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Issues in contemporary teaching: volume 1

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Issues in Contemporary Teaching Volume 1

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Issues in Contemporary Teaching
Volume I
Contents

Chapter 1: Learning in the Present-day World ................................................................. 9
WHAT DOES RESPONDING ACCORDINGLY MEAN?
THIS BOOK’S OUTLINE
REFERENCE LIST

Chapter 2: The Context of Education in the 2000s ..................................................... 15
1. THE GROWTH OF UNCERTAINTY
2. THE GROWTH OF NEW FORMS OF ECONOMIC RATIONALITY
3. THE TRANSFORMATION OF TIME INTO THE ‘EXTENDED PRESENT’
4. FLEXIBLE SPACE
5. AN INCREASING CAPACITY FOR SELF-ORGANISATION
THE KNOWLEDGE ECONOMY, SCHOOLS AND TEACHERS
CONCLUSION
REFERENCE LIST

Chapter 3: Learning Management: Transitioning Teachers into the Knowledge Age ................................................................. 28
PART 1: EARLY ITERATIONS OF LEARNING MANAGEMENT
PART 2: A REVISION OF THE LEARNING MANAGEMENT CONCEPT
PART 3: THE LEARNING MANAGER CONSTRUCT
CONCLUSIONS
REFERENCE LIST

Chapter 4: The Theory and Practice of Curriculum and Programming ................................................................. 49
EDUCATION IN AUSTRALIA
EXPLORING THE NOTIONS OF CURRICULUM
PEDAGOGIC VOID
TOWARDS A NEW THEORY AND PRACTICE IN CURRICULUM DEVELOPMENT
REFERENCE LIST

Chapter 5: Brain-behaviour Links that Affect Classroom Success ................................................................. 59
ENVIRONMENT AND SELECTIVE ENCODING
THINKING, EMOTION AND BEHAVIOUR
EXECUTIVE FUNCTIONING
EXECUTIVE DYSFUNCTION AND BEHAVIOURAL PROBLEMS
EXECUTIVE FUNCTIONING AND SOCIAL COMPETENCE
SOCIAL INFORMATION PROCESSING AND SOCIAL COMPETENCE
SELF-REGULATION
EDUCATIONAL AND NEUROPSYCHOLOGICAL PROGRAMMING FOR EXECUTIVE DYSFUNCTION
REFERENCE LIST

Chapter 6: 21st Century Schools: Enhancing Students’ Mental Health and Well-Being ................................................................. 90
INTRODUCTION
MENTAL HEALTH
RESILIENCE
THE ROLE OF SCHOOLS AND TEACHERS IN SUPPORTING STUDENTS’ MENTAL HEALTH
CONCLUSION
Chapter 7: Developing Personal and Professional Competencies and Skills

Introduction
Personal skills and competencies
Emotional competencies and emotional intelligence in teacher education
Authentic communication competencies
Value based attitudes
Basic communication skills
Listening and inquiry skills
Structuring a helping session
Positive solution finding skills and strategies
Strategies for developing skills
Journal writing
Socratic questioning
Conceptual clarification questions
Probing assumptions
Probing rationale, reasons and evidence
Questioning viewpoints and perspectives
Probe implications and consequences
Reflective teaching practice and video feedback
Conclusion
Reference List

Chapter 8: Professional Knowledge, Pedagogy and Practice: Toolkits for achieving outcomes for learners

Introduction
Implications for teaching and learning in the twenty-first century
The teacher in the twenty-first century
Professional knowledge, pedagogy and practice
The pedagogy toolkit
The practice toolkit
Starting out – the developing practitioner
Developing teaching skills and knowledge as a beginning practitioner
Conclusion
Reference List

Chapter 9: Chinese and Australian Education: A Comparison

Confucianism
Moral education principles
Students
Teachers
Influence of Confucianism
Chinese education is controlled and operated by the government
Reflections on the Chinese and Australia education systems
Disadvantages of China’s education system
The advantages of Australia’s education system include focusing on socialization, humanity, individuality and equalization of education
Reference List
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Chapter 1: Learning in the Present-day World

David Lynch and Bruce Allen Knight

Take a moment to reflect on the world in which you are currently living. The mobile phone, which is the size of a ‘Weet Bix’ and about the same weight, has more computing power in it than NASA relied on in 1969 to land the first man on the moon (Dagan et al, 2004). While referred to as a mobile phone, the ‘I Phone’, for example, has application capacities that make it more like a personal computer than a telephone. We are witnessing discoveries in medical science that are curing the once incurable, redefining how health care is delivered and propelling life expectancies ever closer to the century mark (Florida, 2002).

The concept of communication, once face-2-face centric and reliant on the speed of the postman, is now anywhere, anytime, anyway, anyplace (Florida, 2002). Being ‘connected’ is the norm, with email, SMS, Twittering, and face-booking for example, common place and, interestingly, an increasing part of our social fabric. Young people appear to adopt technologies as if they are native to it. Older generations talk about how to manage it, how to control it, how to incorporate it, while young people seem to be able to; just ‘work it’, ‘exploit it’, ‘change it’, ‘merge it’, and make money from it. Some of our new billionaires are not yet thirty! (Bauman, 2007).

We still have cars that run on petrol, but innovation is occurring into new fuel sources. We still have trains but they are now capable of speeds in excess of 500 kilometres per hour. We have aeroplanes, but they are faster, bigger and far more reliable. We still have books and newspapers, but you can now get them in digital form. Once you needed a typewriter and a really, really, good idea to ‘get published’. Today you just need the Internet and an idea. If you want a hard copy published of your ‘next book’, the internet has ‘self-publishing’ sites that can have your book bound and to you in less than a week (Florida, 2009).

If you want to go shopping you just have to ‘hop on the net’. Order what you want from anywhere in the world and it will be delivered to your door. If you want to meet your dream partner there are sites there for that as well (Florida, 2009).

What’s amazing in all this is that these innovations and the resultant changes have taken place predominately over the past 20 years (Florida, 2009). What will the
next 20 years hold if this is the continued rate of change?

The Knowledge Age, as the 2000 era is termed, is fundamentally characterized by technological innovation that converges with other technologies to create yet more technologies. Taken together, change emerges in areas that market forces demand and in areas that entrepreneurs see market advantage in some shape or form (Nowotny, et al, 2003, Florida, 2002). Progress, one might call it.

Underpinning the Knowledge Age is knowledge and a capacity to generate new knowledge and use it in new and creative ways. Themes that are explored further in Chapter Two. Standing at the forefront of this circumstance is learning (Nowotny et al, 2003, Hargreaves, 2003). Because learning is the core business of teachers and schools, the Knowledge Age requires teachers to respond accordingly (Smith and Lynch, 2010; Frey, 2007).

What does responding accordingly mean?

Smith and Lynch (2010) argue we will witness the steady rise of ‘the new learning industries’ as pressures mount on educators and education systems to adapt as the requirements and the context of education need changes. The term ‘new learning industries’ is really a euphemism for a ‘new frontier’ in teaching and learning that the knowledge economy of the 2000s has generated (Smith & Lynch, 2010, p. 105).

In effect the term learning industries transcends the limitations of a Twentieth Century ‘schooling paradigm’, signalling a variety of emerging understandings and technologies associated with learning and which together force a rethink on the what, where, when and how of learning. The term underpins the importance placed on knowledge and the learning required of workers to function in the Knowledge Society, but ultimately indicates new ‘opportunities’ for the teacher. Taken together, the learning industry premise generates the foundations of what Smith and Lynch (2010) consider, is basis of an ‘education revolution’ and the context for a refocusing of the curriculum for preparing tomorrow’s teacher (Smith and Lynch, 2010, p.105).

The ‘learning industries’ premise is fundamentally based on a set of new capabilities and the systems and processes that support them. As Chapter Three outlines, Learning Management is the term given to the extent of these capabilities and the associated systems and processes. If you unpack the learning industries hypothesis, three domains appear set for a prominent role in society: virtual learning, vocational learning and knowledge innovation learners. We draw further on Smith and Lynch (2010) to highlight the following key points on each.
The knowledge revolution, as outlined earlier, has spawned the development of an information superhighway known throughout the world as the Internet. This is the basis of the virtual learning domain. While early versions of the internet and its many websites were text-based the emergence of a ‘Web 2.0 internet world’ in 2007 coupled with mobile communication devices has led to an explosion in learning potentials and the need to learn many new and different things. E-tools such as; ‘blogs’, ‘Live messenger’, ‘podcasting’, ‘YouTube’, and ‘texting’ together with a host of multi-media presentation mediums and formats exemplify this new world (Christensen et al, 2004).

While recent versions of ‘on-line learning’ were largely text-based, the potential to conduct learning in this domain today is as large as one’s imagination. The portable anywhere, anytime nature of such technologies, coupled with the capacity of young people to adopt and adapt to such technologies underscores the importance of this domain as the potential learning medium of the future.

The second learning domain is ‘vocational learning’. In the preparation of workers for the future and for the continuing and changing work within and beyond workplaces, it makes no sense to think that it can be done with knowledge that is decontextualised, abstract or general. Learning in this domain is centred in a ‘place of work’, either for contextual or ‘post-graduation’ purposes, so that learning for ‘new recruits’ and for ‘experienced hands’ is a process of social participation. Learning to be a carpenter or accountant, for example, requires more than learning about models to understand the world of such work. Participation in contexts that have real-life circumstance and structure is mandatory so that the new comer learns to participate as a legitimate member (Smith & Lynch, 2010, Blayney, 2010).

Much of the innovation that is occurring in industry today is occurring in ‘skunk works’ and ‘knowledge incubators’ where workers experiment, design, investigate and trial the new and different. In effect, they participate in a ‘new type of learning’ arrangement that is focused on innovation and market appeal. This type of learning is synonymous with workplaces such as Microsoft and Google where teamwork and ‘kicking around ideas’ is central and the catalyst for much of these endeavours is continuous learnings (Florida, 2005, pp. 4-6). In this knowledge society circumstance, a person’s individual talent is crucial. The primary inputs are therefore the individual’s talent or skill and their capacity to connect one set of knowledge to another so as to create yet further knowledge1. The important element which informs this domain is the notion that ‘creativity’ is not just a personal attribute but can be learned. Under this construct the notion of ‘strategic

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1 The Creative Economy. http://www.creativeeconomy.com
creativity’ involves the ability to apply and generate knowledge in a range of contexts, in order to meet a specific goal in a new way. This domain is known as the knowledge innovation domain and is enmeshed in strategic creativity (Smith & Lynch, 2010, pp.94 - 100). So what does the rise of the new learning industries mean for teachers?

Put simply, a new learning industry premise signals where the work of teaching appears to be heading (Smith & Lynch, 2010): new and different work opportunities for teachers. In effect they will generate new issues for teachers to contend with (Aronowitz, 2008, p. 162). This now brings us to the purpose of the book.

**This Book’s Outline**

This book is a collection of essays that focus on issues that are informing the work of the contemporary teacher. While somewhat broad in scope, the book provides the reader with a snap-shot of research endeavors that are informing teacher work. Essentially the book examines the changing nature of teacher work, including capabilities for the information age, the changing curriculum, new understandings about the brain, the diverse range of learners needs in inclusive classrooms and enhancing the mental health and well-being of students.

In Chapter Two the context of education is explored through an examination of the Knowledge Economy. This examination provides foundation knowledge for the chapters which follow. Chapter Three introduces the concept of Learning Management. At its core, Learning Management represents a rethink on teachers and teaching such that a new and different set of teacher capabilities are revealed as critical in the Knowledge Economy. The chapter authors note that the dominant pedagogical practices of schooling and teacher education are a major contributor to the success of schools in a knowledge economy.

Chapter Four examines the current state of curriculum in schools, by providing an examination of influences and occurrence in the development, oversight and implementation of curriculum and what this all means for today’s teacher. The construct of Learning Management is outlined as an explicit and purposeful intention to create knowledge age change and is used to support commentaries around Knowledge Economy era curriculum development. The chapter authors follow up with a discussion of curriculum as a body of knowledge to be learnt, as a product, a process or to describe praxis. This chapter makes the case that curriculum considerations are an important element in the design of pedagogical practice by exploring the theory and practice of curriculum and programming.
Chapter Five introduces key research into individual differences in brain functioning that have been linked to social, emotional and academic performance in the classroom. It provides a description of inclusion and the demands made on teachers to cater for a wide range of abilities and student behaviour in contemporary classrooms. The authors discuss the factors in a student’s environment before considering the interaction among attention, thinking, emotion and behaviour. The chapter goes on to outline the importance of executive functioning and its influences on students’ academic, social and emotional behaviours.

The critical importance of social and emotional skills and their importance in establishing a healthy environment that is conducive to learning is followed up in Chapter Six. The application of the philosophy of inclusion in schools indicates that schools meet a wide range of educational and social needs by catering for students with a wide range of abilities, students with mental health problems and students coming from different cultures and family contexts. The concept of mental health is discussed with a focus on enhancing students’ well-being, with the construct of resilience used to promote positive qualities and highlight protective factors that enhance well-being.

Classrooms today are required to be inclusive of students having a diverse range of needs that impact on learning. Teachers therefore need to become skilled learning specialists to effectively deal with such learners by empathically and authentically engaging with all students to understand them and their learning needs, and then to provide appropriate learning support. The personal and professional skills required are well documented across numerous published lists. However, it appears teacher preparation provides little opportunity for skill development, except for practice teaching experiences. It is argued in Chapter Seven then, that skills need to be developed, using a robust theoretical framework, to drive a systematic development of teacher skills, with opportunities for appropriate feedback and self-reflection. Chapter Seven explores these ideas in terms of pre-service teachers.

Achieving outcomes in students should be the focal point of every teacher’s work. Teaching frameworks and syllabus materials emphasize success in learning for our students as key motivations for ‘thrival’ in an ever changing world. But what does ‘achieving outcomes in students’ really mean and how does a teacher do this? Chapter Eight focuses specifically on the skills that Knowledge Age teachers require to do their job effectively. The chapter deconstructs pedagogy, professional knowledge and practice, as its understood in the 2000s, with generation Z as students.
In the concluding chapter, Chapter Nine, the Chinese education system is compared to that of Australia’s. This chapter chiefly examines principles of Chinese beliefs and values about education and observations on how they fit with Australian educational beliefs and practices. It becomes apparent in the chapter that the contemporary Chinese education system has developed over thousands of years, with hallmarks still evident today. The chapter reveals many similarities with Australian education and some stark contrasts.

Bringing these nine chapters together the book explores contemporary issues in teaching.

Reference List


Chapter 2: The Context of Education in the 2000s

David Lynch

The 2000 epoch is a circumstance where there is an abundance of policy and school-based ‘problem’ research making a case for a change in the traditional role and function of education, schooling and teaching (see: Smith and Lynch, 2010). The concept of ‘Knowledge Economy’ is often cited as being at the core of associated changes. This chapter provides an examination of the Knowledge Economy as background to the environment in which schools in the 2000s now operate.

The ‘Knowledge Economy’ is defined in the literature as an economy built on the wealth created from ‘know-how’. That is, the selling of products for cash, exchanging them for something else of value or leveraging them to create added value. In comparison, ‘traditional economies’ rely predominantly on the sale of raw resources, commodities and primary processing to generate income and wealth. The key commodity in the Knowledge Economy is knowledge and its use to create new products and services (see Moser, 2003; Gibbons, Limoges, Notwotny, Schwartzman, Scott & Trow, 1994; Doyle, Kurth & Kerre, 2000).

In a Knowledge Economy there is a rapid and increasing pace of technological innovation and shorter technology and product life cycles. There are new economic communities, whose prime function is the distribution and exchange of goods across national and continental borders where the market is increasingly technical and the consumer has access to various types of information (Graham, 2005; Moser, 2003; Clarke, 2001). Given these conditions, the prognosis is that a ‘worker’- the ultimate ‘product’ of the school- in the ‘Knowledge Economy’ will have characteristics including: an ability to adapt to constant change and uncertainty; capacity to work in knowledge and service based economies; and participate as constructive members in cohesive social communities (Edgar, 1999; Education Queensland 2000).

Accordingly to Smith and Lynch (2010) such social changes and the emergence of the Knowledge Economy will entail a different education and schooling system to that which presently exists. The main premise of their proposition is that current schooling and teaching reflects the features of an industrial society and, if society has changed, so then should the education and schooling system (Bentley, 1998, 1999). Put another way, there is now pressure on school policy makers,
administrators and teachers to adopt a different structure and content if schools are to mesh with a new socio-economic circumstance (Smith and Lynch, 2010).

To better understand the Knowledge Economy and its impact on society and by association Schools, Nowotny, Scott and Gibbons’ (2001) have developed five presuppositions about the forces and conditions that affect both society and education and training work, including teacher education. They are: the growth of uncertainty; the growth of new forms of economic rationality; the transformation of time into the ‘extended present’; flexible space; and increasing capacity for self-organization. In the sections which follow these five presuppositions are explained.

1. The Growth of Uncertainty

Rapid developments of new information and communication technologies have contributed to far-reaching social changes. ‘Uncertainty’ is cited as being a characteristic of this age: a state in which individuals find it impossible to attribute a reasonable definitive probability to the expected outcome of their choice. Instead, reality is perceived as a threatening series of possibilities inherent in economic life (cited in Nowotny, Scott & Gibbons, 2001). Further, ‘risk’, once defined as an attempt to curtail uncertainty by assigning probabilities to expected outcomes, is now used to denote incalculability as an inherent feature of both knowledge production and social change. A willingness to take risks remains a key element of human activity and decision making, but it has become more difficult to determine who should take risks and for whom, to fathom the complexity of decisions made and to attribute blame (Nowotny, Scott & Gibbons, 2001).

The emergence of new uncertainties, stimulated by a growing recognition of the potential of science and technology to bring forth new ideas, concepts, methods, and products, leads to new possibilities and in turn to new uncertainties (Nowotny, Scott & Gibbons, 2001, 2003a; 2003b). One such example is the role science is playing in understanding the processes of the brain (OECD, 2002). Researchers conclude that learning occurs through progressive construction of individual knowledge, not simply through information transfer (Bentley, 1998; OECD, 2002). This has implications for schools and teachers, because it questions the relevance and effectiveness of ‘traditional methods’ and current means of instruction embracing ‘fill the empty vessel’ type pedagogies (see Abbot & Ryan, 1998; Beare, 2001; Hargreaves, 1997; 1998; Seddon, 1995).

The flip side of emancipation through knowledge is the risk posed by the emancipatory potential of knowledge. The increasing spread of knowledge in society and the concomitant growth in opportunities for action also generate social
uncertainty. In this sense, science cannot provide society with ‘truths,’ only with more or less well-founded hypotheses and probabilities. Thus, far from being a source of secure knowledge and certainty, science is becoming increasingly viewed as problematic and uncertain. Knowledge societies of the future will be characterised by a wide range of ‘imponderabilia’, unexpected reversals and other surprises. The increasing fragility of knowledge societies will generate new kinds of moral questions, as well as questions as to who or what is responsible for our society’s oft cited political stagnation, causing us to abandon that which constitutes the past and to turn to schools and teachers for new skills and career pathways (Education Queensland, 2000; Smith and Lynch, 2010).

2. The Growth of New Forms of Economic Rationality
In a parallel evolution of science and society, a new type of economic rationality has emerged. This economic rationality acts as principal filter in selecting, constraining and coping with an ever-increasing flow of new uncertainties resulting from developments that offer many and varied options. A major affect of this process is that Industry and the research community relate to each other in a more dynamic way (Nowotny, Scott & Gibbons, 2001). Consequently, the paths of basic research and future technological applications are converging, with ‘end products’ being assessed as profitable in the conventional sense and sidelined when returns are assessed as unlikely. That is, research now contends an economic rationality focused towards profitability, irrespective of the outcome and the sectors that may or may not benefit from it.

3. The Transformation of Time into the ‘Extended Present’
This parameter is characterised by expectations and anticipations, where actions, choices and decisions are made in relation to the ‘here and now’. However, linking the present to the future (for the reasons detailed previously), becomes uncertain (Nowotny, Scott & Gibbons, 2001). While people have always had ‘expectations and anticipations’, the future is now experienced as an extended present in which correct decisions and actions can be taken in the expectation that the future can be shaped. Thus organisations are concerned with ‘visioning’ and the identification of trends and mega-trends (Nowotny, 1994 as cited in Nowotny, Scott and Gibbons, 2001). Recent State education publications in Queensland, for example (such as ‘QSE2010’, Education Queensland, 2000), use data and extracted trends to define the future and in turn profess a new ‘vision’ for education and its schools: so demanding new roles and functions of its workforce.

The strategic plan that has subsequently emerged in Queensland state education, for example, envisions the future as something the organisation can and will achieve (Education Queensland, 2000). Various performance and accountability
mechanisms are then implemented down the ‘chain of command’ (Education Queensland, 2000; Angus, 1993) as a process of ensuring the envisioned future is achieved. Continuing employment and promotion in this environment is subject to an employee’s continued performance with respect to the performance and accountability mechanisms that have been set. The outcome for employees being increased ‘administrivia’ and a feeling of uncertainty within the organisation (Angus, 1993; Caldwell, 1995).

4. Flexible Space
Associated with the shift in the time dimension, space itself is modified by information and communication technologies so that distance is reduced or even eliminated (Nowotny, Scott and Gibbons, 2001). The creation of ‘virtual reality’ has made it possible to manipulate time and space according to the whims and imagination of users.

The processes that have compressed time and distance through advances in information communication technologies and travel, often referred to as ‘globalization’, have led to the intertwining of the world’s economic and cultural systems. Corporations and individuals alike, now have instant access and impact on all sectors of the internet connected world, at least if they live in the West. When distance becomes compressed and bridged in this way, ‘flexible’ knowledge becomes ‘first hand’, accessible and up-to-date to all those who are ‘connected’ in the Knowledge Economy (Nowotny, Scott & Gibbons, 2001). This has direct implications for schools. In contrast, schools trade on the transfer of knowledge from teacher to student using ‘pen and paper’ and the resources of a traditional ‘book’ library at speeds that characterise the industrial era (Bentley, 1998).

5. An Increasing capacity for self-organisation
According to Nowotny, Scott and Gibbons (2001), the self-organising properties of contemporary society are the capacity to define its boundaries and thus constitute everything beyond itself as ‘context’. Consequently, the more complex the system becomes, the more powerful is its potential for interacting with the environment. A recent move in Western education systems to devolve various ‘central office’ responsibilities to schools (Smyth, 1993), through programs such as ‘school self-management’ (Robertson, 1993), is one such example.

Other endogenous 'forces', such as government responses to globalisation, impose still more new 'priorities' on ‘the school’ and upon teachers, in particular (Caldwell, 1993a, 1993b). The ‘Queensland Smart State’ policy is an example of how a government requires non-traditional outcomes from the education system in response to globalisation. That is, it was designed with the goal of stimulating the
production of an economy and society geared up to meet the demands of globalisation and the Knowledge Economy (Beattie, 1999). In response to the ‘Smart State’ policy, and with the intention of achieving better pathways for all students (Smith, 2000), Education Queensland has developed a set of initiatives labelled ‘Queensland State Education 2010’ (QSE2010), new curriculum concepts (‘New Basics’), and the re-organization of Years 10-12.

The ‘Smart State’ policy and ‘QSE2010’ requires of teachers different mindsets, skills and ‘knowledges’ from the past (Education Queensland, 2000). Policies, such as ‘Smart State’ and ‘QSE2010’ do not sit comfortably with risk-aversion strategies, lecture-lab-classroom school environments or with the curriculum, teaching and assessment regimes of the past that persist in schools. There are concerns that the implementation of policies such as QSE2010 will be assigned to those who are unfamiliar with the policy, resulting in little actual change (Hargreaves, 1997, 1998).

These conditions and occurrences are bound to have definite effects on the education sector. I now elaborate on this theme.

The Knowledge Economy, Schools and Teachers

Consequent to the Knowledge Economy, schooling, and the way it is managed by policy makers, administrators, and teachers is a different structure and content from that of the past. The justification for making such a comment is three-fold. First, there are the socio-cultural and politico-systemic forces that affect education systems. Second, there are the socio-historical changes and the impact these have on the social vision of a ‘school’, its organization and governance and on ‘teachers’ and their work. Finally, there is the impact that increasing knowledge about learning has on pedagogical practices.

Schools today face a different kind of world to that of the past. For example, the structure and character of families has changed from the nuclear family of the ‘home’ and the nurturing family assumed in much curriculum development. And there are new patterns of employment and underemployment, greater mobility and new concentrations of poverty in both rural and urban settings (Edgar, 1999). School systems and their students reflect such social and demographic changes in the diversity of their experiences with different cultures and ethnic groups (Smith and Lynch, 2010).

Some believe that the psychological effects from such social change, including levels of anxiety, depression, lack of discipline, aggression, inadequate literacy skills and a greater need for adult role models, are all indicators for education systems to change the way they do business (Education Queensland, 2000; Lynch & Smith,
Lynch and Knight

2002; Ryan, 1998b). Consequently, there are now expectations that schools and classroom teachers should provide much of what was traditionally delivered by parents through family life (Smith and Lynch, 2010; Edgar, 1999).

For teachers trained in an educational era centred on the ‘three R’s’ and a compliant, stable, client base (Eckersley, 1999), this is a difficult agenda (Hargreaves, 1998). Also, there are whole-of-government, semi-government and community-based organization initiatives aimed at forging partnerships with communities in ‘One Stop School’ strategies (Cole, 1999), so as to provide support mechanisms traditionally offered through the family and characteristic of a previously stable and contained societal era (Edgar, 1999; Lynch & Smith, 2002; Ryan, 1998b). Such initiatives rely on different sets of skills and different kinds of preparation and training for teachers (Bentley, 1998; Education Queensland 2000; Smith 2000).

Since the early 1970s, the ‘de-industrialisation’, ‘de-nationalisation’ and ‘deregulation’ of the Australian economy (Robertson, 1993) have become characteristic features of life. Technological developments have affected every aspect of the home and workplace as the redefinition of work practices proceeds (Graham, 2005). A study of two decades of census data, for example, revealed that Australia’s job growth area is ‘The Office’ (Doyle, Kerr & Kurth, 1999). This category refers to all activities involved in managing public and private affairs, including employment in front offices, finance, insurance and real estate, companies providing services to other companies, public administration, and non-profit membership organizations. Developments such as these, point to the emergence of the ‘new world economy’: an interconnecting and interdependent arrangement that generates unprecedented international economic and cultural competition (Smith and Lynch, 2010; Graham, 2005).

