning activities. If funding were available, then an education support teaching assistant could be employed for several hours, or even several days per week, to work with this child on a one-to-one basis.

Having one-on-one or even small group teaching support is not always available as an option for many learners with special needs in many areas around the world.

Software, applications, and instructional technology devices and systems are very expensive – for many, the expense is inconceivable (Kohama, 2012). For a large proportion of learners with special needs, their parents or carers, access to such potentially helpful supportive technology is beyond their financial reach. For more, even the thought of possible access is impossible – they may not be aware of the existence of these resources. The reality of providing technological learning and teaching resources is still many years away for children with special learning needs in many regions of the world.

For those who can, there is an array of new developing knowledge, understandings and approaches which includes the use of innovative and high-end technology and concepts. Doidge (2010, 2015) described how the increasing understanding of neuroplasticity, and the capacity of the brain to adapt or heal itself following brain or neurologically-related trauma or illness, is opening the world more widely to many who previously may have been diagnosed as majorly disabled and impaired. Or be trained under conditions of developmental delays or re-trained in ways to address intellectual disability such as autism spectrum disorder (ASD). The developing body of knowledge about physical, intellectual and sensory disability is steadily growing. The expansion of technology and e-learning tools available to schools, teachers, therapists, parents and learners is similarly growing quickly – interactive, voice-activated software applications; various communication devices, switches and software, smart whiteboards, computer screens, applications for iPads, smartphones, e-training programs for learners with various intellectual disabilities, and more.

THE 21ST CENTURY AND BEYOND

The point of view has been expressed that disability and special education is dynamic – that there are significant and important shifts taking place in many regions around the world (Grimes, Stevens, & Kumar, 2015; Foreman & Arthur-Kelly, 2014; Rouse & Florian, 2012). Well motivated and committed leaders in ethical and social justice education argue strongly for full and total inclusion. Conversely, those associated with special school contexts argue the position that there are greater, more successful outcomes for all learners when special schools are available as providers. Discourse, argument, responses and implementation are under way in many countries, with much built upon quality empirical research. The research should continue, and be supported as improvements are found and recorded for best possible pedagogy and practice. Inquiries into inhibitors and roadblocks in regions where support for learners with special learning needs are not progressing should be undertaken where possible, so that the needs of all children may be met.

Technology is making significant headway into learning and instructional tools for learners with special learning needs.

Schools in countries with very large populations and which have very large class sizes face an almost impossible task to individualise planning for learning and

implementation. Where additional resources are required the associated costs are likely to be prohibitive (Singal, 2009).

Problems are being resolved, however, it might not ever be possible to find a complete and satisfactory solution which meets, for example, the Universal Design ideal. Ethics, social justice and moral values will continue to be debated, while improvements to education, schooling, learning, and teaching approaches will improve.

Changes to how a child with a behaviour of concern may be managed are being addressed (D. Clark, personal communication, November 11, 2015). Ethical standards are being refined so that the best possible development of learning and pedagogy may be implemented, and that least restrictive practices operate in the school. This is of concern to all associated with safe, ethical practice to the learner, to those around, and to the teacher and the school. Special schools may be the focus of concern for those who advocate for total inclusion because they see high fences, and locks placed high at the gate. Can a school be designed where all learners attend on the same campus, sharing facilities? While this would be a possible solution to support inclusive learning, currently some modern specialist schools have structural provisions for safety and well-being. Children with behaviours of concern often play in areas that allow for only limited movement – for the well-being of all. This is where the dilemma becomes a reality. Ideologues desire all children to play together. As children with behaviours of concern become older, and stronger, some may find it difficult to behave in socially acceptable ways, all the time. Can a school be designed to accommodate all children with special needs to learn and play alongside each other all the time?

Positive social interaction is an essential aspect of learning and preparation for a fulfilling, rewarding life. Working individually with each learner, the family, the classmates, and the community, requires a patient enduring approach for sustained success.

CONCLUSION

Education and government authorities in most areas of the world are taking steps to address the needs of learners with special needs in schools. The range of responses is large, some with notable success, and others with less success. It may be argued that countries with strong human equity agendas and access to active resources have made effective progress, working diligently towards the goal of comprehensive, inclusive education for all. However, at the other end of the ‘spectrum’, many countries are finding difficulty in meeting the educational needs of learners with disability. Some are the most populated nations, which have enormous numbers of children to support and educate; the scope and extent of change of understanding, attitudes and resources is overwhelming. Bit by bit, province by province, progress is being made. For some are nations, which are among the economically poorest, the provision of basic universal schooling itself is currently unachievable. But many affluent countries are providing instructional and financial aid to developing countries, such

as the UK's, Norway's and Sweden's support for DPR Lao. Australian universities have developmental research and education programs for children with disabilities in Indonesia, East Timor and Singapore (such as Flinders University from South Australia) (C. Ellison, personal communication, October 27, 2015).

Five significant issues have been identified and considered here: the dilemma of diversity and inclusive education; competitive national educational standards impacting inclusion; the increased need for skilled trained teachers in inclusive and special education; cultural views of disability and special education; and technology and special education.

"Diversity" appears reasonably well understood. However, in reading literature from a range of sources, in the examples provided earlier in this chapter (notably those which describe countries with large populations and massive bureaucracies), 'inclusion' and 'inclusive education' are not understood with a uniform meaning, nor are they implemented in a nationally systematic, structure based upon sound, nationally agreed policies. One researcher (Singal, 2009) described it as "chaotic". Until this concept is fully discussed by global representatives, and a universal resolution agreed whereby an acceptable definition is reached, there will be continued differing levels of leadership and support for effective planning, teaching and learning in schools where there are special needs children.

Further, when including so-called developed countries as well, it may be seen that the present reality suggests there may never be social consensus to the provocative concept of inclusion and segregation in mainstream schools and special education schools. This may, however, be seen as a positive debate, with the learner benefiting through the provision of the best available schooling to meet their developmental and learning needs. Providers are arguing the case for various forms of education, while parents also seek what they perceive to be the most favourable educational setting for engaging their child. There may – or perhaps *ought not* to be – a one size fits all solution. If the Universal Design is to be more broadly considered and accepted, its advocates and implementers may have to attempt to seek not only an architectural solution, but also a curricular solution. Would they then press for a cultural solution? Almost definitely not.

There can be no question of the need to increase initial teacher education in special needs education. The expansion of specialist courses, as well as having concepts and pedagogical skills embedded throughout the delivery of each education, method, and practicum course, is central to the intention to grow and enrich graduates to effectively work with learners with or without disability. What is challenging is having qualified, experienced teachers or lecturers available to teach the pre-service teacher (Doecke, in press). In the present academic era, universities are no longer satisfied to employ teachers or lecturers who do not have doctoral qualifications. This restricts the field of who can be engaged to teach the teacher education student.

A less comfortable debate is that around comparison of competitive, national educational standards achieved, to be paraded before the world, of alleged

academic, schooling excellence. To maintain a prestigious, attractive profile, some children are being excluded – not counted. Is this ethically and morally justifiable?

Cultural views of disability which have been embedded for generations and longer may be very difficult to change. While many societies and cultures have experienced significant change in the last generation or decade, not all have embraced change; some are even actively resisting change. This latter attitude benefits only a few – usually a dominant and radical minority within their own cultural clique – and marginalises many. Evidence of successful teaching, supported by quality research, *gently* implemented in schools throughout the world's communities, remains as the greatest facilitator for sustained change.

Technology supports successful teaching, and ought not to be considered as a replacement for teaching. Some countries can afford to develop, purchase and try new technologies, such as digital devices and software. Many more are unable. Perhaps the "haves" can provide for the "have-nots". This is already happening through national and international support and collaboration programs. It may be argued that there is a risk of hegemony here. It is hoped that an attitude of goodwill and best intentions may prevail in such potential contexts. Careful monitoring and practices of accountability are crucial to maintain integrity and best practice.

Children with disability are part of every community; they are a central part of every educational community. It is not appropriate to exclude any one of them for any reason. It is the right of every child to learn, to be provided with opportunities to actively participate in learning to meet their potential for a full and complete life.

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SECTION 4

GLOBALISATION AND INTERNATIONALISATION

CHUNYAN ZHANG AND CHERYL SEMPLE

12. THE EMOTIONAL COSTS OF A GLOBALISING LEARNER IDENTITY

Challenges and Opportunities for 21st Century Pedagogy in the Asian Century

ABSTRACT

Globalization, and the internationalisation of education, involves challenges and emotional costs for both students and teachers (Elliot & Lemert, 2006). In this chapter we explore the ways in which the identity of both teachers and students shift into, what we call, a globalising learner identity as a result of the process of globalisation. We use our own teaching experiences and social interactions within teaching to illustrate this process by providing some concrete examples of the globalising of learner identity.

Keywords: emotional costs of globalization, identity, globalizing learner identity

INTRODUCTION

The following images capture two different aspects of global learning in the 21st century and reveal important dimensions of the internationalisation of education that are now an integral part of Australian education systems.

The first image shows an example of the impact of the Australian government's 1992 Asian languages policy (Government of Australia, 1994) and the Sister school project (DEET, 2012), both designed to encourage the internationalisation of education. Students' work on the classroom wall shows the learning of Chinese language and culture that is happening in this school and many others. The second image shows a Chinese student on campus at a Melbourne university. In June 2016, there were approximately 421,000 international students throughout Australia (Australian Education International, 2015), with one third of these being Chinese students. To frame our discussion about the internationalisation of education, we use Jane Knight's (Knight, 2004) definition which sees it as "the process of integrating an international, intercultural or global dimension" (p. 7) into practices and policies.

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 213–230.

Figure 1. The decorated wall of a Chinese LOTE classroom in suburban Melbourne, showing students' understandings about language and culture

Figure 2. Chinese university students enjoying life in Melbourne

The two separate, but connected processes of globalisation and the internationalisation of education have significant implications for pedagogy, curriculum and intercultural relations within all levels of Australia's education systems. Both educators and students affect and are affected by these processes. This chapter explores what Anthony Elliott and Charles Lemert (2006) called the *emotional costs* of the *new individualism* that processes of globalisation have produced. We will define these terms in more detail in what follows. This chapter will also discuss these "costs" and processes in terms of the challenges and opportunities they raise for 21st century pedagogy in the Asian century, and the ways in which they shape what we will call a globalising learner identity.

We use Anthony Giddens' (1990) notion of globalisation to frame our discussion about the effects of globalisation. Giddens sees globalisation as:

> … the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa. (p. 64)

Giddens (1990) argued that there are emotional costs to this process. Globalisation is not only political, technological, cultural and economical, but also emotional and individual. (Elliot & Lemert, 2006; Giddens, 1999; Hawkins, 2006). Living in this fast-changing world, modern people have to constantly update their knowledge and skills so that they can better cope with the complexity of the world. As a result, their identities are constantly changing, their learner identity is globalising.

Our discussion is set within the context of what Giddens (1999) and Elliot and Lemert (2006) call the new individualism; the term used to describe the individual's experiences of managing globalisation. Giddens argued that new individualism sees the dissolution of traditional ways of living and working. That is, that they are shaped by processes we can identify as a new individualism that involves, and demands for, expectations of self-reinvention, continual change, speed and the acceptance of short-termism. Giddens (1999) defined these experiences as being de-traditionalised by profound transformations of various social contexts (family, structures, education systems, work, and consumption). When traditions and customs are made problematic by globalisation, new ways of living or lifestyle have to be created. In other words, people whose lives are shaped by the new individualism have to construct new social contexts for themselves to live in or work in. One of these new social contexts is explored in this chapter as a group of Chinese students, recently arrived in Australia, find ways of being in their new university and culture.

The internationalisation of Education occurs through engagement with other people and cultures and appears both "at home" and "cross borders" (Knight, 2007). In what follows we will look at Chunyan, a Chinese teacher who is teaching Chinese as a language other than English (LOTE) in a Melbourne primary school. Chunyan's students are involved in the internationalisation of education through intercultural experiences with her, their Chinese teacher, and online with the students at their Chinese sister school. Chunyan, who is caught "in-between" cultures (Ang, 2007), is both internationalising the curriculum for her students, and experiencing an internationalisation of education within her doctoral studies. We will also look at Cheryl's student Katerina, an international university student recently arrived from China, who presents a cross border example of the internationalisation of education.

As this chapter unfolds we demonstrate how both of these approaches to internationalisation are played out within a globalised world. We explore these issues by taking an "up close" look at identity and the ways in which students, and their teachers, negotiate a global identity. That is, an identity that is continually changing as they negotiate the social practices of the many different cultures in which they must engage. These up close encounters are presented as our stories. Stories, that in their particular character, illustrate just a few of the challenges and opportunities we encounter as teachers who live and work in a globalised world and engage daily in the internationalisation of education. Our voices, too, represent the possibilities and limits of intercultural relations in these transformed contexts. The difference between our voices finds expression at different points in what follows.

REFLECTIVE AUTO-ETHNOGRAPHY – CAPTURIMG THE MESSINESS OF GLOBALISING LEARNER IDENTITY

According to John Law (2004), the world is "an unformed but generative flux of forces and relations that work to produce particular realities" (p. 7). Added to this complexity, messiness and fluidity of the world is the utilization of information and communications technologies (ICTs). This accelerating process is globalisation and has affected our societies and people's daily lives in many different ways. Living in this fast-changing world, modern people must constantly update their knowledge and skills so that they can better cope with the complexity of the world. As a result, their identities are constantly changing, which we call a globalising learner identity.

As we recognize the inadequacy of conventional research methods in capturing our complex, messy and fluid world, especially when people's identities are involved, we use method assemblage as our methodology, and auto-ethnography, employing allegorical stories as our method to investigate this globalising learner identity.

Law (2004) defined method assemblage as:

> …enactments of relations that make some things (representations, objects, apprehensions) present "in-here", whilst making others absent "out-there". The "out-there" comes in two forms: as manifest absence (for instance, as what is represented); or, and more problematically, as a hinterland of indefinite, necessary, but hidden Otherness. (p. 14)

The investigation of our globalising learner identity in teaching and learning can be regarded as method assemblage. The auto-ethnographical stories we tell are illustrations of the enactment of hinterland and its bundle of ramifying relations. As educators, our teaching plans or the actions taken are simple, certain and definite. However, the relations behind these teaching and interacting choices are complicated. In this process we both craft complexities and simplifications in our choice-making. We make certain things present, "in-here". However, this in-hereness also makes other relations absent, silent and othered, which is addressed as manifest absence by Law (2004).

In recounting our stories in this chapter, we are using auto-ethnography to capture the emotional costs of a globalizing learner identity in the Asian century in order to explore the implications for 21st century pedagogy.

Centring the self in ethnography is unusual and controversial, and is often regarded as an alternative or experimental methodology (Coffey, 1999, p. 18). However, since the 1970s, there has been an increase in the biographical dimensions of observing and telling lives in ethnographic research and writing. It has become more appropriate, more legitimate, to personalise individual researchers' account of their fieldwork and to utilise reflexivity in ethnographic research (Coffey, 1999, p. 1; Davis, 2008, p. 216).

Amanda Coffey (1999) cited Haraway's argument about the need to formulate the self as:

> … partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly and therefore able to join with another, to see together without claiming to be another. (p. 36)

Coffey (1999, p. 133) claimed that auto-biographical sociology is not, per se, necessarily self-indulgent or narcissistic. On the contrary, the text of personal experience not only provides a source for insightful analysis, but also allows the possibilities of multiple and critical readings. Law (2000) also argues that it is not necessary to think of self-indulgence in this form of writing because the body – the personal self – is an important site where different ways of narrating or interacting (modes of ordering) might produce effects and make a difference.

Some researchers (Law 2000, p. 4; Coffey 1999, p. 11) claim that since the world is complex, messy and fluid, we should prepare to accept that the findings are uncertain, unlimited and fractured, while the knowledge is local, situated, embodied and subjective. For Law (2000, p. 11) there is no distinction between the personal and the social. Anything personal is social. It depends on what kind of situated knowledge we want to perform, and how critical we want to be in reflective auto-ethnographical writing. How much we can reveal ourselves depends on our goals in research. As he suggested,

> … whether we tell stories about ourselves as we perform our situated knowledges will depend on what we are trying to achieve, and on the context in which we are seeking to achieve it. (Law, 2000, p. 28)

In our exploration about the emotional costs of a globalising learner identity, we use stories in our auto-ethnographic writing. These stories are allegorical stories (Clifford, 1986) telling readers about cultural phenomena; their representations "interpret" themselves. They are extended metaphors, patterns of associations that have theoretical, aesthetic and moral meanings.

GLOBALISATION AND THE INTERNATIONALISATION OF EDUCATION

Since the invention of the first electric telegraph by Samuel Morse in the mid-19th century, the world has experienced tremendous changes through advancements in information and communications technologies (ICTs). People's ways of interacting and communicating with each other have changed dramatically in this period. From telegraphs to telephones, emails to video chats, carriages to magnetic levitation trains and Boeing aircrafts, within 150 years our world has become what Marshall McLuhan called a *global village* (Guillen, 2001).

This change process, globalisation, has increased since the 1980s, and has become one of the factors affecting many aspects of our lives. The advancement of communication technology and transportation increases cross-border flows of

nations, races, services, ideas, information, money, life styles, images, knowledge and culture (Hawkins, 2006, p. 10). There is little doubt that every one of us is more or less propelled into this global process, a process which attracts social scientists who observe, explore, debate, and analyse it from different perspectives. They not only explore what Giddens (1999) referred to as the *out-thereness* – the macroscopic views about globalisation from social, cultural, political and economic perspectives – but also the microscopic aspects of globalisation, the *in-hereness* which refers to how globalisation affects an individual's lifestyle and the emotional costs people have to deal with. In this article, we use our own teaching experiences to illustrate part of this social process.

Against the backdrop of globalisation, the Australian government has identified the significant role that Asia plays in its international relations in the 21st century. Haefner and O'Neill (2013) stated in their MBA White Paper, *Understanding the Significance of the Asian Century*:

> The 21st century will be the first in several hundred years where the importance of the trans-Atlantic will shift to the significance of the trans-Pacific as the centre for geopolitics and geoeconomics moves from Europe to Asia, from the Atlantic to the Pacific. (p. 1)

Apart from trade with Asian countries, large numbers of immigrants flood into Australia every year. Among them, international students seeking tertiary education are one of the main groups staying and contributing to Australia for a number of years.

There are more Asian students studying in Australia than ever before; Australia has unprecedented trade and investment links in the region; tourism is at an all-time high; and migration is at near record levels (Haefner & O'Neill, 2013, p. 3).

Opportunities and challenges sit side by side in this Asian century. While Australia enjoys an economic boom from these Asian inputs to the country's development, the need to get to know these countries' culture and traditions is crucial. The Asian Century White Paper (Haefner & O'Neill, 2013) stated that:

> Having greater knowledge of countries in the region is important in forging new opportunities in Asia. Government support for Asia-focused knowledge diffusion in primary and secondary schools is particularly critical. (p. 3)

Paying significant attention to international education, especially incorporating Asian language and culture in pedagogy, is not only happening within Australian university settings, but also at primary and secondary schools around Australia. For instance, a number of primary schools in Melbourne have changed their second language from European languages such as German, Italian and French, to Asian languages like Chinese, Indonesian, Japanese and Hindi.

In the last two decades, both the 1998 UNESCO conference and State government policy have impacted on Victoria's approach to the internationalisation of education. At the 1998 UNESCO conference (UNESCO, 1998) discussion centred on the

importance of the internationalisation of education. Since this time we have seen the emergence of an increasing variety of inter-country agreements that allow students to complete their degrees across two, or more, international campuses. While the internationalisation of education occurs as a result of these cross border agreements in higher education, it also occurs at home as a result of cultural sharing when immigrants from a range of countries enrol in our educational institutions, and intentionally in primary schools when they take part in studying languages other than English (LOTE) and Sister school programs. The Sister school program in which Chunyan's students take part is an integral part of the Victorian Government's Plan for a Multicultural Victoria (Victorian State Government, 2008), which aims to support schools in the internationalisation of their policies and practices.

Over the last two decades, Australia has witnessed an increasing number of international students enrolling in national educational programs, with numbers rising from just under 100,000 in 1994 to approximately 650,000 in 2015 (Australian Education International, 2015). In 2015 there were approximately 272,000 international students enrolled in Higher Education programs throughout Australia (Australian Education International, 2015), with one third of these being Chinese students. The large number of internationals, and in particular, Chinese students, who now study in Australia calls for increased understandings about these students and how to support them for academic success. If we accept the work of researchers such as Elliot and Lemert (2006) on the emotional effects of globalisation on the individual, it is important to take an up close look at how our international students are faring in the globalised world, a world that impacts on the internationalisation of education, and how we might support them more effectively.

GLOBALISING LEARNING IDENTITIES – BACKGROUND TO OUR STORIES

Both Cheryl and Chunyan have been working at the front line in their educational fields and strive to design and implement pedagogy that caters for the needs of their students. Cheryl works with international students, especially Chinese students in their transition from their home countries to Australian society and lifestyle; while Chunyan – a native Chinese with global working experience – teaches Mandarin Chinese to Australian students and encourages them to see this language and culture with a global vision. Both Cheryl and Chunyan have to put themselves on constant learning tracks, re-skilling themselves so that they are updated with the latest skills and knowledge. In these processes, not only are their students influenced by them, in other words, their learning identity changes, but also they – their identity or inner dimensions – have changed along with these teaching practices.

We explore the emotional costs of people living in a globalised world. As a Chinese teacher living and working in Australia, the choices that Chunyan makes as she experiments with an online teaching program with a Chinese sister school, present her with challenges and opportunities that reflect the culture of new individualism (Elliott & Lemert, 2006) where individuals live and try to cope with

globalism. While our focus is on Chunyan as a teacher, we are conscious of the implications of her story for all the other "Chunyans" within our education system whose learning identity is globalising as they are caught in-between two cultures. While their lives may be messy and fluid and complex, they make daily decisions in their teaching that result in simple, certain and definite actions.

Cheryl's discussion of an international student's dinner allows another window into the emotional costs of globalisation. In this scenario, Cheryl, Bob, Katerina and other international students mingle at a multi-cultural dinner party. The interactions between people at this dinner reflect the opportunities and advantages that globalism can offer to each individual. In this process, everyone's identity has more or less changed to be more open, more flexible, more receptive and more risk-taking.

These two personal teaching accounts vividly depict the dissolution of traditional ways of living and working. Chunyan, her primary school students, Cheryl, Bob, Katerina and the other international students, the organisations and people who work in them, like Chunyan's primary school, the Chinese sister school, Cheryl's home and her faculty, and the colleagues they work with, all are affected by the changes they have made to live in a globalised world. When these individuals tried to create new ways of living, working and interacting, when they try to detraditionalise some traditions or customs, when they try to create new social contexts for their work, and when they develop new pedagogy to embrace the globalism in their work and life, their identity changes. In this article, we refer to this process of change as a globalising learner identity.

There are opportunities and challenges for people who are adopting a globalising learner identity. However, as educators we think that by giving students opportunities, letting them explore new possibilities, working on creating new pedagogy, deconstructing traditions or customs, and creating new social contexts for working and living, we are helping our students to cope with globalisation. As educators in the 21st century in Australia, it is important to incorporate an understanding of the emotional costs of globalism in the development of pedagogy. The stories of us – the globalising learners – planning and interacting with students and others within our educational settings, reflect how social changes affect both our pedagogical design, and our identity.

It is not our aim to give suggestions or provide remedies to educators. Our stories are an attempt to present how these globalising learners negotiate their identities in the ways they cope with globalism. We use our stories to explore these changes. Some examples are exciting and full of potential and opportunities whereas others are challenging. However, these personal accounts of things that happened in our teaching experiences provide "sources for insightful analysis" (Coffey, 1999, p. 43), glimpses of how educators' learning identity globalises in the pedagogical explorations of professional teaching practice. We are aiming to present this globalising learner identity in the Asian century in Australia against the backdrop of globalisation. We are trying to provide a perspective to educators and policy makers about the emotional challenges and opportunities in this globalised 21st century, hoping they will take into

account the emotional costs of globalising learner identities when they plan their lessons or draft educational policies in today's globalised world.

CHUNYAN'S STORY: ON MY HOLIDAY

I lay in bed, reflecting on the conversation I had online with the principal of my sister school in China…

It was Australian school holiday time. Instead of going back to visit my family and friends in China, I had decided to stay in Melbourne for this Christmas.

"We want to open our classroom door to outside; we want our students to have new experience and new outlook about students from other countries."

"Great minds think alike!" I laughed, "but it is just a beginning. If we agree, this will be our experiment in seeking a new way of communication between our two countries' students…"

I moved my fan gently, happy with the conversation I had with Ms Xi. Since my Chinese sister school was so receptive and cooperative, I should not have any worries about continuing to design my online teaching curriculum in 2016.

Work plan went smoothly, how about my PhD study?

"The readings, the writings, the thinking…," I murmured to myself. I have no problems with PhD study as long as I put enough time into it. Thinking about, how long was I going to put into this PhD study? What about marriage, family and children? I was in my late thirties and my clock was ticking if I wanted to have a family. But was I going to marry anyone just to fulfil my biological functions – having children? No! No! No! This was never going to happen to me since the moment I gave up the permanent job in my hometown in China.

But what was I going to do if I still cherished the idea of having a family?

I did not know the answer to my question. This was the thing I couldn't control. All I could do was to go with the flow of things that happened to me… I thought about the other day, when I had an interview with a Yoga master.

"Why do you want to do this Yoga training course?" the Yoga master asked me.

I hesitated, "I want to find a balance in life."

I paused, "I use different things to anchor myself in life – work or study. But, I know emotionally or spiritually something is missing in my life."

"Do you do meditation every day?" she asked.

"Yes, I did in the past but I was angry with myself and stopped doing it for a while", I answered.

"Why?"

"After I fulfilled my parents' expectations, I was religious for a while. Then got disappointed after I divorced." I said, "I couldn't see the point of staying in Australia if I didn't get a teaching job in a local school. Then I found another reason to stay in this country – doing PhD study part time. I was angry after my marriage breakdown. Work and study can hone my skills in living, but emotionally and spiritually I am floating." Tears rolled down my cheeks as I spoke.

"It's a terrible feeling to float emotionally and spiritually, isn't it!" I added. "I have noticed that Yoga can help me be more centred and relaxed…"

The weather was getting dark now. I raised my head and looked at the sky. The dark blue was so peaceful. With a few pieces of silk-like cloud floating randomly, the sky looked very empty and far. I lowered my eyelids, scanning the green trees that surrounded my house. The grass in the backyard was yellowish and wilted like depressed men lying on the ground. A mosquito quietly landed on my left upper arm, attempting to suck my blood. Resentful as I was, I drew my right hand quietly and slapped at it as hard as I could. Ouch! That hurt. I could see a light red handprint on my left upper arm. I opened my right palm; the mosquito was smashed like a black dot. I looked at it and wondered what else I could hold in my hand.

What else I could hold in my hand in this land?

Work and study were really small parts of my internal life but they consumed most of my time; while things relating to feelings such as love, relationships, marriage and family were so close to my heart but I gave little time to them. These inner dimensions of my life were pushed to a corner which was dominated by conflicting thoughts and enormous apprehension, anxiety, frustration, anguish, guilt and despair.

Globalisation requires a new way of being and behaving. In this scenario, living far away from her family, Chunyan chose to stay in Australia over the vacation period, working on her school collaboration with a Chinese sister school. She juggles different commitments: working full time, doing her PhD part time and embarking on a Yoga teacher training course, keeping herself busy and grounded by ramming energy into a fragmented life. Time is precious, work is important, life is messy, complicated and fluid. It seems a glamorous modern life, where opportunities and challenges coexist. However, underneath is the sacrifice of emotions where the feelings of instability, uncertainty, frustrations, worries, anxiety and despair paint the backcloth of a 21st century modern globalising learner's life.

This is the emotional cost of Chunyan's life. However, there are millions of Chunyans who travel from one region to another, one country to another, to search for a better life. They enjoy the benefits of the opportunities which globalisation brings to them, but they also experience the challenges and emotional costs of being a globalising learner.

The challenges and emotional costs of a globalising learner identity are embodied in Chunyan's story; a young Chinese woman who has made the choice to live and work in a multicultural Australia. Cheryl's story creates a different, but somewhat similar face on globalisation and its challenges and opportunities through a focus on a young Chinese woman who has crossed borders to complete her education degree in Australia, and possibly spend her life there. This is the face of Katerina who is also far away from family and friends, is also living with the expectations of her parents, is also suffering the vagaries of an unfamiliar climate, and who everyday is wondering what part of her life this new country will be.

CHERYL'S STORY: GUESS WHO'S COMING TO DINNER?

I met Katerina in my role as International student co-ordinator in the School of Education, RMIT University. In this role I am charged with a variety of tasks that involve supporting students both academically and socially. In particular, I organize activities for the students that focus on helping them make connections with each other and the broader student cohort in order to support the development of a sense of belonging. It is a sense of belonging, argued Giddens (1991) that gives an individual the confidence to take agency, a sense of being that Giddens called ontological security. Giddens argued that it is this sense of security that allows us to survive in our globalised world; a world of rapid change and personal re-invention. In the story that follows about Katerina at an international students' dinner, I explore this concept of ontological security in terms of the agency it extends to Katerina in her first few weeks in a foreign culture. Agency that appears to allow her to sing and play music in front of many strangers when there are still so many unknowns that she is navigating. As Katerina engages in this new social context and enters into relationships with unfamiliar people and practices, I look at what this means for her globalising learner identity.

This portrait of Katerina is part of a larger project that focuses on international students in the School of Education at RMIT University, and identifies and explores the ways in which they negotiate a global learning identity. It aims to explore the idea that international students forge new learner identities when they move between different learning cultures and that this new identity may have implications for educational outcomes and the ways in which institutions provide systematic support for this cohort of students.

Once a year I have an international students' dinner at my home. Bob, my husband, is quite a good cook and is happy to do some of the catering. When we had our first dinner we didn't know what to cook. We knew that we wanted to cook food that the students liked and were familiar with, but we also wanted to introduce them to some western dishes. Over the years we've learnt what the students like, and more importantly what they don't like. Now we always include shepherd's pie, barbecued chicken and fruit salad. Last year Bob took another "risk" and introduced corn fritters. They were a great success, so now we have another favourite to add to our menu. The students also bring their favourite dishes, chicken curry, pork dumplings, Chinese eggs and moon cakes. Many of the students prepare the food in my kitchen, and as they cook, they laugh, and talk, and preen for photos, and appear to be totally at home. They are taking opportunities and risks that the new individualism offers and are adapting to another new social context, and in doing they are engaged in a globalising learning identity.

After dinner it has become a tradition for Bob to play the guitar and lead some singing. Last year, as Bob finished the singing, one of the students called out "Katerina can play the guitar". None of the other RMIT teaching staff who were at the dinner

knew that she could play, so were surprised by this announcement. Katerina took hold of the guitar, positioned herself comfortably on a chair in full view of her audience, and quietly and confidently began to sing a popular song in English. The audience sat in rapt attention, Katerina smiling as she sang. The next song was in Chinese and many of the students joined in. Then, song after song, sometimes in Chinese, sometimes in English, sometimes just Katerina, but often accompanied by others – some singing and others swaying and clapping in time to the music, all smiling. The music had a wonderful effect on all of us and the group was united in their happiness and feelings of joy at being together, and having made some new friends.

This dinner had such a strong impact upon my understandings about international students that I felt compelled to write to all of the staff in our School about the experience. On the first working day after the dinner I sent the following email to the staff in my school:

> On Saturday night we had a dinner for international students at my house. A very joyful, mature and incredibly talented group of people that perhaps bore little resemblance to the often quiet and unconfident students who sit in our classrooms, or come to our offices seeking help in various ways. Many of these students are multi-lingual and multi-talented, and have seen and done things in their lives, at comparatively young ages, that are quite amazing. As I watched them cook together, and listened to their stories, I wondered how I could show this joyful and talented side of our international students to our local students, and to you.

I had experienced some of the positive emotional dimensions and opportunities of globalisation up close, for both myself and for the students. I had witnessed Katerina, and the other students, engaging in a new social context and experiencing the globalising of their identities. I had witnessed these young women presenting themselves (Goffman, 1956, as cited in Elliot, 2007) in very different ways than they did at the University. They were confident, competent and joyful young women. My identity was being impacted upon by globalisation, it was globalising in a way that made a demonstrable difference to my role as international student coordinator. It was so clear to me that our University practices were unwittingly restricting the students' successes in Australia because we offered them such limited opportunities for the presentation of a self to their worlds (Goffman, 1956, as cited in Elliot, 2007), and thus to reinvent themselves as they went. In providing the dinner I was creating social contexts that were new for my students and within these contexts we were all being changed, teachers, local and international students, and all those who participated in events. I recall two of the teachers who attended the dinner commenting on Katerina's playing:

> "I've been teaching her all semester and I had no idea she could sing, I could have been using music in my classroom."
>
> "Neither did I."

I had set out to provide supportive structures for my students in order to increase academic success. While I knew that I was learning a great deal about how to support them, I did not consciously identify that in the process I was perhaps reinventing myself as quickly as they were. The notion of reciprocity between globalisation and individualism is well recognised in the literature (Ang, 2007; Elliott & Lemert, 2006; Giddens, 1991; Morita, 2004). At the same time as individuals are negotiating ways to interact with and "manage" their new environments, their actions are having an effect on those both at the individual level and, as Giddens would argue, the nation state.

Katerina, the focus of this dinner, is an international student from China who is enrolled in a collaborative, articulated program in which she completed the first two years of her degree in China and the final two years in Australia. She came to Australia as part of a group of 16 students from her University in China. These students had already spent two years living and studying together in China and arrived in Australia with a strong bond that possibly grew out of planning for their shared experience in Australia. In China, Katerina was familiar with the routines and processes involved in her daily life. As a student she knew where her classes were held, what time they started and ended, how she should behave in class, the relationship between teacher and student, and the ways in which her learning would be assessed. She knew how to be successful in her university studies and had earned the opportunity to complete her degree in an unknown and unfamiliar western country. She also understood the cultural expectations associated with her social life in China. She knew how to greet familiar and unfamiliar people of varying ages, how to behave at a student dinner, what to wear, when to eat, where to sit, whether she should participate in helping with food preparation, appropriate times to arrive, begin eating, depart. In China there were few risks or unknowns in her everyday life. She could rely on what she did yesterday and what she'd learnt in the past as she grew up in the Chinese culture of her region.

However, on arriving in Australia she is removed from all of that familiarity and certainty and thrown into a world of unknowns, both academically and socially. No longer can she rely on the traditions of her culture or family, albeit the constantly changing landscape of a globalising world. She must re-invent herself in order to develop a sense of security, familiarity and confidence in all of the worlds of her new country.

This dinner can be seen as an opportunity for Katerina to reinvent herself in front of some of her teachers and many, as yet unknown, peers. The dinner and performance can be seen as part of the process of negotiating a globalising learner identity. She had been in Australia for only six weeks but was being adventurous and brave, a risk-taker, who is flexible, eager to learn and adaptive to a new environment. Katerina was demonstrating some of the positive emotional costs of globalisation, the opportunities, as she establishes trust and security in her new social contexts. The fact that Katerina had several of her Chinese university peers with her undoubtedly supported her in taking the risk to play and sing for the dinner guests. While this

may seem like a very minor risk it was not without its challenges, and serves to demonstrate the complexities and challenges of daily life on an ever-changing landscape.

Katerina lives in the age of modernity where, to varying degrees within different cultures, tradition and habit no longer guide individual action nor have they been replaced by certitude of rational knowledge (Giddens, 1991, p. 2). Giddens (1991) talked of modernity as being "a risk culture" where trust is directly linked to ontological security. He went on to say that:

> …the more tradition loses its hold, and the more daily life is reconstituted in terms of the dialectical interplay of the local and the global, the more individuals are forced to negotiate lifestyle choices among a diversity of options. (Giddens, 1991, p. 5)

At the dinner, Katerina operates outside her familiar routines and practices and in theory must be guided by "momentary instinct", or vicarious and trusted knowledge from others. Giddens (1991, p. 40) argued that individuals, when in a new social context and no longer able to rely on tradition, find others they can trust to guide their actions. He argued that this basic trust creates a "protective cocoon" that allows individuals to carry on with their daily lives. We witnessed Katerina taking the opportunity to sing at the dinner, and it would appear that her protective cocoon of trust (Giddens, 1991), came, in large part, from her Chinese university peers.

This moment in time is an up-close look at how Katerina, an international student, is negotiating a globalising identity; an identity that is continually changing as she negotiates the social practices of the many different cultures that she navigates in her everyday life. It is interesting to note the speed with which Katerina has reinvented herself amongst her Australian peers. However, we must also acknowledge that this is her way of managing the impact of globalisation on her identity, and that individuals differ in the type of global identity they hold, depending on the degree to which they "appropriate or adapt" (Burke, 2009, p. 70) to the different cultural practices that they encounter as they move from one cultural context to another. Giddens (1991) also noted that individuals appear to vary in terms of how much dissonance they can tolerate in new social contexts. Ang (2007) saw hybridity, the mixing of cultures, as having the potential to unsettle identities.

While the dinner most probably created a context with social practices that Katerina did not fully understand, she did not appear to be unsettled. This may have been the result of the ontological security (Giddens, 1991) she felt because she had personal agency as a singer. At the dinner, Katerina had the opportunity to perform a different part of herself (Goffman, 1956), a part that she had most probably presented in China amongst friends and family.

Those of us working with international students in this Asian century, at whatever level of education, are continually confronted with the emotional costs of globalisation and the implications of these for pedagogy. This is a time of unprecedented enrolment of Asian students in Western universities, when individuals

are involved in negotiating a globalising identity. Within the context of the dinner we witness Katerina, an international student, involved in globalising her identity as she engages in a new social context.

There are emotional costs for all students within our globalising world. However, for international students these costs are most probably significantly magnified. In their own countries these students will have been experiencing the effects of globalisation, but within familiar family and cultural traditions. However, when they arrive in a foreign country these effects are probably more wide-ranging and certainly more challenging to manage.

DISCUSSION:EXPLORING THE COSTS AND POSSIBILITIES OF A GLOBALISING LEARNER IDENTITY

As we consider the globalising experiences of those within our education stories, it appears that they are all impacted by challenges and opportunities, both small and large, as they navigate the spaces between and within different cultures. For Chunyan, who enjoys all the benefits of working in another country, there are clearly significant emotional costs to her journey. Both Cheryl and her student Katerina appear to enjoy the cultural practices of sharing food at the dinner, showing positive opportunities of globalisation. But they must also be prepared to take risks. Cheryl's risk lay in providing a non academic context, a dinner, for her students, which could have been a failure, and also cooking western food. For Katerina, there was an element of risk both in coming to the dinner, and in all of the associated decision making it entailed: what time to arrive, what to wear, what to do when she arrived, how long to stay, when to eat, how to eat, who to talk to, and of course, whether to take the guitar and sing. While Katerina's actions appeared simple, certain and definite, we cannot fully know the complexity of choice-making that lay behind them. If we accept the notion that globalisation does have costs (Elliot & Lemert, 2006) and that these bring both opportunities and challenges for all within our educational systems, it is worth exploring what the nature of these costs are.

As we consider the experiences of those involved in the internationalisation of education, both at home and cross-borders, we need to consider that within globalisation they must adopt a new individualism that involves self-reinvention, continual change, speed and the acceptance of short-termism.

It is within this context that we need to consider the emotional costs of a globalising identity and the implications of these costs for what happens in our educational contexts. Educational institutions, and the individuals within them, are impacted upon by globalisation and in turn, individuals impact globalisation. As Elliot and Lemert (2006) argued, there are emotional costs to this globalisation that shape and are shaped by the individual. The new individualism that has evolved as a result of globalisation sees self-reinvention, rapid change, and short – termism as integral features of the 21st century worlds in which we live and work. Educational institutions are no exception to this rapid change, nor are their students.