Some of the most strident pressure comes from within the education sector itself. Hargreaves (1997), for example, believes that schooling has run its historical course. He states that ‘reflecting upon the research basis of teaching, much teaching, specific lessons and acts of individual attention to students are nothing more than face saving disguises for pedagogic incompetence’ (p. 3). Given Hargreave’s position, the pre-service and continuing professional education of teachers is an enormous strategic task for the school sector. Nevertheless, the light of innovation and critical foresight has not shined brightly on policy, pre- or post-service teacher education or administration in the last few decades (Lynch and Smith, 2010; Smith, 2000).
According to various researchers (such as Smith and Lynch, 2010; Dimmock, 2000, Hargreaves, 1998), the majority of teaching methods used in classrooms today are based on teachers’ past teaching and learning experiences and rarely include knowledge based on research. Some of these practices reflect the way many teachers were taught at school, while others reflect the teachers’ own personal traits and preferences. Hence, teachers have come to rely on a narrower, rather than a broader, range of methods in coping with the pressures of lesson delivery (Dimmock, 2000). Furthermore, recent brain research calls into question the use of such traditional teaching methods.

As discussed earlier, the term Knowledge Economy, describes the emergence of economies based on the production, distribution and use of knowledge and information. Characteristic of the Knowledge Economy are ‘man-made brain power industries’ where there is rapid development, and the subsequent merging of new information and communication technologies, creating a global interconnected economy (Thurow, 2000). In this global economy, time and distance are compressed through advances in information communication technologies and travel, leading to the intertwining of the world’s economic and cultural systems, in a process known as Globalisation (Nowotny, Scott & Gibbons, 2001).

Globalisation is defined as ‘a set of economic, social, technological, political as well as cultural structures and processes arising from the changing character of the production, consumption and trade of goods and assets that comprise the base of the international political economy’ (Milani & Dehalvi, 1996, p. 3). One of many phenomena within the Knowledge Economy, globalisation is the result of a larger building process of world markets (Milani & Dehalvi, 1996; Thurow, 2000).

The principal driving force in the globalisation process today is the search by both private and public firms for worldwide profit. Their efforts are made possible by advances in information communication technologies and by decreasing transport and communication costs. These advancements and efficiencies are allowing business to be conducted at any time of the day (Thurow, 2000).

An effect of globalisation is an increasing structural differentiation of such goods and assets, having spread across traditional political borders and economic sectors, resulting in a greater influence of political and economic changes. Consequently, governments of today are dispensing with their ‘regulator role’ or the function of controlling their national economies ‘to become ‘platform builders’ that invest in infrastructure, education and research and development, so as to allow their citizens to have the opportunity to earn world class standards of living’ (Thurow,
2000, p 1). The ‘Smart State’ strategy in Queensland, as detailed earlier, is one such example (Beattie, 1999).

The technologies that characterise the Knowledge Economy (such as micro-electronics, computers, robotics, telecommunications, new material developments, biotechnology, forms of travel and transport) are systematically changing how all people conduct their economic and social lives (Thurow, 2000). Products such as electrical equipment, furniture and other household goods, were once assembled using armies of skilled and semi-skilled manual workers, but are now produced in factories with computers and robotic technologies. These new factory configurations require small numbers of highly skilled maintenance people, so that a product’s on-costs are lower than those produced with human labour; albeit with far fewer industrial disputes and therefore with significantly reduced overheads. Given the relatively low prices of such products and the rate at which new and better products enter the market, the need for a ‘repair and maintenance’ industry is superseded by a rationality which says ‘throw-away’ and upgrade (Ilon, 2000).

The characteristics of the average worker in Western economies, for example, and the nature of work itself have changed enormously over the past few decades. Part-time, temporary and casual work, coupled with an upward trend in unemployment and the widening earning dispersion has become ‘the norm’ in the ‘job market’, while privatisation, deregulation and ‘downsizing’ of public services, and more and more pressure on business to increase productivity, has been characteristic of the workplace (Doyle, Kurth & Kerr, 2000). There are new patterns of employment and underemployment, greater mobility and new concentrations of poverty in both rural and urban settings and a redefining of what constitutes work and employment; collectively creating uncertainty for families and family-life (Edgar, 1999; Ilon, 2000; Nowotny, Scott & Gibbons, 2001).

The concept of ‘family’ has changed also, from the general descriptor of ‘mum, dad and the kids’ to include many relationship combinations, such as gay couples and people who are married but have no children. Recent developments in the health and medical fields allow people to ‘cheat their biology’. Invitro-fertilisation and various contraceptive regimes, for example, allow women to put off child-birth until later years, while new and better drugs allow people to live longer, collectively redefining the role and function of men, women, work and family-life in the rapidly emerging knowledge society (Edgar, 1999).

For most of the Twentieth Century, industrial societies, for which schools and teaching were founded (Logan & Watson, 1992), have increased their economic productivity through mass production. Employment was constructed around
tradesmen (skilled employees) and their assistants (semi-skilled and unskilled employees) and, as such, continued to do those tasks that could not be automated. Mass production today has evolved to a point where factories exist with few or no employees, with most, if not all of the ‘tradesmen’ type functions being replaced by computerised robots with a ready supply of ‘plug-in-and-play’ components for parts which fail: creating little need for a trade-type workforce (Setzler & Bentley, 1999). The people who constitute the key workforce of factories today are designers and innovators who create ‘new knowledges’ and use such to create new products and services (Clarke, 2001).

Commentators such as Ilon (2000), Thurow (2000), and Starr (2001) argue advances in various technologies will have an impact on the labour market and will destroy many jobs, however, many unknown employment opportunities will also be created requiring particular kinds of ‘new’ skills (OECD, 1996). The skill elements referred to are ones that place great importance on the diffusion and use of information and knowledge as well as its creation. This skill-base will allow incumbents to gather and utilise knowledge, where strategic ‘know-how’ and competence are developed interactively and shared within sub-groups and networks. Continual innovation and learning will be driven by a hierarchy of networks (OECD, 1996).

Having made comments where the impacts of the Knowledge Economy on schools and teachers is explained, the chapter now concludes with comments outlining how the education industry in the 2000s should respond.

Conclusion

There are two dominant views of education and the role it should play, in a Knowledge Economy. One set of literature contends that a Knowledge Economy driven by technology has the potential to reverse trends in differential access to educational resources and/or confers on students an increased set of skills and opportunities. In this view, educators need only to ride the wave and recognise the increased opportunities when they appear (Binde, 1998; Groennings, 1997).

The second view is that an increased linkage between education and the economy is an element of global capitalist hegemony that weakens non-market values of humanitarianism, equity and ecology. In this view, education ought to generate resistance to ‘marketisation’ (Chafy, 1997; De Vaney, 1998; Moran & Selfe, 1999). Nevertheless, both views assume that the most important role for educators to play is to respond to a Knowledge Economy (Edgar, 1999; Ilon, 2000; Lynch & Smith, 2002).
Picking up the theme of ‘responding’ (as ‘resisting’ a Knowledge Economy circumstance, given its size and scope and the benefits of increased knowledge application, would be tantamount to fighting a tornado with a fire extinguisher) Smith and Lynch (2010) argue that it would be presumptuous to assume that schools and teaching developed in previous centuries remain adequate for another historical age in the form that is presently familiar (2010, p.7). The reality, they add, “is that there are numerous criticisms of schools and teaching from multiple sources, based on the fact that schools and teaching continue to do what they have always done rather than being bold and taking fresh directions” (2010, p.7).

With these concluding points in mind and building on previous discussions herein, it can be concluded that there are increasing problems in the education system today as it appears an outdated education model is grappling with both national social issues and shifts in the geo-political state of the world. While, governments and commentators point to the need to overcome old, well-tried schooling solutions that worked in the past are now meeting the limits of present models and practices. This suggests an agenda for a fundamental rethink and re-direction of schooling, teaching and by association, teacher education.

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Chapter 3: Learning Management: Transitioning Teachers into the Knowledge Age

Richard Smith and David Lynch

In this chapter we show that the learning management concept describes a pedagogic relation rather than a set of particulars. In this sense, we re-define learning management to move the idea from what was in earlier iterations to the explicit and purposeful intention to create knowledge age change. By doing this, we argue the concept has generality far beyond that of “teaching” in the school and university sectors. By taking this approach to learning management, we underscore its transgressive nature in the learning industries because the “designed learning” role incorporates the knowledge and skill sets required in the 2000 knowledge era.

This chapter seeks to expand the learning management concept and extend its usage beyond that of a powerful teacher education device to a pedagogic relation that shapes pedagogic communications and their relevant contexts. Our goal herein is to locate the concept of learning management at the centre of our discussions and to rethink teaching and teacher education accordingly. To achieve this goal we provide an outline in Part 1 of our earlier iteration of the learning management concept and examine how the context of pedagogical talk impacts teacher education for points of reference. In Part 2 we show how the concept of Learning Management has salience beyond its usage as teacher education device, before redefining learning management and then introducing the practitioner construct associated with it--- the learning manager --- in Part 3. In completing such tasks we aim to prefigure subsequent chapters which focus on the capabilities underpinning learning management work. We turn now to Part 1.

Part 1: Early Iterations of Learning Management

The Concept of Learning Management: Circa 2000

In earlier work (Smith, R., 2002; Smith, R., Lynch, D. & Mienczakowski, J., 2003; Smith, R., & Moore, T., 2006), the concept of learning management was defined as the capacity to achieve learning outcomes in all learners and was based on the notion of “design with intent”. The “design” notion signalled the belief that every

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teacher required the personal expert knowledge and skill capacity to achieve what are normally predefined learning outcomes in all learners.

It is of the utmost importance to understand that this formulation includes not only the transmission of facts and knowledge components but also how, when and where students use that knowledge in everyday social and practical settings. The Dimensions of Learning approach makes this abundantly clear. We are keen to emphasise that what teachers need to learn and in turn, their students need to learn, is based on a new conception of the expert knowledge that underlies knowledge work in today’s economy. Knowledge workers apply their expertise in social settings, use a repertoire of technologically advanced tools in addition to working with pencils, paper, markers, and whiteboards. As Sawyer (2008, p. 49) puts it:

In the knowledge economy, memorisation of facts and procedures is not enough for success. Educated graduates need a deep conceptual understanding of complex concepts, and the ability to work with them creatively to generate new ideas, new theories, new products, and new knowledge. They need to be able to critically evaluate what they read, to be able to express themselves clearly both verbally and in writing, and to be able to understand scientific and mathematical thinking. They need to learn integrated and usable knowledge, rather than the sets of compartmentalized and decontextualised facts…

There are two essential elements to this approach. First, there is the technique known as the learning design process (or the 8 Learning Management Questions) that organises the curriculum design process required of teachers for successful sequencing and pacing of curriculum material for individual learners. This is a necessary step of professional responsibility irrespective of whether the setting is face-to-face teaching or web-based. Second, there is the non-negotiable insistence that ‘learning managers’ (the term given to the practitioner of learning management) have the skill set to implement systematic pedagogical strategies and practices that result in students reaching the learning outcomes required of them. The Dimensions of Learning (Marzano, 1992) framework was used to provide the mechanism for converting the curriculum design process into research-based pedagogical practice.

The learning management concept represented a rethink of teaching, schooling and teacher education on a number of strategic grounds because of its emphasis on the following three characteristics.

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3 See McREL at http://www.mcrel.com/
First, it emphasized the need for design principles and a common language of instruction for knowledge workers called ‘teachers’. Second, it espoused as a principle the obligation of teachers, administrators and teacher educators to give up pedagogical strategies justified by personal preferences in favour of research-based techniques that deliver a wider curriculum agenda and the deep knowledge that underlies knowledge work. Third, it enunciated a renewed responsibility on the part of teachers, schools and teacher educators for the outcomes of pedagogical practice.

In short, the theory of learning management was aimed at what we saw as significant voids in the understanding of pedagogy and pedagogical practice in standard schools and schooling and in university-based teacher education. Of particular interest to our concern with ‘the efficacy of education for all students’ was the idea that the dominant pedagogical practices of schooling and teacher education are a major contributor to the failure of schools to fulfil their promise for many students and their families and to the “knowing-doing gap” that policy makers struggle with in their attempts to adjust education for social change\(^5\) in a knowledge economy.

**The context of pedagogical talk in teacher education**

Knowledge, both theoretical and procedural, in a most general sense of the term, is the end product of learning. Knowledge is the “forms of things that people have in mind, their models for perceiving, relating, and otherwise interpreting them” (Goodenough, W. H. cited in Duranti, 1997). In addition, because meaningful knowledge is applied, a knowing person uses tools and relates to other people in the environment as knowledge is realized in actions. It is not just a static mental structure inside the learner’s head. This is another way of saying that different cultural systems or models provide ways of understanding and operating on the world; that they create for their performers an order of relevance and social relations.

This is an important way of understanding how occupational groups do what they do. Taking teachers as an example, they come to learn their social roles through the process of cultural communication over many years. We are all socialized into schooling and its folk-lore as children as we participate in schooling for 12 years or so.

In the formal training sense, teachers undertake a lengthy pre-service preparation that connects them with both teacher educators, predominantly former teachers,

and teachers in school workplaces. During this process and in the early years of work, they are progressively incorporated into ‘teacher cultures’ in areas like demeanour, dress, language and social relations. These teacher cultures contain ideals and specific knowledge about how to be a teacher, how to behave and to present as a “teacher” to significant others such as other teachers, parents and university supervisors.

We can see how the criteria for perceiving, relating, and otherwise interpreting “teaching” regulate the selection and organisation of what counts as proper teacher talk and action. In particular, and of great interest to us, is the translation of these ideal criteria into preferred teaching performances. A deep-seated element of such teaching cultures is the idea that every teacher has their own unique ways of teaching and that teaching prowess as judged by professional colleagues is an individual accomplishment.

We can understand how this process of identity and image building comes about. For a start, a teacher’s own socialising experiences through school as a child have a significant impact on how these future teachers perceive and undertake their work once they are “qualified”. This is despite the endeavours of the teacher training system to inculcate ‘new’ ways (Walls, Nardi, Minden, & Hoffman, 2002).

Also, when a student teacher interacts with a “teacher” while on a ‘practicum’ this form of social relation has a selective effect on what is said, when it is said and how it is said. Allen provides a good example from a pre-service student teacher, Helen, talking about school experience:

You had to make sure you did what the teacher did, not what you were taught at uni. When the teacher was away I could try some things, generally what we’d learned, although a lot of what I did was emulating the teachers.

Yes, it is usually what the teacher does (2008, p. 246).

Helen exemplifies the form that the social relation between student teacher, teacher and teacher educator takes as selective talk and actions are transmitted and reinforced in the standard schooling model. More generally, the experience of teachers is given shape, meaning and relevance by the criteria used in the contexts of teaching. The criteria are a consequence of the ways schooling is structured that, in turn, have effects on the wider social structure as a corollary of the outcomes of schooling. Of course, it is not difficult to see that some of these elements form formidable barrier to change from the point of view of teacher educators, teachers, employers, students and policy makers seeking to adapt schooling to new social realities.
This is an important point for models that require close university and industry collaboration like the Bachelor of Learning Management (BLM). The immediate customers of teacher education are only going to lead in the direction in which they want to go and for which their occupational cultures provide support. For learning management and the BLM, the school teacher and teacher education cultures alone would have delivered the same product as before, despite changes in the accreditation details like re-naming subjects and re-arranging their sequence. This in-built resistance to renewal and change would never have lead to disruptive innovation if left to its own devices.

It was fortunate for the BLM as new teacher education program intent of changing the standard BEd product that it attracted a new set of customers. Some were marginalized by the conventional model because it failed to deliver desired outcomes such as workplace readiness. Others were feeling the pressures of change from “new students” and the economic environment and were concerned about what teaching jobs were becoming. Still others, as administrators, realized that their own policy challenges required a teacher education program that would both prepare both different graduate teachers and up-skill the profession. The BLM, rather than the obsolete Bachelor of Education (BEd) was developed around learning management assumptions from the beginning, with strong input from a raft of stakeholders including the university. To survive, the BLM had to prove true for the business models across employers and the university as well as engaging the collaboration of teachers. The Ingvarsen et al evaluation of the BLM (Ingvarson, Beavis, Danielson, Ellis, & Elliott, 2005) was a test of the underlying assumptions of learning management and found that they were robust and delivered an effective program with better outcomes than the BEd programs with which it was in direct competition.

Teaching then can be understood as a performance that is realised as a function of teacher culture acting through social relationships in specific contexts (Bernstein, 1971, pp.165-192). It is important to realise though that cultural criteria are not pre-determined in the sense of guaranteeing particular behaviours. They describe the potentiality of a cultural pool and in this sense teacher performances are the actually realized examples of what is conceivable within a particular cultural framework. An important implication is that if the performances of teaching are to change, then there needs to be a different set of cultural tools and resources in place that legitimize new ways of behaving. Changing cultures and behaviours is an

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6 In 2001 Central Queensland University launched a new teacher education program, the Bachelor of Learning Management, built on the premise of learning management. The outcomes of this program are contained in Ingvarson, L., Beavis, A., Danielson, C., Ellis, L. & Elliott, A. (2005).
especially difficult assignment in education because the institution is so embedded in social structures and expectations.

An example of teacher culture that seems impervious to change but has special significance for teacher education is that of pedagogical “approach”. It seems that there is widespread acclamation for the idea that there are as many teaching approaches as there are teachers and that it is desirable that every teacher is expected to develop a repertoire of unique pedagogical practices that are anchored in their own subjective preferences. An important variation of these ideas is that teachers “are born” to the vocation.

However, this form of heroic individualism is not without its difficulties in the education sector. Education outcomes for most people in the community have far-reaching implications for life-chances and are historically skewed by the class structure. Education has always held out the promise of social mobility but only if the student is successful in their school career. Faced with the evidence that a significant proportion of students fail to reap the benefits of education in every system, individualism on the part of teachers in this context looks more like self-indulgence than professional service.

Pragmatically, the sign of a mature profession is its use of a common and explicit knowledge and practice base. This base defines and organizes “professional service”. We argue much of what is taught at teacher education faculties today is easily recognized by a lay person because what constitutes the theory and practice of professional teaching is composed of subjective preferences anchored in the traditions of schooling. Everyone has experienced such schooling as a child and consequently to an “outsider”, it all appears to be logical, because the profession is recognizable by what it does. To use the hackneyed example of medicine and teaching, the contrast is obvious.

In addition, there are grounds for arguing that for a profession seeking to be “professional”, the individualized, subjective preference approach to pedagogical work runs counter to the best interests of the teacher work force, especially in a knowledge dominated world. There are reasons why this is so and in the commentary which follows we explore each in specific detail.

First, there is ample evidence that schools are unable to achieve acceptable outcomes for all students and that there is significant variation in academic outcomes amongst schools. This is true for the standard curriculum leaving aside the urgent new knowledge economy agendas faced by schools. It has been

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fashionable to explain away such variation with class, race and gender-based assumptions about educability. Yet, contemporary research indicates that effective schools and teachers can have a profound effect on individual student achievement, that differences in schools and teachers contribute to differences in student achievement and that school leadership characteristics have a definite impact on student academic outcomes (Marzano, 2003). The usual alibis that depict teachers as hapless in the face of irretrievable socio-cultural disadvantages ring hollow when faced by these empirical findings, despite the ideological protestations about the “home background” of students from teachers’ unions and teacher representatives seeking better industrial conditions.

Second, it is difficult to fathom how and why the proliferation of pedagogies is desirable. Taking the Australian Competition and Consumer Commission’s definition of a “profession”, teaching seems to fall well short in crucial areas:

'A disciplined group of individuals who adhere to high ethical standards and uphold themselves to, and are accepted by, the public as possessing special knowledge and skills in a widely recognised, organised body of learning derived from education and training at a high level, and who are prepared to exercise this knowledge and these skills in the interest of others. Inherent in this definition is the concept that the responsibility for the welfare, health and safety of the community shall take precedence over other considerations.'

Clearly, where there are as many approaches to teaching as there are teachers, there is no “widely recognised, organised body of learning” that anybody much agrees on and in turn, no “special knowledge and skills” that can be demonstrated to have efficacy in the sense of ”responsibility for the welfare, health and safety of the community”. Taking Indigenous education as a critical example, a recent MACER (Ministerial Advisory Committee For Educational Renewal, 2004) report notes:

…it seems there is an underlying assumption that Indigenous underachievement is somehow ‘normal’ or ‘given’. Disturbingly, there has been little outrage from within the system about dramatic and continuing levels of underachievement (p. 4).

Third, some argue that such enormous variation in pedagogical approach offers greater chances of progress towards successful practice because of the potential for mutation⁹. The paralleling of a biological ‘variation’ argument in which variability

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⁸ http://www.accc.gov.au/content/index.phtml/itemId/277772
⁹ This point was argued for at the 2008 Australian Teacher Education Association conference.
provides resources for pedagogical adaptation appears attractive, but it contains fallacies.

For example, in biological parlance, populations rather than individuals evolve and adapt. This means that adaptation is a consequence of selection among populations rather than among individuals. In principle selection among populations is possible, but it is a very weak force compared with individual-level selection.

Moreover, individual selection is likely to oppose population-wide increases in variability. That is, the generation of new variation will not be selectively favored on its own merits within a population. A ‘variability allele’ may well cause more new beneficial variants to arise, but recombination will dissociate it from these variants and keep it from spreading in a population. In this way, it will therefore not be favored by natural selection (Sniegowski, & Murphy 2006, pp. R831-R834). Given the lack of variation in the Bachelor of Education (the standard teacher education program in Australia) “genome” and in pedagogical approaches across formal education settings, Sniegowski and Murphy’s argument has face validity for the education sector when it comes to evaluating the proliferation and fragmentation of pedagogical practice.

Fourth, the claim that individuals, as individuals, have a right to exercise their autonomy as teachers is phantasmagorical. In fact, this kind of claim is an indicator of the loss of status and prestige mirrored in the recruitment of teachers and the status of teacher education. In recent decades, the teaching profession and teacher education has developed toward increasing de-professionalisation as decision-making power over curriculum and teaching goals have shifted elsewhere.

The fragmentation of the professional ‘teaching’ knowledge-base and the inability of schooling and teacher education to adapt to rampant social change have undermined the credibility of the profession itself. Neither the teaching force, their unions nor teacher education have grasped the need for a new set of pedagogical principles in tune with education for all and the need to provide teachers with an intellectual context for understanding the ‘knowledge/creative’ society and its workplace implications. There are clear signs that the “professional” teacher is one who can produce desired learning outcomes using research-based knowledge and skill and who has wider social networking capacities across diverse communities and cultures. The credibility of the profession will depend on these elements.

Fifth, there is a predominant belief in teacher cultures that the individual learner and his or her internal developmental processes are the proper concern of teaching and teachers. Progress is signaled by competence in undertaking appropriate developmental tasks. This approach is in contrast to placing primary emphasis on
the knowledge that students can demonstrate by performances judged according to criteria derived beyond the individual student. These “competence” and “performance” indicators respectively provide quite different assumptions for a teaching approach (Bernstein 1975, 1977, 1991, pp.116-145). All pedagogical models lie on this “competence” and “performance” continuum.

The emphasis on “the individual”, on the internal processes of the learner, and on “the person” rather than what is transmitted confounds the difference between the pedagogic consequences of a teaching episode and a pedagogic relation between the teacher and the taught. The evaluation of performances with external criteria suggests a more active, directive role by a teacher, while fostering internal biological processes suggests an approach that creates an environment in which organisms can unfold and develop.

The learning management approach clearly favours an active role on the part of the teacher and is quite deliberately differentiated from discovery learning, problem-based learning, inquiry learning, experiential learning and constructivist learning (Kirschner, Sweller, Clark 2006, pp. 83–84). Nevertheless, it contains assumptions about the developmental patterns in learners exemplified by the learning design process and Dimensions 1 and 5 in Dimensions of Learning. The learning management focus is on achieving learning outcomes that matter by putting into play definite pedagogical strategies that have an empirical basis.

It is self-evident that not all pedagogic experiences have learning outcomes irrespective of their potential. It is also apparent that experiences involving a teacher and student always have learning potential and that not all experiences are pedagogically generated. Again, learning may take place by example in contexts where neither the student nor the teacher is aware that communication is occurring.

Similarly, cultural areas such as TV, magazines, the Internet, newspapers and so on transmit communications that have the potential to be educative but there is little control over the context, the motivation of the receivers and there are minimal social relationships involved in the transaction. All of these variations involve what might be called “pedagogic” work and learning potential but in the learning management concept, we want to be more explicit about what we mean by “learning management”, especially when it comes to formal learning settings like schools. We are especially sceptical of approaches that advocate a belief that learners will learn “really useful knowledge” by being left to their own devices either in traditional classrooms or on the Internet10. This is not to deny creativity

10 See Johnson, R. (1979). The idea of “really useful knowledge” refers to forms of critical understanding of self and society that
and serendipitous informal learning or the experiences of experts with extensive background knowledge. But it does take a stance on the ideas that formal learning carries responsibilities for teachers and that not all experiences are pedagogically efficacious.

The term “transgressive”, encountered in the leadership course, has a particular meaning for learning management. Following Novotny, the presupposition is that in times of fundamental social change, teaching and learning contexts encountered in the knowledge/creative society compels educators to respond to questions that they have not necessarily chosen, in contrast to for example, the well-ordered research activity of university academics. Consequently, educators in recent years have been and will be into the future constantly forced to transgress the limits of both own competence and that of colleagues. These processes include the boundaries of traditional disciplines and the constraints of individual and collective professional limits, especially in the teaching and education fields. They need not only to interpret the world, in various ways, but to change it.

Expertise in learning management then is transgressive in two senses. First, it needs to account for those issues and practices such as structures and procedures that have new or emerging contexts with new consequences for clients and the learning industries. The links between what goes on in universities and schools, the IT communications industries, institutions such as the school, training and university education providers and very diverse professional, union, parent, school principal and political networks need to be recognized, analysed and acted on for the teaching profession and the learning industries to prosper and make a contribution.

Second, learning industry expertise is transgressive because it deals with audiences that are never just fellow-experts in the school, the VET provider or the academy. There is a wide range of demands and expectations in the experience of mixed audiences. This inherent transgressiveness of expertise increases its vulnerability to contestation and opposition. Having a higher degree, citing research evidence or theory or seeking to exclude the non-initiated from decision-making do not guarantee immunity against contestation. Indeed, Nowotny (2003) makes the point that the:

“complexities of the social and political world demand the contrary: a widening of scientific–technical expertise, exercises in comparative judgement and the ability to move back and forth, that is, to transgress the
boundaries between specialised knowledge and its multiple, many-layered (and often unforeseeable) context of implication” (p. 152).

Following Bernstein, and with Nowotny’s advice in mind, learning management can be explained as the explicit, purposeful intention to initiate, modify, develop or change knowledge, conduct or practice by someone or something which already possesses or has access to the necessary resources and the means of evaluating the acquisition. Learning Management makes use of specialised knowledge to package content and to devise an effective means of delivery where there is an intention that learners will reach a future state of knowledge, conduct or practice. The learner may not necessarily accept what is to be acquired or indeed see it as legitimate. However, to reiterate, learning management is fundamentally an explicit and purposeful intention to undertake ‘knowledge age change’ through designed learning and the means of evaluating the acquisitions of such changes.

<table>
<thead>
<tr>
<th>Learning Management</th>
<th>Extant Pedagogical Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elaborated language of instruction that makes explicit the subjective intent of pedagogical work</td>
<td>Restricted language of instruction that is unable to makes explicit the subjective intent of pedagogical work</td>
</tr>
<tr>
<td>Complex planning of pedagogical strategies that transcends the present, the local, the concrete, and the experience of others</td>
<td>Concentration on “how now” fast, fluid, preparation with limited articulatory clues, beyond the particular and local</td>
</tr>
<tr>
<td>Unique meaning of the person verbally explicit</td>
<td>Unique meaning of the person verbally implicit</td>
</tr>
<tr>
<td>Interested in causality for the present and future and how to overcome categorical problems</td>
<td>Less interested in causality or the future in the search for a better present</td>
</tr>
<tr>
<td>Identification with expert capability in using knowledge and skills in a widely recognised, organised body of learning</td>
<td>Closely shared identifications, common assumptions and shared expectations about a taken-for-granted skill-set</td>
</tr>
<tr>
<td>Seeks professional autonomy in professing knowledge and skills in a widely recognised, organised body of learning by emphasizing the ‘I’ over ‘we’</td>
<td>Celebrates ‘we’ above the ‘I’ in resisting transgressive knowledge and skills</td>
</tr>
<tr>
<td>Interest in renewing the professional culture</td>
<td>Interested in controlling so that the transmission of teaching culture can be accomplished</td>
</tr>
<tr>
<td>Interested in applying individual experience and expertise on different tasks with others to achieve agreed ends irrespective of different values and interests. Seeks reliance on other expert contributors and complementarities to perform specific programs and tasks.</td>
<td>Most comfortable with likeness and similarities among work place colleagues, dependence on common rituals and routines of custom and obligation with repressive sanctions, that reaffirm traditional values. The status of the individual is determined by kinship in the group such that autonomous individualism is undeveloped</td>
</tr>
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</table>

Table 1: Pedagogical Cultures

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We draw these threads together in Table 1 that shows cultural principles regulating the selection and organization of pedagogic approaches. This Table draws relatively stark comparisons between what we intend by using “learning management” and what we believe is standard practice in today’s schools and teacher education. This depiction categorically does not imply that people’s behaviour in one or the other category means that they cannot operate in the other. It does suggest however, that where the context is sympathetic with the listed characteristics, where there is cultural support, then the combinational package is likely to operate.

In summary, the introduction of the learning management concept and the Bachelor of Learning Management program has conceptual antecedents. They were not mere capriciousness as some would claim. Moreover, the Bachelor of Learning Management program, as outlined in a previous text by the authors (Smith, & Lynch 2006), was meant to be “disruptive”. It set out to be a breakthrough innovation in teacher education by using design thinking and a focus on student learning, socio-cultural change and employer customers for teaching staff. It had an entrepreneurial dimension to it in so far as it attempted to develop new business processes and models in the university and in schools in order to create a different kind of customer experience centred around learning management.

Part 2: A revision of the Learning Management concept

To this point, we have described the context of pedagogical practice that influenced the development of the learning management concept. Now we show how the concept has salience beyond its usage as a powerful teacher education device to pedagogic relations that shape pedagogic communications and their relevant contexts more generally.

In times of rapid change there are changing requirements on the labour market and productivity and the political targets for the state and federal governments. Included in the reasons for this are politico-economic ambitions to be competitive globally by developing a dynamic knowledge-based economy capable of sustainable economic growth and greater social cohesion. In addition to economic and


14 The Teaching School model for example requires a shift in management priorities in the host school.
political ambitions and challenges, there are other individual learning objectives that fit people for the emergent environment. These include an emphasis on humanistic and moral values that express the life experience, the need for social participation and for personal autonomy. They imply learning in areas such as social competence across cultures, critical thinking, knowledge sharing, and social networking techniques.

There is also the growing recognition that the way formal school and later education and training and learning more generally are organised and valued need drastic rethinking so that people can acquire the new skills and competences that are currently not available in traditional curricula. Richard Florida (2009) puts it this way:

Our current system of K-12 education, as Bill Gates has said, is ‘broken’. What is need is in fact a full-scale overhaul in the way we think and deliver education. We can no longer succeed or even tread water with an education system handed down to us from the industrial age, since what we need is no longer assembly line workers. We need one that instead reflects and reinforces the values, priorities, and requirements of the creative age. Education reform must, at its core, make schools into places where human creativity is cultivated and can flourish (p. 6)

In this respect, Noonan proposes that the knowledge required by the contemporary economy is different from the knowledge that has occupied traditional education and training programs. It is important to grasp this claim is not just about the details of content such as which mathematics or novels should be included. Noonan points to the need for knowledge to be constructed as practical, interdisciplinary, informal, applied and contextual rather than knowledge constructed as theoretical, disciplinary, formal, foundational and generalisable. This is a major shift in orientation similar to that which we presented in Table 1 (see Appendix). Noonan (2005) also identifies the growing importance of individual attributes, the importance of work-based learning and proposes that this form of learning is “not organised around pre-specified content and is not determined by qualifications guidelines or training packages”.

Similarly, Nowotny and Tuomi (2001, pp. 203-210; Tuomi 2005, p. 60) argue that the future learning landscape is driven by the ongoing global socioeconomic transformation. The events of September 2008


have heightened the awareness that “the future ain’t what is used to be” (Berra, Y. n.d.) and there is a need for critical appraisal and fresh ideas for the future. In this landscape, the coincidence of information, knowledge, creativity, innovation and entrepreneurship remain the main sources of cultural and economic growth and employment opportunities. Innovation and consequent entrepreneurship are in turn increasingly syndicated, networked, transdisciplinary and solution-orientated. To operate successfully in this environment, managers and workers alike need well-developed social, cultural and communication skills and the capability to tolerate ambiguity and complexity as they move between competing conceptual systems and interpretative schemes.

At the level of the organisation, in a knowledge and creative age, the store of technical expertise – knowledge -- is often said to be an organisation’s most precious asset. Normally, in the internal knowledge management system of a school or an education system, the goal is to ensure more intelligent and effective operations by using the store of proven technical expertise to improve the operation. However, in times of significant and continuous change, the capable organization:

“engages with external emerging trends, has confidence in its own identity and values, imagines possible futures based on those trends and formulates potential roles for itself within those futures. This notion of a capable organisation embraces but goes beyond that of the learning organization” (Stephenson 1999, p. 5).

It should be clear that there are many challenging agendas here that rely on individuals and organizations being able to do different things in different ways. To put it another way, there must be a leadership element and a group of people who quite explicitly set out in a purposeful way to initiate new directions and modify existing operations, to develop or change the stock of knowledge, the behaviours and practices of employees and colleagues in ways that have measurable outcomes. This is self-evidently a pedagogical-design function in the knowledge society rather than drawing on the old-think about line management. We see this kind of occupational role as quintessentially that of the “learning manager”, the practitioner of learning management. It follows that the term “learning manager” already contains our vision for a rethink of “the teacher” construct.

In uncertain times, the learning manager needs to be manager of information and knowledge, realizing that there is no other function in most education-learning reliant organizations that provides this fundamental capability. The learning manager role consists of radically improving existing services and products so that they fit user needs, predicting where entire systems can be developed that
supersede obsolete services and products and closing the “knowing-doing” gap by achieving designed outcomes. The value of the learning manager lies in interpreting social intelligence and the capacity to undertake strategic communication within and between people and organizations to make things happen. In this sense again, the domain of the learning manager implies significant pedagogical functions as well as technical expertise.

There are two core elements to this role that relate to knowledge production for the purpose of creating knowledge intensive, next generation operations. The futures-orientation element is particularly important for a learning manager with responsibilities to renew such things as curriculum, instruction, assessment and organisational performance. Merryfield (1999) argues that the “intelligence function” and “pattern recognition” are fundamental processes for monitoring the futures orientation of an organisation and that they presuppose new or changed specialised capabilities (pp. 10-14). Such capacities are a means for dealing with trends that affect the global context, such as those depicted in Table 2 (in the appendix).

**The intelligence function**

In order to keep abreast of the pace of change, exhaustive and continuous searches are required of the technical, patent, commercial, government and social databases in every area that has relevance for an organisation. This is important not only to avoid being blindsided by new developments but also to counter a tendency to “re-invent the wheel” or to reproduce the past in new language. Here we can point to the emergence of flexible, independent of location and plant e-learning with different cost structures as a major challenge to classroom-centric, time-dependent, location-dependent, situation-dependent, “survival” mode schooling, or indeed universities. These developments aimed at new cohorts and with different operating cost and strategic platforms, threaten conventional education and training services.

**Pattern recognition**

Early recognition of emerging patterns of change lie at the centre of contemporary interest in creativity, innovation and entrepreneurship. At the simplest level, the skill-set around discerning an emergent pattern and its probable S-curve is a requirement of learning managers in today’s organisations. For example, the emergence of technologies such as iTunes and iPhone and their enormous global take-up rate indicates that radical communication channels are already available and that these have multiple implications for the delivery of goods and services including education and training.
On the one hand, both the intelligence function and pattern recognition may seem distant from the operations of many schools or indeed universities today. On the other hand, the rhetoric of life-long education and just-in-time training is made possible by IT devices, as long as there are entrepreneurial-minded people who can develop the programs to design content and delivery mechanisms that meet the needs of users. We are not just talking about curriculum delivery but also communications with local communities, with other cultures, groups of experts and so on. Take a moment to consider the impact of MSN, Twitter, FaceBook, LinkedIn, QQ and similar Web 2.0 tools to press the point that “teachers” and education administrators everywhere need to interpret the environment and act on it as part of the normal day-to-day job today and into the future. To do it successfully though, involves both mindsets and background knowledge that enable decision-making.

As an illustration of today’s agendas for educators, Florida (2009) says, “We need to think beyond schools”. He goes on to say: “Technology allows for a massive expansion of home-schooling and learning outside of classrooms… Our investments need to be focused on what’s best for learning and creativity, not real estate” (p. 7). Similarly, Frey (2007) observes that the notion that “education can take place only in a classroom is similar to the notion that purchasing a product can only take place when you see it on a store shelf”. He points out that removing “the classroom constraint to learning is similar to removing the shelf space constraints to the marketplace”.

The techniques for creating a new courseware and delivery matrix are presently undergoing an iterative process of multiple evolutionary stages as new and better tools become available (ibid). The underlying sleeper here is the capacity of the learning industries, especially slow-moving, risk averse school “systems”, to keep pace with the potential of IT–driven resources. We note that at the time of writing advertisements were appearing for ‘learning managers’- this is a weak signal that the time of the learning manager has already arrived for industries that lie beyond the taken for granted boundary of “education” and yet are concerned with teaching and learning as core business. It follows then that the preparation of specialized pedagogues, that is teachers, needs an overhaul both for individuals and for stakeholder organizations if new generations of teachers are to survive.

These are then enormous challenges for the learning industries and underscore our insistence that it is not so much a case of should we prepare learning managers but when. Learning managers who can think and do “design”, who can link pedagogical strategies to content in ways that have pedagogical intentions to achieve learning outcomes rather than provide experiences, whatever it might be,
in ways that make sense to others and especially to learners, who can re-cast themselves as event planners and experience designers, will have a head-start in the race to develop specific topics tied to new courseware and Web-based tools. Thus:

To align with the innovation economy, teachers will require more autonomy, more creativity, and more content knowledge.

These teachers should be highly trained professionals, comfortable with technology, with a deep pedagogical understanding of the subject matter, able to respond in an improvised manner to the uniquely emerging flow of each classroom (Sawyer, 2004). To foster collaborative and authentic learning, they will lead teams of students – much like a manager of a business or the master in a workshop – rather than controlling students autocratically, as the factory bosses of old (Sawyer 2008 p. 58).

The learning management approach we maintain provides a way forward that has a track record to indicate its efficacy.

Having said that, the complementary piece is that the “education” workforce also needs to be prepared to do different things in different ways and in turn, to develop a different kind of pedagogic culture and the skills to implement it. Taking MACER’S (2004, p. 9) advice, if teachers are

“to participate in and serve the burgeoning needs of the future – where creativity, innovation, risk, autonomy and self-management are the secret life that drives economic and social development – then they need a make-over”

In turn, the reality is that almost all “teachers” work in systems, irrespective of the level of education, and a “make-over” is premised on the host of bureaucratic processes that lie between governmental policy requirements and outcomes. Upskilling for a make-over by definition includes the educational bureaucrats, school leaders, departmental staff and accreditation agencies as well as a host of “community” interests. The preparation of new recruits and the upskilling of the existing workforce are then complementary and inextricably bound.

The learning management concept is an attempt to re-think the fundamentals of learning and education in this context. It is an attempt to re-legitimize, re-think and re-position “teaching” as a fundamental building block of learning and knowledge production in a universal sense. In short, there is a distinction between informal, implicit communications about which neither the transmitter nor the receiver are aware but nevertheless have an effect. Similarly, there are requests for information that fulfil the receiver’s immediate needs but are transient in nature. Our concern is with communications that have an intentional pedagogic purpose and outcome and
how people can be prepared to undertake this central role in a knowledge/creative society.

**Part 3: The learning manager construct**

In this section we bring to bear what we have previously discussed and outlined so as to give scope to the practitioner of learning management and in doing such we prefigure subsequent chapters that focus on the capabilities underpinning learning management work.

The practitioner of learning management we term the learning manager. This construct is chiefly concerned with learners and their learning gains, meaning they have capacity to ‘teach’ and to ‘manage individual learning’, but they also have a capacity to work alongside other ‘knowledge workers’ so as to intentionally intervene in the learning outcomes of the current and future workforce.

A learning manager requires a “toolkit” of essential professional knowledge. In our view, that toolkit is built around pedagogical practice as defined earlier. Put another way, it is the learning manager’s responsibility to design educative programs that achieve the outcomes set for them whether these outcomes are strictly technical and process-like or conceptually complex. Their job is to make individuals and organizations more effective in whatever they are seeking to do by implementing interesting and relevant pedagogical design that results in the learning required. It is a more intentional role than is usually contemplated under the cloak of the unique, individual teacher.

Notice that the emphasis here is on pedagogic practice and the content itself is not yet a concern. The expectation is that the learning manager has mastery over a spectrum of instructional techniques and understands how particular applications and services function in different settings. The expectation is that a learning manager uses a range of Web 2.0 tools (such as messaging, Podcasting, Blogging, social networking), is adept at synchronous learning and can use Learning Content Management Systems whether it is in a school, a training site, in higher education, or in corporate or public service workplaces.

We see this convergence of pedagogical capability and Web-based resources as fundamental preparation now for people working in any site that involved educative communications.

Learning managers in this perspective also have the pedagogic skills for developing resilience, social competence, complex reasoning skills such as critical thinking and comparing and contrasting, habits of mind that underscore personal work ethics, knowledge sharing and cooperation techniques.
A defining feature of the learning manager is a strong commitment to transcending today’s education assumptions about what a teacher does and how they conduct their professional lives. In this respect, Frey (2007) argues that of 12 critical dimensions of the future learning system set out in Table 3 only two need to be in place for an education revolution to begin. They are a standardized architecture for developing a courseware unit, and an organic distribution system that allows anyone around the world access to it. Of course, this model does not apply to education alone and one might generalise it into any sphere. This kind of thinking parallels our belief that the distribution system, the pedagogical practices that convert inert knowledge into pedagogical experiences and learning outcomes, is fundamental for teacher education and the preparation of learning managers. This formulation is a playing out of learning management as:

the explicit, purposeful intention to initiate, modify, develop or change knowledge, conduct or practice by someone or something which already possesses or has access to the necessary resources and the means of evaluating the acquisition and the means of delivery that is contextualised by intentionality towards a future state of knowledge, conduct or practice.

Taken together these defining elements of a learning manager comprise a new curriculum for teacher education and more generally for learning management.

Conclusions

Our theory of learning management is concerned with an explicit and purposeful intention to undertake “knowledge age change” from “the school” and the “BEd” conceptions of teacher preparation to a mode of operation more akin to the times. The concept has generality far beyond that of the schools and university sector. In addition, it was developed to counter what we see as significant voids in the understanding of pedagogy and pedagogical practice in schools and in university-based teacher education and the lack of change in the teaching profession. The latter we believe places that profession in jeopardy as new players enter the learning industries.

In the following chapter we explore the notion of “new toolkits” by exploring the concept of ‘learning management’ capabilities and its importance for the future development of the learning industries. At the root of these chapters is intent to

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17 See Forum: 21st Learning with Professor Barry McGaw, Head of the National Curriculum Board and Director of the Melbourne Education Research Institute; Valerie Hannon, Director of Strategy for the UK Innovation Unit; Chris Wardlaw, Former Deputy Secretary of Education in Hong Kong; and Michael Stevenson, Vice President of Global Education at Cisco Systems. This discussion repeated the assumption that teachers will find their own pedagogies to teach the specified National Curriculum thus reinforcing the belief that teachers “know” how to teach. This to us flies in the face of the empirical evidence. http://www.abc.net.au/rn/lifematters/stories/2008/2417784.htm
spell out what an education revolution involves and how the traps inherent in “traditional teaching” can be avoided and the 2000 epoch exploited for learning gains.

**Reference List**


Chapter 4: The Theory and Practice of Curriculum and Programming

David Lynch and Richard Smith

Fundamentally, teachers are concerned with mandated syllabuses, State requirements for schools and classrooms are guided by various principles that frame the development of curricula at all levels in the system of education. This chapter makes the case that curriculum considerations are an important element in the design of pedagogical practice by exploring the theory and practice of curriculum and programming.

The concept of curriculum and programming, at its most fundamental level, is focused to achieving learning outcomes in learners such that the result is a plan for what the teacher will do—the how to strategy--- to achieve those learning outcomes. The term ‘curriculum’ has a variety of definitions in the teaching lexicon, where each is used to describe an aspect of teacher work or an influence on same. For example, curriculum can be used in reference to a body of knowledge to be learnt (that which is to be taught--- the syllabus for example) or as a collective learning goal, as determined by a school or college, in students ---- the product.

Curriculum can also be referred to as a process (a particular course of action intended to achieve a result) or to define and describe praxis (ways of doing things) (Smith, 2000). In all cases the term curriculum infers an aspect of teacher work and the key influences on same.

In the schooling environment teachers often refer to curriculum in tandem with ‘programming’ such that curriculum means the ‘what’ that is to be taught, while programming refers to the ‘when’. It is interesting to note that in this circumstance the ‘how’ such is to be taught--- the strategic alignment of knowledge to be learnt and product with process and praxis – has traditionally been considered the professional domain of the individual teacher, such that a teacher’s capacity to achieve in classrooms is taken for granted. Put another way, it is said that perhaps all teaches are able teach, but not all learners are able to learn. As this chapter will reveal, pedagogy, the how to strategy and ‘knowledge’, what is to be taught (or learnt), is dependent on specific teacher capacities which we outlined previously as the theory and practice of learning management.
This chapter specifically explores the theory and practice informing curriculum and programming. The aim is to outline the context and circumstance of teacher’s work such that subsequent chapters detailing the Learning Management Process are located. To fulfil the goals of the chapter we begin with a brief overview of compulsory education in Australia for points of reference. The notion of curriculum is explored in greater detail where we elaborate the idea of a ‘pedagogic void’ before outlining key elements associated with the theory and practice of curriculum so as to prefigure subsequent chapters. We turn first to education in Australia.

**Education in Australia**

The Australian system of education largely comprises State (or public) schools (66%), Catholic schools (20%) and a number of independent/religious affiliation schools (14%) (Australian Bureau of Statistics, 2008). Home schooling is a statistically small yet growing sector. Each education system, while receiving funding from State and Federal governments (and supplemented by fees in the Catholic and independent sectors), is organised into primary (ages 5 through 12 and 71% of all schools) and secondary schools (ages 13 through 18 and 16% of all schools)\(^{18}\). Special schools (>1% of total enrolments) have also been established for children diagnosed with significant intellectual and or physical disabilities (Knight and Ely, 2010). Collectively this system of schooling is known as the ‘compulsory schooling sector’ and is controlled by respective State government legislation (Australia Bureau of Statistics, 2008). A further sector, early childhood, describes a spectrum of formal studies in Kindergarten through Year 3, typically occurring in primary schools, while also encompassing settings such as ‘day care’ and preschool. The latter is not part of the compulsory schooling sector.

Schooling, at its most fundamental level is an instrument of State in that governments use schools to socialise its future citizens so as to produce productive, law abiding citizens who live in harmony with each other. Various state and territory acts of parliament--- the ‘Education Act’ is the usual statute---proscribe respective laws governing schools. Central to the functioning of the school is the principal, who has powers, under the education act, to operate that school. While the principal is the designate authority and is named in such acts of parliament, it is the teacher who specifically deals with students and has carriage of their day to day learning program. The teacher is the schools chief learning resource.

\(^{18}\) A further 14% were both primary and secondary.
Governments communicate the intent of their respective education acts to schools through various statutory bodies and by releasing ‘mandated study syllabuses’. In NSW statutory responsibilities reside in a number of agencies, most notably the NSW Department of Education and Training and the NSW Board of Studies. The former is the NSW government’s bureaucratic arm which administers education legislation and operates public schools in the state, while the latter administers what is to be taught in all NSW schools and provide certifications for post compulsory schooling such as the ‘High School Certificate’. Australia is moving towards a National Curriculum and the role and function of the NSW Board of Studies will change to accommodate the establishment of the Australian Curriculum, Assessment and Reporting Authority (ACARA).

The Australian Curriculum, Assessment and Reporting Authority (ACARA) has been charged with development of the Australian national curriculum from Kindergarten to Year 12, having had their work guided by the “Melbourne Declaration on Education Goals for Young Australians (MDEGYA, 2008). The Melbourne Declaration commits ’to supporting all young Australians to become successful learners, confident and creative individuals, and active and informed citizens’, and to promoting equity and excellence in education (MDEGYA, 2008, p.6). English, Mathematics, Science and History have been chosen as part of Phase 1 of the national curriculum roll-out from 2011.

As this commentary implies ‘curriculum’ is central to the work of teachers. But what do we actually mean when we talk of curriculum?

**Exploring the notions of curriculum**

Previously, we referenced curriculum to four interrelated elements of teachers work; namely curriculum as a body of knowledge to be learnt, as a product, a process or to describe praxis (Smith, 2000). In this section we explore each element in greater detail for specific points of reference.

1. **Curriculum as a body of knowledge to be taught**

In Australia the body of knowledge to be taught in schools is universally referred to as the syllabus. A syllabus is an outline and summary of topics to be covered in an education or training course and has formal ’sign-off’ or approval from a government statutory authority.

In all education jurisdictions in Australia the syllabus outlines the mandated course of study for students enrolled in the compulsory (or formal) educations sectors. In the primary schooling (K-6) sector the syllabus scheme is arranged into seven Key Learning Areas (KLA): English, Mathematics, Science and Technology, Creative
and Performing Arts, Personal Development, Health and Physical Education, Human Society and Its Environment and Languages. The chief organiser of each syllabus is a series of Learning Outcomes which drive the intent of each KLA.

2. Curriculum as a product
When visiting or interacting with teachers and children in a school you get a sense of prevailing culture. This culture is articulated overtly by way of vision and mission statements or covertly by way of language sets used and in established traditions. In all cases the school has set itself a series of objectives, often referenced to the system it belongs (such as public education, catholic education, etc), and these objectives collectively defined the ‘product’ of that school. As a teacher in the school you become adjunct to that school’s product.

To reinforce ‘curriculum’ in terms of it being a product, the principal, as the curriculum leader in the school, will initiative the development of a school-wide document known as the ‘school curriculum’. The school curriculum mediates the syllabus in that it breaks each mandated KLA down into instructional bits by way of specific ‘year or grade level’ segments and incorporates devices, such as correlate study themes and defined units of work, that reflect and reinforce the culture of the school. Regardless of the objectives of the school curriculum, this approach to curriculum development becomes a supervisory and accountability tool as the ‘outcomes’ it outlines are often ‘checked’ to see that content has been ‘covered’ by the teacher.

3. Curriculum as process
As outlined previously, curriculum as a product is heavily influenced by the setting of specific objectives, and is supported by the development of various documents (Smith, 2000). By contrast process is not a physical thing, but is what teachers do to prepare and evaluate what they are to teach. This aspect of curriculum has a direct focus on the teacher and their specific work in classrooms.

4. Curriculum as praxis
Curriculum as praxis develops through the dynamic actions and interactions of the teacher. “That is, the curriculum in this context is not simply a set of plans to be implemented, but rather is constituted through an active process in which planning, acting and evaluating are all reciprocally related and integrated into the process” (Grundy 1987, p. 115). In other words the curriculum in its broad sense translated through what we refer to as teaching. Programming, the deciding of when planned learning segments occur, has its genesis in the culmination of process and praxis.
Having now elaborated the ‘what’ and ‘when’ of what curriculum in schools, we now locate the interplay of all four definitions of curriculum to explain the premise of what we refer to as a pedagogic void.

**Pedagogic void**

By pedagogical void we mean several things. First, it seems to us that there has always been an emphasis on curriculum at the expense of pedagogy in teacher education circles and in the school. Perhaps the strong traditions of content and the influence of curriculum agencies have fostered the view that curriculum and curriculum planning are the really important bits in teaching and in teacher education, despite evidence that curriculum is a blunt instrument for school and system reform. It is also the case that neither teachers nor teacher educators are normally discipline experts in the same sense as discipline and research-centred academics or members of the wider community.