Our experiences of living, working and learning in a globalised world, and of developing/experiencing a globalising identity, are clearly filled with challenges, but they are also filled with opportunities. Both Chunyan and Katerina have the opportunity to live and work in a new culture, but they are challenged by replacing their traditional ways (Chinese culture) by new social contexts that demand new practices. Chunyan's students have the opportunity to interact with Chinese students via online tools and thus extend their intercultural understandings. They must learn to accommodate the speed of communication and change that is part of their everyday lives and, when necessary, reinvent themselves so that our skills and knowledge are relevant and valued. While Chunyan has taken the opportunity to live, work and study in Australia, and her choices lead to what some may see as a "glamorous" life, she experiences the costs of these choices. In the space of six weeks Katerina has moved from a context in which all is familiar to one in which there is little that is familiar. But amid the speed and change and reinvention that she experiences, both in the institutions in which she performs her academic life, and her personal life, she must also negotiate ways to participate in, and enjoy the opportunities, that globalisation offers. Within our allegories these opportunities are implicit in the relationships and experiences that Chunyan's students will have as they interact online with their peers in a Chinese classroom on the other side of the world. They are also implicit at the dinner at Cheryl's house where students from a range of cultural backgrounds cook and eat and sing together and learn about the people in their new world as international students in Australia. If we are risk takers, like Katerina, the choices we make within our globalised worlds can lead us into rich experiences that broaden the way we think about ourselves, the universe, and the peoples within it. These choices support our globalising identity and help us to connect and form relationships with people who are different but the same as we are.

While there are identifiable opportunities for both teachers and students within globalisation, and the internationalisation of education, they do not eventuate without some risk taking. Chunyan's students will learn more about the people of the world through their online experiences but not without Chunyan taking risks with up-skilling her knowledge, understanding the relevant technology, and attempting to set up whole class international Skyping. These skills have to be acquired, and Chunyan needs to make time in her already overcrowded life to constantly update her skills. She also needs to take risks in her classroom practices and move beyond the activities and experiences she has previously found to be successful and enjoyable for her students. She cannot sit back and rest for a moment, because her students will not continue to be engaged if she is not offering them relevant and purposeful experiences.

Cheryl's interactions with international students, and what they say and do within the new social contexts in which they find themselves, has resulted in the globalising of her identity. She sees the new individualism as placing complex challenges on her students. Their worlds, and those of every other student in the university, are fast paced, forever changing and encouraging them to be constantly reinventing

themselves. While this can be an emotional burden that creates feelings of anxiety, it is something that individuals must find a way to manage. Cheryl supports her students by helping them develop a sense of belonging, some predictability in their new contexts, and some agency in their worlds. This agency may be within the university classroom, at the international students' dinner, or something students create for themselves within their part time jobs. Known and traditional ways of living and learning have been replaced by new contexts and new social practices. Trusting relationships are now critical to guide the students as they build new lives and ways of being in a new country and culture. The routines, expectations and predictability of their home country lives needs to be redefined, perhaps totally, or perhaps by making connections between cultural practices.

While we have focused on very narrow slices of Chunyan's and Katerina's globalising learning identities, we can see ways in which globalisation impacts the internationalisation of our education system. Globalisation creates complex, and multi-faceted contexts, and within them individuals strive to create new ways of being. Chunyan's decision to stay in Australia for Christmas rather than return to her parents in China shows us much more than a teacher's decision not to travel during her holidays. It shows us a part of our internationalising education system. It shows one of our teachers who, in some-ways, is caught between two countries and cultures and who finds ways to live with this tension. In telling her story Chunyan has made visible the personal costs of a globalising learner identity, and in creating this allegory she has allowed the "possibility of multiple readings" (Coffey, 1999, p. 43).

Katerina's singing and playing is a happy incident and does not in itself present a challenge or risk taking. Any yet, if we take the time to look at it in detail, it is not difficult to create an allegory that exposes the possible choices that she had to make the night of the dinner. Katerina made choices at the dinner, choices that quite possibly were made with little reference to anything known or familiar. The recording of our stories has allowed us to say more than we have told, because allegory allows this, it allows multiple interpretations. The allegories have allowed us to create a landscape that captures, for a brief moment, the thoughts of one individual, and the actions of another. Reflecting on this landscape requires a halt to the hurriedness and complexity of our lives and focuses us on the small decisions that we make every day as we learn new ways to live in our worlds. It is the understandings that we take from pausing to think about the worlds in which we live, and how we and others manage those worlds, that guides us in everything we do, including our pedagogy.

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JOSEPHINE NG AND BERENICE NYLAND

13. INTERNATIONALISATION OF HIGHER EDUCATION AND GLOBAL LEARNING

Australia and China

ABSTRACT

This chapter addresses the theme of internationalisation and global learning. It is common knowledge that Australian universities have become active players in the international education market since the 1980s. Partnerships have taken myriad forms, many of them brokered through agents. The research reported here is part of a case study being conducted as an evaluation of a particular Sino-Australian partnership and the research was designed with the express purpose of examining issues and contexts surrounding a collaborative articulation program (CAP) between the two countries. The degree in question is an early childhood teaching degree and is the first of its kind to be accredited as a formal qualification in both Australia and China.

The universities both offered early childhood teaching degrees. It was agreed students from China would study for two years in their home country and then transfer to Australia for two years, graduating with a dual degree. Other aspects of the initiative have involved lecturers from Australia visiting China to teach in the undergraduate early childhood degree. Lecturer visits commenced in 2013 and the first cohort of students arrived in Australia in 2014. In this chapter we explore the experiences of participating academics. Interviews were conducted in China and Australia and this data was analysed according to emerging themes which have been related to the original intent of the questions. Findings indicate that it is easier to match content in courses than to ensure standards. The English entry requirement has become a major barrier for student mobility, and Australian academics have been challenged in both contexts in adapting teaching methods to suit the Chinese cohort of students. Only one of the interviewees had a wider knowledge of the project than their immediate role as a lecturer.

Keywords: Early childhood, China, Australia, higher education, dual degree, international education

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 231–250.

INTRODUCTION

Globalisation of higher education (HE) has led to attempts to internationalise aspects of education, for example, curriculum, standards, and relevance of training across borders, as higher education in Australia has become a major export industry. Australia has been successful in developing higher education as a business and international HE is now Australia's largest service export. In the 2013–2016 agenda released for Australian HE, Universities Australia commented on the state of the industry:

> As an industry, international education generates nearly $15 billion in exports annually and supports around 127,000 jobs, 88,000 of which are outside the education sector. (Universities Australia, 2013, p. 1)

Universities Australia, in the report cited above, made the recommendation that Australian universities should continue to globalise the curriculum. HE as an export business has created tensions for those involved in delivering education services. There are many challenges faced by the stakeholders as the models of delivery for onshore, offshore, online, and partnerships expanded. Regulators have had to be vigilant to constantly adapt to a changing market and protect the brand that Australia has managed to establish through gaining a solid reputation in the world of international education. Such a diverse industry, that covers higher and vocational education, English language providers, and increasingly secondary schooling in both the private and public sector, has a broad range of stakeholders. Bodies involved in regulating and managing this huge industry include public and private providers, peak bodies, professional associations, and a number of government departments. Other businesses related to international student mobility such as agency providing consultation in relation to university applications, visa, and other services have emerged to capitalise on the increased demands for international education. The quality of education provided, consumer protection, and appropriate pre-arrival information have all been issues in the past that international students have had to contend with. A pivotal issue has been student safety and the 2014 Australian Government survey on student safety (Chapman & Pyvis, 2013) reported that safety is still a major driver for international students choosing a destination country.

This chapter addresses major themes of higher education in the 21st century. Innovative curriculum and pedagogy is one theme and how this interconnects with the global exchange of ideas, and another theme concerns the challenges academics and HE students face as education increasingly becomes a highly complex and mobile exercise. Pedagogy has become a major aim for those involved in international education projects and is reflected in some of the experiences recounted in this chapter. Affective engagement in the education process is often more significant than cognitive abilities in ensuring successful outcomes, and the students who cross borders to study are often vulnerable in the new context. Our findings suggest academics also find themselves out of their depth at times.

Changing policies and rules have had an effect on the program discussed here as both the Australian and Chinese governments have promulgated new policies in relation to international education during the time this partnership existed. Such changes mean that providers must be constantly aware of a changing landscape and the impact policy changes will have on existing programs. For teacher training, familiar themes include the role of content knowledge, the relationship between theory and practice, and increasingly lifelong education. As the work context changes for teachers, and there is an ever growing demand from governments for a better quality workforce teacher education, providers strive to meet new demands to maintain relevance. In China, the 2010 *Outline for Medium and Long-term Education Reform and Development* (2010–2020) (Zhou, 2011) and new teacher standards (Pang, 2012) have been the background to teacher training reforms and in Australia standards and policies have been introduced by a variety of bodies. The Australian Children Education and Care Quality Authority (ACECQA) accredits all training programs for early childhood teachers while the Australian Institute for Teaching and School Leadership (AITSL) is responsible for the assessment of students wishing to migrate, this includes international students studying in Australia. To add to the confusion, the requirements for the two bodies are not the same which adds to the challenges students face.

In this chapter we bring these ideas together by describing a particular cross border education project. The literature on internationalisation of higher education is introduced and the research is described as an illustration of the changing face of education and international education. This is sometimes a Janus face so we extract lessons from the voices of experience that are reported upon here. We present interview data from participating academics within a constructivist framework that views the participants as intentional players and we draw lessons for future activity.

THE LITERATURE: INTERNATIONALISATION OF HIGHER EDUCATION AS A STRATEGY FOR GLOBAL LEARNING

The rationale for internationalisation of HE varies and includes recognition of academic institutions in the process of international branding, enhancement of quality, student mobility, revenue building, economic growth, knowledge transfer, and competition. There is an increased focus on the international dimension of higher education at institutional, national, and international levels but there is no universal definition of internationalisation. Knight's (2008) definition has been widely cited by many academics and researchers of internationalisation of HE. She defines internationalisation as:

> … the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary. The notion of "internationalization of higher education' as a "process" explains an international activity that is related to the mobility of students or staff and

> other examples that reflect cross border studies, curriculum, cultural exchanges and other international studies. (p. 21)

The era of globalisation has brought with it an increased level of international activity with shifts in work practices and economic growth. Internationalisation reflects the fragmented areas of multi-dimensional layers of activity in transnational education with other international activities. De Wit (2013, p. 215) contended that rather than viewing internationalisation as a comprehensive process and concept, discourses have arisen due to the existence of diverse activities. Increased commodification in higher education, and the drive for global knowledge economies, has created a range of providers with conflicting objectives that include formation of professional and business partnerships, educational franchises, trades and service functions. A rapidly changing notion of international higher education is taking place where a rethinking of internationalisation is needed for global learning to be achieved (de Wit, 2011, 2013). To de Wit (2013), there is a need "to go back to its original meaning and foundation, and understand which contextual factors are influencing the original concept and which require fine-tuning" (p. 215). There are those that do not see internationalisation as a means towards global education and Cantwell and Maldonado-Maldonado (2009) have argued the notion can also be linked to existing power structures in societies and may be a sustaining force for inequality.

Internationalisation has continued to change the higher educational landscape in global learning where a small group of stakeholders: government, education and business leaders, and other international bodies, often dominate the process with lesser heard voices of students and academics. For academics there is the stress of being associated with activities that are often questioned.

A prominent actor that has emerged as a result of HE commodification is the educational agent. This role is an interesting one that has grown over the years. Hulme, Thomson, Hulme, and Doughty (2014), have described agents as "key brokers in emergent markets" (p. 674) and comment that they have become "compradors" (p. 675). The agent can be a conflictual player as this is a role that represents a business model juxtaposed to moral obligation and the role of university in global learning (Hulme et al., 2014). While there are benefits for institutions using agents for recruitment, managing partnerships and organising connections, it is also problematic in a deregulated environment and presents an inherent threat to the quality and sustainability of partnerships. Other major challenges arising are cultural conflicts, consequences of the interplay of global and local expectations (de Wit, 2013).

A wide range of purposes and actions have evolved increasingly complicating ventures of internationalisation (de Wit, 2013; Egron-Polak & Hudson, 2010). Exponential growth of scope, diverse cultural expectations and objectives within international activities, have drawn attention from educational leaders, researchers, and policy makers. Other pressures identified in the literature involve "tensions and ambiguities of identity, raising questions yet to be answered" (Marginson, 2014,

p. 170) and challenges in the determination of policy boundary in terms of practice, pedagogy, and values (Cai, 2014; Knight, 2011; Yang, 2014).

Internationalisation activities of HE are increasingly "supported or framed by multilateral agreements or programs, to expand their reach over national borders" (van Damme, 2001, p. 417). An example is the Collaborative Articulation Program (CAP) model of partnership which developed when institutions hoped to achieve their objectives through international partnerships, with one partner exporting knowledge and services and the other importing. The tripartite purpose of the CAP was to be teaching, research, and service functions. A key consequence of such arrangements has been the changing roles of teaching professionals. As students become customers, universities corporations and academics as employees are in an invidious position. The corporation wants to sell the teaching but also needs research to maintain the brand ranking. Without research, the partnership will never be more than a post-colonial relationship that will be potentially exploited while each partner considers it worthwhile. The model would appear to be unstable and not sustainable (Leask & Bridger, 2013).

As these types of activities in transnational education continue to increase in the Australian HE space, there have been concerns about the quality of programs provided. McBurnie (2008) contended that the quality of delivery for cross border HE was poor and commented:

> … at the very least: the students who receive substandard education; the host-country that receives suboptimal human resource development, with damaging implications for nation-building; (and) the provider institution—and by extension the provider country—that suffers a damaged reputation and financial loss. (p. 193)

A report on Australian offshore HE stated that Australian academics were unsure of "what constitutes good educational quality in the delivery of offshore programs" (NTEU, 2004, p. 21). The Australian Universities Quality Agency (AUQA, 2009) and the Australian Learning and Teaching Council reported that many universities faced challenges in ensuring quality assurance for programs taught overseas (Ewen, 2009). Brown (2009) stated that good practice and quality of a transnational program lies "in the expertise, value and professionalism of the academic community" (p. 7) where direct experience of academics delivering the courses are drawn. These pressures have the potential to undermine a whole partnership if staff are insufficiently resourced.

Yang (2014), in an overview of "*China's strategy for internationalization of HE*", commented on rising conflicts as a result of differentiated cultural and ideological challenges in the partnerships established between Chinese and Western countries. As China continues to import knowledge, there is a suggestion of cultural imperialism. In the case of the focus partnership discussed here, perhaps Australia is imposing their "supra" culture on their international partner, albeit with full co-operation on both sides (Leask & Bridger, 2013).

Internationalisation of HE has also become part of Australia's migration policy. In the case of the early childhood CAP degree, discussed here, graduating Chinese students have the flexibility and choice to either stay in Australia or go back to China for employment after completion of their study. Early childhood graduates are on the Australian skill migration list and some Chinese students may be attracted to the lifestyle and they can gain lucrative English language skills through daily immersion (Knight, 2011). The students in this study have the opportunity to gain employment as qualified early childhood teachers in both Australia and China. However, to gain employment as a teacher in Australia, they are now required to gain professional registration, which entails a high level of English. When the initial CAP agreement was signed these registration standards did not exist. This brings renewed expectations for academic performance to ensure students can reach external skill requirements.

THE CONTEXT FOR THE RESEARCH

This research investigated an internationalisation of higher education project that consisted of delivering an undergraduate early childhood education (ECE) degree as a two plus two CAP in Australia and China. This case study has aimed to provide insights into the roles of stakeholders as well as implications and challenges of internationalisation initiatives for the future. This Australian–China joint initiative provides Chinese early childhood pre-service teachers the opportunity to study for two years in Australia after completing two years early childhood study in China. To enter the program, the Chinese students must also reach a required level of English proficiency. They must have an IELTS (International English Language Testing System) score of 7 with no band less than 6. The bands are listening, reading, writing, and speaking. These students will receive dual qualifications. The two plus two model was designed to focus on student mobility and there was to be no intended additional costs to the universities as there was no perceived necessity to change any infrastructure. The existing content from two years in China and two years in Australia had been mapped to meet the requirements of accrediting bodies in both countries; in Australia, the Australian Early Childhood Education and Care Quality Authority (ACECQA) and in China, the Ministry of Education (MOE, 2011).

The two partners entered into a contractual agreement in 2012. The collaboration was brokered by an agent. The agent recommended the Australian university to the Chinese institution, where the agent had already established a relationship. The agent was also in charge of organising Australian academics to teach in the undergraduate degree program at the Chinese university. That a number of subjects should be delivered in English, by visiting Australian lecturers, was a stipulation of the MOE. Such ventures in transnational education, following a variety of models, has stemmed from the need to improve the quality of education degrees for early childhood teachers in China and to help meet the unmet demand for qualified early childhood staff in both countries. These initiatives have been introduced at

a time when the Australian government has reduced funding to many Australian HE institutions. While income generation has been the most pressing concern for the Australian institution, there are other perceived benefits from international partnerships. The Australian university promotes student mobility as a valuable experience and was aware of the value of the opportunity for research partnerships, international student exchanges, and postgraduate collaborative programs.

To enrich the student experience, the Australian university required a mix of both local students and international students in each class. This has been challenging due to the difference in the academic year and the Chinese students arriving in the middle of the Australian academic year. This has had unintended consequences as well as implications for students who may need to study subjects out of sequence. One such consequence was the requirement for students to have a placement in an early childhood setting four weeks after starting their studies in Australia. A couple of the Australian academics commented on how this disadvantaged the visiting students during their interviews. There have been implications in terms of student learning as each institution has tried to integrate a collection of subjects to meet their own objectives and accreditation criteria as well as meld with the offerings from the other institution so external accreditation could be confirmed. Establishing quality in the program has been problematic in joint degree programs when the curriculum in each country needs to find relevance across cultural divides and there is an issue with overloaded study schedules to meet all requirements of the dual degree award.

Quality in teaching and learning, gaining perspectives of academics and understanding their contributions in program delivery are "indispensable" (UNESCO/OECD, 2005, p. 15). The voices of the academics are important as they carry the weight of the delivery of the course of study and are responsible for meeting expectations of the program. This has been further challenged when Australian academics travel to China to deliver subjects in an environment very different from the classrooms they are accustomed to.

This two plus two program was a new experience for the Australian university, with only two cohorts to date entering into the second stage of the degree. Both providers have key roles and responsibilities to ensure quality control and therefore, potentially, the sustainability of the arrangement. Though the program has gained accreditation in both countries, the two-stage delivery of the program requires close monitoring and re-accreditation every five years. To gain insights into the program and as an evaluative measure to assess how the initiative was unfolding, a comprehensive evaluation study was designed and conducted to seek the views of all participating stakeholders. In this chapter, we report on the experiences of the Chinese and Australian lecturers who participated in teaching into this two plus two degree.

THE RESEARCH

The research design was qualitative and interpretive and explored the perceptions of participants across the two countries. Participants were key academic stakeholders

from both universities. The academics selected were engaged in initiating, co-ordinating, and lecturing courses in the two plus two CAP degree. Selection criteria of participants were guided by the need to gather a range of perspectives and gain insights into challenges that were encountered. An essential criterion was that the participant must have taught the relevant cohort of students as part of their CAP degree. Semi-structured one-hour interviews were used to collect data from a total of 12 participants. The transcribed data from the interviews were categorised in terms of emerging themes and in relation to the research questions addressed in the paper. Representative quotes have been presented to support the findings.

Pyvis and Chapman (2004) state that, "Student experience is a key indicator of the quality of educational provision" (p. 1) but equally important are the accompanying factors influencing the quality of student experience and learning such as curriculum knowledge and pedagogy of academics. The changing landscape of global learning calls for a critical evaluation of internationalisation of HE. In examining the learning and teaching experiences of the participating academics from both institutions, interview questions were divided thematically. Background information on professional qualifications, work experience, and subjects taught was sought at the beginning of the interviews. Understandings of internationalisation of teacher education and the present partnership were included with questions about the academics' knowledge of studying abroad. In this chapter the research questions addressed:

- How do these academics understand internationalisation of teacher education?
- What perspectives do these academics have on the present program and the student experience?

In the CAP program the respective universities bore responsibility for the design, planning, and implementing of each stage of the program. There were to be two yearly joint management committee meetings arranged between the institutions to discuss issues arising, concerns, strategic steps, and policy. These were management meetings and at no stage were the lecturers or students involved in these meetings. Points of discussion to extend the relationship included potential academic exchanges, student exchange internships in China for Australian and Chinese students, postgraduate degree partnerships, professional development for academics, and strategies for sustainability in the partnership. The attendees of the meetings included third party agents, international and marketing representatives for both Chinese and Australian institutions, Deans, Head of School, and program managers. In all, 19 interviews were conducted to gain stakeholder perspectives. Thirteen academics were interviewed for this paper. One interview tape of a Chinese academic who specialised in children's art was corrupted, and the background to the 12 remaining interviews is presented in Table 1 below. The interview data is presented in three sections. The first is a table (Table 1) that gives information about the participants, the second discusses the views from the academics as stakeholders in the program, and the third explores the knowledge these participants have of the international students' experience.

The Interviews

Table 1. The participating academics from China and Australia

Pseudonyms	*Country*	*Qualification*	*Years of experience teaching at the university*	*Subjects taught*
Wang Chao	China	PhD	11	Philosophy, pedagogy, research methods
Xing Chen	China	PhD	7	Curriculum design, pedagogy
Fan An	China	Master PhD Candidate	20	Management language and literature
Zhung Daquan	China	PhD	5	Curriculum instruction, educational psychology
Wang Chang	China	Master	25	Practicum, curriculum, health and hygiene
Zhang Chin	China	PhD	5	History of education
Sun Chin	China	PhD	14	Play, play environments, family education
Anne Smith	Australia	PhD	8	Inclusive education, language and literature, music and movement
Jillian Green	Australia	Diploma	5	Child development, language and literacy, STEM, orientation to teaching
Jenny Grey*	Australia	Master PhD Candidate	8	Management, EC curriculum
Annabelle	Australia	Master PhD Candidate	5	Child development, Theory and practice birth – 2 and 2–8, children and society, STEM, maths, assessment, reflective practice, professional issues
Sylvia New*	Australia	Master PhD Candidate	3	Issues and contexts in EC, theory and practice 2–8, maths, the project approach

** denotes lecturers who have taught in the degree in both Australia and China*

The participants. Pseudonyms for the participants are listed in Table 1. From the information in the table, it can be seen that the Chinese tended to have higher qualifications than the Australian counterparts and, on average, had more years of experience. Some of the Australian lecturers also taught many more subjects than the Chinese lecturers. The Chinese academic Chang listed three subjects in his interview: practicum, preschool curriculum, and health and hygiene. He said he taught lots of subjects in 1994 and 1995 as there was a shortage of staff as many academics were studying overseas at the time. He commented on how many he taught and said: "I am afraid I did not teach very well" (Interview 5, 2015). The dilemma Chang faced in the 1990s is one that education academics often face. External bodies dictate the scope of the degree for students to gain accredited teaching qualifications. Depending on the range of specialist knowledge among the academics in the department, some lecturers might find themselves teaching subjects in which they have little knowledge beyond the textbooks and some might find their teaching skills in demand so they teach a large number of different subjects. These circumstances have the potential to influence the content knowledge of the subject and therefore present a possible threat to quality.

Understandings of internationalisation and the present partnership. The meaning of internationalisation of curriculum is often misinterpreted or misunderstood (Grant, 2012). International programs are complex and need to include an intercultural and global perspective. This was a dual accredited degree where each institution had to meet their own regulatory body requirements which meant there were tensions with internationalisation in the teaching and learning. A curriculum was developed in an attempt to incorporate intercultural learning in the joint degree program.

The Australian and Chinese academics were asked, "What understanding of internationalisation of the curriculum did you bring, as a stakeholder, to this joint initiative?" Answers provided by the Chinese participants were similar in that each interpreted internationalisation to be learning about other countries, of learning English. Sun's comments differed in that she thought internationalisation also encompassed building understanding across the two parties.

An: Internationalisation …introduce more theories and ideas from other countries…broaden students' horizon

Chao: …delivering English courses and using textbooks from other countries

Sun: The best form of internationalization is that "we get to know each other. We should know what do you think, but also that we should let you know what we think".

The Australian academics' answers were reflected in their diverse backgrounds. In the quotes below Sylvia was interested in learning what happens in other countries and expressed a similar view to An. Anne, however, was an international student herself and is therefore more focused on the rules and challenges the students in the project might be facing.

Sylvia: I think that that is important to consider internationalisation thinking about the other countries and thinking about how early childhood is done in other countries.

Anne: …come from international background and they're classified as international students, meaning they have to have a certain English proficiency, meaning they have to attend 80% classes face to face.

Yang (2014) stated that internationalisation needs to create knowledge and understanding of the world. Key academics from both institutions acknowledged the importance of having knowledge of other systems but did not necessarily relate this to the related significance for student learning in the context of an internationalised curriculum. All the participants were asked about their knowledge of the early childhood education system in their partner country.

The Chinese academics stated that they did not have any knowledge of Australian education or the early childhood education system in Australia with the exception of Sun (see quotes below). The Australian answers suggested this group had more opportunities to experience early childhood practices in China. All had visited China, three had taught in the degree at the Chinese university, and two had presented workshops for kindergarten teachers in Beijing. When asked about their understanding of the educational system and early childhood in China however, all the Australian participants indicated that they had little knowledge generally of early childhood education in China. It is at this point that the interviews started to move apart to reflect the different experiences of the academics in the country of origin and the academics in the host country. Below are some representative statements from the Chinese cohort. The Australian group were more focused on experience.

Chao: No. Never use other ideas.

Chen: Yes. Introduce current and past theories and practice … all I teach is from the books. I talk about education system in UK and America but not Australia…I know from books.

An: I always compare what I read with what happens in China in my teaching. No, I don't have much knowledge about Australian ECE.

Chang: Sometimes. …but my focus is on Chinese Early Childhood Education history.

Zhang: Yes. …talk about …education practice …in US and Finland…not much about Australia.

Sun: In my courses, I mentioned [Australian system]. I have been to your country.

Challenges were faced by the deployment of an Australian academic sent to teach the foreign component requirement of the program accreditation. Sylvia stated:

> I think one of my big learning curves was coming in and discovering how different their assessment was as well. I obviously prepared my content in different levels because I've taught students from China before in Australia but

> I didn't know what they would know and what they wouldn't … no one could tell me what assessment was … nobody could tell me what an observation was… okay I need to change tack here. But it's interesting coming and not realising the context already of what they've done.

The other question in this section was to ascertain how much these participants knew about the project they were teaching into. From the answers to this question, it was apparent that in both countries the academics were thinking of the students' transnational experience. The Chinese participants were concerned that they did not know enough to help the students prepare. The Australian lecturers were experiencing the same disconnect. The question asked was: "What do you know about the 2+2 (two plus two) degree program between the Chinese and Australian universities?"

All of the Chinese academics stated they did not have any or very little knowledge of the 2+2 program except Sun as she was one of the initiators who helped to write the application for the MOE accreditation. Example answers were:

Chao: I think there are some disconnections …students didn't have certain basic courses that are required in Australia but not in China, their performance in Australia may be affected. I know a little about it… study for two years in our university … and then spend two years in your university…they get two degrees.

Daquan: … most of our teachers know little…so we may not sufficiently prepare our students for their oversea study given we don't have the knowledge …there are not many opportunities for them to practice

The Australian participants also did not know much of the 2+2 program although some had been involved in teaching in the program in China:

Jenny: I'm still learning, yeah I'm still learning. When I went for the first time [China], I knew nothing …

Jillian: I don't think I know enough in terms of how it's technically organised…. I don't have much insight to know exactly what they've done in their previous two years and what they are really building on. I don't have much understanding or insight on the exact model.

Annabelle: I just know that the students over there do some courses and then RMIT goes over and we teach either one or two courses and they're standard courses.

The student experience. This last part of the interview consisted of two questions. One question asked the participants about their own student experience. One of the Australian academics had done her undergraduate degree as an international student and four of the Chinese academics had done post-graduate research overseas. Only one of the Chinese groups had kept up contact with the students who had gone to Australia. The second question, meant to relate to the first, was: "What sort of

challenges do you think these students might face?" Here the Chinese participants did not add substantially to their answers to the previous question and the Australian voices became dominant. This is understandable as the Australians were in the process of teaching the first student cohort when the interviews were conducted. They were therefore explaining their immediate experience.

Planning for teaching and learning content is shaped by teachers' levels of knowledge, skills, and discipline. Having knowledge of the cultural background of students and their educational experiences in their home country will help shape teaching and learning strategies for a positive student learning experience. In the necessity to accredit a program for future employment purposes, there is a risk that curriculum requirements will be influenced by external requirements and the need for the university to comply with the regulator. Hence, there is a risk of not having a well-designed program but "a collection of courses" (Carroll, 2015, p. 113).

Leask (2009) defined internationalisation of curriculum as:

> …incorporation of an international and intercultural dimension into the content of the curriculum as well as the teaching and learning arrangements and support services of a program of study. (p. 209)

In designing a program that would meet the cultural and learning needs of Chinese students, a key consideration was to produce graduates that would be work ready for a culturally diverse and globalised market. Despite the presence of international and intercultural dimensions, the CAP curriculum is made up of different content and approaches from each institution. The original contractual agreement was negotiated by management and the voices of the teaching staff from both sides were missing. This meant there was an absence of a collective effort in the design of curriculum which might have been an effective strategy for each side to learn more about teaching and learning in the respective institutions. Carroll (2015) asserted that:

> Designing as a team rather than an individual means being able to draw upon the resources and diversity within the team itself …as different disciplinary strengths, past experience, cultural backgrounds and skills to the design table. (p. 103)

The issues described above were all concerns that the participants in this project encountered. One of the more daunting issues was that the Chinese students were required to visit early childhood settings on a practicum shortly after joining the Australian university. Jenny visited one of these students during the placement time:

> … they were out four weeks after they got here [Australia]… I'm not sure that was the best designed … They were used to being with their group, and then they were in a foreign country, they were by themselves in a centre where they didn't know. There was a lot of criticism from the centres about their language and their skills, they expected a higher skill level than they had, and a higher

> understanding. Um so that was probably pretty hard for them but they most of them coped pretty well.

A successful and an important approach to introduce new curriculum requires consideration that includes a "strong belief that for quality and learning the curriculum has to be fitted to context" (Chapman & Pyvis, 2013, p. 78). The lecturers in Australia did not know the knowledge base the Chinese took with them to their initial placements. As Jenny again highlighted:

> I think they had a lot of theory, I think you know they had, if you know you asked them about a theorist, they could tell you but they have not seen what that looked like, they didn't really know… need to know why they are there … you need to be able to think what you are going to be able to put out … They really struggled with that concept. They didn't have any understanding of outdoor play spaces and the learning involved with that.

The Australian academics noticed the struggles faced by the Chinese students.

> Annabelle: I think they're finding the way of teaching very different from the not pouring the information in but the assessment task they've found very challenging.
>
> Jenny: … they have to find their own readings … They've had not had to be independent learners … I think they struggled with that to start with.
>
> Annabelle: It is very confronting or challenging in relation to it not being so prescriptive in how do you tell them what, well we don't. We provide them the opportunities and I think they find that a little bit "oh well that's a different way of doing it" rather than that structured.

Pedagogical approaches experienced by Chinese students in Australia were possibly different from those in China. This was a question pursued in the student interviews. Certainly there was uncertainty on both sides in regards to expectations. Some students also struggled in the English-only language environment. Anne reflected on teaching and learning approaches:

> …they might not be used to be doing is to question the textbook or to question the website, or to question the journal article, or to question critically… they find it difficult to articulate or I think they chose not to articulate.

Sylvia commented on her experience:

> … in the first class when I was talking to the students they said "yes, yes" … while the students may say yes I've had a class one, that could be something totally different to what we would be delivering in that area. Therefore there might be holes in things.

Some lecturers may "inhibit participation by lack of clarity, lack of understanding, unwillingness to adjust or lack of strategies for intervening" (Carroll, 2015, p. 139). Therefore it is important for lecturers to gain an understanding of the cultural practices at the place of origin and develop strategies in countering the translation of pedagogy to learning for these students. Lecturer Anne commented on her own observations:

> It's important to vary the assessment task so they can meet different learning styles and different educational upbringing…. Some are taught first the write the statement or the points about something that is difficult and then they unpack it …they write a lot about things seemingly appear irrelevant but actually they do arrive at some conclusion that shows me that way… like rote learning, some of them are excellent and learn very quickly while others are great problem solvers so depending on what their background is… these particular students seem to really have a very respectful and very—they have a different expectations on maybe the role or the understanding of what the role of the lecture is…

Attitudes to international students and their motivations are also mixed among university staff. Sylvia noted:

> There's a view that Australian education is superior and also probably exciting and I know that Australia has a pretty good name for itself in that way …they wanted to learn about how we do early childhood and take it home and to incorporate that into their early childhood settings. Money here—if you make money here it can convert to a whole lot back in China.

DISCUSSION AND CONCLUSION

In spite of the complexities, HE institutions have increasingly engaged in designing and structuring programs around internationalisation. A consideration of internationalisation for student learning is an appropriate curriculum that comprises of activities with acknowledgement of the present knowledge, skills, and study practices of the student. Efforts undertaken need to consider the value of a smooth transition for student learning. In the case presented here, the students were confronted with a practicum in a strange system within weeks of arrival. Some of the risks associated with the dual degree program can be student overload with combined curriculum requirements. For the two countries in this partnership, there were some significant differences in requirements to graduate. In Australia, it is compulsory to do a unit on working with children in the birth-two age-group and there is almost no emphasis on the arts. In China, the degree has a kindergarten focus with music and the arts central. The CAP is therefore a lot more complicated than spending two years in one country and then two years in another.

Student mobility, an aim of the CAP, is closely linked to the concept of the global workforce, and institutions and students tapping into opportunities for internationalised HE will require specialised knowledge of comparative education to assist in the development of capacity and skills to meet the challenges of globalisation. Current trends in international activities, critical relationships, increased mobility of students, and the export of knowledge in HE suggests that internationalisation of HE will continue to evolve.

The differing purposes and intentions that prompted the two plus two program between the Australia and China universities is one of the many models of partnership associated with internationalisation. Global learning through internationalisation will continue to be challenging with arising frustrations from key stakeholders and managers in universities around the world. Standards of teaching are questionable; the entry requirement for English has become a key barrier for many students and academics are expected to be proactive in offering synergistic and learner centred teaching with intercultural understanding built into the design of the program. The interviews described in this paper belie this. The academics interviewed all presented as responsible, conscientious teachers but all expressed the view that they knew little about the educational demands in the partner country and the host lecturers were learning as they went. Understanding and collective efforts from key stakeholders in both countries to assist in developing appropriate curriculum, assessments, relevant skills, and knowledge to promote student experiences and future opportunities will hopefully grow out of evaluative studies like the present. Improving the global learning experience would appear to be a policy aim for most countries.

This chapter has explored common and recurring themes in current international educational projects. Curriculum has been a major issue in the development of transnational education experiences as described here. The interviews indicate that the academics have been expected to continue to teach allotted subjects without having any great awareness or information on wider expectations and how their efforts fit into the CAP. Universities are often accused of elitism in the sense that many of its academics work in isolation. This seems to be the case here where those delivering to the students know the least. This will impact on having a coherent and well-designed curriculum that is supported by the research literature and meets differing demands of political, historical, and social contexts. Innovative practices are needed if enterprises like the two plus two shared degree are to become valuable for their creative approaches and gain substance in their own right.

Affective engagement has become a focus of research in recent years as the power of emotional engagement is explored and the idea of resilience in education becomes ever more important as students and academics face increasing uncertainty. For international students this is especially the case. The Chinese students in this degree program all had considerable arts training in their first two years in the Chinese university. It has been difficult for them to gain acknowledgement of skills that are universally significant in a degree where there is little valuing of the arts. Coincidently once these students had gained confidence in the Australian

early childhood environment, their musical skills enhanced their later practicum experiences (Acker & Nyland, 2015). To explore the role of content in learning and ways of learning, it would be desirable for the academics interviewed here to have more knowledge of each other, their pedagogical practices, and areas of expertise. Such exchanges and inclusion of academics from China and Australia in joint subject design would assist in understanding what the students gain from each context and how there might be better synergy.

This chapter has been about a specific teacher education degree in a global context and has reported on part of a comprehensive case study undertaken to evaluate the program. The early childhood students in the joint degree had to negotiate placement (work integrated learning) in two very different contexts. The role of the practicum in teacher education is constantly debated and the other perennial and associated question is that of the relationship between theory and practice. This is an issue for all applied degrees and the more refined the discussion, the more informed global projects will become. In many ways working with an international partner may give each partner an opportunity to study themselves as they articulate their needs within the partnership.

Another theme that was present in the literature review was that of sustainability and global learning. The international students discussed here are part of a specific cross border project. For internationalisation initiatives to be sustainable, the expected role of all stakeholders should be considered. A quality early childhood teacher workforce has become a policy demand in both China and Australia. In this paper, fault lines appear in terms of academic shared knowledge, the siloing of teaching and subject design, lack of continuity across the teaching and learning environment, and no shared vision for these lecturers.

The conclusion to this chapter contains a summary of lessons for the future that can be drawn from the experience of the lecturers' interviews and the research literature.

Academics from both countries felt a need to understand what the process and concept of internationalisation was in order to gain insights and understanding of the differences between the educational contexts. The Chinese academic, Sun, summed this idea up when she stated that the best form of internationalisation is that "we get to know each other. We should know what do you think, but also that we should let you know what we think". A lack of an in-depth understanding of the context of the two plus two collaborative joint degree was expressed by most and it was the Chinese academic, Daquan, who said, "…most of our teachers know little… so we may not sufficiently prepare our students for their oversea study given we don't have the knowledge". This point was strongly supported by the Australian academic, Sylvia, who felt she knew nothing about assessment or what the students knew. In this case she mentioned observations which are the foundation for all early childhood education studies. The lack of knowledge of pedagogical approaches and the educational system in each country also created tensions and confusion. Annabelle's comment about the Chinese students, "They've had not had to be

independent learners … I think they struggled with that to start with" would need to be explored. If there are significant differences in teaching and learning styles, then these should be identified and articulated or there is a danger of seeing the world through stereotypes and not being able to move through such a lens.

In terms of the research literature, this is often generated by government and peak bodies. This has meant that much of the discussion around internationalisation of education has been partisan to the business model widely adopted by governments and universities. There is a need for a wider scope and more critical approach to international education if the research is to assist in the development of cultural and intellectual exchange as well as profits.

From the literature, there comes the suggestion that there needs to be a reciprocal relationship between the partners. This could be developed through joint research. Without such an exchange of experience and knowledge, the CAP model promoted is one-sided, with the exporter taking the role of expert. The Chinese partner is implicit in this as well as the Australian partner. The present partnership represents a post-colonial situation as commented upon in the literature review.

The role of the agent has also been explored in the literature and needs clarification. The agent no longer brokers the connection but remains an active member of the partnership. Given the position of the agent, this relationship provides an inherent threat to the quality of the service and is an impediment to research, two of the tripartite purposes of a CAP. The agent will also seek other clients and therefore could possibly recruit competitors or students for competitors. The presence of the agent on the committee suggests a level of trust from the university that is unusual in the business world.

In conclusion, the internationalisation of HE and global learning has indeed a Janus face, as mentioned at the end of the introduction. Janus, the Roman god, represented change and was the god of doorways, arches, beginnings, transitions, and endings. He had two faces and therefore has also come to mean duplicitous and double dealing. The Janus face of international education, as described in this paper, can be seen as something new that can open doors or a continuation of exploitative profit making without stopping to include the human players.

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JIANLI WANG AND JUDE OCEAN

14. ENRICHING THE KNOWN

International Chinese Students' Adaptations to Tertiary Study in Australia

ABSTRACT

This chapter identifies some significant aspects of the process of transition for international students from China (ICS) undertaking tertiary study in Australia. The *small culture* approach of this study helped to unmask the complexity and diversity of the processes involved in ICS' responses to the challenges of this transition, with a particular focus on the interactions that contributed to or buffered their experiences. Resources upon which students drew and which are discussed here include those from their families, schools, workplaces, university peers, and friendships in China and in Australia. This chapter discusses the challenges of transition in a way that values individual differences while also considering the impact of cultural norms and rules that are involved in ICSs' adaptations to tertiary study in Australia.

Keywords: international, tertiary, China, inclusive, culture

INTRODUCTION

The difficulties experienced by international students from China (ICSs) while studying overseas have been a subject of much research in recent years (Chang & Strauss, 2010; Gu, 2009; Tang, 2012; Watson, 1999). However, more work is needed to examine the underlying attitudes, values, and systems that may give rise to difficulties for both staff and students, so that curriculum, pedagogical, and assessment practices can become more culturally inclusive (Ryan, 2011).