The effect of emphasizing curriculum and curriculum planning ensures that pedagogical practice—the how to of teaching—is always already deferred until it is required. It is the lesser element in the curriculum/teaching couplet. We have always thought that the teachers need to establish authority and authoritative opinion in pedagogical practice beyond that which might be anticipated from the lay community.

Second, there is still a widespread belief that teaching ability is either natural and individuals are born with it or that teaching is a personal talent, and consequently, that there are as many ways of teaching as there are teachers. As experienced teacher educators we routinely hear this from colleagues in university Faculties other than Education; but more disconcerting, we also hear it from teacher educators and experienced teachers who invariably pass this knowledge on to their teaching students.

We can explain this phenomenon in teacher education in two ways. (i) Lecturers teach to their own theoretical interests as a matter of right under the academic freedom principle. Over the course of a degree, students are provided with an unsystematic smorgasbord of teaching advice from multiple lecturers. This advice includes such things as survival tips that are the very epitome of non-professional behaviour in a teacher education degree. (ii) The playing out of this kind of

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19 For example, 50% of the Danish Ministry for Science, Technology and Innovation R & D funds, formerly offered to universities, are now subject to open competition for public-private partnerships, small and medium-sized enterprises. In addition, there are publicly funded ‘outposts’ in Silicon Valley, Shanghai, Munich. Wolff, M. F. (2008) Silicon Valley Outpost Among 350 Initiatives To Boost Denmark’s Tech Competitiveness. Research-Technology-Management, 51: 3 p. 2.
approach is seen when student teachers enter ‘prac’ periods to be mentored and supervised by classroom teachers who themselves claim several preferred ways of teaching. With about 300,000 teachers in Australia and 25 or so universities in the teacher education business, the number of potential teaching approach fragments offered to student teachers and practitioners alike is astronomic. In this way, on-campus practices reinforce and valorise the real world of work. The proliferation of teaching approaches that this kind of university teacher education regime engenders encourages the idea that good teaching is based on the subjective criteria of the individual lecturer and teacher so that the ‘good’ teachers, like poets, make it up as they go according to whimsical theory\(^{20}\). We cannot imagine the consequences of the same scenario in medicine, the electrical trades or the air transport industry.

In contrast, we subscribe to the position proposed by Bob Marzano\(^{21}\) that we do know something about effective teaching based in systematic research. In a more accountable world, student learning outcomes may well be close to mandatory rather than being optional and hedged with alibis for student and school failure as they are now. Teachers and their teacher educators who credential them as capable of producing learning outcomes with clients, may well be close to allegations of malpractice, as can happen in medicine when substantive research findings are ignored.

We believe that it would be more politically astute for teachers and teacher educators to make a strength out of the research that places special significance on the ‘teacher’, teaching and in turn the teacher educator. For example, we already know that in standard classroom settings:

\[\text{...exceptional performance on the part of teachers not only compensates for average performance at the school level, but even ineffective performance at the school level}^{22}\].

This kind of finding indicates that teachers and what they do matters in very important ways. We also know that:

\[\text{...the unique effects of individual teachers can be thought of as consisting of the effective use of specific instructional strategies, effective curriculum design, and effective classroom management}^{23}\].

\(^{20}\) Gary Adams (1995-6)

\(^{21}\) Audio from ASCD 2003 conference.


\(^{23}\) Ibid
The issue here is that there are specialised sets of knowledge and practices based in empirical research that set well-prepared teachers apart from lay people and that these skill sets are learned. Last, the evidence is accumulating about how particular pedagogical practice ought to be implemented. For example, Kirschner, Sweller and Clark summarise their recent research thus:

After a half-century of advocacy associated with instruction using minimal guidance, it appears that there is no body of research supporting the technique. In so far as there is any evidence from controlled studies, it almost uniformly supports direct, strong instructional guidance rather than constructivist-based minimal guidance during the instruction of novice to intermediate learners. Even for students with considerable prior knowledge, strong guidance while learning is most often found to be equally effective as unguided approaches. Not only is unguided instruction normally less effective; there is also evidence that it may have negative results when students acquire misconceptions or incomplete or disorganized knowledge.

Now, one does not need much philosophy of science to understand that such truth claims cannot be countered by lame comments such as “That’s just their opinion.” Empirical findings like these mean that some people in the schools, accreditation agencies, professional associations, teachers’ unions and teacher education establishments who disagree with the research findings of people like Marzano, Kirschner, Sweller and Clark need to either fault the theoretical or methodological bases of their studies, or reserve judgment, or give up their pet theories.

Contrary to the prevailing value system about diversity of approaches, we maintain that as teacher education moves into the future, it is imperative that there must be a concerted effort to reduce the number of theories being applied to those that can be shown to have verifiable empirical bases and that can be operationalised in instructional settings that matter.

It may well be that systematic research will overcome the current value system. For example, an OECD Report refers to a “new science of learning” and says that it is clear that this transformation is both desirable and inevitable. The report goes on to say that:

There can be few questions more important, for the 21st century to find good answers to, than: how the brain works, how people learn best, and what educational provision can best help them. It will be the business of the science of learning to provide reliable and applicable answers to such

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In our view, this kind of research agenda has been with us for decades but for some indefinable reason, has never become active in a systematic focused way in teacher education. Such research and its implications have the potential to transform teaching from a cottage industry into a knowledge-intensive service that provides access to knowledge-intensive qualifications and capabilities for all but a few students.

**Towards a New Theory and Practice in Curriculum Development**

We have claimed that curriculum development models assume, or take for granted, that teachers can actually “teach”. Whether the current curriculum development models emphasise mere “planning” or how the curriculum “should be” implemented, creativity remains the underlying premise of “teaching” or “learning activities”. We refer to this circumstance as pedagogic void.

If we ask the question “Why does teaching end up the way it does?” we realise that there is a “black box” between curriculum content and learning outcomes. While desirable, creativity, traditionally considered the axis of teacher curriculum development work, is not sufficient to solve the black-box problem if the agenda is for all students to make the required robust and sustainable learning gains. Contemporary knowledge about how people learn and what effective teaching is adds further pressure to existing curriculum development models. The Learning Management Design Process is an attempt to overcome these difficulties.

The Learning Management Design Process (LMDP, based on the theory of Learning Management as outlined in Chapter Three, comprises three developmental phases: Outcomes, Strategy and Evidence. Put simply, the teacher develops their classroom curriculum by engaging with each phase.

Each phase contains focal questions that provide the teacher with the material to develop a classroom curriculum. The learning management design process is analogous to building a house. There is vision or a desire for what is to be achieved; for what the house will look like; how the internal and external

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26 This section is an extract of work contained in Lynch and Smith (2011), with author permission.
arrangements will be configured to meet the vision or construction brief and so on. This series is a parallel to setting outcomes. Once the outcomes have been specified, the builder enacts a set of strategies that reflect the standards of their profession and the circumstance of the building site in order to achieve those outcomes. This phase can be termed strategy. Once built, the home-owner ascertains whether or not the house has been built to the required specified standards. This process we can term the collection of evidence. The amalgam of these three phases becomes the plan.

The plan is then followed logically, despite inevitable difficulties from the environment and probably resource constraints, to achieve the outcomes as set. Should the finished house not meet the outcomes, either during construction or after construction, then a process of diagnostics, is employed to ascertain why there are apparent defects or the house has failed to meet the set outcomes.

In Summary, the LMD process expands the learning management concept to provide the teacher with a curriculum development model that identifies key classroom curriculum development considerations and the evidence based teaching strategies that fit. Taken together the LMDP represents a rethink on traditional approaches to curriculum development where pedagogy is silent and the teacher’s creative side is viewed as fundamental.

The authors recommend the following text for readers who require further detailed information re this chapter: Lynch, D. and Smith, R., (2011) Designing the Classroom Curriculum in the Knowledge Age. AAQLM Press www.aaclmpress.com

Reference List


Chapter 5: Brain-behaviour Links that Affect Classroom Success

James F. Donnelly and Tara Kocek

Research into the brain and brain functioning is providing insights into the social, emotional and academic performance of children in schools. This emerging body of knowledge has the capacity to radically redefine the what, how and why of teaching and learning. Building on this theme this chapter examines key areas of the research that are issues for education in schools.

The following chapter is an introductory review of some of the research on individual differences in brain function that has been linked to social, emotional and academic performance in the classroom. The methods of assessment typically include some index of neuropsychological functioning, academic achievement and social-emotional functioning usually based on self- or teacher- or parent-reports about behaviour in and out of the school setting. Some of the differences in cognitive and behavioural functioning are obviously related to clinical syndromes thoroughly explored elsewhere, such as autistic spectrum (Eaves & Ho, 1996; Wilczynski et al., 2007; Yianni-Coudurie et al., 2008) and attention deficit disorders (Barkley, 1990; Klorman et al, 1999; DuPaul & Stoner, 2002; Swanson, 2003).

The effects of moderate to severe traumatic brain injuries (TBIs) on the various domains of child functioning and development have also been studied extensively (Ewing-Cobb et al, 1986; Donders, 1996; Levin et al, 1995; Anderson et al, 2001). The effects of mild TBIs or concussions are less well understood but at times equally problematic for teachers (Asarnow et al, 1995; Roberts, 1999; Anderson et al, 2001) and will be discussed in terms of classroom teaching in this chapter. We have included examples of paediatric cases from Dr Donnelly’s research and practice as a clinical and neuropsychologist in collaborations with teachers and parents. For a comprehensive and highly detailed review of brain changes in normal childhood and how neuropsychological assessment of a wide range of developmental and medical disorders can be used to inform classroom teaching, see the book, “Handbook of School Neuropsychology”, by D’Amato, Fletcher-Janzen, and Reynolds (2005).
Environment and selective encoding

To introduce some important concepts and describe how various brain functions interact we have included a model of neuropsychological domains or components in a child’s personal system (Figure 1). Examination of the model and all assessments and interventions for children should start with consideration of factors in the child’s environment. For the purposes of this discussion, the environment includes all external input to the eyes, ears, nose and skin of the child and even internal input to the brain from the child’s body that may include chronic pain or other physical activity such as a racing heart or upset stomach.

All of these sources of information have the capacity to attract attentional resources that are vital to learning. All teachers and parents should be aware of how level of organisation, noise level, disruptions or intrusions, consistent daily routine and intermittent novelty, cues about safety and other environmental factors may influence a child’s ability to attend and learn (Churchill et al., 2011).

In general, it is important to also consider that nearly all stimuli in the environment are neutral to a child until meaning gets attached. For example, on a very basic level, the appearance of a wall-mounted pencil sharpener is meaningless until its use or personally salient meaning gets explained by someone or is derived by the child. Even in this example, however, the meaning of using a pencil sharpener might get extended to something such as, “opportunity to get out my seat and interact with my friend”. Despite the efforts of good teachers to help children understand the meaning of things and people in their environment, it is important to check with a child that our assumptions are valid.

Children may attribute meanings that differ significantly from those of adults even when both are seeing, hearing or feeling what appears to be the exact same environmental stimulus. A 5 year old girl being assessed on a standardised test of intelligence was asked, “Where does the sun rise”? She confidently answered, “In my backyard”! Technically correct from her developmentally egocentric perspective, but not quite right in terms of the meaning the examiner intended. As you will read later, children who have suffered brain insults or whose emotions are poorly regulated may be at risk for making far more problematic, incorrect attributions about what they see or hear.

Given the complexity of the child’s world and the importance of deciding what in the environment is essential to physical survival and academic and interpersonal success, a process of selective encoding gets developed very early in the child’s brain. The opportunity to establish this ability was initially reported as being limited to a “critical period” in early childhood when brain connections were being pruned and
organised into processing systems in response to what a child experienced (Garlick, 2002; Johnson, 2009; McEwen, 2003; Supekar et al., 2009).

![Figure 1: Model of interacting neuropsychological domains in a child's personal system. The child selectively encodes information via the senses, then may think about those incoming stimuli and have emotional reactions that may influence future encoding and behavioural responses. Artwork by Amanda Flemming & Dr James Donnelly.](image)

A window of opportunity between birth and 6 or 7 years of age was thought to include rapid trimming of connections between brain cells that were rarely used or not used together. This approach seems to make sense. If a child never has to process certain kinds of information organised in a particular way then why devote brain resources to those functions? Similarly, brain cells would respond and set up organised and rapid networks for processing stimuli that occurred frequently in the environment and the order in which they occurred would also be mapped in the brain. Several investigators also found that the movements the child used often and their sequence would also drive how the brain became wired (Doidge, 2007).

It has long been recognised that certain areas of skin and certain motor movements are topographically organised in the front part of the brain. For example, the sensory processing of the information from your ring finger is mapped in the brain right next to the information coming from your pinky finger.
Similarly, the brain regions that control the movement of those fingers are mapped right next to each other but are in distinct regions or maps. Imagine if instead the maps for you sensing or moving your fingers were not detailed at all so that stimulation of any finger would result in a big undifferentiated brain region lighting up. You would not be able to tell the difference in the brain whether one finger was being touched or the other. You would also not be able to precisely control when one finger needed to be activated before another in a sequence such as when using a pencil. This process of developing maps based on experience in sensation (hearing, seeing, feeling) and in doing fine and gross motor tasks (drawing, writing, and using both sides of the brain playing musical instruments) have significant effects on how well a child is prepared for the classroom and how well they learn once they get there. The effects of early exposure to playing a musical instrument, second language training or playing a particular sport have been offered as evidence of how extensive deliberate practice during childhood influences brain development and adult skill level. An interesting review of how those with exceptional skill might be created is covered well in the book, “Outliers: The Story of Success” (Gladwell, 2008).

This notion that early experience affects brain organisation and efficiency in areas most tested or practiced has very important implications for when and what parents and teachers should do to provide the correct sets of information to promote the “best” brain development. How do we define the “best”? What will prepare a child most effectively not just for the tasks of childhood but for functioning in adolescence and adulthood? Is there a finite amount of brain tissue so that if you use up all your brain connections and mapping to learn the violin by 7 years old are you not able to learn what you need to leave home and function independently in the complex environment of a university? These questions have been the focus of heated debate for decades among mental health professionals, developmental and school psychologists, teachers, school administrators who offer various educational models, and of course among parents who are trying to do their best to maximise their child’s brain development and ultimate academic and social success. The problem becomes more complicated when one considers findings that brain changes in response to maternal stress (Davis & Sandman, 2006), exposure to chemicals in the mother’s blood (Jacobson et al., 1993; Maier & West, 2001; Pulsifer et al., 2004, 2008; Watson & Westby, 2003) and even sounds outside a woman’s body (Massaro et al., 2006) may influence the fetus’ brain development in the uteran environment before birth. In concert, these findings indicate that children clearly bring a unique set of brain systems and capacities for
learning that may not always fit a standardised approach to teaching. How teaching might be efficiently customised in a busy classroom remains the challenge.

The answers to all these questions about brain-learning links are beyond the scope of this chapter but we hope you will become better consumers of the research so you can start to answer some of them for yourself and for your students and their parents. You may also pose new questions, which we believe is an essential role of all teachers. Developing careful modes of enquiry and fostering critical thinking in teachers is key in this age of exploding technology and information. The facts are changing everyday when it comes to what we know about the developing brain, how to fill it with useful knowledge, make it effective at independent learning and reasoning, and skilled behaviourally.

In some cases the answers are highly dependent on values, ethics, culture, and personal preferences and may also be guided by genetically conferred gifts that differ across individuals. These issues are obviously complex and the answers are only partially addressed by our knowledge of brain physiology and neuropsychology but it is a place to start because it asks one to apply scientifically rigorous methods for determining how we know what we think we know.

A program of research by Merzenich and his colleagues (Chang & Merzenich, 2003; Nakahara, Zhang, & Merzenich, 2004; de-Villers et al., 2008) has clearly demonstrated that some forms of stimulation make it more likely that development of organised, fast and specialised brain maps for processing sensory information will occur. His evidence from animal models and children of various ages and with various learning problems (e.g., ADHD, autism) gave rise to the development of a computer program called Fast ForWord (Merzenich, Tallal, Jenkins & Miller, 1996). This computer program and supporting therapeutic interventions reportedly train the brain of a child to rapidly, selectively encode features of visual stimuli and to better detect small time differences between stimuli (Miller et al., 1999). It is based on their theory that deficits in rapid selective attention leads some children to miss goal-relevant or important details when encoding information such as letters on a page or a teacher’s multistep instructions. The authors of the program propose that some children with autism may attend to far more than is necessary which may lead them to feel overwhelmed. Other children reportedly take longer to process the information and they have difficulty discriminating stimuli because their brain maps are insufficiently refined. As in the example about fingers above, they give the example of a brain map that processes all sounds in a wide frequency band so all get equal attention rather than specific maps for picking up narrow frequency bands. The more distinct brain maps are most likely to selectively process sounds that occur in the human voice or music or in nature.
This research has also indicated that early over-exposure to disorganised information or a highly chaotic sound environment may interfere with the formation of brain maps that can selectively encode information useful in language learning. For example, Merzenich and his team exposed rat pups whose brains were still in the critical period of development to episodes of white noise (sound that contains all sound frequencies but is not necessarily loud). They were able to check changes in the brain maps and the rat pup behaviour. The white noise not only interfered with brain map development it also created rats that were easily overwhelmed by sound during and after the critical period. Their brains were reportedly wired to attend to every sound instead of just those related to adaptive functioning. Merzenich theorises that the significant increase in the diagnosis of autism may be related to the increased exposure to noise in the environments of the modern child. He offers evidence from reports of autism incidence in neighbourhoods near train tracks and other industrial sites but formal studies are not yet completed.

We have heard similar reports in clinics for children with autism. Parents report the child attends to annoying sounds coming from appliances or noises coming from nearby power cables but does not pay sufficient attention to their own name being called. Knowing the basis of the impairment for these children informs customised interventions rather than using generic or misplaced therapeutic activities that frustrate parents and teachers when they fail and certainly can cause an escalation in negative behaviours in the child. The child may feel further bombarded by environmental stimuli that just adds to the undifferentiated noise or that cannot be processed any more efficiently than normal activity. Merzenich and his colleagues at the Scientific Learning centre in California suggest that expressive language as well as processing socially useful information such as facial expressions improves in children with autism who are exposed to Fast ForWord. They theorise that improving processing speed in one modality (reading letters) generalises to processing speed for other physical features in their visual environment (face details). They believe the children feel less overwhelmed as brain maps become more efficient and differentiated.

Along with understanding better what the processing problem might be, the other exciting aspect of this research is that the same researchers found that they could reverse the brain map and behavioural effects of white noise exposure in animals. They systematically played pure musical tones to the rats and noted that newly organised maps formed in the cortex of the rat brains, even when this intervention was done after the critical period of brain paring and organisation was supposed to be over (Zhou & Merzenich, 2001). This effect and many others in the
neuroscience literature are referred to as evidence of “brain plasticity”. It has also been shown to occur in older children and in adults despite prior learning history. There is evidence that it is easiest to reverse the negative effects of a chaotic disruptive environment when intervening with children hence the essential role of teachers informed by research in this area. Knowing which children present with difficulties in rapid selective encoding may therefore be the first step in understanding how to teach children who present with a wide range of learning and behavioural difficulties (see a popular description of brain plasticity studies in, “The Brain that Changes Itself”, Doidge, 2007).

**Thinking, emotion and behaviour**

The next step in information processing in the model depicted above is the interaction among attention, thinking, emotion and behavioural selection. This step can include automatic, unconscious feedback to the attention systems that monitor external and internal events. The child does not have to even think about it, they can become hyper-vigilant about some things in their environment even though as a teacher you may need them to attend to what is relevant to a lesson. This behaviour can be challenging for teachers as they may be operating under the belief that children after several or even hundreds of reminders should be able to focus their attention as requested. Unfortunately, the developing brain may be more driven by unconscious processes than we would as adults prefer even when a child is of average or above-average intelligence. You can imagine for example that if someone (adult or child) sees a threatening or attractive stimulus in the environment it would get selectively encoded, the person would have an emotional reaction and think about the stimulus which would then increase attention to that aspect of the environment or to their internal state. Emotions provide a cue to the brain that something requires additional attention and thoughts about what is happening can either maintain, decrease or increase the level of devoted attention. Children with distorted thinking, possibly based on errors in selective encoding (Dodge & Frame, 1982; Dadds et al, 2006), or emotions that are poorly regulated (Biederman et al., 2001; Eisenberg et al., 1995, 2001) are at risk for then coming to decisions about behaving that may be maladaptive or disruptive in the classroom. An 8 year old boy reported that he would wake at 4:30AM and start thinking about school, worried that he would make a mistake that would get him into trouble. He had suffered a head injury that affected his ability to sustain attention on tasks but his anxiety over failure and disappointing his teacher, who he adored, drove him to over-attend to specific aspects of his environment and frequently crash into things or other students, reinforcing his anxiety for the next day. Medical causes for
attention problems often combine with learned ways of thinking and emoting to create behavioural dysfunction in the classroom. Carefully teasing apart the problem is challenging and time consuming but can pay great dividends for the child and the teacher.

The complicated interplay among selective attention, thinking or reasoning, emotions and behaviour have long been described by investigators and clinicians as “executive functions”. Some believe that lumping all the executive functions into one category is inappropriate (Nelson, personal communication) while others refer to all the functions as being part of “working memory” (Baddeley, 1992). Independent of the name or how things are categorised, there are consistent reports of links between this set of skills and school and social functioning. The discussion below will therefore now focus on this collection of high level skills for a number of reasons: They develop during the critical period of brain organisation described earlier and through adolescence; they appear to be impaired in children with a wide range of learning, medical and behavioural problems linked to unique brain profiles and school success; and they respond to intervention when assessed properly.

**Executive functioning**

For the purposes of this chapter we will use the term executive function (EF) to represent a collection of cognitive abilities that coordinate or control other attentional, thinking, emotional or behavioural activities in the brain. Results from research on the development of high level thought processes or executive functions and their influence on social, emotional, and cognitive development have the potential to lessen the negative effect of various disorders and behavioural problems on a child’s school experience (Anderson, 2002).

Definitions of executive function vary considerably throughout the literature (Declaire, 2006). The term has been used to refer to various complex or higher-order mental processing activities, such as goal-directed behaviours (Morra, 2000; Pintrich, 2000), planning and organising activities (Antonietti, Ignazi, & Perego, 2000), evaluation and discriminatory functions (Neill, Valdes, & Terry, 1995), task-switching strategies (Mitchell, Johnson, Raye, & Greene, 2004), problem-solving activities (Engle, Kane & Tuholski, 1999; Fincham, et al, 2002), and awareness of one’s own thinking or emotional states (Antonietti, Ignazi & Perego, 2000; Karatekin, 2004; Zimmerman, 2000). Various measures of executive function provide convergent evidence that the executive processes are important to linguistic and mathematical learning (Davies, Jones & Taylor, 1984; Morra, 1994) and even occupational success (Kyllonen & Christal, 1990). Abilities required in
goal orientated behaviour including the initiation, maintenance and planning of behaviour, learning and following rules, sustaining attention and concentration as well as responding effectively to feedback as tasks progress have all been included in the EF basket (Seguin, et al, 1999). As a child ages, executive functions include the ability to anticipate future events, regulate behaviour, reason based on prior knowledge about similar situations or problems, process and use cues about emotion in others and inhibit behaviours (Seguin, et al, 1995).

A large body of research exists concerning the development of executive function in children. The development of executive functions seems to parallel the physical development of the frontal lobes, specifically, the prefrontal cortex (Fuster, 1989, 1994; Lezak, 2004). These burgeoning brain systems in the frontal lobes seem to be most activated in novel situations when new learning is occurring and in circumstances when a child has to shift from one mental or behavioural activity to another, resist shifting despite distraction, or when an “if in the past, then in the future” process is involved. Children with clinical syndromes that show differences in frontal brain activity (e.g., ADHD, autistic spectrum disorders, frontal brain injuries, mood disorders) also show difficulty with these associated executive functions. Children with Autism also have significant difficulty understanding the perspective of others, referred to as a theory of mind, which is also reportedly based in the complex connections between frontal lobes and other brain regions. The frontal lobes are also intimately connected to emotion generation systems and differences in activation across the two hemispheres of the frontal cortex have been linked to risk for depression and child temperament (Davidson & Tomarken, 1994; McManis et al, 2001; Wheeler, et al., 1993).

These individual differences in frontal brain asymmetry (i.e., one frontal hemisphere being more activated electrically than the other) are detectable at birth and are related to how a child responds to positive and negative stimuli (Baving, et al., 2000). In some cases where the differences are extreme and stable over time, a child may be at increased risk for depression, have difficulty maintaining motivation in the classroom and may demonstrate a bias in retrieving emotional memories about their past experience (Davidson, 1998a, 1998b, Kagan et al., 2004). Children with significantly more brain activation in their right prefrontal cortex relative to their left may have excellent access to memories of their perceived failure or negative emotional experiences and have difficulty recalling positive experiences. The theory is that excessive right frontal brain activation may increase access to brain regions where negative emotional experiences are stored so thoughts about how things might go for them in the future are also negatively biased. This mind set may contribute to a child’s reluctance to explore their world
or try new things if they believe things will generally go poorly or offer only rare positive results. If the child is also selectively attending to evidence in their environment that things are not going well it further confirms what may be a very distorted, disabling view of themself and their school experience. Despite these brain profiles it is re-assuring to note that some children who appear at risk based on brain activation and their behaviour in anxiety producing situations at 30 months old behave in a healthy, less anxious way at 10 years old even when their brain profile does not change (Rickman, 1998). The key variable that was found to predict behavioural improvement was a positive approach to parenting that also characterises quality teaching.

As children progress through physical growth spurts in height they also exhibit growth of brain connections, refinement of brain maps and better connections between brain regions and hemispheres that allow for coordination of sensory and motor functions (Bell & Fox, 1992; Anderson, 1998). Research suggests that the first executive function to arise is the ability to resist distraction or inhibit an over-learned response (Diamond, 2002). Rather than just respond reflexively to a stimulus, the child through the involvement of frontal brain systems can begin to pause and reflect between the processing of incoming information and the selection of a behavioural response. However, environmental conditions may make children appear to regress or act younger than their age as the emotional nature or novelty of the situation may cause them to react without thinking even though they seem to be more thoughtful in their behaviour on other more familiar circumstances.

When executive functioning development starts and ends depends on who and what is assessed. While children as young as three have demonstrated behavioural evidence of basic planning skills (e.g., doing things that suggest that they are getting ready for an upcoming event) (Jurado & Rosselli, 2007), studies have more consistently found that not until children are around the age of six do they become capable of performing tasks requiring true independent strategic reasoning that subserves true planning for future events (Passler, Isaac & Hynd, 1985). Mastery of some executive function skills are not achieved until around the age of 12 years while others are not evident until 16-19 years old (Anderson, 1998).