This chapter describes some significant aspects of this process of transition for nine ICSs, who emigrated to Australia to undertake tertiary study, with a particular focus on the complexity of the interactions that contributed to or buffered their experiences of obstacles in studying in Australia. The study is based on the doctoral work of the first author, who is of Chinese heritage, born and raised in Shandong, who emigrated to Australia in 2006 to undertake tertiary study. For her Australian Masters degree in research, she had analysed a multicultural support program for international students, which was run by the second author, who is of English heritage, and was the international students' coordinator of her faculty at the time.

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 251–269.

She was also the doctoral supervisor of the study described in this chapter. We feel it is important that the analysis undertaken in this study was done by a researcher who lived most of her life in China and took all of her schooling there. Cultural misunderstanding is a potential problem in cross-cultural studies, and we feel that having the major author from a Chinese Cultural Heritage reduces the likelihood of misinterpretation in the analysis.

THE STUDY

Literature Review

As students from China are the largest cohort in the international student population in the USA (Institute of International Education, 2011), the UK (UK Council for International Student Affairs, 2014), Australia (Department of Education Employment and Workplace Relations, 2011), Canada (Canadian Bureau for International Education, 2014) and New Zealand (Education Counts, 2014), a large proportion of studies focus on students from this country. These studies also focus on this particular group of students because of the considerable level of difficulties ICSs experience with adaptations to tertiary study in various host contexts.

To respond to "the needs of Chinese learners", Clark and Gieve (2006) argued for the need for practitioners and researchers to "problematize the constructed identities and knowledges that have thus far circulated … concerning the Chinese learner" (p. 54). Discourses of the Chinese learner, such as "inadequate" (Burns, 1991, p. 62) and "surface" learner (Samuelowicz, 1987, p. 123) pictured these students as "lacking"—"deficit"—and constructed them as "having outlooks that are opposites of Western academic values" (Ryan & Louie, 2007, p. 406). These negative stereotypes were criticized for creating misunderstandings and for "homogenizing and thus misinterpreting a cultural tradition that is as complex and diverse as any other" (Ryan & Louie, 2007, p. 406). Ryan and Louie (2007) also warned of the danger of falling into the same trap by going to the opposite extreme: picturing these students as "surplus" (Lee, 1996) as when the "Chinese learner" is constructed as being, for example, "diligent", "competitive", "having a high regard for education" and so on. The "surplus" perspective also homogenises and misinterprets the Chinese cultural tradition, which is equally unhelpful.

Taking an exclusively "cultural point of view, especially from the interpretation of Confucianism" (Shi, 2006, p. 139), has a potential danger of incompletely considering the changing nature of the Chinese culture of learning; that is, it risks regarding Asian values as "discrete, homogenous and unchanging" (Ryan & Louie, 2007, p. 405). It ignores the complexities involved in such influences as the examination system (Li, 2009). It also masks contextual influences such as family and peers, which greatly impact ICSs' learning (Chen, Wang, & Cao, 2011; Chi & Rao, 2003; Li, 2002) and devalues individuality, which is a problem because

international Chinese students' cultural and educational heritage is reflected and practiced differently by each individual (see Arkoudis & Tran, 2007 and Liu, 2002).

Ryan and Louie (2007) argued for the need to move beyond the binary views, to move away from taking the national culture as the conceptual framework, to unmask and appreciate the diversities and complexities within each culture. Clark and Gieve's (2006) conceptual framework of "small culture" contexts—the classroom for instance, seen in its overlaps with other small cultures—becomes important in understanding the Chinese learner. The small culture approach accommodates diversity, "is concerned with individuality… and also emphasizes dynamic processes" (Clark & Gieve, 2006, p. 68). Studies focusing on ICSs in the intercultural domain pointed to the need to acknowledge individuality (Gu, 2009; Spencer-Oatey & Xiong, 2006; Wang et al., 2012; Zhang & Goodson, 2011). For instance, Wang et al. (2012) studied acculturative adjustment patterns among ICSs and found "that their [ICSs] acculturative adjustment is not uniform, but rather differs widely across individuals" (p. 431). Interrogating the "appropriateness and effectiveness of the conceptual frameworks in which identities have been created" (Clark & Gieve, 2006, p. 54) results in a rejection of the binary logic, of deficit versus surplus; consequently a "homogeneous national culture", which entails "a sense of cultural fixity" (p. 55), is rejected as a conceptual framework in this study. It is important to consider individual differences among ICSs in any study of their adjustment to learning in other countries, and so this study adopts Clark and Gieve's (2006) *small culture* approach as its theoretical perspective.

Following Clark and Gieve (2006), the study reported in this chapter took as the focus of analysis international Chinese students' learning at university seen in its interactions with other contexts such as family, peers, schooling, tertiary study, and work. Using activity theory (Engeström, 1993, 2000a, 2001) as the guiding methodology, it investigated conflicts or tensions that ICSs had with their adaptation to tertiary study in Australia to explore the diverse and complex interactions between the experiences of school, university, peers, family, and work that influenced ICSs' experiences of tertiary study in Australia.

Methodology

The focus of the study was an investigation of the diverse and complex interactions between ICSs' experiences of school, university, peers, family, and work that influenced their approaches to/resolutions of problems with tertiary study in Australia. Nine ICS participants, selected by a snowball sampling method (Patton, 2005) were interviewed about their adaptation to tertiary study in Australia in order to identify any conflicts or tensions they had experienced. They were also interviewed about their family and schooling experiences in China.

The theoretical perspective used was activity theory (Engeström, 1993, 2000a, 2001), particularly an adapted Change Laboratory approach (Engeström, 1991,

2000b, 2005). In an activity system "a subject, driven by a motivation to achieve an object, undertakes an activity. This process is mediated by tools and signs in collaboration with the community" (Allen, Karanasios, & Slavova, 2011, p. 781). The concept of "rules" includes "explicit and implicit regulations, norms and conventions that constrain actions and interactions within the activity system" (Engeström, 1993, p. 67).

Although activity theory has gained solid ground in interventionist studies, and its influence in the field of education is increasing, it is also important to acknowledge its limitations. The concept of activity is seen as problematic because it is open to multiple interpretations, nor does activity theory work well for every kind of activity. It works well for some, and these are those that activity theorists study, for example, some educational contexts (Bakhurst, 2009). Nevertheless, activity theory is "a useful heuristic in reference to certain kinds of activity" (Bakhurst, 2009, pp. 206–207).

The approach used in the doctoral study was the Change Laboratory approach, with adaptations. Yrjö Engeström developed the CLA in the late 1990s (Engeström, Virkkunen, Helle, Pihlaja, & Poikela, 1996). This approach has adaptive, analytical strength, the capacity to address issues from a cultural and historical perspective, and to identify complexities involved in interactions amongst various networks (see Anagnostopoulos, Smith, & Nystrand, 2008; Teräs & Lasonen, 2013; Virkkunen & Ahonen, 2011). During the process of analysis, conflicts or challenges reported by participants were mapped against their object (or goal), any resources (mediating artefacts) on which they drew, their actions or activities towards resolution, and any governing rules or norms which they identified or which have been identified in the literature as impacting on ICSs' adjustments to study in western cultures such as the US, the UK, Canada, Australia, and NZ

Nineteen cultural norms or rules that impacted on resolution of issues were identified as a result of the analysis of participants' responses to the interviews. Most of these, such as examination success leads to a good future, effort leads to success, and physical and mental hardship as a precursor to great missions, were either productive in themselves or successfully mediated in that they either aided or did not produce problems or challenges with the ICSs study in Australia. However, three rules continued to impact negatively on ICSs' learning behaviours in Australia for nearly every ICS in this study. Vignettes are presented next that exemplify the impact of these challenges through individual ICS's stories. These stories describe some of the unresolved conflicts or tensions that participants' had in adapting to tertiary study in Australia.

FINDINGS: VIGNETTES

The following vignettes highlight three recurring, persistent challenges/tensions/conflicts that ICSs experienced and did not resolve in their adaptations to tertiary study in Australia. Three aspects of this experience are conveyed through the form

of narratives here: the challenge itself, what is posited as the "root cause" of the challenge, and the diverse and complex interactions between contexts that influenced ICSs' responses to the challenge. The following three narratives tell Avery's, Chen's, and Lucy's stories.

AVERY: Negotiating with Teachers

Avery is from Gaoxiong city, Taiwan. Avery took a position as a kindergarten teacher immediately after high school. A few years later, she decided to study for an undergraduate degree in early childhood education in Taiwan, which she did as a part-time student and full-time worker. Avery said her school teachers in Taiwan were authoritarian. One teacher asked students to read classics out aloud every morning to purify their thoughts and strengthen their memorisation skills. Avery thought this was unreasonable, and refused:

> I felt reading "the Analects" was very boring, so boring. Our teacher thought this would help us to purify our thoughts. She said we had to read it out aloud, so our memories will get strengthened. She believes in Buddhism, her religion background is Buddhism, so she believed reading these would help us to purify our thoughts. I did not like that, I thought what she asked us to do was unreasonable, so I did not read.

Avery continued to refuse to read the classics aloud. Her teacher began to force her through various punishments. This aggravated tension led to a reinforced inertia of both parties:

> I thought what she said was bullshit, she was bullshit as well. I still did not read after I got punished. The teacher got angry sometimes, I just left her alone, I did not really care. She sometimes had an upset face, but I still do not think I was wrong.

Avery not only refused reading the classics out aloud, but also refused studying hard, taking notes, or accepting a test:

> I handed in a test without answering any questions on it. I did not really want to do the test, so I slept, and then handed the test in without answering any questions.

Avery's early refusal was partly due to the support she received from her parents. Avery's parents offered support through fostering independence in decision-making, not judging academic achievements, and not intervening. She said her parents agreed with her on most occasions, and so she did not feel pressure from her parents. However, as she continued to high school, there were many instructions and expectations that were met with punishments when she failed to follow them. If she failed to finish her homework on time or got low exam results, she began to be punished with physical violence:

> If we did not hand in assignments on time, we were beaten. I still remember when we did not do well in exams, our teacher beat our bottoms with a stick (this is not allowed in schools any longer). We wanted to escape from being beaten by the teacher so we put newspaper inside our pants.

By putting newspapers in her pants, she resisted her teacher's "right" to punish her. Not taking notes, not studying hard, not reading classics out aloud, and not taking a test demonstrates Avery's agency in her early schooling in refusing to accept teacher expertise, authority, and the test system. However, as her schooling progressed, Avery came to see corporal punishment as an acceptable practice. For example, she viewed her teachers' slapping her face when she did something inappropriate, like failing to finish homework or do well in exams, as beneficial for her, saying students deserved to be punished if they did not study.

When Avery left high school to pursue her undergraduate study in Taiwan, she experienced another change. Unlike her teachers at school, her university teachers saw themselves as co-learners, who encouraged students to correct them if the students felt the teacher was wrong. Her teachers' acknowledgment that they might have the possibility of getting something wrong showed a strong divergence from her schools and challenged the unequal power status between her teachers and herself that she had experienced in schools.

Avery's story makes the point that cultural norms or rules are not universal and there are always individual differences that exist, and matter, when a person's story is considered. These individual differences can have marked effects. We suggest that when in Australia, Avery's experiences in China helped her to resolve one of her challenges but left her with no resolution for the other. We have linked this to the different influences of her family and her university learning on the one hand, and her primary and high school learning/experiences on the other hand.

Avery's parents were supportive of her autonomy, and her university learning in Taiwan also challenged the idea of a teacher-student hierarchy, which her school teachers had seemed to hold to tightly. This played out when her teachers in Australia encouraged her to breach one of the norms of social interaction in Taiwan, that of not discussing sensitive topics such as sexuality in public. In Taiwan, the kindergarten children she taught were curious about this topic, but the teachers and the parents avoided addressing this with the children or with each other. In contrast, in Australia, her lecturer talked about this topic openly. This, coupled with observing people in the local community openly discussing their sexual orientations, presented a challenge to Avery. However, the discussions and the questioning that the lecturer employed stimulated Avery to engage in reflection and thinking. This helped the formation of a new attitude for Avery, which was to gain thorough knowledge on this topic. Supported and encouraged by her teachers, and able to access notions of autonomy that she had gained from her family system, she subsequently enrolled in a Master's degree, choosing a topic on gender and sexuality. In both her family and her tertiary study in Taiwan, Avery did not adhere to the idea of a teacher-student hierarchy.

However, during her teacher-education course, Avery wished to be taught ways to discuss such sensitive topics with children, that is, she wanted advice and strategies about relevant pedagogies. However, the teachers did not provide this, and rather than ask for it, Avery remained silent. She remained unable to question the teacher's decision not to discuss or provide strategies for teaching this topic to children. She finished her course not achieving one of her strongest objectives, which was being equipped to teach the topic of gender and sexuality to children. Yet she had never mentioned this to her teachers; she did not negotiate with her teachers in any way to reach this goal she held so strongly. We argue that at some level, the idea of a teacher-student hierarchy played out in this context, constraining her behaviour. In the next section we provide some background to this, discussing how it might be seen as a rule or cultural norm.

The cultural and educational heritage that influence ICSs' learning are diverse and include the influence of Confucian thought, the Civil Service Examination system, the rejection of this system and the Confucian school of thought, and the influence of Western ideas such as communism, along with the more recent development of Western education and the rise of professionalism. However, we focus in this chapter on literature that mostly has to do with influences of the Confucian ethic. What are presented here are some cultural norms that we found to impact on students' adaptations to study in Australia. Chinese characters are used first to name the norms or rules, which are followed by a commonly-used English translation. This is purposely done to remind the reader that meanings can get somewhat lost in translation into another language. This is particularly pertinent because some of the words used in the common translation terms (such as harmony, humility and "saving face") do not have strong currency nowadays in English deliberations on education). A reader who wishes to understand the meaning of the rule or norm more deeply might like to ask a Chinese friend to describe the images, thoughts, and feelings they ascribe to the Chinese character.

等级: Dengji (Hierarchy): The Rule or Cultural Norm of a Teacher-Student Hierarchy

The relationship between disciples and masters/teachers and students is one that has been influenced by the Confucian ethic of filial piety (Gu, 2006), which is highly valued by Chinese people (Zhou, Lam, & Chan, 2012). In the teacher-student relationship, teachers are equated with "authority, experience, knowledge and expertise" (Wang, 2012, p. 528), as well as a senior or an elder (Jin & Cortazzi, 2006; Zhang, Hu, & McNamara, 2015). Teachers not only exercise control over learning and student behaviour in class, but also apply strict discipline, regarding it as part of the notion of caring and support, as an aspect of pastoral care (Hue, 2007). Showing loyalty and obedience toward authority figures is a cultural norm with which Chinese students are expected to comply and conform (Zhou et al., 2012). For instance, ICSs tend to position themselves in a "weak power

situation" (Wang, 2012, p. 528) and downplay themselves so that they "refer to themselves as not worthy before their teacher" (Chan, 1999, p. 299), and not question or interrupt their teachers (Xie, 2009) to show their compliance to the unequal relationship between their teachers and themselves. Avery's school and teachers' practices support the arguments surrounding the Confucian ethic: that of filial piety. However, practices in her family and university countered the norm of filial piety: her parents fostered autonomy and her lecturers promoted an equal relationship. Involvement in these contexts, especially the family, resulted in Avery's exercise of agency in negotiating the conflict of power between herself and her teachers. In Avery's case, analysing her actions solely from a cultural point of view, such as Confucian ethics, would mask the complexities regarding the constant negotiation of power and would also ignore significant impacts of other contexts and interactions.

At one time, Chinese students' compliance to the hierarchical relationships between their teachers and themselves was criticised for hindering them from achieving desirable outcomes with their learning overseas. For instance, ICSs were viewed as having "excessive regard for authority" (Samuelowicz, 1987, p. 125), being passive in that they "rarely challenge the teacher" (Burns, 1991, p. 62) or material (Samuelowicz, 1987), and lacking "intellectual skills of comparing, evaluating different points of view, arguing and presenting one's own point of view" (Samuelowicz, 1987, p. 124). These are older interpretations from the late 1980s, but are included here to demonstrate a characteristic of the research at the time, which portrayed difference as deficiency, or worse, as deviance. Samuelowicz's (1987) interpretation also serves to show the effect of inferring an inner intellectual (in) competence from outer behaviours.

However negative the effects of the norm of a teacher-student hierarchy, most ICSs in this study did not abandon or even significantly modify it when in Australia. They did not challenge the teachers' choice of curriculum content in that they did not ask for any change at all in their courses. Avery's story illustrates both the development of her embodiment of this rule and its counterproductive effects when the associated behaviours (no challenge to the teacher's choice of curriculum) were enacted in an Australian educational setting. Avery could challenge herself – she could take herself in a new direction in terms of learning – but she could not ask her teachers to do the same. It is important to note that we are not critical of Avery's beliefs, values, attitudes, or behaviours, but are rather using this vignette to explore alternative and culturally inclusive solutions that we believe will benefit both ICSs and educators.

CHEN: Voicing Opinions, Seeking Help and Asking Questions

Chen is 28 years old, and from Urumqi city, Xingjiang province, which is in the most north-western part of the People's Republic of China. Ever since she was a little girl,

Chen wished to enter a good university. This dream came true when she received an offer from one of the most prestigious universities in Australia. The following story describes the challenges that Chen had with learning in Australia and how she came to experience them.

Chen said when she was studying in schools in China; she did not ask questions in class. She talked about a time in primary school when she asked the teacher to explain again a concept that she had failed to understand. Her request had resulted in being ridiculed by other students after class as a low achiever, a "slow" student. She concluded:

> If you (want to) ask a question, you will consider the other students (who) will look down upon you. So I do not ask questions (in class), because I do not want people to see me as a low achiever.

When Chen studied her undergraduate degree, her university peers repeated this practice of ridicule to any student who asked a question in class. In contrast to Avery, who had the context of family and university learning to buffer her internationalisation of the hierarchical relationships between her teachers and herself, the contexts that Chen was involved in reinforced her internalisation of the practice of not asking questions of the teacher.

We argue that this practice of not questioning the teacher in class can be seen as related to the cultural norm of saving face. As Liu (2002) noted, saving face is about "how an individual thinks his or her character or behaviour is being judged or perceived by the people around him or her in that community" (p. 41). Asking for clarification, which would be lauded in an Australian learning environment, was ridiculed by peers in China; her fellow students thought that only a low achiever would need to ask for clarification. Consequently, Chen began giving priority to saving face/maintaining dignity early in her schooling, regulating her behaviour accordingly. She prohibited herself from acting in ways that would result in losing Face. The action of asking questions in class, which means losing Face, was eliminated from her learning behaviours.

We suggest that Chen's adherence to giving priority to saving face/maintaining dignity due to her learning in China resulted in three undesirable outcomes in Australia: not being able to participate in group discussions, not being able to seek assistance for improvement of her English, and not being able to ask questions.

Chen said that although she understood that group discussion was a form of learning through which ideas were shared and communal learning occurred, she restrained herself from expressing her opinions to the rest of her group. Initially, she said the main barrier for her was her low proficiency level with the English language, particularly listening comprehension. However, after vast improvement with the English language, she noted that she had still not voiced opinions in group discussions, especially whenever she was grouped with local students. It seems she was concerned with Face:

> When I talk to local people, I will consider my accent, I will feel they might not understand me, because of my accent, because my English is not that fluent. I feel they will laugh at me if I say something wrong.

Her belief that she would be laughed at, ridiculed, if she "said something wrong" illustrates her concern for losing Face. Consequently, she did not feel able to voice any of her opinions in group discussions.

Chen's priority in saving face/maintaining dignity also restrained her from seeking assistance to improve her English language. When one of her teachers suggested she seek language help from the Academic Skills Unit, which provided language help to international students, she did not go, saying:

> (I did not go) because I was reluctant to say that I was not a good student. I regard myself as a good student, so I did not go.

Chen seems to have regarded the language program as providing assistance for under-achieving students (rather than for those learning in a second or subsequent language). It was important for her to see herself as a good student because this maintained her dignity (saved Face). This desire prohibited her from seeking help:

> … because that program, what I felt is if you go to the language program, that means you are labelled, labelled as a student who has language barriers [laugh].

Chen's unwillingness to be associated with negative labels reflects her intention to not lose Face. Actions that would risk losing Face were suppressed, however much they might have benefitted her in Australia. The same concern on losing Face also prohibited her from asking questions in Australia. She said that:

> I was very quiet. I do not want to ask questions, even if I do not understand.

In an Australian classroom, not asking questions for clarification and not voicing opinions in group discussions are believed to potentially affect learning. Indeed, not asking questions had negative effects for Chen, in that she did not clarify topics that confused her, and which she was learning in another language, with all the inherent difficulties that produces. She also did not seek help to improve her English, which, had she done so, would have resulted in less confusion for her. In addition, in the Australian context, an ICS such as Chen who arrived to study alone, without any sort of support system, cannot usually access the opportunities for learning that she would most likely have in China. Such opportunities might be study groups with a well-known and close-knit group of peers and also help from family members. Consequently, the behaviours that were productive of Face in China became costly to her learning in Australia.

In the next section we provide some background to this rule or cultural norm. For any one individual, this rule might or might not have strong adherence, or it

might be held strongly in some contexts and not in others; there are many factors at play here.

面子 – Mianzi (Face): The Rule of Saving Face or Maintaining One's and Others' Dignity

Saving Face (also known as Face or maintaining one's and others' dignity) is regarded as particularly salient in Chinese social psychology and culture (Wang et al., 2012). Liu (2002) suggested that in China, Face is about how an individual thinks his or her character or behaviour is judged or perceived by others. So, for a student, Face is concerned with how an individual perceives her/ his behaviour as judged by others such as peers or teachers. This can have negative effects in education, sometimes leading to a choice to avoid subjecting [oneself] to public evaluation (Skyrme, 2010). For example, Mak (2011) found that fear of negative evaluation was the most important factor contributing to ICSs' anxiety about speaking in class. ICSs might experience concerns about being singled out to answer questions or being asked to do a presentation without any prior preparation. Liu (2006) observed that whenever the teacher asked a question, most students "looked down at their desks, reading or thinking about what to say or how to say it" (p. 312) to avoid subjecting themselves to public evaluation.

Face also regulates communication strategies to avoid conflict (Wang, 2012, p. 528) and to enhance relationships. ICSs in Wang's (2012) study cared about others' Face in that they tended not to question other group members' ideas as they did not want to appear aggressive and so damage a good relationship.

Fear of being judged negatively is highlighted here as one important cultural factor that contributes to a cross-cultural educational problem of the interpretation of the behaviour of students. One of the behaviours that produce saving face/ maintaining dignity in Chinese educational settings – not questioning others publicly – contrasts markedly with one of the behaviours that is taken to evidence critical thinking in "western" educational settings, that of actively and even aggressively questioning others publicly. This can lead to a misreading of ICSs' intellectual capabilities by western educators, who might judge silence and the absence of critical questions as a lack of critical thinking; they might even regard the absence of critical questions as evidence of an incapacity for analysis.

In any individual case, possibilities such as this need to be carefully considered, as individual differences exist and matter. However, most ICSs in this study did not abandon the behaviours reflecting the cultural norm of saving face/maintaining dignity when they moved to an Australian higher education setting. Chen's story illustrates both the development of this cultural norm or rule and its counterproductive effects when deployed in Australian higher education. It is important to note that we are not critical of Chen's beliefs, values, attitudes, or strategies, but are rather using this vignette to explore and identify alternative and culturally inclusive solutions that

might benefit both ICSs and educators. These are detailed in the final section of the chapter.

LUCY: Speaking in Class

Lucy is from Beijing, the capital city of China, where she did her undergraduate study, majoring in education. She then went to Australia to pursue a postgraduate qualification. Lucy's story shows her reluctance to speak at all in class and its subsequent effects on her learning in Australia.

Lucy said when she was studying in schools in China, students avoided speaking in class because it meant they were rude. If a student spoke in class, "the student is considered to be very rude to occupy others' time, occupy teaching time, so we do not like to talk a lot during class".

At primary school, Lucy had answered a question in class, which resulted in her peers viewing her as showing off and rejecting her for her rudeness. For Lucy, the association between answering questions and either being seen to be rude or conceited was formed and repeatedly reinforced. So Lucy avoided answering teachers' questions in class, as she did not want to be viewed as "showing off". In her experience of schooling, answering questions successfully in class was seen as being self-congratulatory. In order to avoid being disliked/rejected by her peers (for being rude or for showing off), Lucy prohibited herself from acting in ways that would risk this.

This attribution of conceit or lack of humility may stem from a cultural norm that has to do with the display of humility. Group members who exhibit humility are considered as enhancing harmony of the group (Bond, Leung, & Wan, 1982). The responsibility for the destruction of harmony rests with the individual who has spoken in class (in this case, Lucy), not with the individuals who reject that behaviour. Thus the association of answering questions in class with risking being disliked/breaking group harmony becomes established. Maintaining group harmony thus comes to have regulative power over the action of speaking in class. Lucy's peers enforced enactment to observe maintaining group harmony, which made not breaking that harmony very important to her.

When Lucy went to pursue her undergraduate degree, her university peers repeated the practices of her school peers: speaking up in class was viewed as disruptive to the maintenance of group harmony. In contrast to Avery's experience, where the context of family and university learning challenging her internationalisation of the hierarchical relationships between her teachers and herself, the contexts that Lucy was involved in reinforced her internalisation of maintaining group harmony.

In their paper "Why do they not talk?", the authors Tan and Goh (2006) clarified these ideas around harmony. They contended the Chinese hold an interdependent self that tends to "view the self as an extension of significant others" and this view maintains that "individuals are interconnected and rely on each other for

self-definition" (Tan & Goh, 2006, p. 652). The interdependent self views the self as the same as others and is likely to "fit in with others" (Tan & Goh, 2006, p. 652). Therefore, the interdependent self attempts to "control his or her inner attributes (i.e. behave in a modest, self-effacing, or other-enhancing way) to suit the context and to avoid disrupting harmony in the relationship" (Tan & Goh, 2006, p. 653).

Lucy's adherence to maintaining group harmony influenced her behaviours in Australia, in that she was unwilling to voluntarily answer teachers' questions, because she regarded that as showing off. Her desire to maintain group harmony underlies her belief that she would be disliked and consequently rejected by her peers if she answered teachers' questions. This habit of remaining silent in order to maintain group harmony consequently prohibited her from meeting the expectations of her learning settings in Australia, where answering teachers' questions voluntarily was expected; indeed, even seen as evidence of intelligence and worthwhile contribution.

As in Chen's case, the behaviours that were regarded as productive in China were attended by costs in Australia for Lucy. Her individual solutions were not productive: throughout her tertiary study, Lucy remained highly concerned with maintaining group harmony, even at considerable personal cost.

和 – He (Harmony): The Rule or Cultural Norm of Maintaining Group Harmony

Harmony is a central concept in Chinese thought, closely linked to the collectivist orientation of the Chinese, who strive to maintain it in their social relations as a "valued and model characteristic in Chinese interpersonal relations" (Bond et al., 1982, p. 158). It is regarded as a virtue that reigns supreme, and is consequently the main objective of the Chinese learner, which in turn influences the nature of group interaction (Nguyen, Terlouw, & Pilot, 2006), regulating the behaviours of Chinese students in groups. In order to maintain group harmony, Chinese students choose to be "self-effacing" (to exhibit humility) (Bond et al., 1982, p. 157) and avoid being self-congratulatory, which is ultimately aimed at avoiding being disliked by others (Wang, 2012).

In Australia, behaviours such as self-effacement and not recognising/acknowledging one's own contributions can be read differently by educators. In western educational settings, self-effacement can be seen as a surrender of one's own position. Taking oneself out of the picture and remaining silent can be read as consent with more energetically voiced opinions/decisions. The social behaviours that are produced by the Chinese cultural valuing of harmony, if unrecognised by western educators, can be misread as a lack, as an absence.

Lucy's story illustrates both the origins of this cultural rule and its counter-productive effects when deployed in Australian higher education. However costly the effects of this rule in Australian higher education settings, few ICSs in this study jettisoned it. It is important to note that we are not critical of Lucy's beliefs, values, attitudes, or strategies, but are rather using this vignette to suggest alternative and

culturally inclusive solutions that we believe will benefit both ICSs and educators. The next section suggests some of these strategies.

DISCUSSION AND SUGGESTED TEACHING STRATEGIES FOR AN INCLUSIVE EDUCATION

The small culture approach this study took identified some of the conflicts or tensions that ICSs had with their adaptation to tertiary study in Australia. How might the understandings generated inform teaching practices in Australia that are more inclusive for ICSs? This section comprises suggestions for teaching strategies aimed at increasing desirable outcomes and engendering a more inclusive educational experience for ICSs.

Although initially non-compliant at primary school, and supported in this by her parents, Avery came to accept hierarchical relationships between herself and her teachers by the time she was in upper high school, even accepting corporal punishment. Her experience at university, although it challenged her internalisation of this rule, did not break her adherence to it. Later, when she moved to Australia, she criticised teachers for not punishing misbehaving students.

Avery did not ask her lecturers in Australia to teach her class about pedagogies for teaching children about sexuality, even though she was enrolled in a teacher training course and this was a strong objective for her. Rather than request the lecturers address this, she remained silent. We suggest this is because she observed the rule of hierarchical relationships between herself and her teachers. The strategies that we suggest to assist Avery loosen the limits set by this rule include lecturers interrogating the conceptual frameworks that they use to understand ICSs. This might initially comprise listening to ICSs describe the complex and varied processes that contribute to their adaptations to learning in Australia, but it also means undertaking some reading in the area of Chinese history and culture. If teachers insist their classes function only on a set of values derived from a European context, a level of colonisation of thought and behaviour can result. Unexamined conceptual frameworks have the potential to create barriers that block understanding, impacting everyday practices in the classroom, and working against the multicultural understandings that we wish to promote.

In addition, interventions, built on thorough understanding, can increase the chance of achieving desirable outcomes. In Avery's case, her family fostered the development of agency, and her university learning supported an equal relationship between her teachers and herself. Her lecturers could have drawn on her experiences of learning at university in Taiwan and her experiences within her family to accelerate her adaptation to the equal relationship offered by teachers in Australia. Teachers could engage in modelling and questioning; in this case, modelling the desirable behaviour of open and frank discussion, and employing questioning skills to present a challenge that might also stimulate the formation of new motives, new ways of seeing and behaving. In addition, teachers might ask for specific and anonymous

written requests relating to course content, or use a chat-room style IT application in-class to gather students' opinions, although teachers should be aware that even then, ICSs might not question a teacher's judgement.

In Chen's story, we suggested that her challenges in not being able to participate in group discussions, not being able to seek assistance for improvement of her English, and not being able to ask questions, resulted from a conflict with her adherence to giving priority to saving face. Her school peers and university peers both enforced the value of saving face; she reported that in both educational settings her peers ridiculed her when she volunteered comments or asked questions in class. The strategies that we suggest to assist Chen loosen the limits set by this rule include lecturers interrogating the conceptual frameworks that they use to understand ICSs.

In addition, one of the strategies we offer here that could assist students such as Chen is direct intervention by the teacher. As an example, one of Chen's lecturers intervened in Chen's behaviour of not asking questions in class through offering her a different understanding of this behaviour. This teacher said to her:

> If you have questions, and you ask, then I think you are knowledgeable, (I think that) you are clever.

After her lecturer's intervention, Chen began to ask questions. However, this transformational process did not fully take place:

> If I felt I am really struggling with that question, I will ask. Yes, so there will still be occasions I wanted to ask but I did not.

Asking questions only when she was really struggling implies that Chen's lecturer's intervention (showing her that asking questions meant she was knowledgeable and clever) did not help her to completely transform this problem area, but she did make some changes. However, an additional and important point is that Chen not only initially adhered to giving priority to saving face, she also deferred to maintaining group harmony. Her teacher's intervention of attributing cleverness to asking questions worked against her preference for maintaining harmony because she could not be self-congratulatory (as in thinking "I am clever").

For Chen, a greater level of behaviour change was possible only under the double condition that she knew she was not going to either be self-congratulatory (breaking harmony with her peers) or lose face. Consequently, the types of questions she could ask would be limited to those that did not have the possibility of revealing her as either superior (self-congratulatory) or inferior (low achiever). To negotiate this challenge, when Chen did begin to ask questions in class, she selected only the questions she knew her peers could not answer. To her, asking questions would not mean a loss of Face in front of her peers if they did not know how to answer them. So Chen's new questioning behaviour was framed within the limits of saving face and maintaining group harmony. Chen's negotiations in her class were thus very complex. Feeling compelled to ask questions because she had been encouraged to by her Australian teacher, she needed to choose some questions and not others.

The sorts of questions she permitted herself to ask were those that would not reveal her as lacking knowledge (or she would lose Face) nor indicate she was celebrating her knowledge (or she would be seen as showing off and disrupt the harmony of the group). Adapting to new behaviours while attending to one's own cultural norms or rules (and negotiating important relationships with other ICS) is no easy task.

Because the lecturer's intervention was framed by Chen within the limits of Face, it did not help Chen loosen the limits set by this value. Consequently, the intervention might even have reinforced her adherence to saving face. We noted that the effect of this intervention was limited to this behaviour only, because Chen did not make any shifts/adaptations with regard to participating in group discussions or seeking assistance for improvement of her English. While the former might not influence Chen's learning, the latter will, and productive interventions can be important in achieving this. A productive intervention entails the acquisition of relevant cultural understandings by Australian educators, including interrogating the conceptual frameworks that they use to understand ICSs. Articles such as those by Liu (2002), Mak (2011), Skyrme (2010), Tan and Goh (2006), and Wang et al. (2012) will aid in achieving a greater level of cultural awareness to facilitate this.

In Lucy's story, we noted that she did not answer questions in class, because that was seen as showing off and consequently reducing group harmony, and that the responsibility for the destruction of harmony rests with the individual who has spoken in class, not with the individuals who reject that behaviour. For Lucy, and for many other students in a Chinese cultural context, the association between answering questions and either being seen to be rude or conceited was formed and repeatedly reinforced at school in China. Thus, the association of answering questions in class with risking being disliked/breaking group harmony becomes established. The strategies that we suggest to assist Lucy loosen the limits set by this rule are the same as those that we suggested to help Chen meet expectations with learning in Australia: that lecturers interrogate the conceptual frameworks that they use to understand ICSs' challenges with their adaptations to learning in Australia.

In addition, one of the strategies we offer here is also direct intervention by the teacher, such as directly naming an ICS to answer a question in class, which will remove the risks associated with volunteering knowledge. This is most likely to be seen as an invitation, not a demand, and will allow the student to answer questions without risking group harmony. If a student is asked by the teacher to answer a question, the rule of hierarchical relationships between teachers and students is likely to prevail, and ICSs will be able to answer the question without any reaction from their peers concerning destroying group harmony. In addition, we suggest that Australian educators work with ICS students as a whole group, not individualising intervention efforts to focus on one student. It is the whole group that is involved in the production of harmony, so attempts to effect change for one student are not likely to succeed. Working with the group towards this end will necessitate a familiarity with the literature on a collective concept of self (Bond et al., 1982;

Nguyen et al., 2006; Tan & Goh 2006; Wang, 2012) that is probably still unfamiliar to many western educators.

CONCLUSION

One final point we note is that ICSs themselves need to have a motive to resolve/transform the challenges that result from cultural norms or rules having different effects in one country than they might have in another. Given the strong adherence to the three cultural rules that we discussed in this chapter, producing a significant transformation that will help with learning in an Australian context requires a motive that is qualitatively different from the one that led to the challenge in the first place. To extend beyond the limits set by certain rules, educators could help ICSs become aware of the resources that are available to them. ICSs can also be encouraged to engage in activities that could assist their materialisation of newly formed motives. Offering opportunities for ICSs to build and extend new networks to maximise problem solving and the transformation of challenges would achieve this. Such networks could operate within educational settings, bringing students together to share resources, discuss challenges, and identify strategies towards resolution.

The small culture approach of the study reported in this chapter identified some of the challenges ICSs experienced with adaptations to learning at university in Australia. It also helped to unmask the complexity and diversity of the processes involved in ICSs' responses to these challenges. This approach has the capacity to identify and understand the experience of each individual ICS. It also has the capacity to demonstrate the processes in a way that values individuality while considering the impact of cultural norms and rules that might be involved in ICSs' adaptations to tertiary study in Australia.

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MOHAMMAD BAGHER NAGHDI AND RICHARD JOHNSON

15. "I WONDER SHOULD I GO OR SHOULD I STAY…"

Retention of Higher Education Students in an Australian University

ABSTRACT

The overall objective of this chapter is to explore the relationship between internationalised curriculum, international students' satisfaction with the internationalised curriculum being provided by the Royal Melbourne Institute of Technology (RMIT) University, Melbourne, Australia, and international students' retention. We define student retention as the continuous enrolment in courses until graduation. Mixed-methods research was employed in the analysis of both quantitative and qualitative data in this study. The quantitative component consisted of data from Higher Education Onshore – Student Experience Survey run by the Survey Services Centre of RMIT University in 2012, and the qualitative component included analysis of interview data. The influence of internationalised curriculum on student retention, which is the main goal of this study, has not been addressed in previous studies. Thus, in this chapter, we explore the relationship between internationalised curriculum and student retention.

In this chapter we focus on the academic approach, course content, and teaching methods in relation to curriculum and their relationship with students' retention. We report significant insights into understanding the importance of different elements of curriculum affecting student retention. In this chapter, it has been assumed that the curriculum at RMIT University has been internationalised, therefore, practical outcomes may result from this study with regards to understanding the components of the internationalised curriculum and their relationship with student retention. This may assist to create better institutional policies and inform better decision making for university officials and administrators as they strive to implement such internationalised endeavours.

Keywords: International student retention; Internationalising the curriculum; International student satisfaction

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 271–293.

INTRODUCTION

Australian universities have been regarded as some of the most popular destinations for international students since Australia opened its doors to international students in 1985 (Sidhu, 2005). There is a growing realisation that the interest of the Australian people is better served by opening its campuses to students from around the world, in particular its Asian and Pacific neighbours (Beazley, 1992, p. 1).

The global role of international education in Australia is expressed in the volume and spread of foreign enrolments, the countries from which international students come, and the programs they enter, and the growth in numbers of international students studying in higher education institutions in Australia has been seen as a significant part of the internationalisation process (Knight & DeWitt, 1995, p. 39).

International students bring advantages in the cultural diversity they provide to the tertiary education environment. They also can break down national myopia and create opportunities for multicultural and cross-cultural education. In addition, international students have become a curriculum source to support the enhancement of cross-cultural knowledge (Back, Davis, & Olsen, 1997; Curro & McTaggart, 2003; Hamilton, 1998; Leask, 2001; Schapper & Mayson, 2004).

At the same time, international students are increasingly being considered as customers who have expectations and who evaluate their experiences (Levitz, Noel, & Richter, 1999). Students pay directly for the cost of their studies, and because they are paying for a service to be delivered, it is reasonable that they should be treated as customers (Kanji, Malek, & Tambi, 1999). Students, whether local or international, expect a high standard of service delivery (Mavondo, Zaman, & Abubakar, 2000) and quality has become a major preoccupation in the higher education sector (Wright & O'Neill, 2002). East (2002), in a study of international students' expectations at La Trobe University, concluded that there is a need to analyse international students' perspectives in the light of customer expectations of quality service.

In response to this changing dynamic between students and universities, many Australian universities have developed effective structures for supporting international students (Collet, 2010; Colvin & Jaffar, 2007; Perkovic, 2010). For instance, at some universities, international students are supported from the outset to adapt to their academic, sociocultural, and linguistic environments, and they are particularly encouraged and supported to enhance their English language development through social interaction on and off campus. In this regard, Royal Melbourne Institute of Technology (RMIT) University has identified the need to provide these essential support services to international students in its strategic plan (Strategic Plan RMIT, 2015).

Most universities base their efforts to respond to international students' needs on a range of market strategies (Rizvi, 2000) that are designed to increase the number of international students enrolled and expand the university's financial base. Although

RMIT University has been successful in these efforts (Rizvi, 2000), growth in student numbers alone is not sufficient to fully internationalise a university. Despite the expectation of having international students on campus, some researchers claim that the mere presence of international students is insufficient to foster intercultural interactions, develop intercultural friendships, and result in international understandings (Johnson, 2016; Ward, 2001).