During early childhood adults essentially serve as the child’s frontal lobes, cueing certain adaptive behaviours, reminding them to inhibit others, assisting them in sustaining attention to some aspects of their environment and not others, informing them about cues to the emotional state of others, and helping them shift effectively from one activity to another. Effective teachers routinely address these functions in the classroom, as well as fostering a child’s reflection on their own
thoughts and feelings in a respectful way. In particular, preparing children for upcoming events so they have a framework for processing what might happen makes it less likely that they will rely on reflexive, possibly maladaptive behaviours. They are prompted to apply some general rules for behaviour, or are guided to attend to certain aspects of what might happen and are given the chance to explore what they might think or feel ahead of time. The novelty and requirement for rapid processing of new stimuli is reduced so is therefore less taxing on what may be a less than fully developed frontal brain system. The success in the new situation reinforces the reflective approach modelled by the teacher. New situations are less daunting for the child, less challenging for the teacher, and specific executive functions get some practice that fosters new brain connections, possibly in both the child and the teacher.

Teaching executive functions enables the development of appropriate social skills through their influence on social information processing, self-regulation, effective communication, and the ability to anticipate outcomes and adapt to changing situations (Jurado & Rosselli, 2007). Executive dysfunction is revealed in formal test performances and behavioural reports that indicate deficient planning and organisation skills, difficulties generating and implementing problem solving strategies, getting stuck on one response when feedback suggests it is time to shift, and inflexible thought processes. Furthermore, qualitative characteristics of executive dysfunction can be observed through a child’s poor self control, impulsivity, and behavioural dis-inhibition; problematic behaviours which interfere with the development of social competence and school success (Anderson, 1998; Barkley, 1997). Children with executive functioning disorders may have significant difficulty suppressing inappropriate impulses, making social interaction with other people extremely difficult (Feifer & Rattan 2007). Those that assess mental processing speed in children suggest that not being able to efficiently process all the complex emotional and social information in interpersonal situations leaves a child feeling overwhelmed and without the mental resources to take in information, reflect, then choose among behavioural options. They are left in a stimulus-response mode that lacks an adequate gap for social judgment.

**Executive dysfunction and behavioural problems**

Executive dysfunction appears as impairments in selective attention, behavioural inhibition, emotion regulation, thinking and behaviour, all of which have serious consequences for normal development. Such dysfunction can occur due to a number of factors including head injuries or other medical or developmental syndromes, environmental factors such as parenting, and genetics (Powell, Kytja,
Executive functioning is associated with the prefrontal cortex (Denckla, 1996) and damage to this brain region is likely to result in a disruption to EF behaviours (Pritchard & Alloway, 1999). Shimamura (2000) has also suggested that the prefrontal cortex acts to filter attentional salience, and Knight and Grabowecky (1995) have shown that individuals with damage to the prefrontal cortex exhibit significant impairment in their ability to inhibit irrelevant (non-salient) information. These reports are consistent with those of Merzenick et al who suggest that selective attention problems and inefficient encoding or mapping of information may be the basis for a wide range of problem behaviours in children (Doidge, 2007). There is also growing evidence that children who sustain frontal lobe brain injury exhibit deficits in executive function skills, including problems with planning, problem solving, and the performance of socially competent behaviours due to poor self-regulation and biases in social information processing skills (Anderson, 1998; Jurado & Rosselli, 2007). Injuries to the front part of the brain are the most common as the child engages in sport or routine play. The mechanism of injury typically involves the skull stopping abruptly but the brain continuing to move forward and rotating and banging or shearing against the skull’s bony internal structures (Figure 2). The brain injury required to disrupt normal brain development or functioning is now recognised as being far less severe than previously assumed (Roberts, 1999; Donnelly & Fox, 2003). For example, the connections between brain cells (axons) that allow for rapid transmission of signals can be irreversibly damaged by being stretched by just 10% in a concussion and persistent effects of concussion can occur even when the child does not lose consciousness from the blow to the head or face (Gennarelli, 2005; Roberts & Morrow, 1999).

Figure 2: Magnetic resonance image (MRI) of a side view of the brain and skull. The arrow to the left represents deceleration forces applied to the front of the skull by the head hitting an object. The arrows inside the skull represent the forces applied to brain tissue as it continues to move forward and strike the internal ridges of the skull.
Problems in executive functioning are usually first identified in primary school as children face more structured settings and new rules in the classroom. Whether classrooms in alternative schools such as those promoted by Steiner and Montessori offer better education for children with atypical executive functioning has not been reported in the research literature. Children who are more impulsive, emotionally dysregulated, noncompliant or antagonistic toward other children frequently get identified as problem students by teachers as their behaviour can be disruptive. These behaviours are typically referred to as *externalising* behaviours. Executive dysfunction can also result in a behavioural profile that is characterised by social withdrawal, poor selective attention and cognitive disorganisation (*internalising* behaviours) that interfere with learning in the classroom and social success, but these children may be more difficult to detect. Age-appropriate shyness or a child taking more time to separate from parents or adjust to the new school setting may lead teachers to accept these behaviours as normal and the child may be moved down the priority list for additional support when resources are limited. Children presenting with internalising difficulties have also shown atypical frontal lobe profiles and if identified can be treated effectively before secondary negative effects such as school and social failure occur. The general domain of *social competence* or *social information processing* has been the focus of psychological and educational research for many years as it appears to be an issue for children externalising or internalising behaviour patterns. How externalising and internalising versions of executive dysfunction affect encoding of social cues and social behaviour will be the focus of the next section.

**Executive functioning and social competence**

Deficits in executive functions have been consistency shown throughout the literature to have a significant influence on social behaviour problems (Feifer & Rattan, 2007). For instance, Dodge & Frame (1982) found that limitations in executive functioning contribute to aggressive behaviour in children as a consequence of their inability to regulate their emotions. Moffitt & Lynam (1994) found that emotionally disordered children have difficulty self-regulating in social situations by using reflection and self-talk. Their results, which now seem obvious, demonstrated that children, who experience intense sadness or frequent anger, were more likely to exhibit problem behaviours as a means of possibly eliciting external control in situations that were overwhelming. In addition, they argued that emotionally disordered children may not be able to learn from environmental consequences as easily as their non-disordered peers as they may not understand
the impact of their behaviour on others. Research has since indicated that this may be the result of deficits in the executive functions of social information processing and self-regulation (Crick & Dodge, 1996).

The development of social competence in children has been tied to the cognitive processes involved in executive function (Blair, Zelazo, & Greenberg, 2005). Impulsivity and aggressive behaviour typically diminishes with normal development as the child learns new social skills that prove to be more effective and as their brain develops the requisite information processing abilities. As a child begins to regulate their own emotions and behavioural responses more effectively, skills such as understanding the perspective of others, cooperation, empathy, and social problem solving are able to develop. However, deficits in executive functioning, such as temperamental extremes in emotionality that can be present at birth, poor self-regulation skills, and social information processing biases (e.g., encoding a neutral facial expression as angry), interfere with the development of appropriate social, cognitive, and emotional behaviour.

This lack of early social skill development interferes with the child’s ability to learn and benefit from their school environment, ultimately impeding further the development of social competence (Anderson, 1998). Although not yet directly assessed, one can imagine that even more complex brain maps need to form in response to social experience. The lack of social opportunities, either because a child’s aggression or impulsiveness has led to rejection by peers or because anxiety has led to social withdrawal, could conceivably leave a child’s brain ill prepared for adolescence when peer interactions are essential to the development of adult social behaviours and psychological individuation. Evidence from the psychology literature indicates that children who struggle socially in the early years due to extremes in temperament and executive dysfunction are at greater risk for social failure and mental health concerns as adults (Brocki & Bohlin, 2004; Farrell & Barrett, 2007). In the most extreme cases of child neglect the emotion and behaviour regulation systems of the brain are markedly under-developed (Masten et al, 2008).

Studies and clinical reports on the effects of mild traumatic brain injury in children (Roberts, 1999; Levin et al, 1987, 1988; Donnelly et al, 2005) indicate that the seeds of skills that do not develop until adolescence may be damaged when the connections between brain regions get stretched or sheared in the developing brain. What seems like no immediate effect of a concussion in childhood may actually predispose that child to future difficulties in social learning or abstract reasoning skills that do not normally develop until later in life. For example, an 11 year old girl who suffered 3 concussions falling off horses since age 9 appeared to
be in the normal range on formal tests of intelligence and academic achievement within 6 months of her last head injury. However, when she entered grade 9 and the material became more abstract and social interactions became more complex in a larger school, she felt overwhelmed mentally by the academic workload and felt completely lost in the rapid-fire conversations that can occur in small groups of teenage girls. Her formal test scores fell to the impaired range when her selective attention, planning and reasoning were specifically assessed but many measures used in brief screening batteries indicated that her brain was still functioning normally. Proper diagnosis, customised interventions designed to break down homework tasks, and allowing her more time and breaks during exams allowed her to work around the persistent brain changes caused by the concussions. The secondary effects of sad and anxious mood, and her social withdrawal that arose due to her disappointment with herself also subsided as she applied new interpersonal strategies.

Problem behaviours associated with inadequate behavioural inhibition, such as aggression, impulsivity, and antisocial behaviour have received particular attention in recent years. Biederman et al. (2001) suggest that children who are low in behavioural inhibition are more likely to exhibit disruptive behaviours than their more inhibited peers. However, a significant positive correlation between excessive behavioural inhibition and overanxious, avoidant and phobic disorders suggests that over-control predisposes children to social anxiety later in life (Biederman, et al, 2001). Both externalising and internalising problem behaviours often correlate significantly with deficits in the executive functions of social information processing (Dadds, Fraser, Frost & Hawes, 2005).

**Social information processing and social competence**

Social information processing refers to the collaboration of numerous mental processes which are involved in the generation of a behavioural response as a consequence of one’s own social interactions. The cognitive dimensions involved in social information processing include attention to social cues (facial expressions, body posture), accurate attributions about the meaning of those cues (this person is safe or dangerous or fun), personal goal clarification (e.g., this person might help me achieve my goal of having friends), effective decision making and behavioural responding (Dodge & Rabiner, 2004). How children selectively encode and interpret the cues from their external environment influences how they will subsequently respond to that situation (Lansford, Malone, Dodge, Crozier, Pettit, Bates, 2006). Social information processing combines with other abilities to create social competence in a child (Eisenberg, et al, 2000a) and these skills may develop
Social competence, is defined as the, “ability to achieve personal goals in social interaction while simultaneously maintaining positive relationships with significant others” (Camodeca & Goossens, 2005, p. 193) and is usually assessed by judging if someone can regulate their emotions and select and engage in appropriate behaviours in social situations. This area has been of interest in recent years due to the finding that poor social competence in childhood, frequently related to poor social information processing, is related to emotional disorders, social maladjustment, and poor academic achievement (Ciairano, Visu-Petra, & Settanni 2007).

Social information processing models have been used to understand the development and maintenance of a number of problem behaviours in children, including aggression and social withdrawal. These models outline children’s social behaviour as a series of interacting processing steps. Figure 3, below, depicts the steps involved in social information processing. Children are believed to first encode social cues, subsequently interpret these cues, clarify goals, decide on a response, and behave accordingly. If the child is able to successfully proceed through these processing steps, appropriate and effective behaviour will result. However, if a child is deficient at any one or more of these steps then problematic behaviour, such as aggression or social withdrawal or inhibited social behaviour, are likely to result (Crick & Dodge, 1996). The more problems that a child has with social information processing, the more they are likely to show severe behavioural problems (Lansford et al., 2006). More specifically, if a child just has deficits in the early steps of social information processing (encoding and interpreting social information) or just has deficits in the later steps of processing (decisions about behaviour) then problem behaviours may only be minimal. However, if a child has deficits at both stages of social information processing then problem behaviours such as aggression or social withdrawal are more likely (Lansford et al., 2006).

The ways in which children interpret the intent of others as well as their generation of solutions to social problems (e.g. self-regulation) have been identified as key predictors to the development of children’s social competence. Children whose social information processing is intact have been found to show more negotiated, less confrontational solutions to peer conflict situations. Further evidence of this
association has arisen from intervention research which suggests that children who are taught better processing strategies are better adjusted in social environments. On the other hand, both aggressive and socially inhibited/withdrawn children have been identified as having deficits in interpreting social cues and in their ability to select socially appropriate behavioural responses (Haskett & Willoughby, 2005). Research shows that aggressive children make attributions about another’s intent based on fewer social cues than their nonaggressive peers and have difficulty shifting their attention away from aggressive cues once focused (Quiggle, Garber, Panak, & Dodge, 1992). Aggressive children consistency show a bias toward hostile attributions of others’ behaviour, generate significantly more aggressive responses and value aggressive behavioural responses more so than their nonaggressive peers. Similar to aggressive children, children who withdraw from social situations more often attend to negative cues in their environment (Quiggle, et al., 1992).

![Figure 3: A visual representation of the steps involved in Social Information Processing. Arrows represent examples of feedback to prior processing steps that serves to refine attention and behavioural responses as the other person responds to a child’s chosen behaviour.](image-url)
However, while aggressive children believe that aggression will result in positive outcomes, depressed/sad children report a favourable use of withdrawal. Finally, aggressive children are more likely to use aggressive behaviour in negative situations while depressed/sad children are more likely to report that the use of withdrawal would lead to positive outcomes in negative situations. Both externalising and internalising children become more emotionally aroused in negative situations than their socially competent peers.

Some children externalise these negative emotions, in overt aggression for example, other children internalise these emotions, may develop physical symptoms associated with these emotions, and withdraw from or avoid social contact. This disparity in response, even after the same attribution is made, highlights the additional role of techniques for self-regulation in the occurrence or nature of problem behaviours.

Deficits at the encoding and interpretation of social cue stages can lead children to believe their responses seem reasonable and may therefore be resistant to change. For example, children who are exposed to an abusive environment show exaggerated brain electrical reflexes to angry faces within 1/5 of a second after the face appears (Pollak et al, 1997; Masten et al, 2008). This tendency may set them up to selectively attend to anger cues, make faulty attributions regarding the intent of others, and engage in goal directed behaviour to keep themselves safe when it is not required. They may choose a behavioural response to address what they believe is anger when in fact the situation is more benign. Convincing them that an angry face is not something to respond to may be difficult for them to accept because their brain is telling them to fight or run. Helping them encode a wider range of emotional expressions, discriminate between emotional faces more effectively, develop verbal strategies for testing their initial attribution and giving them a lot of experience with non-angry faces all serve to undo the previous processing bias based in their brains’ connections. Alterations in the environment that quickly follow a child’s behaviour should also be encoded so that cue detection, and behavioural decisions and implementation can be refined as depicted in the feedback arrows in Figure 3.

**Self-Regulation**

Self-regulation, including emotional and behavioural regulation, has become a topic of increasing interest in recent years due to the realisation of its significant influence on a child’s social and emotional development (Eisenberg, et al 2003). Individual differences in temperament and self-regulation will affect a child’s social competence at school (Rothbart & Jones, 1998).
Self-regulation refers to the processes by which an individual exerts control over their inner processes and overt behaviours. Research suggests that as children develop, they move from more reactive and involuntary behaviour to more self-controlled or regulated behaviour. However, executive dysfunction can interrupt the progression of this normal development and negatively affect a child’s social competence (Rueda, Posner & Rothbart, 2005).

Emotion regulation is often defined as the process of “initiating, maintaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states and emotion-related physiological processes”, often in situations when the child or the teacher is trying to achieve personal goals. On the other hand, behavioural regulation is the process of “initiating, maintaining, inhibiting, modulating, or changing the occurrence, form, and duration of behavioural commitments of emotion, including observable facial or gestural responses” (Eisenberg, et al., 2000a, p. 1367). While emotion regulation involves the regulation of internal reactions and relies on skills of attention (e.g. attention shifting and focusing) and cognition (e.g., cognitive restructuring), behavioural regulation involves the control of overt behaviour driven by these emotions and thoughts and relies on the child’s ability to control their impulses (inhibitory and activation control).

Emotion regulation is further divided into automatic/reactive and effortful processes but for the purpose of this discussion it is important to note that the level of effortful control typically increases with age but the brain connections that subserve these processes can vary across children. Children should become increasingly more able to shift their attention (through strategies such as cognitive restructuring or distraction) from negative stimuli and emotions; better focus on positive information in their environment which subsequently leads to positive emotions; and overcome their reactive tendencies and regulate their own behaviour (Eisenberg et al., 2003; Rothbart & Jones, 1998). Older children should also demonstrate a capacity to consider a larger repertoire of cognitive and behavioural options before responding as their frontal brain systems become more organised. Making this process explicit for children, letting them know that they are responsible for learning how to manage their emotional and behavioural responses, without shaming them as they struggle in the early stages of brain development, is an important role for teachers. In particular, some children may need the teacher and parents to serve as the “feedback loop” in their social information processing system as their brain may not yet be able to make connections between the impact of their behaviour and how their approach may need to be modified.
Well-developed effortful control is believed to contribute to a child’s resilience; their ability to adapt to changing situations and apply flexible problem solving strategies in novel environments. Overall, research shows that children who are effective at managing their emotions and emotion-related behaviour are more socially competent in a variety of settings (Eisenberg et al., 2001; Eisenberg, Fabes, Guthrie, & Reiser, 2000b; Eisenberg et al., 1997, Spinrad, et al, 2004). Again, these processes are mediated by the frontal lobe and a range of medical and developmental disorders affecting brain function, including exposure to drugs or alcohol during gestation and seemingly mild head injuries have been linked to delays in their development in childhood (Roberts, 1999).

Educational and neuropsychological programming for executive dysfunction

In addition to encouraging cognitive development in primary school children, recent research highlights the need for educational settings to promote the development of social and emotional competencies in children (Research Evidence, 2007). Behaviours such as inattention, aggression, hyperactivity, social withdrawal or anxiety, and dis-inhibition all interfere with effective learning. As a result, educators are now being encouraged to identify those children who are displaying such behavioural problems and implement early interventions to ensure the development of positive behaviours and subsequently ensure adequate education attainment (Miller, Williams, & McCoy, 2004). The current authors suggest that more subtle signs of executive dysfunction may be apparent and easier to address that would prevent problem behaviours from ever developing.

Blair et al. (2005) suggest that the clear identification of executive function deficits in young children may potentially be used as an indicator of psychopathology or learning disorder risk before such problems emerge in later childhood. Neuropsychologists and clinical psychologists who specialise in the assessment and cognitive rehabilitation of childhood cognitive problems would typically assess a wide range of perception, attention, memory, reasoning and in some cases social information processing variables and offer baseline and follow-up testing. However, detailed and comprehensive assessment of executive functions rarely occurs even for children who are referred due to a clear diagnosis that attracts support funding in schools. Opportunities to assess children who may have executive functioning problems but do not meet formal diagnostic criteria because they continue to function in the average range on estimates of intellectual functioning are currently severely limited or non-existence in most schools. For example, 50,000 students with additional learning needs in mainstream classes in
New South Wales government schools are overseen by only 1,387 specialist teachers across the state (NSW Productivity Commission, 2010). This group of students who fall below diagnostic thresholds, referred to variously as those with ‘special needs’, ‘special educational needs’, ‘learning difficulties’ or ‘behaviour disorders’ currently make up 8% of the student population. This is in addition to the 4% of all students who are thought to be the most severely impaired and meet criteria for a diagnosis.

Statistics from the Department of Education (DET) (2009) indicate that in New South Wales for example, there are 790 school counsellor positions with an average student allocation of 1,030. They are trained to do assessments of academic achievement and relatively basic assessments of cognitive or emotional functioning but reports to the current authors indicate that most have very limited time to fully assess students. There are no paediatric neuropsychologists working in the Department of Education in NSW so children with severe cognitive problems need to be assessed either through community mental health or by private practice clinicians.

Neuropsychologists with the specialist training required are also quite rare outside urban areas in Australia so parents would need to travel long distances to obtain comprehensive assessments and then hope that the findings and recommendations could be applied by teachers, parents and support staff available in rural and regional areas. At this time, neuropsychological assessment is not covered by Medicare in Australia and assessment services for children are severely limited outside major medical centres in the public health system. For example, the lead author of this chapter was the only paediatric neuropsychologist between the southern Queensland border and Newcastle and you would have to go to Adelaide before finding one heading west from NSW. The authors have developed a new school consultation and research program for some government schools that would allow for assessment of all children referred to DET Support Services to assist with early diagnosis, education programming and referral to appropriate community services but its scope is limited.

Donnelly and colleagues (2005) have also offered free baseline and follow-up testing for children in rural private schools in the past and have offered similar programs to government schools. The testing program uses an internet based battery of reaction time tasks that vary in difficulty and are sensitive to the effects of even mild head injuries in children (see Headminder.Com). The approach of having pre-injury data on those involved in contact sports has been available for university-based and professional sports in the US for more than a decade and is starting to be applied in some professional sports in Australia. It is the gold
standard for understanding whether someone’s brain has returned to its own pre-injury baseline before someone is allowed to return to play. It is not currently applied to children anywhere in Australia except for short-term research and clinical programs provided by Donnelly and colleagues and for research in elite adolescent athletes by one group in Sydney. The most shocking finding is that children who have sustained a mild head injury can show effects years later that are typically undetected or misattributed by teachers, parents and GPs as unrelated to the concussion. The persistent negative effects were only detected because pre-injury data was available.

An adolescent boy tested by Donnelly in 2006 was recently re-assessed and he remained significantly below his pre-concussion baseline especially on measures of executive functioning (Pre-concussion = 95th percentile, 4 years post-concussion = 11th percentile relative to age matched peers). His academic performance had dropped from the superior to the low average range across all subjects but he was having particular difficulty composing and writing essays, an area previously identified as an area of strength. The intervention involved breaking down the task so that it was less dependent on frontal lobe mediation. Instead of typing as he composed and edited what he wanted to say about the topic, he was asked to generate a coarse outline then orally dictate into a digital recorder what he would later write. He would then listen to the recording and type it verbatim without doing any editing. Editing would be done on a hardcopy then corrected in the electronic version. Note that this approach separated various aspects of the task that had to be juggled by the frontal lobes in his typical essay-writing method on the computer. His performance and more importantly his sense of mastery returned to pre-injury levels just by changing how he approached the task.

Perceiving the text on the screen, using his fine motor skills to type, composing what he wanted to say and checking for errors had been overwhelming for the brain system affected by the blow to the front of his head and he experienced mental fatigue and a sense that his mind would just go blank. To get a sense of what this feels like, check out the Stroop task online. It requires that you engage the frontal lobes to suppress the over-learned tendency to read while naming the colours of the ink instead. Note what your brain feels like. Imagine how frustrating it would be if you felt that way all the time. That is the reported experience of children and adolescents who suffer concussions. They do not look damaged but their brain needs help in multitasking.

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27 http://www.snre.umich.edu/eplab/demos/st0/stroopdesc.html
There are numerous classroom methods available to help lessen the impact that executive dysfunction has on children (see Roberts, 1999 for classroom tips for managing the effects of head injury; D'Amato et al, 2005 for ADHD, autism, seizure disorders; Meltzer, 2010 for reproducible for the classroom that help teach executive functions). The simple use of organisers, visual schedules, and checklists has a positive influence on helping many children organise and plan their social and academic lives is typically covered in teacher education programs but may need to be altered slightly based on the assessment of an individual child. If the system the teacher is using for an entire class does not seem to be effective for a few children resist the temptation to assume that the problem is related to poor attitude or cooperation. Non-compliance or negative behaviour can often be explained by the child’s difficulty with the mode or speed of information delivery or the complexity or novelty of the situation.

As noted earlier, specialised computer programs may be useful in training selective attention that improves brain mapping (e.g., Fast ForWord) but changing tasks to eliminate distractions may also help some children. For example, simply using a sheet with a small window that fits over individual math problems on a page has been found to improve selective attention in children post head injury and after chemotherapy. Breaking down tasks and using visual or auditory cues for discrete steps are already in use by many school counsellors or psychologists to assist children who lose track on multi-step tasks. What is essential is for teachers to avail themselves of a range of strategies but do an error analysis and assessment of strengths before intervening. Looking for patterns of errors can give hints about whether attention, memory, reasoning or behavioural or emotional regulation is the problem.

The differences in maladaptive self-regulation strategies observed between internalising children and externalising children demonstrate that unique interventions, tailored to each type of behavioural repertoire, are required in order for strategies to be effective (Eisenberg et al., 2005). Meltzer (2010) in his descriptions of how teachers might help their students improve their executive functioning gives specific examples of how to modify the approach to accommodate specific behavioural presentations or problem areas. All approaches however include a discussion with all students about how to address tasks and how to reflect on their personal experience and talk about it. This avoids stigmatising any individual student, makes the use of an efficient short-hand in the use of verbal or nonverbal cues in a busy classroom, and allows for peer support.

Behavioural concerns increase the child’s risk of poor academic achievement, substance use, mental illness, and adult anti-social behaviour (Centre for
Community Child Health, 2007). A number of programs that focus on strengthening social and emotional skill development have demonstrated the potential to improve social competence in children (e.g. The Aussie Optimism Program (Roberts, 2006) and The Friends for Life Program (Farrell & Barrett, 2007)). “Making Choices: Social Problem Solving Skills for Children” (MC) (Fraser, et al, 2005) is an intervention, based on the social information processing literature, aimed at improving children’s social, emotional, and cognitive skills associated with the development of social competence and adjustment. The program aims to decrease peer rejection, increase positive social contact with peers, and disrupt the developmental trajectories to problem behaviours and later maladjustment.

Fraser et al. (2005) found that children in the MC group demonstrated significantly improved social competence compared to a control group. They displayed significantly less aggression and improved concentration. Findings also suggest that the children who received the MC intervention showed significantly more skill in encoding social cues and prosocial behaviours. Programs such as these demonstrates that while early life experiences play a crucial role in the shaping of children’s social information processing patterns and self-regulation skills, interventions aimed at strengthening social understanding and decision making abilities can significantly improve social behaviour and therefore influence later adjustment.

Due to the influence of family systems on the behavioural outcomes of children, it is imperative that interventions also target these relationships when appropriate to ensure that the family as a whole is receiving effective treatment including the targeting of substance abuse, poor parenting practises as well as individual therapies (Miller et al., 2004). Teachers may be aware of these family dynamics but rather then address themselves they may serve as an important conduit to school counsellors and therefore community-based services. Furthermore, ensuring parents and teachers share an understanding of the difficulties facing the child makes it more likely that strategies will be consistently applied. Given that the brain continues to mature and develop well into adolescence and adulthood and that secondary social and emotional problems can arise if learning difficulties are not addressed, early attention to deficits in executive functioning is imperative (Miller et al., 2004).