It is our contention that universities should consider other aspects of the student experience and in this regard, Rizvi (2000) argued that a global university must be characterised by its engagement with the processes of globalisation, its international networks, and its internationalised curriculum. It is important, therefore, that universities focus on developing the characteristics of an international university rather than simply increasing the number of international students.

Accordingly, it is our view that if universities want to follow a path to internationalisation, they need to use international networks to promote issues of global interest. They need to have a dynamic body of students who can learn from each other and create lasting networks as they study an internationalised curriculum. As Knight (2004) states, the topic of internationalisation, or "integrating an international, intercultural, or global dimension into the purpose, functions or delivery of post-secondary education" (p. 2), has been an issue of concern for many universities. Universities should adopt these dimensions into curricula and services to facilitate greater holistic adoption of an international paradigm that allows them to remain competitive.

Poyrazli and Grahame (2007) point out that newly arrived international students encounter various problems in their adjustment to learning and living in a new environment. They believe that these difficulties vary according to the students' race, culture, country of origin, and level of proficiency in English. According to Zhou, Jindal-Snape, Topping, and Todman (2008), international students with different cultural backgrounds must contend with the novel social behaviours and expectations of educational organisations. As a result, they often face pedagogical and curricular adjustment difficulties due to teaching methods, styles, and expectations that can be different from those they may expect in their home country (Andrade, 2006; Arthur, 2004; Crabtree & Sapp, 2004; Dalili, 1982; Durkin, 2008; Grey, 2002; Poyrazli & Grahame, 2007; Zhai, 2002; Zhou et al., 2008). Moreover, Andrade (2006) suggested that international students may also face financial and immigration problems. International students thus perceive the content of the curriculum as exclusionary, and cite concerns that academic staff show a lack of interest in their prior knowledge (Arthur, 2004; Chen, 1996; Grey, 2002; Robertson, Line, Jones, & Thomas, 2000). For these students, internationalisation is about transition from their culture to a new learning environment.

Some of the difficulties encountered by international students can come as a result of the traditional learning and teaching environments in Western universities not being aligned with the cultural backgrounds and diversity of the learning needs of the international student population (Adams, 1992; Guo & Jamal, 2007;

Hayle, 2008; Joseph, 2008; Samuel & Burney, 2003; Schapper & Mayson, 2004; Schuerholz-Lehr, Caws, Van Gyn, & Preece, 2007; Schuerholz-Lehr & van Gyn, 2006).

Therefore, the focus of this chapter is on the retention of international students and includes both the curriculum and the pedagogy that international students experience in their courses at RMIT University. A fuller version of our arguments in this chapter is available in the PhD thesis, *International Student Retention in the Australian Higher Education Setting: The Role of Internationalisation of the Curriculum* (Naghdi, 2015).

LITERATURE REVIEW

Student and institutional perspectives regarding student satisfaction represent two distinct attitudes towards the educational experience. Based on students' perspectives, satisfaction and retention both matter for the successful completion of higher education courses and can improve career opportunities and financial conditions. Based on an institutional perspective, high student satisfaction can mean high student retention that brings financial benefits for the university, as opposed to when students leave the university before graduation and take their fees with them. In higher education, retention is not as costly as enrolling new students (Bejou, 2005). Despite the importance of student retention, activities to ensure the retention of students who have enrolled in their programs are not as obvious as the process of enrolling new students (Derby & Smith, 2004; Trotter & Cove, 2005).

If the major goal of internationalisation at universities is to grow the knowledge and skills of students (Heyneman, 2002; Raby & Valeau, 2007; Scott, 1994), then those in charge of this growth could better understand how students become involved in internationalisation. According to English (1998), understanding the impact of internationalisation on students at the institutional level is possible "only by looking at the relationship between predictors and outcomes in a broad context [so that] the evaluator [can] attribute change to particular learning experiences" (a cited in Mestenhauser & Ellingboe, 1998, p. 185). In addition, to facilitate competition internationally, "more student-centred approaches and flexibility will be required as well as high standards in student services and facilities" (Van der Wende, 2001, p. 257).

In a number of studies, researchers have investigated international students' issues and attempted to understand their expectations of Australian universities (Duan, 1997; Gatfield, Barker, & Graham, 1999; Lawley, 1993). According to a 1999 survey by Australian Education International (AEI, 2007), education services are the most important factor in student satisfaction.

In a 2005 survey carried out by Australian Education International, 85% of international students were satisfied or very satisfied with studying in Australia, and 88% said they would recommend Australian universities or colleges to family (AEI, 2007). In general, international students consider Australia to be a safe, lively, and

overall suitable country for living and studying (AEI, 2007). Another survey found that international students were more eager to continue or complete their studies than Australian students (Olsen & Spain, 2008).

In the context of funding cuts to higher education and the competition to raise funds, student retention remains a major issue (Scott, Shah, Grebennikov, & Singh, 2008). According to Armani (2008), one of the contributors to increased retention and successful completion of degrees for international students is the international atmosphere at a university. While the number of international students is increasing rapidly, it would be profitable for Australian stakeholders to obtain a more comprehensive understanding of their needs (Johnson & Kumar, 2010). There is evidence from survey reports (Burns, 1991; Volet & Pears, 1994, 1995) and research studies (Nesdale & Todd, 1993; Quintrell & Westwood, 1994; Volet & Ang, 1996) that Australian and international students do not mix readily and tend to study in parallel throughout their courses. Oberg (2006) believes that Australian students' tendency to prefer low levels of cross-cultural interactions is one of the major concerns for the future of the internationalisation of higher education in Australia.

However, it is well known that communicating with local students can raise international students' proficiency in English and improve their self-confidence. Oberg (2006) for instance states that, "Once you begin to be able to carry on a friendly conversation with your maid, your neighbour, or go on shopping trips alone you not only gain confidence and a feeling of power but a whole new world of cultural meanings opens up for you" (p. 49).

International students reported having issues with accommodation, public transport, safety, social isolation, financial hardship and a lack of support services, and expected to get help from their university.

The importance of students' identification and involvement with their university to compensate for such external pressures has been discussed in the literature (Berger & Malaney, 2003; Harrison, 2006; Tinto, 1993; Townsend & Wilson, 2006). Harrison (2006) theorised that strong social networks were responsible for students identifying closely with their university. In a similar vein, Santos Laanan (2007) concluded that student involvement with faculty and other students strongly influenced students' persistence, retention, and overall satisfaction with the university. University involvement has overwhelmingly been found to improve students' satisfaction and retention (Aitken, 1982; Berger & Malaney, 2003; Christie, Munro, & Fisher, 2004; Pennington, 2006; Santos Laanan, 2007).

The primary models for studying student retention are grounded in the work of academic and social integration frameworks (Tinto, 1975, 1987, 1993). Tinto (1993) has reiterated the importance of involvement in academic and social activities of institutions because that typically increases the possibility that the student would continue their studies at the same university.

According to Tinto's retention model, the factors affecting retention were students' pre-entry attributes, commitments and goals, and their social and academic

contribution. Several researchers have considered Tinto's model and have found that, although there is a relationship between academic integration and retention, social integration as a retention predictor is somewhat inconsistent (Beil, Reisen, Zea, & Caplan, 1999). Bean and Metzer (1985) for example, showed that social integration, academic and environmental variables, and student backgrounds were factors influencing retention (Hoyt, 1999). Several scholars (Bers & Smith, 1991; Claggett, 1996; Feldman, 1993; Voorhees, 1993; Windham, 1994) have employed Bean and Metzer's model or Tinto's model to evaluate the influence of different factors on student retention. In addition, Cabrera, Castaneda, Nora, and Hengstler (1992) has synthesised the two models as tools to examine the issue of retention in higher education.

In relation to this, it may be relevant to note that Lounsbury and DeNeui (1996) and Thompson (1993) have observed that students who live on campus had a stronger sense of community and a higher retention rate.

Student retention has also been studied through considering factors affecting students' decisions to pursue their education. Based on Tinto's (1993) retention model, factors such as students' pre-entry attributes, goals and commitments, and social and academic integration all affected retention. Tinto found that inconsistency and isolation were predictors that led to students dropping out of their undergraduate studies (Cambiano, Denny, & DeVore, 2000). Moreover, Kalsner (1991) identified four factors affecting students' retention: uncertain expectations of the institution, adjustment concerns, financial issues, and being academically unprepared. Kalsner argued that most students drop out of university voluntarily, and agreed with Tinto that students who had institutionally compatible goals were more likely to remain enrolled in institutions (Cambiano et al., 2000).

METHODOLOGY

The study reported in this chapter adopted a quantitative as well as a qualitative approach to identify and describe the relationship between the internationalisation of the RMIT University curriculum, students' satisfaction with the internationalised curriculum, and international students' retention. According to Creswell and Clark (2007), mixed methods research provides a "more complete picture by noting trends and generalisations as well as in-depth knowledge of participants' perspectives" (p. 33), and it would produce richer, more valid and more reliable findings than research based on either a qualitative or a quantitative method alone (Greene & Caracelli, 1997).

By using quantitative research, a model of the internationalisation of curriculum and student retention was developed to identify variables that significantly increase the probability of international students' retention at Australian universities. More specifically, the quantitative approach attempted to investigate the following questions:

- What is the relationship between internationalised curriculum and international students' retention in higher education?
- What is the relationship between internationalised curriculum and international students' satisfaction with the curriculum?
- What is the relationship between international students' satisfaction with the curriculum and international students' retention in higher education?
- Is there an indirect relationship between internationalised curriculum and international students' retention in higher education that acts through students' satisfaction with the curriculum?

Depending on the nature of the research questions, quantitative research can describe different experiences or behaviours and look for relationships between them. However, it is our opinion that the complexity of students' satisfaction with the internationalised curriculum that influences their retention in higher education cannot be examined exclusively by using survey research. To address this issue, a qualitative approach was used to obtain an in-depth understanding of the thoughts, feelings, and experiences of international students regarding the internationalised curriculum provided by RMIT University.

Methodologically, this research is grounded in the sequential explanatory mixed methods research design. The research was conducted in two phases. Phase one included the collection and analysis of quantitative data. Phase two included the collection and analysis of qualitative data on sample selection, interviews, and ethical issues.

The purpose of qualitative research was to understand and interpret social interactions by studying the whole, wide-angle lens, and depth of a phenomenon. Qualitative research is more of a bottom-up method where the researcher generates a new hypothesis from the data collected.

As such, one of the greatest strengths of qualitative methods is the potential to understand phenomena in greater depth than quantitative methods. However, qualitative research methods are not without their weaknesses. As Creswell and Clark (2007) point out, "qualitative research is seen as deficient because of the personal interpretations made by the researcher, the ensuing bias created by this, and the difficulty in generalising findings to a large group because of the limited number of participants studied" (p. 9).

We argue that by combining qualitative and quantitative methods, the weaknesses in one method can be offset by the strengths in the other method (Creswell, 2003; Creswell & Clark, 2007).

Therefore, mixed methods can be defined as collecting, analysing, and mixing or integrating both quantitative and qualitative data at some stage during the research process of a single study for the purpose of gaining a better understanding of the research problem (Hanson, Creswell, Clark, Petska, & Creswell, 2005; Teddlie & Tashakkori, 2003).

QUANTITATIVE RESEARCH FINDINGS

Quantitative data collection and analyses were implemented first, followed by qualitative data collection and analyses in two distinct phases. The quantitative component consists of data from the Higher Education Onshore – Student Experience Survey run by the Survey Services Centre of RMIT University in 2012. The qualitative component includes interview data with 13 purposefully selected international students to explore the results of the quantitative component in more depth through a qualitative case study analysis. This research was explanatory in nature because it placed greater emphasis on the quantitative data in addressing the research questions. The researcher collected and analysed quantitative data to identify significant predictors of international students' retention at RMIT University. These results informed our understanding of the issues raised by each hypothesis and research question individually. The results from the survey were used to create interview questions. Then participants were asked to answer these questions to draw out their views of the faculty in fostering internationalisation, assessment of student satisfaction and retention, along with the impact of the internationalised curriculum on student retention.

The sample consisted of 2,421 undergraduate international students who were studying in RMIT University in 2012. The data was available from the Survey Service Centre at RMIT University and was collected in the Student Experience Survey –Higher Education Onshore 2012 questionnaire. Data was analysed using both bivariate (correlation analysis) and multivariate (Structural Equation Modelling [SEM]) techniques with the Statistical Package for Social Sciences (SPSS) and Analysis of Moment Structures (AMOS).

Target Population and Sample

The target population was the 35,018 students who were studying in RMIT University in the year 2012. Among the 13,381 respondents who completed the Student Experience Survey, 2,421 were undergraduate international students. Including international students as part of the sample of the study had the potential to provide useful insights into the experience of internationalisation. Undergraduate students were recruited because they would have more opportunity to continue study and their retention could be measured.

This study used the Student Experience Survey–Higher Education Onshore 2012 questionnaire that was prepared by the Survey Services Centre at RMIT University. The survey was designed to capture feedback about the total student experience at RMIT University in 2012. The questionnaire consisted of demographic characteristics of students along with another two major sections: one on student experience and one on campus life. The student experience was divided into the following five subscales: good teaching, generic skills, clear goals and standards, appropriate workload, and appropriate assessment. Two other subsections included

overall satisfaction and other information. The section of the questionnaire on campus life was designed to collect information on the following 10 subsections: learning support, including library, computing facilities and learning support services; online services; communication; campus life and environment; building and facilities; administration; services and programs for students; RMIT Link; student union; and outcomes. Respondents were asked to rate their perceptions on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

The second part of this investigation was a qualitative study, drawing on data from interviews with international undergraduate students recruited through a purposeful sample aimed at maximising sample variation. A total of 21 international students agreed to participate in the interviews. From this group, 13 who had experience with the topic (internationalised curriculum) were selected to participate in the interviews. This selection was due to some students being uncomfortable with the interview being recorded, which was required for the interviewer to properly understand and document findings. Also, some students who expressed their interest were master's-level students and the target population of this research was undergraduate students. Participants were selected from different schools, fields of study, and nationalities.

RESEARCH MODEL

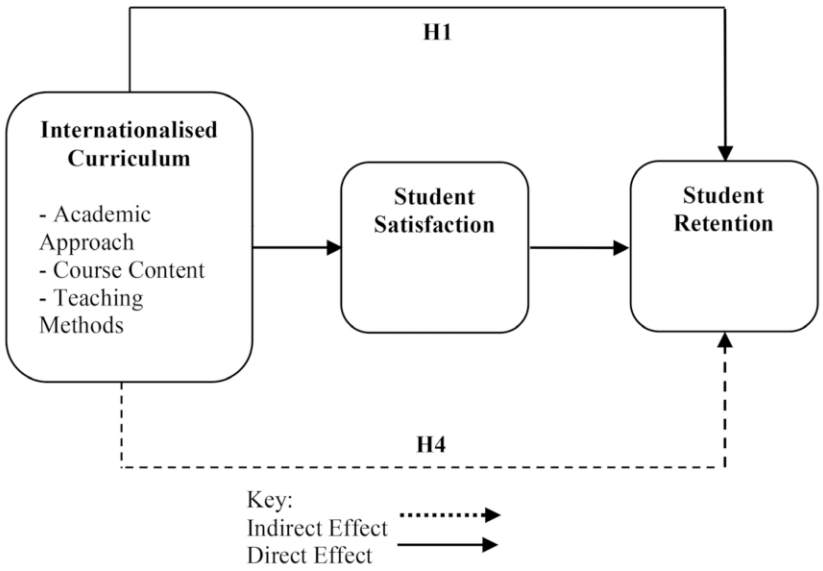

Figure 1. The research model of international students' retention and internationalisation of the curriculum in the Australian higher education setting (RMIT University)

FINDINGS

Quantitative Research Findings

SEM to Predict Student Retention. This section discusses the path analysis process with latent constructs to investigate the mediation, direct, and indirect structural relationship between variables. The structural model indicates that all the fit indices indicated a good fit to the model, i.e., Goodness-of-Fit Index (GFI) = .944, adjusted Goodness-of-Fit Index (AGFI) = .936, Comparative Fit Index (CFI) = .954, Incremental Fit Index (IFI) = .954, Root Mean Square Error of Approximation (RMSEA) = .025. Student Retention was hypothesised to be influenced by four predictors: Academic Approach, Course Content, Teaching Method 1 and Teaching Method 2. The four predictors were considered exogenous (independent) constructs and Student Retention was considered an endogenous (dependent) construct. The model consisted of six latent variables (dependent, mediator, and independent variables) and 41 measured variables, including seven indicators of Academic Approach, six indicators of Course Content, seven indicators of Teaching Method 1, six indicators of Teaching Method 2, five indicators of Student Satisfaction, and 10 indicators of Student Retention.

The posited model presented in Figure 1 shows that for the Academic Approach factor, the strongest indicators were items 5 and 6 (“The teaching staff normally give me helpful feedback on how I am going” and “My lecturers are extremely good at explaining things”), followed by item 1 (“The teaching staff of this program motivate me to do my best work”) and item 4 (“The staff really tried to understand difficulties I might have with the work”). For the Course Content factor, the strongest indicators were items 1 and 2 (“The program develops my problem-solving skills” and “The program sharpens my analytic skills”), followed by item 3 (“I usually have a clear idea of where I am going and what is expected of me in this program”) and item 5 (“As a result of my program, I feel confident with unfamiliar problems”). For the Teaching Method 1 factor, the strongest indicator was item 6 (“I could easily access information about my program options”), followed by items 5 (“RMIT University effectively resolves any student administration issues I might have”) and 7 (“I find the online environment useful to communicate with my teachers outside of class”). For the Teaching Method 2 factor, the strongest indicator was item 11 (“Laboratories are well maintained”), followed by items 13 (“Lounge spaces are well maintained”) and 10 (“Lecture theatres are well maintained”).

Regarding hypothesis one, the main effects model revealed that all components of Internationalised Curriculum had significant associations with Student Retention. The specific hypotheses are discussed as follows:

The relationship between Academic Approach and Student Retention was positive and statistically significant ($\beta = 0.104$; C.R. = 2.804, $p < 0.05$); therefore, hypothesis H1.1 was supported.

The relationship between Course Content and Student Retention was positive and statistically significant (β = 0.120; C.R. = 3.145, $p < 0.05$); therefore, hypothesis H1.2 was supported.

The relationship between Teaching Method 1 and Student Retention was positive and statistically significant (β = 0.224; C.R. = 5.621, $p < 0.001$); therefore, hypothesis H1.3 was supported.

The relationship between Teaching Method 2 and Student Retention was positive and statistically significant (β = .224; C.R. = 8.834, $p < 0.001$); therefore, hypothesis H1.4 was supported.

Regarding hypothesis two, the main effects model revealed that, except for the relationship between Course Content and Student Satisfaction, the three other components of internationalised curriculum had statistically significant relationships with Student Satisfaction. The specific hypotheses are discussed as follows:

The relationship between Academic Approach and Student Satisfaction was positive and statistically significant (β = 0.11; C.R. = 2.95, $p < .05$); therefore, hypothesis H2.1 was supported.

The relationship between Course Content and Student Satisfaction was positive and non-significant (β = 0.042; C.R. = 1.031, $p = .3$); therefore, hypothesis H2.2 was not supported.

The relationship between Teaching Method 1 and Student Satisfaction was positive and statistically significant (β = 0.57; C.R. = 17.80, $p < 0.001$); therefore, hypothesis H2.3 was supported.

The relationship between Teaching Method 2 and Student Satisfaction was positive and statistically significant (β = 0.26; C.R. = 10.86, $p < 0.001$); therefore, hypothesis H2.4 was supported.

Regarding hypothesis three, and based on the standard regression weights in the structural path model, Student Satisfaction was positively associated with retention (β = 0.37 C.R. = 8.43, $p < 0.001$); therefore, hypothesis H3 can be accepted.

The final model indicated that 83% of the variance in Student Retention was explained by Internationalised Curriculum and Student Satisfaction. In addition, Internationalised Curriculum explained 79% of the variance in Student Satisfaction (Figure 2).

The results were tailored for reporting the direct, indirect, and total effects of the independent variables on the dependent variable in the model (Table 1).