Children’s executive functioning is increasingly being seen as a vital component in the prevention of school failure and a number of psychopathologies including depression, anxiety, and aggressive behaviour. Due to its overwhelming importance, further understanding of the factors which influence the development
of social competence and its role in school success is urgently required (Spinrad et al., 2006). Interventions which aim to improve selective encoding and increase a child’s repertoire of social-emotional skills will inevitably promote the development of positive social development and sever the developmental pathways leading to problem behaviours (Fraser, et al, 2005). Teachers by virtue of their knowledge of child development, age-appropriate teaching methods, the demands of the classroom, and the time they spend with children in various settings at school are perfectly placed to intervene early (Meltzer, 2010). Links to university programs that can provide specialised assessments in collaboration with DET Support Services may be part of the solution to the current shortage in executive functioning assessment resources.

Reference List


Chapter 6: 21st Century Schools: Enhancing Students’ Mental Health and Well-Being

Cecily Knight and Bruce Allen Knight

This chapter begins with a description of inclusion and the demands made on teachers to cater for a wide range of abilities and student behaviour in modern classrooms. A discussion follows on mental health with a focus on enhancing students’ well-being, with the construct of resilience used to promote positive qualities and highlight protective factors that enhance well-being. Finally, the Health Promoting Schools framework outlines the importance of schools in establishing a healthy environment that is conducive to learning.

Introduction

With the world-wide adoption of the philosophy of inclusion for the education of all students, a shift in thinking has occurred which sees schools as meeting a broad range of educational and social needs in regular classrooms, as opposed to segregated specialist expertise outside of the classroom.

A regular inclusive classroom of 25 students typically contains a heterogeneous group of students and abilities. Firstly, these students will have a wide range of ability, with 5 talented students who complete all work activities with ease, 15 “average” students who usually complete all tasks with minimum assistance, 4 students with learning difficulties who struggle with all tasks and need constant teacher assistance and 1 student who has been ascertained and requires the assistance of a teacher aide to complete all activities. Secondly, by extrapolating reported estimates of reported psychological problems (Finney, 2009), 5 students may be hyperactive, 3 students may be very anxious, 1 student may be clinically depressed requiring medication and 3 students exhibit behaviour problems such as non-conformity and aggressive behaviour towards teachers and their peers. Finally, 3 students come from homes where English is a second language and ten are from single parent homes. Welcome to the challenges of the 21st century classroom.

Inclusive education in Australia is broadly defined to support diversity amongst all learners. Ainscow (2005) outlines that the emphasis is on learners who are at risk of marginalization, exclusion or underachievement. The discourse of inclusion
extends to incorporate many different groups, including students with difficulties in learning, students with disabilities, and generally students who are disadvantaged in that they cannot access the curriculum effectively. The focus of this chapter is on enhancing the well-being of students with emotional and behavioural problems who have historically experienced poor school outcomes when compared to other students.

“Teachers need to be flexible to cater for the diversity of learners’ needs through such things as appropriate programs, explicit pedagogy, classroom organization, resources and other adaptations that are necessary, all requiring significant changes to previous thinking and practice” (Knight, 2009, p. 872). As such, this is a shift from viewing student performance as a result of a deficit to one where the emphasis is on removal of barriers to ensure students fulfil their learning potential.

Inclusion therefore signifies the importance of the collaboration of teachers with other professionals and specialists to remove barriers to student learning. This not only means meeting students’ academic needs, but also linking services to other significant social contexts through working with specialists who assist schools and their communities to establish an environment that is safe and where basic needs of the students can be met.

The implementation of a philosophy of inclusion has created a tension for teachers between meeting the needs of all learners on the one hand and that of academic performance benchmarks and standards assessed through national testing on the other (Baginsky, 2004, Knight & Galletly, submitted). Such a culture creates increased demands on teachers with their role expectations increased and intensified in the areas of instruction where they are directly working with a wide range of abilities of students; collaborating with parents, specialist teachers, and administrative staff; and ensuring student learning of new knowledge and skills. A dilemma of inclusion can be that at the same time as these demands for demonstrating achievement, there is less focus on learning and removing barriers to student learning. In essence, there is less time to devote to a pastoral care role of enhancing students’ personal and social development which can’t be measured but is essential for overcoming barriers and achieving learning outcomes (Calvert, 2009). This role acknowledges the influence of the emotions and the need for emotional and psychological well-being to support learning and perhaps ironically, improve test results (Algozzine, Putnam, & Horner, 2010).

Researchers have documented a relationship between academic and behaviour problems and between antisocial behaviour and achievement problems (Algozzine et al., 2010). The Melbourne Declaration on Educational Goals (2008) illustrates
the importance of psychological well-being and maintaining healthy satisfying lives by outlining in Goal 3 that students should be confident and creative by developing personal attributes and resilience to manage their emotional and mental wellbeing.

Mental health

It is estimated that 20 per cent of British children and adolescents experience mental health difficulties (The Mental Health Foundation, 1999; Atkinson and Hornby, 2002). One in four U.S. children and adolescents experience mental health problems, with similar prevalence rates estimated for the preschool population (Egger & Angold, 2006). It has been reported that up to a quarter of Australian students have mental health problems before the age of 18 and before leaving compulsory formal education (Sawyer, Arney, Baghurst, Clark, Graetz, Kosky, Nurcombe, Patton, Prior, Raphael, Rey, Whaites & Zubrick, 2000). Disobedience, misconduct and other serious misbehaviour problems lead to suspension from schools and in some cases exclusion. In 2009 Education Queensland, for example, recorded that 11% of the total number of students enrolled in state schools were suspended for periods of 1-5 days, 1.4% were suspended for 6-20 days, while 0.2% were excluded (Education Queensland, Disciplinary Absences, 2009). Whichever way you look at it, all students in our classrooms today will benefit from a whole school focus on well-being.

For this chapter, the authors advocate the use of a capability approach (Sen, 1992) as a framework to describe well-being. This approach focuses on an individual’s capability, rather than current functioning, to achieve outcomes and thus acknowledges the diversity of all learners. Deprivation of capabilities can be by school policies, lack of resources etc which act as barriers to learning. Our focus is on enhancing student capability (practical opportunities) to achieve. This capability approach sits within a Health Promoting Schools framework.

The term ‘mental health’ is a general term used to refer to notions of mental well-being, mental health problems and mental disorders (Clare & Maitland, 2004). ‘Psychological problems’ refers to a range of states or conditions such as anxiety, depression, defiance, aggression, eating disorders, sleeping disorders and post-traumatic syndromes (Mental Health Foundation, 1999). This varied range of psychological problems suggests that all teachers will at some stage have contact with students whose experiences can result in a wide range of inappropriate behaviour that affects their learning (Fox & Avramidis, 2003).
The UK Department for Education and Employment (1994) suggests that indicators of such problems can include consistent behaviour which is age-inappropriate; socially inappropriate or unusual; behaviour which interferes with the learning of the pupil or their peers; signs of emotional turbulence such as withdrawal from social situations; and difficulties in forming and maintaining relationships. It must be emphasised however, that at some point all children may demonstrate emotional, social and behavioural difficulties during the normal experiences of childhood.

The definition of mentally healthy children and young people used in this paper is based on that of the Mental Health Foundation, namely children and young people who have the ability to (a) develop psychologically emotionally, creatively, intellectually and spiritually; (b) initiate, develop and sustain mutually satisfying personal relationships; (c) use and enjoy solitude; (d) become aware of others and empathise with them; (e) play and learn; (f) develop a sense of right and wrong; and (g) resolve problems and setbacks and learn from them (Mental Health Foundation, 1999, p. 6). In contrast to an ‘illness’ model, this definition has a focus on well-being and developing social and emotional skills.

**Resilience**

There has been a developing awareness of the importance of students’ social and emotional skills in the last 2 decades (Wigelsworth, Humphrey, Kalambouka & Lendrum, 2010). The discourse is wide-ranging with vocabulary used including social and emotional intelligence, emotional literacy and social and emotional competence (Wigelsworth et al, 2010). Denham (2005) puts forward a functional framework to encompass the various components of social and emotional competence with a classification of skills into emotional competence (self-awareness of emotions, self-management, and social awareness) and relational/pro-skills (social problem-solving using listening and co-operation; and relationship skills of seeking help and turn-taking).

In keeping with an emphasis on early intervention and positive qualities (not deficits and problems) we now describe the construct of resilience to highlight protective factors that enhance students’ well-being.

Benard (2004, p. 198) suggests resilience is the “self-righting capacity for healthy growth and development” while Knight (2007, p.67) adds that resilience is “an important life-skill that enhances emotional and social wellbeing and enables people to cope with life”. In support, Davydov, Stewart, Ritchie & Chaudieu (2010) propose that resilience be viewed as a protection mechanism that enables
people to thrive in the face of adversity. Protection factors may be enabled to enhance well-being and encourage students to cope, and in the process build a ‘mental immunity’ (Collishaw, Pickles, Messer, Rutter, Shearer & Maughan, 2007; Jin, Tang, Ma, Lv, Bai & Zhang, 2009). This resilience model aligns to the World Health Organization's conceptualization of mental health as a positive state of psychological well-being going beyond the absence of disease (World Health Organization, 2005). In a practical sense, immunity suggests that resilience strategies can be used to guard an individual's mental health depending on the events and context. Therefore, developing a wellness program in schools is akin to developing a vaccine to protect the mental health of students by promoting emotional health and well-being.

The role of schools and teachers in supporting students’ mental health

As has been stated earlier, behaviours are not always indicative of a significant psychological or medical problem. Cooper, Smith & Upton (1994) report that there has been a shift from analysing emotional and behavioural difficulties as problems located within an individual (a deficit model) to a context-based approach based on an ecological model where behaviour is seen as a response to particular circumstances in a range of contexts. Therefore there is a need to acknowledge the multifaceted connections between community, family and school environments and the role that each of these contexts plays in creating and improving students’ social, emotional and behavioural problems (Weare, 2000).

“If students enter school with behaviour problems that interfere with their ability to learn, they may become ‘academic casualties’ without help for their behaviour or academic skills” (Algozzine, et al., 2010, p. 223). Teachers are experts in designing learning but lack knowledge and do not have specialist training in mental health. However, because of their close working relationship with students on a continual basis, teachers have an important role to play in terms of recognising problem behaviours and providing positive early intervention. It has been reported that teachers are able to recognise the existence of student behavioural and emotional problems (Loades & Mastroyannopoulou, 2010). Teachers are often consulted by parents who are concerned about their children in terms of behaviour or development (Shanley, Reid, & Evans, 2007). Parents also frequently seek help from teachers before approaching other agencies for guidance (Knight, Knight, & Teghe, 2007). Young people are also more likely to seek help for themselves from teachers (Murray, 2005) and peers (Waite, Jones, Knight, Clifton, Parson, Clift, & Faux, 2004) positioning schools as significant places to address mental health issues. It can be argued therefore that schools have a critical role to play in the
establishment of an environment that is beneficial for students’ well-being and hence conducive to learning. The New Zealand Ministry of Education (2007) for example, promotes the development of self-worth to have students actively involved and connected so that their experiences at school increase the likelihood of achievement.

Schools consequently need resources to tackle social and emotional issues that act as barriers to learning, thus enhancing healthy development – what Adelman & Taylor (1999) identify as the ‘enabling component’. Traditional models of mental health promotion have focussed on intervention for at-risk individuals or groups designed to “fix” the problem. Mental health promotion theory and practice has a preventative focus and is more about being proactive and creating a healthy environment for students.

Hornby & Atkinson (2003) advocate that an enabling approach is developed through a mental health promotion framework that consists of four elements. Firstly, the development of a school ethos which promotes a wellness culture and a safe learning environment that values diversity needs to be established. Secondly, school policies need to be developed and supported by staff, students, parents and the school community. Aspects covered should include pastoral care, behaviour management, bullying and home-school liaison. Next, procedures are needed to implement policies for wellness and include strategies for early intervention, social skills programs, development of counselling skills and liaison with external community agencies. Finally, there needs to be a fair and consistent application of behaviour and other policies of personal development and skills-based programs to promote mental health in schools.

The Health Promoting Schools Framework (World Health Organisation, 1999) is also an enabling approach based on a holistic view of health. It generally has three components: a formal curriculum undertaken by the whole school; the ‘hidden’ curriculum that involves school ethos and supportive environments; and the development of partnerships with families and the local community. The underlying philosophy is one of empowerment and support. The programs reflect the capability approach where all students are encouraged to develop the knowledge, skills and attitudes to deal with the changes in their lives in a mentally healthy way. The model uses interconnecting domains of curriculum teaching and learning, school ethos and environment and partnerships and services (Figure 1). The interaction of the domains creates the health promoting school environment.

A Health Promoting School framework makes changes in the school environment, school policies and practices. In order for teachers to effectively implement the
framework, they need to: possess relevant knowledge of the issues; reflect on their own attitudes about mental health promotion; and develop the skills required to recognise and respond to risk factors. Teachers also need to develop networks of support. This means fostering partnerships with parents, health professionals such as psychologists and counsellors, and other community services. In Australia, the ‘Mind Matters’ program uses this framework.

Figure 1: The Health Promoting Schools Framework (Sheehan, Marshall, Cahill, Rowling, & Holdsworth, 2000, p. 14)

The Health Promoting Schools concept has been adopted in a number of countries including Australia and its impact researched. Stewart-Brown (2006, p.16) reported that school-based programs that promote mental health were amongst the most effective and noted that

Arguably, the most important finding of this synthesis is that school-based programmes that promote mental health are effective, particularly if developed and implemented using approaches common to the health promoting schools approach: involvement of the whole school, changes to the school psychosocial environment, personal skill development, involvement of parents and the wider community, and implementation over a long period of time. Moderate to large effects were reported in reviews that undertook quantitative analyses.

The Australian Health Promoting Schools Association now has branches in every Australian state and territory and schools have increasingly become the focus of strategies and interventions designed to promote resilience, mental health and well-being (Mukherjee, Stokes & Holdsworth, 2006).

As the classroom environment is co-constructed by teachers and students (Nuthall, 2007), teachers must be aware of how their teaching styles and relationships with
their students impact on students’ well-being. McGee and Fraser (2008), stress that efforts to promote students' self-worth must be embedded within the culture of the school. Students have reported that teacher qualities of trust, fairness and consistency are a critical part of the student-teacher relationship and essential to the development of self-worth and belongingness in the classroom (Cushman & Cowan, 2010; Van Maele & Van Houtte, 2009).

Within a Health Promoting Schools framework, teachers would implement strategies in their classrooms to promote mental health and enhance student well-being as part of the curriculum focus. Examples of these strategies can be found in Australian programs such as MindMatters (2000) and Bounce Back (McGrath & Noble, 2003).

In general, teacher strategies that recognise individual student's individuality on an emotional, social and academic basis have been reported by teachers as enhancing a connection with their students (McGee & Fraser, 2008; Cushman & Cowan, 2010). Other strategies suggested that fit a capability approach include those based on a cognitive-behavioural model and ecological model. For example, a cognitive-behavioural model recognises students’ ability to form mental images, with the assumption that thought patterns can be modified through such techniques as self-monitoring, adult and peer modelling of self-instruction and skills in conflict resolution. Strategies based on an ecological model assume that socio-structural factors are more influential than individual factors in determining behaviour, with the outcome that behaviour is shaped and given meaning as a result of the interface between the individual and the system.

**Conclusion**

Implementation of the philosophy of inclusion of all students into education systems has seen a movement toward schools meeting a broad range of educational and social needs in regular schools and classrooms. A shift has occurred from analysing poor student performance as a result of a deficit to one where the emphasis is on elimination of barriers to ensure students fulfil their learning potential.

Estimates of up to 30% of students experience mental health difficulties, suggesting that all students in our classrooms today will benefit from a whole school focus on well-being. It has been argued that schools have a critical role to play in the establishment of an environment that is beneficial for students’ well-being and hence conducive to learning.
As outlined in the chapter, the Health Promoting Schools Framework (World Health Organisation, 1999) is a useful support based on a holistic view of health that can be used by schools to promote student well-being. The underlying philosophy of empowerment and support is provided to develop students’ knowledge, skills and attitudes to deal with the changes in their lives in a mentally healthy way.

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Chapter 7: Developing Personal and Professional Competencies and Skills

Michael Davies

Classrooms today are inclusive with students having a diverse range of needs that impact on learning. Teachers need to become skilled learning specialists to effectively help such learners by empathically and authentically engaging with all learners to understand them and their learning needs, and then to provide appropriate learning support. The personal and professional skills required are well documented across published lists. However, teacher preparation provides little opportunity for skill development, except for practice teaching experiences. Skills need to be developed from a theoretical framework driving a systematic development of skills, with an opportunity for accurate feedback and self-reflection. In this chapter, pre-service teachers are informed of the theoretical frameworks for the development of such personal skills and competencies, some self-evaluation tools for self-reflection, an overview of the interpersonal skills needed, and some strategies for further development of such skills.

Introduction

The classroom culture of today is inclusive with teachers required to work with students with a diverse range of academic, social, and emotional needs that impact on learning. This culture requires teachers to become skilled learning specialists to be able to effectively help learners with such diverse needs. It is critical that teachers develop the capacity to empathically and authentically engage with all learners to understand them and their needs, and to be able to help provide appropriate learning experiences through the application of differentiated instructive strategies. Engagement at this level will empower learners to become self-reflective, self-understanding, and self-determining, with the capacity to solve their own problems. Engagement at this level will provide a firm foundation for the understanding and the development of effective teacher-student relationships. Engaged learners are less likely to display behaviours that are inappropriate, but if they do, engaging with these learners at their level will inform appropriate management of these behaviours in a positive supportive manner. The school culture of today also requires teachers to work collaboratively to meet the needs of all students. Collaboration with other teachers, teacher aides, other professionals and parents of learners is a central and essential aspect of the process to determine
the most effective learning plans and strategies to meet the diverse needs of all students. The capacities to effectively engage with learners and with other stakeholders are based on a set of personal skills and competencies.

**Personal skills and competencies**

The personal and professional skills of effective teachers are recognised across academic (university graduate attributes), professional (teacher registration), employment (teacher competency criteria), and scientific (research and evidence-based) perspectives through published listings. An analysis across these lists identifies similarity in the skills listed, indicating the importance of these personal and professional skills. These interpersonal and intrapersonal skills are critical for teachers to build social competencies in the classroom and to prevent difficult social difficulties (Perry, Ball, & Stacey, 2004) and social skill deficits (Kettler, Elliott, Davies, & Griffin, in review) from interfering with student learning. Teacher graduates will also need the skills to contribute to sustainable improvement and capacity building in education and to address the major socio-emotional challenges to learning effectiveness in the school system (Antidote, 2003; Elias, Arnold, & Hussey, 2003; Greenberg et al., 2003).

Coping with the broad range of teaching roles, tasks, and responsibilities requires a wide range of interpersonal skills and competencies and self-managing skills to organise and regulate performance of these teaching activities. A comprehensive list of competencies for Australian teachers has been constructed from five years of work with 4,000 teachers (Hughes, Abbott-Campbell, & Williamson, 2001). Teachers ranked the importance of these competencies within school and classroom domains (see the right hand column of Table 1 in the Appendix). The most highly rated competencies were those relating to specific personal and practitioner skills. Moreover, many graduating teachers identify specific behaviour management and other personal skill deficits among many competencies that were not properly developed through their university teacher education programs. The professional teaching authority, the Queensland College of Teachers (QCT) in 2009 identified the same set of deficits. Table 1 (in the Appendix) provides an indication of how attributes and standards reflect interpersonal skills across these different perspectives in one state in Australia. Many attributes are consistently listed across the four columns, from the professional teaching authority QCT, the employing authority Education Queensland, and graduate attributes from Griffith University, and those identified by Hughes et al. (2001).
While these types of aspirational lists articulate a converging desire for teachers to develop such personal skills, there is little evidence of targeting these skills in current teacher education programs (Davies & Bryer, 2004a). These personal skills and competencies are necessary to be able to convert theory and pedagogical knowledge into practice. Across the majority of teacher preparation programs, coursework may contain little direct instruction or behavioural modeling of specific skills. The opportunity to practice and to develop such personal skills is usually limited to skill practicing when undergoing professional practice experience in schools. Even in these settings there may be limited opportunity for development of skills, since this outcome depends on the instructional style of the supervising teacher. Some teachers will instruct using a modelling approach using a *tell* (describing the skill), *show* (demonstrate), and *do* (now you do it) training regime. However, if this training is conducted without theoretical input driving a systematic development of skills, and without accurate feedback and opportunity for self-reflection, development is likely to be slow and difficult. This chapter will provide the theoretical frameworks to structure the development of such personal skills and competencies, some self-evaluation tools for self-reflection and self-evaluation, an overview of the skill sets that are needed, and some strategies for further development of such skills.

**Emotional competencies and emotional intelligence in teacher education**

The broad notion of emotional intelligence (EI) provides an attractive model for scientifically conceptualizing and providing an overarching structure to help teacher professionals to build interpersonal and intrapersonal skills to help them to better manage complex relationships and complex teaching and learning situations they will face in contemporary settings.

The construct of emotional intelligence has attracted considerable interest in business practice and educational reform. The way in which the construct was formulated has left an ongoing discussion about the nature of the construct as a separate form of intellectual ability, as a part of personality processes, or as a mixture that offers more than a convenient framework for describing human dispositions (Goleman, 1995). A widely acceptable definition of emotional intelligence is that it is "the ability to monitor one's own and others' emotions, to discriminate among them and to use the information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189).

Emotional intelligence involves the ability to perceive accurately, appraise and express emotion; the ability to access and/or generate feelings when they facilitate
thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth (Mayer & Salovey, 1997). Diverse theories and definitions of EI and different constructs exist. An early definition of emotional intelligence characterised it as being any desirable feature of personal character that is not cognitive intelligence (Goleman, 1995). Moreover, assumptions about teaching and learning have been implanted in the construct disseminated in business and education. Goleman (1998) defined an “emotional competence” as a “learned capability based on emotional intelligence that results in outstanding performance at work” (p. 24).

It is possible to classify EI theories into two basic types: EI as a mental ability and as “mixed models” that comprise a mix of cognitive abilities and aspects of personality and motivation that facilitate application of abilities for handling emotion in real-world settings (Mayer, Salovey, & Caruso, 2000). Mayer and Salovey (1997) provided an ability model and argued that, as a form of intelligence, EI should be measured by scales that are objective and performance-based. Mayer, Salovey, and Caruso (2004) promoted the use of the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) to measure a person's emotional skills.

In updating his model to provide the framework for the Emotional Competence Inventory (ECI), Goleman (2001) proposed that the competencies associated with emotional intelligence relate to the ability to recognise emotion, and regulate emotion in self and others. A definition that integrates the work of Goleman (1995, 1998) and Boyatzis (1982) is that “Emotional intelligence is observed when a person demonstrates the competencies that constitute self-awareness, self-management, social awareness, and social skills at appropriate times and ways in sufficient frequency to be effective in the situation.” Table 2 (in the Appendix) displays these competencies, as measured by the ECI, along with the emotional intelligence skills measured by the MSCEIT. The conceptual similarities in how emotional competencies are viewed across the four components of ability are illustrated.

Note: In this table, four branches of emotional intelligence, with four levels of development (Mayer & Salovey, 1997) are compared to four clusters of emotional competence (Boyatzis, 1982, 2009; Goleman, 1995, 1998).

While completing the MSCEIT and ECI can provide a useful measure of emotional intelligence and competence, these tests cannot be published in this chapter. To determine individual levels of emotional competence and EI, completing the self-reflective activity in Activity 2 will provide some information. Alternatively, there are some free EI based surveys that can be accessed on the
internet. One that was available at the time of publishing was the Free Emotional Intelligence Test.²⁸

Other Australian researchers, Chris Perry and Ian Ball from Deakin University, have developed a self-testing measure of interpersonal and intrapersonal competencies for Australian teachers. Perry, Ball, and Stacey (2004) reported on the development of the measure Reactions to Teaching Situations that indicates levels of emotional intelligence among beginning teachers. This measure was designed to specifically relate to the situations in the Australian teaching environment, where emotional intelligence was considered to influence a teacher’s thoughts and actions (Ball and Perry, 2010).

**Authentic communication competencies**

Many of the emotional intelligence components identified are based on specific personal skills that teachers require for teaching others as well as developing collaborative relationships. In this new era of inclusive practice, teachers need to develop the social-emotional competencies identified in these measures to collaborate effectively with parents and other professionals. As Elias, Zins, Graczyk, and Weissberg (2003) suggest, pre-service teacher preparation and in-service training needs to help teachers “develop the necessary attitudes and skills to carry out their responsibilities successfully” (p. 314). These competencies provide the foundation for effective teaching skills, by being able to develop rapport with students, to understand the main issues, and to help students and others to develop better skills to resolve their issues. Moreover, these competencies provide the essential foundations for teachers to collaborate with parents and other professionals. The development of these competencies begins with self-understanding and self-analysis of skills and attitudes and then requires consistent practice and self-reflection as the skills are practiced and applied. What attitudes and communication skills do teachers need to become authentic communicators?

**Value based attitudes**

To be most effective in the core business of teaching students and assisting students to learn, and to collaborate, teachers need to have particular attitudes based on humanistic values. These values are based on those from Person-Centred Therapy, initially developed by Carl Rogers (Rogers, 1961). To be effective in

²⁸ http://www.eqhelp.com/Free_Emotional_Intelligence_Test.htm
communicating with students and others, teachers need to cherish and demonstrate the following fundamental values:

**Positive regard** - to have a positive attitude toward others (learners, etc.), accepting them as they are, respecting their rights and their dignity, appreciating the variety of human experience and culture, and being non-judgemental towards them. This attitude encourages learners to explore thoughts and feelings, positive or negative, without rejection or condemnation, as long as they are within reasonable standards of behaviour and conduct.

**Empathy** - empathic understanding means that the teacher attempts to accurately understand the learner’s thoughts, feelings, and meanings from the learners own perspective. When the teacher begins to perceive what the world is like from the learner’s point of view, it demonstrates not only that their view has value, but also that the learner is being accepted. In terms of the learning process, empathic understanding helps the process of jointly scaffolding new knowledge with existing understanding and knowledge. Empathy is also critical in working effectively with parents and others.

**Authentic and genuine** - the teacher should not present an aloof professional or expert facade, but be present and transparent to the learner, assisting with learning and the process of learning, admitting when they don’t know, and sharing strategies for discovering. The teacher promotes the development of a collaborative and cooperative relationship with learners and others.

These value-based attitudes need to be carefully considered by pre-service teachers, and through a process of discussion and self-reflection, each individual person needs to determine how fully each of these attitudes can be accepted as principles for future action. Personal skills build on basic empathy and other values based attitudes, and then require the development of basic communication skills that are appropriately applied in practice.

**Basic communication skills**

The skills outlined in this section seem very basic since they have been used by all of us as part of our communication repertoire for some time. However, while they seem obvious, these skills are often neglected when we are trying to understand the issues facing learners and then determining how to assist learners, and in collaborating with parents and others.

**Open questions**
There are broadly two types of questions—open and closed questions. Closed questions lead to specific answers that are usually short in length. For instance, the closed question “Did you read the chapter in the book I recommended?” is more likely to be answered “Yes” or “No”, or “I didn’t have time”. Closed questions are useful for gaining specific answers, but they restrict information based on the personal perspective, agenda and judgments of the questioner and promote a narrow inquiry regime. These skills also constrain and limit answers if the answerer believes they need to respect the agenda of the inquirer. Closed questions control an interpersonal interaction, and if a large number of closed questions are asked, the interaction can quickly develop into a power-based and restrictive question-answer pattern.

However, if the open question “What did you think of the ideas presented in the chapter?” is asked, the respondent is given a great deal of scope to explore any information of relevance to them. This style of question gives respect to the respondent, since it implies that the answer is of value to the inquirer. If a series of open questions are asked, it encourages and empowers the respondent, and if this pattern becomes the norm, the respondent is afforded status and prestige in the relationship between parties.

If good and open inquiry questions are asked of learners (or parents/others) then teachers can understand much more about them and their issues. Good questions can:

- Encourage the learner/other to share concerns
- Help the learner/other to clarify the problem or concern and to organize the material
- Help the learner/other to focus on a particular aspect of the problem
- Help the learner/other explore the problem in greater depth
- Help the learner/other to provide concrete specifics or examples of the situation
- Discourage unprofitable rambling and to help the learner/other to focus
- Encourage the sharing of factual or emotion-based information
- Help the learner/other to identify cause and effect relationships
- Help the learner/other to identify problem solving options

Good questioning needs to avoid “Why” questions, since these questions have associations with judging and threatening others and can cause a defensive reaction. To avoid the use of why, note the range of questions outlined later in this chapter under Socratic questions. It is also important to avoid multiple questions,
and changing your mind during the asking of a question, since this can confuse. Take time, choose one question, ask it, and then stop talking to wait for a response.

**Listening and inquiry skills**

Good teaching and effective helping of students who need some assistance relies on effective listening. Only through effective listening can you understand the learners or the parent/others perspective, and ascertain what is happening and then how you can help them change to get back on track with their learning/resolving issues (Kottler & Kottler, 2007).

- Get rid of distractions.
- Talk less so you can listen more.
- Listen for key ideas, and remember them.
- Ask questions for clarification- “tell me more about…”
- Paraphrase regularly. Paraphrases are short responses that provide the essence of what the speaker had just said, often using the speakers’ key words and constructs.
- Summarise lengthy or complex discussions by using key concepts at transition times to a new topic, and at the end of discussions.

Most of us possess one or more poor listening habits, and below is a selection of the most common ones.

1. **Having too much to say yourself**

   'Hogging the stage' is usually a sign of poor listening. So say less and listen more - you will learn more. Even for teachers, listening more to students will pay dividends.

2. **Too much interrupting of others**

   Interrupting others too often is usually a sign of poor listening. While others need to be interrupted sometimes, be very selective in its use.

3. **Just pretending to listen**

   When our heads are elsewhere we often "pseudo-listen". This behaviour indicates a lack of respect, does not facilitate communication, or relationship development. If something else demands our attention, put it on hold or
excuse yourself from the interaction, promising to come straight back into the discussion after the issue is dealt with.

4. Only listening to part of the message

People frequently do this one. **Selective** listening can cause us to miss the part of the message the other person believes is most important, and can impact the effectiveness of the communication and the relationship.

5. Getting locked in to prior messages the other person (or someone like them) has sent. What if the message they are sending this time is not the same as in the past. We miss out if we think they are saying only what they have said before.

6. Defensive listening

Listening only for parts of the message you can use to "bash" the other person with is one kind of defensive listening. Another is listening for parts of the message that you want to avoid. It is best to change these bad listening habits.

7. Insecure listening

Listening only for surface messages and not trying "to read between the lines" to find some meanings which were only being hinted at rather than being openly communicated.

**Structuring a helping session**

Sessions with students, parents, and other professionals need to be properly structured for them to be most effective. Many inexperienced helpers struggle with how to direct the helping session. While it is most effective that the other person is given control of the **content** of the session, the helper is in charge of the **process** to achieve appropriate outcomes. The most widely used interview structure that can be used by helpers to guide other people to help themselves is the five-stage process developed by Ivey, Ivey, and Zalaquett (2010). This process involves

1. **Establishing rapport and structuring the session** (agreed purpose, time, roles, responsibilities, etc.) to build a cooperative working alliance, and to enable the other person to feel comfortable.

2. **Gathering information, defining the issue/problem, identifying positives and assets**- to understand the other person and their story, how they see the
issue/problem, and explore the essential components of the issue/problem that need to be discussed.

3. **Determining outcomes** - Sets the goal, direction and what the other person wants. “What do you want to happen/be different?” “How would things be like if the issue was resolved?” This stage is often conducted before stage 2.

4. **Exploring alternatives** - generate alternative solutions with the other person driving their perspective and decide among them.

5. **Generalising and moving to action** - contracting to make changes in thoughts, feelings and behaviours, and helping the other person to put these changes in place.

**Change-oriented skills**

While many helpers move toward skills of influence to promote change, the most effective change for people involves the individual self-reviewing and challenging themselves to change. The use of subtle skills is required to promote self-review, such as noticing inconsistency in the other person and just asking “What is happening here?” and “How might you need to change?”, “How might you put that into place?” rather than direct confrontation or challenge that may put others down, and then cause resistance and reluctance.

**Positive solution finding skills and strategies**

A most popular approach that is consistent with more contemporary initiatives in behaviour management and assisting learning relies on the notion of finding solutions (rather than finding and focusing on problems, and then after exploration, the problem-solution). De Jong and Berg (2002) provide a basic overview of solution-focused approaches, while application for teachers in schools is provided by Metcalf (1995).

The approach is based on the principles that “Once you know what works, do more of it!” and “If it doesn't work, don't do it again, do something different!”

The approach initially focuses on finding exceptions to the problem, that is what is happening when the problem is not there, and then exploring all of the variables that might be adding to this solution scenario. Many teachers find that scaling is very useful as a means of monitoring how the student or other is dealing with an issue. The student (or others) can be asked “On a scale of 1-10, with 1 the worst...
that the issue or problem could be, and 10 the best that it could be, what rating
would you give the issue right now?” “How come it is on a __? How are you
making this happen?” “What are you doing to be doing so well?” These questions
are followed up with “What would be happening if the issue was two numbers up
the scale?” “How might you achieve this number in the next __ week/s?” As the
teacher interacts with the student in a few days following this conversation,
progress can be quickly monitored by asking “What number are you today?” If the
number is less, the offer of a quick chat to discuss how to get back on track is
made.

Strategies for developing skills

Teacher education programs focus directly on very few skills and competencies
and graduating teachers and employing authorities identify deficits in a range of
specific behaviour management and personal communication skills. When specific
skills are taught, strategies mostly relied on either direct instruction or behaviour
modelling. The application of strategies in practice settings, either between pre-
service teachers in workshops, or in practice teaching settings in real-life
classrooms can assist in the development of personal and EI competencies. Open,
honest, and constructive feedback from peers and from supervising teachers and
academics can help to shape and improve such skills. Such training opportunities
can be maximized through the application of reflective processes that can be even
more effective if the session is recorded, since review of such recordings can
provide deeper levels of reflection.

Reflective processes

While self-reflection has been found to be beneficial for learners, a common
teaching strategy that fosters more critical thinking to inform practice is the use of
thoughtful and strategic questions to stimulate deeper levels of reflection. Griffith
and Frieden (2000) suggest that the questioning approaches of interpersonal
process recall (IPR), journal writing, and Socratic questioning promote deeper
levels of understanding. Each of these approaches will now be explored.

Interpersonal process recall (IPR)

IPR stimulates student reflection and empowers students to understand and act
upon covert perceptions. IPR is a specific application of video assisted recall
originally devised as a counselling supervision strategy by Kagan (1980). Interpersonal
process recall (IPR) involves the careful questioning of individuals as they view DVD or video recordings of their interactive performance. The use of
IPR helps students to bring to the surface an awareness of their internal processes, such as thoughts, feelings, goals, impressions, and internal dialogues that were involved in specific moments of the interaction recorded as part of the skill learning session. Davies and Bryer (2004b) reported that IPR sessions produced sustainable positive results in the training of teachers in specific interpersonal skills.

When reviewing recordings of interpersonal situations using IPR, the recording is stopped at critical moments that need to be processed so as to better understand the thinking and reaction of the student teacher/recaller. When this happens, the inquirer focuses the recaller to explore the full range of their consciousness with a range of questions. Typical questions and examples of IPR dialogue can be found in Rennie (2000), but the following are typical questions that can stimulate deeper levels of reflection on thoughts at that particular moment:

1. What were you thinking at the time?
2. What caused you to ask/say that?
3. Were there any pictures, images, or memories flashing through your mind then?
4. What did you really want to say to the other person at that moment?
5. What prevented you from doing so?
6. How focused were you on trying to understand the other person?
7. How effective were you in managing the tension between listening to the other person and forming your next question or response?
8. Any other thoughts here?

The following questions are examples of some other questions that can be readily asked to help examination of emotions at that particular moment, the level of emotion and description of the feeling, and the intent of the response:

1. What were you feeling?
2. How did that make you feel?
3. How strongly were you feeling that?
4. Were there any physical sensations that you experienced then?
5. What stopped you from ……?
6. Any other feelings you were experiencing here?
Interrogation using questions such as these can provide a solid foundation to self-understanding. Personal growth and change, however, is more likely when the recaller is then asked “solution focused” kinds of questions (De Jong & Berg, 2002).

1. What would you want to say, do, or think next time?
2. What would you need to do to do something different next time?
3. How can you ensure that this happens?
4. What caused you to deal with that situation so effectively?
5. How can you make sure that you do more of that next time?

This DVD/video based strategy has application in the development of skills in other professional practice skill development settings, such as recall of details of cognitive processes when conducting lessons, managing a difficult class, or teaching a difficult student. This strategy is built around the notion that selective perceptions of surface issues by a student teacher may block practice effectiveness more than any other variable (Bernard, 1989). Unaided recall cannot recapture what has been scarcely attended to, particularly if habitual defences protect the recaller from remembering, and if the experiences are not positive. The recaller may have knowledge of their own experiences but may not consciously examine or process them. Recallers are given the opportunity to bring to awareness the internal processes of covert thoughts and feelings. While recall aided by an inquirer is the ideal process, self-reflection with the aid of a list of questions can help to develop deeper levels of reflection and learning, and skill improvement. Use of a video assisted recall strategy enhances specific practicing of skills and competencies (Davies & Bryer, 2004b).

The use of DVD/video in pre-service and inservice teacher education has been increasing in recent decades (Brophy, 2004). Technologies for storing and showing video recording have proliferated. Formats include tape, laserdisc, CD Rom, DVD, and web streaming, and digital recordings can be made with small, inexpensive and readily available recording equipment. Its affordability is matched by its utility in enmeshing with a variety of theoretical orientations, including situated learning, case-based learning, and can help connect theory with practice (Brophy, 2004). DVD/Video recordings can convey the complexity and immediacy of teaching situations and other interactions with a richness that approximates direct observation, but allows the opportunity for micro-analysis of various aspects of the performance from a large range of perspectives.
Journal writing

When skill-based strategies are paired with reflective processes, the use of journal writing can encourage teacher education students to reflect on their assumptions and beliefs that impact on personal, classroom, and other experiences (Uline, Wilson, & Cordry, 2004). Reflective frameworks such as that provided by the 5Rs Framework (Bain, Ballantyne, Mills, & Lester, 2002) increase the potential for ongoing learning. Table 3 provides brief definitions of the five components (reporting, responding, relating, reasoning, and reconstructing). This framework can assist teacher education students to systematically record their experiences, focus on emotions and thoughts related to their use of skills, and explore future changes to their development of teaching skills and to apply them in practice (Martschinke, Waugh, Beamish, & Davies, 2004).

Table 3: Five R’s Framework (Bain, Ballantyne, Mills, & Lester, 2002, p. 13)

<table>
<thead>
<tr>
<th>Scale Component</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting</td>
<td>A descriptive account of a situation, incident, or issue</td>
</tr>
<tr>
<td>Responding</td>
<td>An emotional or personal response to the situation, incident, or issue</td>
</tr>
<tr>
<td>Relating</td>
<td>Drawing on relationship between current personal or theoretical understandings and the situation, incident, or issue</td>
</tr>
<tr>
<td>Reasoning</td>
<td>An exploration, interrogation or explanation of the situation, incident, or issue</td>
</tr>
<tr>
<td>Reconstructing</td>
<td>Drawing a conclusion and developing a future action plan based upon a reasoned understanding of the situation, incident, or issue</td>
</tr>
</tbody>
</table>

When reflecting on journal writing, student teachers need to consider how much of their reflections can be categorised within each of these five components. While reporting is a beginning point, deeper reflection and understanding will take place if the response can be characterized as responding, relating, and reasoning. For change to take place, reflection using reconstructing is what is required.

Socratic questioning

Socrates was one of the greatest educators who taught by asking questions and thus drawing out answers from his pupils. The six types of questions that Socrates asked his pupils are outlined below. These questions are consistent with solution-focused questions. The overall purpose of them is to challenge accuracy and
completeness of thinking in a way that acts to move people towards their ultimate goal. Note that “Why” questions have been avoided. Student teachers need to be asked these questions, or if there is no inquirer, they need to ask themselves.

**Conceptual clarification questions**

These questions challenge the student teacher to think more about what exactly they are asking or thinking about, and to explore the concepts behind their argument. These basic 'tell me more' questions encourage student teachers to explore at a deeper level.

- What exactly does this mean?
- What do we already know about this?
- How does this relate to what we have been talking about?
- What is the nature of ...?
- Can you give me an example?
- Are you saying ... or ... ?
- Can you rephrase that, please?

**Probing assumptions**

Probing of assumptions makes student teachers to think about the presuppositions and unquestioned beliefs on which they are founding their argument. This challenges the foundation of their thinking.

- What else could we assume?
- You seem to be assuming ...?
- How did you choose those assumptions?
- Please explain why/ how ...?
- How can you verify or disprove that assumption?
- What would happen if ...?
- Do you agree or disagree with ...?

**Probing rationale, reasons and evidence**

When student teachers give a rationale for their arguments, they need to review their reasoning.

- How come that is happening?
- How do you know this?
• Show me ... ?
• Can you give me an example of that?
• What do you think causes ... ?
• What is the nature of this?
• Are these reasons good enough?
• Would it stand up in court?
• How might it be refuted?
• How can I be sure of what you are saying?
• How come that is ... happening?
• How come? (keep asking it -- you'll never get past a few times)
• What evidence is there to support what you are saying?
• On what authority are you basing your argument?

**Questioning viewpoints and perspectives**

Most thinking and arguments are given from a particular position, and it is useful to explore alternative positions. The following questions can challenge student teachers and help them to appreciate that there are other, equally valid, viewpoints.

• Another way of looking at this is ..., does this seem reasonable?
• What alternative ways of looking at this are there?
• Tell me how come it is ... necessary?
• Who benefits from this?
• What is the difference between... and...?
• How is it better than ...?
• What are the strengths and weaknesses of...?
• How are ... and ... similar?
• What would ... say about it?
• What if you compared ... and ... ?
• How could you look another way at this?

**Probe implications and consequences**

The student teachers argument may have logical implications that could be reviewed. Do these make sense? Are they desirable?

• Then what would happen?
Teacher educators, therefore, need to use these strategies of IPR, journal writing and Socratic questioning to target the development of their intrapersonal and interpersonal skills before, during, and after the process of completing an undergraduate course of study. Strategies for this skill development are embedded in reflective practices, which engage students' varied learning styles, encourage critical thinking about assumptions that guide practice, and include opportunities for practice (King & Kitchener, 1994).

**Reflective teaching practice and video feedback**

“Dump and hope” models of learning and instruction have been widely rejected (Anderson, 2003). Wasserman (1994, cited in Brophy, 2004), showed the superiority of detailed analysis and discussion of video material over transmission of general principles, with the untested hope that learners will deduce appropriate applications to add to their knowledge base. Hence, the process in conducting this detailed analysis and discussion would seem to be important. Open ended, less-cued reviewing of video material have several advantages. This kind of reviewing is more likely to launch discussion of teachers' actual practice, it offers an immediacy not possible in narrative cases, and it conveys more of the social fabric and other contextual details of classroom practice (Clarke & Hollingworth, 2000).

Sherin (2004) reviewed the use of video feedback as part of teaching skills using microteaching. Specifically taught teaching skills were trialled by the student teacher, and the videorecording was analysed. The student teacher then restructured the use of the skill, retaught the specific lesson, and then reanalysed the video. This cycle continued until skill mastery was demonstrated. Microteaching with the use of video has become less popular with the move away from behaviourism to cognitive views of teaching. A teacher who reflects on and interrogates the cognitive processes being used when trying particular skills and
competencies, through the use of IPR, and supported by Socratic questioning and journal writing can improve cognitive and behavioural strategies.

Conclusion

Teacher education programs have concentrated on modelling of expert teaching and on understanding why it is that they do what they do. As technological capacities expand in our community, Sherin (2004) has projected that the use of DVD/video for instruction and evaluation in teacher education will also expand. Student teachers need to engage in new types of learning experiences to "break set" and to consider their own teaching practices and learning experiences in new ways (Putnam & Borko, 2000). Digital recordings allow teachers to be able to consider alternative options with more time to consider, to review alternate pedagogical strategies, to engage in fine grained analyses of classroom strategies, to document their teaching performances over time, and to use digital recordings on computer to share across the Internet (Sherin, 2004).

While this chapter has outlined the value-based attitudes, basic communication skills, and change oriented skills to be able to have personal impact on diverse learners and others, the strategies for developing these personal and interpersonal skills have also been outlined. It is incumbent on students and academic programs to concentrate more on the development of personal skills. The use of DVD/video recordings and IPR, Socratic questioning and journal writing will maximize the development of these critical personal and interpersonal skills for teacher education students.

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Chapter 8: Professional Knowledge, Pedagogy and Practice: Toolkits for achieving outcomes for learners

Angelina Ambrosetti

Achieving outcomes in learners is the focal point of every teacher’s work. Teaching frameworks and syllabus materials emphasize success in learning for our learners as key motivations for survival in an ever changing world. But what does ‘achieving outcomes for learners’ really mean and how does a teacher do this? This chapter focuses specifically on the toolkit twenty-first century teachers require to do their job effectively. The chapter deconstructs pedagogy, professional knowledge and teaching practice as it relates, in the Twenty-First Century, to Generation Z learners.

Introduction

There is a well known quote in education which summarizes the ‘job’ of a teacher and highlights the complexities of what teachers do. It goes like this…..

If a doctor, lawyer, or dentist had 40 people in his office at one time, all of whom had different needs, some of whom didn’t want to be there, and the doctor, lawyer or dentist, without assistance, had to treat them all with professional dedication and excellence for nine months, then he might have some conception of the classroom teacher’s job. (Quinn, D. D., 2003)

There is no doubt that the job of a teacher is complex and one that holds much responsibility. During the last twenty years, the role of the teacher has evolved and teaching in the twenty first century spells a new era in knowledge, technology, learners and learning. The role of a teacher has always been to achieve learning outcomes with their learners, however teachers in the past were seen as the ‘sage on the stage’ and learning outcomes were often about learning facts and specific skills that would be utilized in future employment. Teachers taught, but not all learners learnt in this teacher-centered approach. Times have changed and the twenty-first century teacher is required to “provide learning experiences which cater for all of our learners, challenge our learners, develop their skills and knowledge, and help them to become responsible citizens of the future” (Ambrosetti, 2011).
One of the most significant changes in teaching in the last decade has been the shift from a teacher-centered approach to a learner-centered approach. In a learner centered approach the teaching and learning begin with the learner as the focus. However, the learners in our classrooms today are different from the learners even just a decade ago. Learners today are digitally able, visually oriented and globally aware (Ambrosetti, 2007). We refer to these learners as Generation Z. Generation Zs are currently in our primary schools and will be soon moving into secondary schools. Although there is limited research about Gen Z learners, they communicate in ways different to prior generations, having created their own language and are socially well connected (Steinmetz, 2006; McCrindle, 2006). Generation Zs grow up with technology as a natural part of their world and have unprecedented access to information. Gen Z learners are inundated with media images and information that they must construct meaning from on a regular basis (Ambrosetti, 2010). The twenty-first century teacher is now required to cater for these learners.

Implications for teaching and learning in the twenty-first century

Teaching in the last century saw a ‘one size fits all model’. This era of education was ‘teacher-centred’ – the teacher was seen as the one who held all of the knowledge and their task was to pour knowledge into their learners like a jug of water filling a glass. However, Generation Z learners are faced with a rapidly changing world which requires a different type of teacher, as we now know that knowledge and facts are not all learners need in order to survive in the twenty-first century. Learners need transferable skills, creativity and a disposition towards lifelong learning.

The 2008 Melbourne Declaration on National Goals for Schooling in the Twenty-First Century outlined two goals about the types of schools we need as well as the types of young Australians our schools need to produce. The goals are:

**Goal 1** – Australian schooling promotes equity and excellence

**Goal 2** – All young Australians become:

- Successful learners
- Confident and creative individuals
Teachers, according to the Declaration, have an important role to play in the development of our young Australians. The teacher’s role has expanded past the adage of ‘filling up a learner with knowledge’ to a role that is more complex.

“Excellent teachers have the capacity to transform the lives of students and to inspire and nurture their development as learners, individuals and citizens. They provide an additional source of encouragement, advice and support for students outside the home, shaping teaching around the ways different students learn and nurturing the unique talents of every student” (MCEETYA, 2008, p.11).

The implication of the Melbourne Declaration for teachers is that the learning which occurs in classrooms must cater for all learners and develop skills which are transferable in the twenty-first century. The responsibility of meeting the goals, although shared with the broader school sector itself, remains solely in the hands of our teachers.

**The teacher in the twenty-first century**

As previously indicated, the role of the teacher has changed considerably over the last few decades. We have moved from a stand and deliver, chalk and talk era to a more constructivist approach where learning is designed so that learners are able to make meaning from what is being learnt and apply it to real life circumstances. This makes the twenty-first century a great era to be teaching in. There is more information available to us about how learners learn, and in turn how teachers should teach. Research which focuses on how learning occurs is widely available and evidence-based research about teaching for learning is abundant.

Hattie (2003) attributes the teacher as having the greatest effect on a learner. However not all teachers make a difference. Therefore, the age old question remains….what makes a difference in teaching and learning? McLeod and Reynolds (2007) describe quality teachers as knowing the learners, knowing the context for teaching and being aware of the values which underpin our teaching. Rowe (2004) concluded from a synthesis of research literature that the day to day interactions that occur between the teacher and the learners affect the learning that occurs in the classroom. Although the learners themselves influence learning in the classroom, Hattie (2009) reports that teachers who use specific teaching methods, have high expectations of their learners and create positive relationships with their learners will influence the achievement of learning outcomes.

In previous work, I have outlined attributes of the twenty-first century teacher. These attributes highlight essential professional characteristics and qualities that teachers need to do their job of achieving outcomes with learners. I believe a
teacher with these qualities will be one who makes a difference. Table 1 (in the Appendix) outlines the nine attributes. The nine attributes broadly identify key qualities and characteristics of the type of teacher required to achieve learning outcomes with learners. The attributes further demonstrate the complexity of what it means to be a teacher, as well as what the job of teaching entails. The attributes represent the knowing and the doing of teaching.

<table>
<thead>
<tr>
<th>Element of Teaching</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Knowledge</td>
<td>What</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>How</td>
</tr>
<tr>
<td>Practice</td>
<td>Why</td>
</tr>
</tbody>
</table>

Table 2 – Terminology definitions

Syllabi and curriculum documents only outline the content to be taught; therefore how we teach is determined by the teacher (ACARA, 2009). What this means is that teachers are responsible for how they teach the content to their learners and therefore achieve learning outcomes. Knowing how to teach requires specific knowledge, not just about the topic content, but also about teaching approaches, methods and strategies.

**Professional knowledge, pedagogy and practice**

The educational literature about what makes a good teacher is scattered with references to pedagogy. However, in order to examine what pedagogy is and what it looks like in the classroom, the terms ‘professional knowledge’ and ‘practice’ need to be examined in conjunction with pedagogy. Although professional knowledge is often included in the description of pedagogy, professional knowledge is an essential component that influences how a teacher teaches. Practice is often omitted from the teaching equation, but it is also an essential component. Before reading any further, it is important to have a clear understanding of the three terms. Table 2 (In the Appendix) outlines each of the terms.

As well as offering a definition for each term, Table 2 also classifies each term into elements. Teaching essentially comprises a series of elements. These elements (the
what, how and why), also include where and who. The where indicates the teaching space and the who considers the people who will be involved in the teaching episode. It is important to note that a teacher draws upon the elements simultaneously. That is, each element is interrelated and therefore is not used in isolation. A teacher draws upon their professional knowledge, previous practice and pedagogical skills during the act of teaching.

Figure 1 outlines the interconnectedness of the three elements outlined in Table 2. Professional knowledge is seen as the encompassing element, indicating that without this element effective teaching cannot occur. Pedagogy sits within professional knowledge, as the decision you make in order to teach a learning experience will be drawn from your repertoire of professional knowledge.

Practice is nestled within professional knowledge and pedagogy as a reflective teacher will draw upon what they know about teaching and learning in order to determine why the lesson progressed as it did and achieved the results it did. An effective teacher uses all three elements as suggested in Figure 1.