QUALITATIVE RESEARCH FINDINGS

Student Retention

Students who were satisfied with the curriculum were likely to exert more effort in their educational studies by regularly attending their classes and becoming more involved with their coursework and institution. They were more likely to be committed and continue their studies than unsatisfied students, who were likely

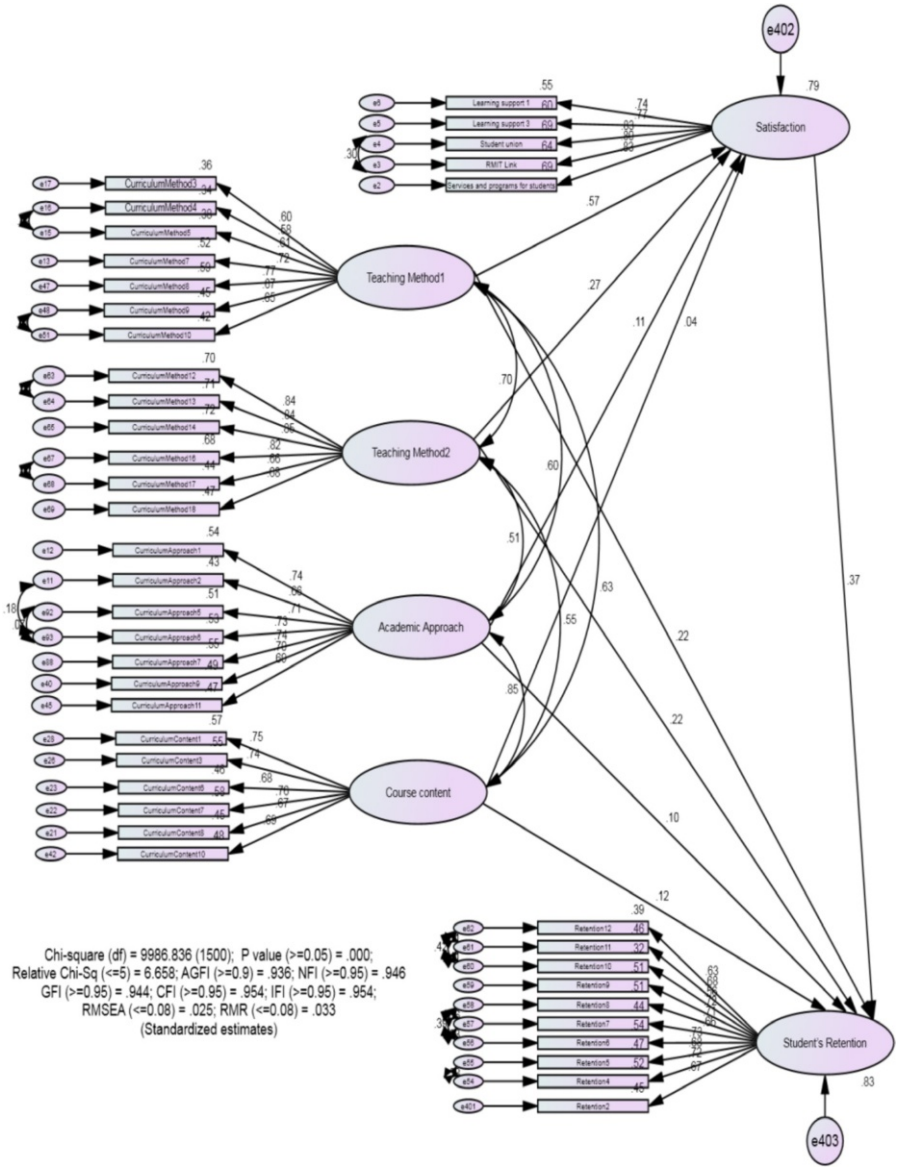

Figure 2. Estimated path coefficients of the hypothesised model

to be less willing to regularly attend classes (Borden, 1995; Jamelske, 2009). The questions in this part of the interview aimed at exploring student retention in terms of their goals, loyalty to RMIT University, and whether they would continue their

Table 1. Direct, indirect and total effects of latent exogenous variables on student retention

Exogenous variables	*Direct effect*	*Indirect effect*	*Total effect*
Teaching Method 1	.224	.21	.434
Teaching Method 2	.224	.098	.322
Academic Approach	.104	.042	.146
Course Content	.120	.015	.136
Student Satisfaction	.366	.000	.366

study or recommend RMIT University to others. In response to the questions, the majority of interviewees (11 out of 13) stated that they would continue their study at RMIT University, but two had different points of view, outlining reasons for their dissatisfaction as well as making recommendations to policy makers to improve retention of international students.

We posit five findings from the data:

- goal commitment;
- institutional commitment;
- continuing to study at RMIT University;
- recommend RMIT University to others; and
- factors causing students' to drop out along with recommendations to retain them.

Goal commitment. When the interviewees were asked about the goals that had kept them motivated to continue their university study, the most common answer was to finish their study successfully and to find a good job. Support from university and family was also a significant factor that motivated them in goal commitment.

For example, [A] from China said, "When I started my study, I knew the outcome of studying in this course, now, I am paying so much money but I am happy because of my bright future". Similarly, [K] from China said, "Thinking about my future, pass all the subjects, graduated and get a job are motivating me. Also, we have to do good study because we are paying so much". Another student, [J] from the United Arab Emirates, was very excited and motivated. He said:

> One of my friends who is 26 or 27, will graduate the next month, he was offered a job after finishing his course in this university. So, because of the reputation of RMIT University, job is guaranteed I guess, but I am planning to go back and work in my country, then all of them are motivating me.

Student [I] from India said, "Getting a RMIT University degree is very important to me because my future job will be guarantee", and [F] from Malaysia, who was studying for a Bachelor of Chemical Engineering, said, "By making decision to study at RMIT University with high reputation I want to become successful professionally

and personally in my life". Student [G] from India said, "I have had many academic successes so far, also my parents like what I have done and encourage me every time", and [H] from India explained her goal setting as follows, "I am confident that I made right decision about my field and my university, now it is very important for me to complete my study firstly and finding job secondly".

In conclusion, the main points of goal commitment for international students were to finish study successfully and find a good job.

Institutional commitment. Regarding the institutional commitment that encouraged interviewees to feel a strong sense of belonging at RMIT, they identified education quality, cost of tuition, supportive and friendly environment, and the presence of a large number of international students. For instance, student [D] from Sri Lanka said, "RMIT University provides several beneficial opportunities for international students as I mentioned before such as education quality, cost of tuition compare to other universities and also placement, so I am happy with choosing RMIT University and I will continue my attending". Student [L] from Samoa said, "I am naturally curious about what happen around me, so I try to participate in all of the social and cultural activities at RMIT University for both local and international students". Student [E], who is a Bachelor of Education student, said, "The course itself is really interesting, also friends and its (university) friendly and convenient environment". Similar to [E], student [B] from Singapore stated, "My classmates with whom I share a lot of knowledge, and my lecturers always give me opportunity to share what I think and feel making me more feel belonged to RMIT University". Students [A] from China and [C] from Pakistan believed that large numbers of international students at RMIT University campus was very important for them to feel comfortable and enjoy university.

In conclusion, the main points of institutional commitment for international students were as follows:

- university environment;
- work experience opportunities;
- the field of study itself was really interesting and motivating;
- friends and classmates;
- lecturers; and
- many international students.

Continuing to study at RMIT University. When the interviewees were asked whether they would like to continue studying at RMIT University, 11 out of the 13 interviewees stated that they would continue their study, but two had different points of view. For instance, [C] from Pakistan said, "No I am not going to continue because I am doing the last semester currently. I don't mind studying in RMIT University but I am looking forward to study in a university with higher rankings". Student [M] from China said, "I will continue my studies at another university, for

personal reasons I will study my masters in China, I want to experience a different university". Student [B] from Singapore didn't want to drop out. She said, "Sure, I will continue, but because I am self-funding and it is hard for me to pay the cost, if I don't be able to cope with the cost I will switch which I hope doesn't happen. I don't know what the future holds, depending on how much I sustain".

Recommend RMIT University to others. Regarding recommending RMIT University to other people such as family or friends, all interviewees emphasised that they would recommend RMIT University, nominating the following features: reputation, quality of teaching, facilities, and placements.

For example, student [E], who was studying a Bachelor of Education, said:

> I will recommend RMIT University because it is well known for my course, social science and designing to whomever wants to study these subjects, but for Medicine subjects such as laboratory medicine I won't recommend [it], as it is not strong in this course, I will give the right advice to the right person.

Student [L] from Samoa will recommend RMIT University to others because of the lecturers and good quality of teaching, while [F] from Malaysia stated that he was satisfied with RMIT University. He said, "In my opinion, RMIT University is not exam orientated, they offer work experience so they allow you to develop your skills and because of your skills you can find job easily, I am very happy and definitely will recommend".

Student [H], who was studying a Bachelor of Primary of Education, emphasised that she was going to recommend her course to her friends and family and others. She said, "For my course I am going to recommend it, because of the content of the course you can apply to every student globally also they are making us to think, doing research and applying our own knowledge and experience internationally". Student [I], who was studying Bachelor of Laboratory Medicine, believed that RMIT University supports international students very well. She said, "Yes I will recommend, because they are supporting us very well, if international students have any problems like accommodations or jobs we can share our problems and they will help us to solve it". Another student, [G], from India said, "Yes, I will recommend RMIT University to my friends and family members, RMIT University is well known and their teaching system is good, it provides good facilities along with opportunity for students to work overseas".

In conclusion, most of the interviewees were going to recommend RMIT University for the following reasons:

- good reputation;
- quality of teaching;
- facilities;
- good support; and
- focus on workplace experience.

Factors causing students' to drop out along with recommendations to retain them. The reason for dropping-out was considered by many students during the interviews. They pointed to a variety of issues such as high cost of university, high cost of living, depression, homesickness, language barriers, interest change, and difficulty of study. For example, [J] from United Arab Emirates said:

> Some courses such as Aerospace Engineering are challenging and difficult, mainly because of English and studying Engineering in a different language, that's why some students drop out their study. I believed that if RMIT University supported more international students, which they are not doing now, then those students wouldn't give up from university.

Another interviewee, who observed somebody dropping-out, was student [M] from China. She said, "I had a girl starting this year and then she transferred from RMIT University to Monash or Deakin. Education is not easy for everyone so she changed her course and university". She explained the cause of dropping-out as, "Marking is not the same, sometimes we as international students spend 20 hours to learn or to do our assignments, whereas, local students spend 3 or 4 hours to finish and this is unfair"; she then recommended, "Lecturers should consider international students' situation, labelling international student, they should consider that English is not our first language".

Student [C] from Pakistan also believed that:

> Some students drop out because of the difficult nature of the studies, one of my friends went through lots of difficulties with her studies that now she is going through mental and physical issues, so I personally prefer someone to drop-out of their course than quitting their life, for some people it is not easy to deal with life matters. Although, I am not an expert to recommend, I think if anyone wants to quit because he didn't get good marks, the lectures try to be more understanding and flexible.

Student [B] from Singapore, referring to a friend, said:

> I have a Bangladeshi friend who wanted to study for higher education in RMIT University but because of the cost, she chose another university offering the same course with lower cost. I believe RMIT University is very expensive. It is hard to afford, controlling the cost by university is best thing to do. Because at the end of the day we as international students are all graduating from Australia, when we go back to our home country everybody knows us as graduated from Australia not RMIT University.

Student [D] from Sri Lanka said, "Students should be given opportunity to drop-out if they do not find their course interesting, we didn't have enough information and experience about our course before enrolment".

Two students, [F] from Malaysia and [G] from India, pointed to English language problems and cultural shock as two of the main reasons for international students' dropping out. Student [F] said:

> I believe, because the culture here and difficulties in communicating due to English, international students don't have patience to study their course and they do drop out. For stopping drop-out, RMIT University can offer free English classes which are already good and useful, and University can offer counselling for international students. Orientation is helpful but not long enough for students to learn whether they are going to stay in their course or not.

Student [G] from India said:

> If anyone drops-out I think the reason could be not being able to cope with language, culture and the high fee, my recommendation to RMIT University to stop students' dropping-out is to support them financially and create a friendly environment.

Student [L] from Samoa also believed that cultural shock is a cause of depression and as a result students will drop-out. She said:

> Because of the cultural shock, when I came to Australia I felt quite strange and lonely and keep everything to myself and not sharing. I think students' engagement is very important, give them responsibilities, make them join groups and make them involved in different universities' activities.

In conclusion, the most frequent reasons that have been expressed by international student about the cause of dropping-out by students were as follows:

- English language problems;
- no equity between local and international students;
- cost of university and life;
- depression;
- homesickness;
- interest rates;
- difficulty with study; and
- culture shock.

THE IMPACT OF AN INTERNATIONALISED CURRICULUM ON STUDENT RETENTION

All interviewees stated that they believed that an internationalised curriculum did have a positive influence on student retention. They concluded that when the curriculum is internationalised, then whatever they learn will be applicable wherever

in the world they work. They concluded that the result of student satisfaction was definitely reflected in retention. The interviewees said that they would recommend their university to others. They all stated that they would continue their study until completion of their degree, but some interviewees said that if they did further study, they may try another university. For example, [C] from Pakistan said that, "In terms of retention, because I am studying my final year now I would do research on other universities and then will make decision for where to study for my higher education. But if I was in early years of bachelor I would stick with RMIT University".

Student [E] from China said:

> Obviously if I am satisfied with curriculum I am going to continue my current study, but also before I start my masters I will compare Masters of Education in different universities, like Melbourne University, and if it is better and I can afford it I am willing to change.

Student [F] from Malaysia believes that facilities for Master's and PhD students are not sufficient at RMIT University, but for bachelor students, facilities are good and they are satisfied. He said, "I did think twice for Master and PhD and I did some research, but there are no facilities for master by research and PhD students in RMIT University when you compare with other universities, they don't offer funds as well".

Student [H] from India is satisfied with her current course because she believes her course is internationalised and is applicable globally, but for further study she is not sure. She said that, "My course is applicable globally because they are internationalised, for masters I am not sure whether I am going to continue in RMIT University, simply because of the ranking unless they offer me good degrees. But in general of course if the students are satisfied they will continue their course".

Regarding the question about the impact of an internationalised curriculum on student's satisfaction and student retention, all interviewees agreed that an internationalised curriculum had an impact on student satisfaction and retention.

CONCLUSION

The purpose of the study was to make a contribution to the body of work on international student satisfaction and retention in higher education settings. We believe that the study achieved that goal and in this chapter we have conveyed the key elements of the study. We have explored the relationship between internationalised curriculum, international students' satisfaction with the internationalised curriculum being provided by the Royal Melbourne Institute of Technology (RMIT) University, and international students' retention. Although there are a large number of studies that focus on factors influencing student retention, there are relatively few studies that focus on the impact of the internationalised curriculum on student retention. The contribution of this chapter to the body of knowledge is that the conceptual model developed can help universities to identify factors that contribute to student

retention. While the focus of this chapter was on one university, we believe that the findings are generalisable to many universities sharing the same challenges to cater for a burgeoning group of international students in university settings. The current findings add important understandings of internationalised curriculum through the working definition of curriculum as everything with which students are involved in, from enrolment through to graduation.

The focus on dimensions of curriculum, academic approaches, course content and teaching methods, and their relationship with student satisfaction, has provided significant insights into understanding the importance of different elements of curriculum affecting student retention. Practical outcomes may result from this study with regards to understanding the components of the internationalised curriculum and their relationships with student retention. This may help to create better institutional policies and inform better decision making for university officials and administrators as they strive to internationalise the curriculum.

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AMANDA BERRY

EPILOGUE

Global learning is a term that has relatively recently emerged in the lexicon that builds on concepts such as global education and global citizenship. Use of the term is becoming more widespread across different contexts and amongst different groups of people. At the same time, the way in which global learning is defined and applied varies across these spaces, groups, and places and with differing levels of clarity. So, "what is global learning?" And, what does "global learning in the 21st century" entail?

The editors of this book, Tasos Barkatsas and Adam Bertram, have taken on the ambitious task of addressing these questions together with colleagues from the Curriculum and Pedagogy research cluster within the Centre for Education, Training and Work in the Asian Century (CETWAC), in the School of Education at RMIT University, along with several international academic collaborators. Through bringing a range of theoretical and methodological perspectives to bear on the topic, the authors examine concepts associated with global learning, its various facets, challenges, opportunities and questions, along with implications for educational policy and practice. As a newly appointed academic within the School of Education, the editors invited me to write some closing comments for the book, a task that I am honoured to accept. It is a pleasure to read the chapters and to come to know my colleagues and their work through this experience. As a teacher educator researcher, I found much to provoke and extend my own thinking about the meaning of global learning as well as raising questions about how my own actions, expectations, and assumptions may be supporting (or limiting) educational opportunities for the learners with whom I work and the life-worlds they inhabit.

The book is organised according to the four broad themes of: (1) contemporary, innovative curriculum and pedagogical practices; (2) the affective domain, motivation and engagement in 21st century education; (3) inclusion and social context; and (4) globalisation and internationalisation. While organised in this way for the purposes of presenting the text, it is clear that the themes intersect with complementary and often overlapping ideas. In what follows, I present a very brief snapshot of the chapters within their theme group, including some of the issues and provocations that impacted on me as I engaged with the text.

Chapters within the first theme highlight the potential of new forms of pedagogy (e.g., gamification) to more effectively engage young people in learning that reflects their familiar realities of a digital and networked world; the emotional

T. Barkatsas & A. Bertram (Eds.), Global Learning in the 21st Century, 295–297.

costs that accompany globalised learning and its implications for learner identity; and the ways in which the needs of diverse learners may be better understood and accommodated through more inclusive pedagogies. The authors in this section raise questions about why, how, and for whom contemporary pedagogies invite or exclude certain learners, the risks that new forms of learning invoke, and the consequent need to support the establishment of safe spaces for learning. It is also apparent that despite a great deal of activity in some areas of the curriculum, other areas struggle for recognition. Environmental sustainability education and arts education seem to be relegated to the margins in contemporary renderings of global learning and curriculum, and yet these two areas offer enormous potential to transform the quality of life of individuals and societies through nurturing the "creative abilities and potential of human beings".

Within the second theme, chapter authors explore the importance of cultivating particular values and dispositions, such as empathy and compassion, through critical reading of literary texts; orientation to learning in mathematics and technology is investigated through a study of variables including learner attitude, confidence and competence; and a model for interpreting and predicting relationships between attitudes, behaviour, and actions of individuals is described, along with applications for predicting future scenarios in education. Collectively, these chapters present a picture of how different components of global learning can be identified, investigated and promoted, and offer tools that enable a critical examination of the rapidly changing dynamics of contemporary educational contexts and learners.

The third theme opens up the notion of global learning and learners within the broader perspective of inclusion and social context. The authors in this section unsettle commonly accepted discourses and practices around inclusion of learners with different needs. These authors challenge the reader to consider the values and assumptions that frame taken-for granted ways of doing and knowing in education policy and practice and propose creative, alternative scenarios and approaches that present possibilities for more authentic, collaborative, and generative futures. Taken together, these chapters raise challenging questions about learner and educator identities, and roles within the marginalised spaces of education, what is valued, and what is missed or ignored.

The final theme examines the notion of learning through the perspectives of globalisation and internationalisation. The changing face of education is further explored through a close examination of internationalisation, from the perspectives of academics involved in a cross-border education project between China and Australia, and from the personal perspectives of those experiencing it as international students studying in Australia. Issues emerging from these chapters highlight the challenges of working across cultures and the need to enhance opportunities for diversity, rather than seeking to reduce it.

Altogether, this book presents a picture of global learning as a complex and multifaceted enterprise that draws from, and builds on, existing forms of learning and knowing, combined with new kinds of skills, capacities, and forms of

understanding. As several authors in the book emphasise, context is everything. The notion of global learning is necessarily individualised, diverse, responsive, and constantly changing. Potentially, a global learning approach enhances opportunities for more connected and varied learning and for improving educational opportunities for a more diverse range of learners. At the same time, this creates new kinds of demands on educators and learners. The authors invite us to consider ourselves as educators and alongside, the needs of young learners growing up in the 21st century.

It is a great achievement that a large group of academic colleagues across a range of different disciplinary fields and levels of experience, from beginning researchers through to highly experienced, largely from one School of Education, can come together around an academic project, such as this book. The book provokes and extends our understanding of global learning and brings a more comprehensive coherence to a complex topic. The editors of this book, *Global Learning in the 21st Century,* have taken on an ambitious agenda. And they have managed their agenda well. I commend this book as a stimulus for ongoing discussion and negotiation of global learning and its place, purpose, and practice within our 21st century.

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