Figure 1 – Interconnectedness of professional knowledge, pedagogy and practice

‘Practice makes perfect’ is an old saying which describes effective teaching well. It is the practice of teaching that allows a teacher to grow and improve their professional practice. However, without reflection upon what was done and whether the outcomes were achieved, a teacher may continue to ‘practice’ ineffective teaching methods and strategies without ever making a difference.
The features of professional skills, pedagogy and practice are outlined in Table 3. Each element is comprehensive in regards to the knowledge and skills required. The elements are then deconstructed through toolkits for beginning practitioners.

**Toolkits for beginning practitioners**

The following toolkits have been designed for beginning practitioners and include specific features of each element. The toolkits have been designed as a checklist of skills and knowledge so that beginning practitioners can firstly keep track of their progress in their development, and secondly be aware of the skills and knowledge that need to be developed further.

**The Professional Knowledge Toolkit**

Professional knowledge was defined earlier as ‘a repertoire of specific knowledge needed to plan for teaching and implement learning successfully’. A teacher’s professional knowledge provides the foundations for all design of learning experiences. See Table 4 in the Appendix.

**The Pedagogy Toolkit**

Pedagogy focuses on the how of teaching. Pedagogy involves the use of professional knowledge as it is about using right pedagogy at the right time. As described by (Killen, 2003, p.4), “no teaching strategy is better than others in all circumstances, so you have to be able to use a variety of teaching strategies and make rational decisions about when each one is likely to be most effective” (See Table 5 in the Book Resource Centre).

**The Practice Toolkit**

Practice is the element in our teaching where teachers teach and reflect on what did and didn’t work. Practice focuses on the why of teaching and provides the opportunities to improve or develop a teacher’s capability. Perfecting the craft of teaching is a task which is ongoing; therefore teachers need to be acutely aware of the ‘why’ of what they do.

**Starting out – the developing practitioner**

Three toolkits have been provided as a starting point for beginning practitioners. However, there are particular starting points that will make achieving outcomes with learners less complicated – those being: knowing how learning occurs,
knowing your learner and using a pedagogically effective learning design framework. Each of these starting points works hand in hand.

<table>
<thead>
<tr>
<th>Element</th>
<th>Knowledge and skills</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Professional</strong></td>
<td>• Content and subject knowledge</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>• Learning theories</td>
</tr>
<tr>
<td>(The what)</td>
<td>• Teaching approaches</td>
</tr>
<tr>
<td></td>
<td>• Best practice research</td>
</tr>
<tr>
<td></td>
<td>• Syllabus materials</td>
</tr>
<tr>
<td></td>
<td>• Learning design frameworks (planning tools)</td>
</tr>
<tr>
<td></td>
<td>• Personal philosophy of teaching</td>
</tr>
<tr>
<td></td>
<td>• Policies – national, state and school based</td>
</tr>
<tr>
<td></td>
<td>• Planning and teaching cycle</td>
</tr>
<tr>
<td></td>
<td>• Language of teaching</td>
</tr>
<tr>
<td></td>
<td>• Personal competencies – literacy, numeracy, ICTs</td>
</tr>
<tr>
<td><strong>Pedagogy</strong></td>
<td>• Teaching methods</td>
</tr>
<tr>
<td>(The how)</td>
<td>• Teaching strategies</td>
</tr>
<tr>
<td></td>
<td>• Assessment strategies</td>
</tr>
<tr>
<td></td>
<td>• Management strategies (routines, behaviour, transitions, organisational)</td>
</tr>
<tr>
<td></td>
<td>• Learning environment/context</td>
</tr>
<tr>
<td></td>
<td>• Knowing the learners (prior knowledge, learning styles, attitudes and perceptions)</td>
</tr>
<tr>
<td></td>
<td>• Scaffolding</td>
</tr>
<tr>
<td><strong>Practice</strong></td>
<td>• Act of teaching</td>
</tr>
<tr>
<td>(The why)</td>
<td>• Personal communication</td>
</tr>
<tr>
<td></td>
<td>• Critical reflection</td>
</tr>
<tr>
<td></td>
<td>• Teacher presence</td>
</tr>
</tbody>
</table>

Table 3 - Professional knowledge, pedagogy and practice in action

**Learning**

Teachers need to be knowledgeable about how learning occurs. There is much information from research about how we learn. Nichols (2007) broadly defines learning as a process of acquiring knowledge and skills through experience, and Abbott and Ryan (2001, p.58) describe learning as "a reflective activity that enables the learner to draw upon previous experience to understand and evaluate the present, so as to shape future action and formulate new knowledge".

Teachers who are aware of how learners learn will cater specifically for them by incorporating strategies into their teaching that will promote learning.
The importance of knowing your learner

If we do not ‘know’ our learners then how can we teach them? If we do not know what their academic level is, their prior knowledge, their skills, how they learn and their interests, then how can we engage them in learning and teach what is required? All teachers need a starting point.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Performance Criteria</th>
<th>The teacher will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Act of teaching</td>
<td>Use a plan to follow which includes:</td>
<td>Use a plan to follow which includes:</td>
</tr>
<tr>
<td></td>
<td>• Introduction – learners are engaged, links are made to prior learning, learners are aware of the purpose of the lesson and what will occur</td>
<td>• Be flexible in delivery when appropriate</td>
</tr>
<tr>
<td></td>
<td>• Body – explicit teaching using a variety of methods and strategies appropriate to the learners</td>
<td>• Have resources ready and on hand</td>
</tr>
<tr>
<td></td>
<td>• Conclusion – lesson is summarized, content is reviewed, learners are aware of the following lesson</td>
<td>• Utilise and plans for others to assist in the teaching</td>
</tr>
<tr>
<td></td>
<td>• Be flexible in delivery when appropriate</td>
<td>• Provide feedback to learners</td>
</tr>
<tr>
<td>Personal communication</td>
<td>Vary language according to audience</td>
<td>* Communicate using a variety of modes</td>
</tr>
<tr>
<td>Critical reflection</td>
<td>Critically reflect about achieved learning outcomes and completes an analysis of unsuccessful outcomes and learning</td>
<td>Critically reflect about achieved learning outcomes and completes an analysis of unsuccessful outcomes and learning</td>
</tr>
<tr>
<td></td>
<td>• Consult best practice research in order to critically reflect</td>
<td>Consult best practice research in order to critically reflect</td>
</tr>
<tr>
<td></td>
<td>• Be aware of the transformation from naive reflection to critical reflection</td>
<td>Be aware of the transformation from naive reflection to critical reflection</td>
</tr>
<tr>
<td>Teacher presence</td>
<td>• Be aware of self as a teacher</td>
<td>• Be aware of self as a teacher</td>
</tr>
<tr>
<td></td>
<td>• Vary voice and tone and body language.</td>
<td>Vary voice and tone and body language.</td>
</tr>
<tr>
<td></td>
<td>• Show enthusiasm for teaching and learners.</td>
<td>Show enthusiasm for teaching and learners.</td>
</tr>
</tbody>
</table>

Table 6 - Toolkit 3: Practice

Syllabus documents and school curriculum frameworks provide the broad learning outcomes and goals for learners, however not all learners learn the same way, have the same learning abilities or are at the same point in their learning (Killen, 2003). Therefore the profiling that teachers do before teaching determines how well learning is designed and caters for all learners needs.

Knowing your learners is a key factor in the pedagogy toolkit. This factor highlights what is important to know about the learners in the context of school; this is commonly referred to as profiling. Profiling should occur on a regular basis as learners grow and develop throughout the course of a school year. Many
teachers profile such aspects as interests and learning styles at the beginning of a school year, but will profile academic levels, prior knowledge and developmental levels at key points throughout the year. The profiling informs the learning design, therefore giving the teacher an explicit starting point.

**Learning design framework**

Using a framework for learning design is an essential part of teaching. A learning design framework takes into account the learners and their profiles, therefore beginning with the learner in mind.

The learning design process as created by Lynch and Smith (2006) sections ‘planning’ into three phases - profiling, strategizing and ascertainment. The profiling directs the teacher towards finding out what learners know, what they need to know and how they best learn. The strategizing and ascertainment phases focus on the planning by outlining the learning journey, the resources, the people, the assessment and the reporting. The strategizing phase recommends the teacher to incorporate research based pedagogy into their planning and teaching.

Dimensions of Learning is a research-based framework of pedagogical strategies that have been proven to work. The framework consists of five dimensions which, according to Marzano (2005), interact with each other and represent the way we think and learn. The learning design framework devised by Lynch and Smith incorporates the use of the five dimensions from Dimensions of Learning.

**Developing teaching skills and knowledge as a beginning practitioner**

As indicated earlier, the twenty-first century teacher has evidence-based research to draw on in order to improve their practice in the classroom. Recent Australian research has identified pedagogy frameworks in both Queensland and New South Wales. Each framework identifies key factors (or dimensions) which impact upon learning. Each framework can be used to plan learning for learners. A dimension of Learning is outlined along with Productive Pedagogies and the Quality Teacher Framework in Table 7.

It can be observed from Table 7 that the three learning frameworks have many similar features, despite the use of different terminology. It is interesting to note that each of the frameworks does not solely focus on content, they bring to the fore the importance of such as aspects as:

- The learning environment
- The learning context
- The learners
- The types of activities the teacher need to be engaged in the learning
- The approaches to teaching

Using a research-based framework such as those listed in Table 7 in conjunction with a learning design framework, ensures a thorough approach to planning and implementing learning so that all aspects of learning are considered.

Table 7 – Features of Productive Pedagogies, Quality Teacher Framework and Dimensions of Learning

<table>
<thead>
<tr>
<th>Productive Pedagogies (Queensland)</th>
<th>Quality Teacher Framework (New South Wales)</th>
<th>Dimensions of Learning (Colorado, US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intellectual Quality</td>
<td>1. Intellectual Quality</td>
<td>1. Attitudes and Perceptions</td>
</tr>
<tr>
<td>• Deep Knowledge</td>
<td>• Deep Knowledge</td>
<td>• Positive attitudes and perceptions about classroom climate</td>
</tr>
<tr>
<td>• Deep Understanding</td>
<td>• Deep Understanding</td>
<td>• Positive attitudes and perceptions about classroom tasks</td>
</tr>
<tr>
<td>• Knowledge as Problmatic</td>
<td>• Knowledge as Problmatic</td>
<td>2. Acquire and Integrate New Knowledge</td>
</tr>
<tr>
<td>• Higher-Order Thinking</td>
<td>• Higher-Order Thinking</td>
<td>• Declarative Knowledge</td>
</tr>
<tr>
<td>• Metalanguage</td>
<td>• Metalanguage</td>
<td>• Procedural Knowledge</td>
</tr>
<tr>
<td>• Substantive Conservation</td>
<td></td>
<td>3. Extend and Refine Knowledge</td>
</tr>
<tr>
<td>2. Supportive classroom environment</td>
<td>2. Quality Learning Environment</td>
<td>• Helping student develop complex reasoning processes (short term higher order thinking)</td>
</tr>
<tr>
<td>• Student Direction</td>
<td>• Explicit Quality Criteria</td>
<td>4. Use Knowledge Meaningfully</td>
</tr>
<tr>
<td>• Social Support</td>
<td>• Engagement</td>
<td>• Helping student develop complex reasoning processes (long term higher order thinking) in order to use their knowledge in meaningful situations</td>
</tr>
<tr>
<td>• Academic Engagement</td>
<td>• High Expectations</td>
<td>5. Habits of Mind</td>
</tr>
<tr>
<td>• Self-Regulation</td>
<td>• Social Support</td>
<td>• Critical Thinking</td>
</tr>
<tr>
<td>• Explicit Quality Performance Criteria</td>
<td>• Students’ Self-Regulation</td>
<td>• Creative Thinking</td>
</tr>
<tr>
<td>3. Recognition of Difference</td>
<td></td>
<td>• Self-Regulated Thinking</td>
</tr>
<tr>
<td>• Cultural Knowledges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Inclusivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Narrative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Group Identity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Active Citizenship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Connectedness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Connectedness to the World</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Problem-Based Curriculum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Knowledge Integration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Background Knowledge</td>
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<td></td>
</tr>
</tbody>
</table>


Conclusion

This chapter has introduced the beginning teacher to the complex world of teaching in the twenty-first century. The chapter has examined Generation Z learners and the implications for teachers in the twenty-first century. It has deconstructed professional knowledge, pedagogy and practice, as well as offering explicit ideas of what each element looks like in a classroom. The chapter has also outlined research-based pedagogical frameworks which assist in achieving outcomes for learners.

As the world continues to change, so too will the learners who enter our classrooms. It will be up to us, as teachers, to create successful, confident, creative learners who make an impact on our world. Teaching will be just as complex in the future as it is now, however the twenty-first century teacher will have the know what, the know-how and the know why to manage learning in an ever changing world. Professional knowledge, pedagogy and practice forms the basis of the decisions we make regarding teaching and learning, but the twenty-first century teacher is one who continually develops their knowledge and skills so that learning outcomes are achieved by the learners in our classrooms.

Further Reading


Reference List


Chapter 9: Chinese and Australian Education: A Comparison

Fei Guanghui and Richard Smith

Living and studying in another culture provides insights into one’s own culture. Similarly, when thinking about our own school system, it is often helpful to investigate another system. As Jerome Bruner famously said: “[t]he fish will, indeed, be the last to discover water—unless he gets a metaphysical assist.” The “metaphysical assist” in this case is Fei Guanghui, a visiting Chinese academic from Guizhou Province. During her time in Australia, she “saw” and experienced Australia and Australian education from a different perspective.

This chapter contains principles of Chinese beliefs and values about education and observations on how they fit with Australian educational beliefs and practices. The discussion of China shows that the contemporary Chinese education system has developed over thousands of years of historical development. It is now modern in the sense that the present form and content were developed in the 1980s as part of China’s drive to become a powerful nation economically, politically and culturally. They express socialist aims in a Chinese way and provide a window on Chinese society today. There are many similarities with Australian education and some stark contrasts.

It has been the case that the State organises national education systems either entirely or in arrangements with local bodies. This is recognition that a major task of education is the shaping of citizens and cultivating talented people. The education system is the combination of educational institutions and cultural norms. The system imparts the social and cultural heritage and develops the intellectual and social activities of individuals and society. The overall pattern is a kind of social system in which political, economic, cultural, religious, and family systems coexist. A major cultural influence on Chinese beliefs about education and on the education system is Confucianism.

Confucianism

Confucius is one of the great educators of all time. He was concerned with “literary talent, behaviour, loyalty and trust” and his curriculum included music, "
(the code and manner of proper conduct), the Book of Poetry, and literature and history. Confucius insisted that in education there should be no class distinctions. His basic education purpose was to train ambitious patriots and gentlemen to contribute to the country. To do this, he was instrumental in establishing an education system for training in military, administrative and diplomatic arts. The system was later adapted as the central government examination system for selecting senior officials. For years, all students and scholars alike worked very hard for the annual examination in the hope that they might become senior officers in the government.

Confucius extended education opportunities to the general civilian population. He held that education plays a key role in the process of human and social development. In doing so, he had an enormous impact on the development of Chinese culture. Today's compulsory education policies are associated with this tradition. Confucius developed an extensive set of education principles. There are too many to list but in order to place the present in context we concentrate on moral principles, requirements of students, and teachers.

**Moral education principles**

The need for moral behaviour, Confucius believed, applies to everyone at every stage of life. Character building relies on perseverance and indomitable will as well as benevolence in daily conduct. Everyone should apply self-supervision, self-criticism, self-responsibility, and high moral criteria to their own behaviours while being lenient towards others. One’s words and deeds must coincide. These ideas have been built into the behavioural precepts of Chinese dialectical and historical materialism. They are often observable in the behaviour of Chinese people in their dedication to study, their industriousness and so on.

**Students**

Students were encouraged to study hard, to broaden their minds with knowledge. Students should study conscientiously and store useful and important knowledge for use in daily life. Students then should learn, do exercises, practice and review frequently, in order to put learned skills and knowledge to use. This approach was not just blind rote learning. Confucius said, "Study without thought is labour lost; thought without study is dangerous." Study could not be divorced from thinking. Confucius was concerned that students learned to sort truth from facts.
Issues in Contemporary Teaching Volume 1

Teachers

Teachers were implored to use methods that inspire students to think. He favoured inductive teaching and advocated the use of questioning techniques to promote independent thinking in students. Confucius also advocated a pedagogical focus on individual differences, strengths, weaknesses and a concern for student characteristics. Teachers in this perspective were expected to pay attention to their own learning and training and to combine a broad range of knowledge with a noble character. Teachers should be realistic, hard working, strict, direct, and calm and learn with their students. Confucius particularly encouraged teachers to model ethical practice, make friends, and learn lessons for historical events and figures and to actively evaluate current affairs. Teachers were to be exemplary people, thus,

"Among three men who are walking together (myself being one of them), I am certain to find my teacher, a good one in order to emulate him, and a bad one in order to recognize in him what in myself I must correct."

Influence of Confucianism

No description of contemporary Chinese education is complete without showing the influence of Confucianism. The Confucian body of thought formed the basis for the social order in China from around 200 BC. It provided the working rules and ethical precepts for Chinese to follow. Even today perhaps a majority of Chinese still behave according to these rules or at least acknowledge them as deep cultural guides. Over two thousand years of development, Confucianism has had positive effects as well as negative impacts on modern Chinese education. The climate is right now for Chinese people to take a more critical stance to their cultural inheritance. The influence of the Chinese imperial examination system on modern day Chinese education is a good example of where there is intense interrogation.

The Chinese imperial examination system was produced in the Sui Dynasty, formed in the Tang Dynasty, completed in the Song and Ming dynasties and abolished in the Qin Dynasty in 1905. It was a system for selecting officials for feudal dynasties. It lasted for 1,300 years in China. The following are some of its characteristics that remain as issues in contemporary Chinese education.

1. It selected people according to talent, based on knowledge a narrow set of disciplines
2. It was a comprehensive assessment of physical and moral qualities according to the requirements of the feudal ruling class, based on verities and processes contained in set texts
3. It set up subjects and evaluation criteria according to the requirements of the feudal ruling class

For all its negative effects, it was a progressive, rational examination system. The system united imperial selection processes and education by combining intellectual enthusiasm and the aspirations of different social sectors and classes by relying on people’s motivations to reach study goals and the rewards that flowed from them. It therefore expanded the social basis of the ruling class. It also concentrated on really talented people as well as their conduct. Moreover, it promoted the unprecedented development of schools and cultural prosperity at that time and also led to the development of the printing industry. Perhaps it was an unanticipated effect, but the system unified the teaching content and the country's dominant ideology about traditional virtues, knowledge and talents of the Chinese nation. Finally, the system had an enormous impact on the cultures of Korea, Vietnam, Japan and even Europe.

Table 1: Education Imperatives

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<tbody>
<tr>
<td>1.</td>
<td>The state must be clear on the basic direction of China’s education services and adhere to the idea of “Education for socialist modernization, to serve the people”</td>
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<tr>
<td>2.</td>
<td>The direction should consciously obey and serve the modernization drive</td>
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<tr>
<td>3.</td>
<td>The direction must fulfil the basic functions so that students learn ideological, moral scientific and cultural qualities</td>
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<tr>
<td>4.</td>
<td>The direction must provide for the needs of various types of personnel training in the modernization process</td>
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<td>5.</td>
<td>The direction must comprehensively improve the quality and effectiveness of schooling</td>
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<td>6.</td>
<td>The direction must provide Chinese personnel with training in modern socio-economic and educational development trends in keeping with “Education with productive labour and social practice.”</td>
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<tr>
<td>7.</td>
<td>China must have the overall training objective of “Training the all-round development of socialist builders and successors in moral, intellectual, physical and aesthetic qualities.”</td>
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<td>8.</td>
<td>The direction must be relevant to the times</td>
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<td>9.</td>
<td>The direction must respect the regulation of education and produce quality education</td>
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<tr>
<td>10.</td>
<td>The whole policy and its implementation must be people-oriented.</td>
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</table>

The other side of the coin was the fact that school education became linked to the imperial examination system, so that it became the goal of school education. The examination and the cultural mores that surrounded it affected people's cultural psychology and changed their values. In this climate the system constrained the development of academic thinking because the content of the examination was limited to the learning of Confucian content. New scientific knowledge that
emerged in the Middle East and Europe for example had no place in this relatively closed system. It distracted Chinese people from technological developments. A change in direction occurred during the Mao years.

**Chinese Education is Controlled and Operated by the Government**

The Chinese Education system is administered by The Ministry of Education. The Ministry is responsible for the educational system operation and language work. It is an important central government agency under the State Council with headquarters in Beijing, the capital. The origins of the contemporary Chinese education system can be found in the September 1983, statement by chairman Deng Xiaoping: “Education should be oriented toward modernization, the world and the future.” This proposition offered the strategic guidelines of education reform and development and laid a solid theoretical foundation for education in the “new era”.

The core Education principle is the global and fundamental guiding ideology and program of action for education in a certain historical stage, based on comprehensive social development and human development needs. It is aimed at solving the fundamental problems for which the state trains people, the kind of training people need and how to cultivate these.

In these new historical conditions, China concentrated on correctly carrying out and implementing socialist education principles with Chinese characteristics to promote healthy education development. The Chinese government set out essential imperatives for Chinese education.

On 29, July, 2010, the Chinese government promulgated the “National Long-term Education Reform and Development Plan (2010-2020)”. It established the 10 major education reforms, shown in Table 2.

These comprehensive and far-reaching policies provide the Education Ministry with a huge number of tasks. Its most important one is developing and making into law the principles and policies for China’s educational system, including relevant rules and regulations. These policies and rules govern the master plans for China’s educational development, reform and the implementation of them. The Ministry also manages educational resources, such as financial allocation, and the development and implementation of capital construction for educational purposes countrywide. The task of the Ministry is therefore enormous. For example, by the end of 2004, China had 2,236 colleges and universities, with over 20 million students enrolled. More than 6 million Chinese students graduated from university in 2008, about the same as the population of Sydney in comparative terms.
Table 2: 2010-2020 Education Plan

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<tbody>
<tr>
<td>1</td>
<td>Promote quality education reform</td>
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<tr>
<td>2</td>
<td>Balanced development of compulsory education reform</td>
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<tr>
<td>3</td>
<td>Reform of vocational education school system</td>
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<tr>
<td>4</td>
<td>Construction of the pilot system of lifelong education</td>
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<tr>
<td>5</td>
<td>Top-notch innovation personnel training reform</td>
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<td>6</td>
<td>Reform of examination and enrolment system</td>
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<tr>
<td>7</td>
<td>Modern university system reform</td>
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<tr>
<td>8</td>
<td>Deepen educational system reform</td>
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<tr>
<td>9</td>
<td>Local education reform investment guarantee mechanism</td>
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<tr>
<td>10</td>
<td>Provincial comprehensive reform of the Education and Manpower resources</td>
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The Ministry controls the basic teaching requirements and teaching documents for secondary and primary schools. It strives to make sure that teaching approaches, materials and syllabuses in secondary and primary schools are standardized. This is a huge responsibility because the national government requires that every Chinese citizen has 9 years of compulsory schooling and that illiteracy is erased among young and middle-aged adults. It also has control over the pedagogical reform of education up to secondary level.

The Ministry also manages higher education, postgraduate education, tertiary vocational education and adult higher education. It has the power to run state-administered examinations for adult learners seeking tertiary qualifications and continuing education. The establishment, monitoring, evaluation and reform of higher education institutions are a key Ministry role.

Modern China is very concerned to ensure that its qualifications are comparable to or better than other countries. The Ministry implements the work assigned by the Academic Degree Committee of the State Council to ensure that the academic degrees conferral system is up to standard, and the mutual recognition of academic degrees. This is important with so many Chinese students studying overseas and so many foreign universities wishing to work in China.

Teachers in China must be trained and then approved by the Ministry. The Ministry formulates and supervises the professional qualifications for teachers at
different levels. The organizational standards for schools of different levels are also
determined and monitored by the Ministry.

At the conclusion of high school, the Ministry administers the recruitment of
students to higher education. The College or University Entrance examination
(高考 Gaokao) is held over three days throughout China under strict supervision.
The Ministry is also responsible for student registration process at higher education
institutions of different levels. It is also centrally involved with the guidelines and
policies for Chinese students studying abroad and international students studying
in China, the teaching of Chinese as a foreign language and directing Chinese
educational institutions abroad. Educational exchanges with Hong Kong SAR,
Macao SAR, Taiwan district and overseas are part of its brief.

The Ministry has a planning and direction role over the research carried out in
Chinese institutions, especially in natural science, philosophy and social science and
in the application, research and popularization of new hi-technology. It plays a part
in combining industry, teaching and research, especially to ensure that key state
scientific and research programs and national-defense scientific-tackling programs
are implemented.

It can be concluded that contemporary China has a unique comprehensive
education system with the following characteristics:

1. Unique educational philosophy and policies
2. Administration at four levels: central, provincial, municipal and county
   management systems
3. School education is generally divided into the following phases: pre-school
   (3 – 5-year-old children entering kindergarten); primary (for children aged 6
   – 11). Primary schools are generally set up by the local government, but also
   founded by enterprises and private interests; secondary education (for 12 –
   17-year-old boys and girls). Local governments and education departments
   generally operate primary, secondary, vocational and specialized secondary
   schools.

The general secondary school is usually divided into junior and senior high school,
each of 3 years. Students can progress to high school as well as vocational high
schools and College learning for 3 – 5 years; higher education consisting of
college, undergraduate and postgraduate education. Schools are charged with
training, the development of science, technology and culture and the promotion of
the modernization of China’s major institutions. These are major developmental
tasks.

4. The implementation of nine-years of compulsory education for all is an
important reform. Since the introduction of the nine-year plan, China’s education system has made a great progress, indicated by 99% coverage of the population, 80% of eligible students are enrolled in high school and 25% of eligible student cohorts are enrolled in higher education.\textsuperscript{xi}

5. Also, there is increasing government investment in education at all levels to encourage multi-channel, multi-form schools. Moreover, there are signs that the central government is slowly loosening the vice-like grip over higher education institution entry criteria so they can be more autonomous. There are also pressures to widen the curriculum from the Confucian tradition Chinese and mathematics emphasis.

6. China’s education system is part of the process of modernization underway in China since the 1980s. China's modernization process has promoted the development of education as part of the government’s aims to produce a Socialist market economy. The Chinese education system is more strongly tied to industry than those generally produced by Western education systems and sustained by a societal structure that is more rigid compared to Australia. On the face of it, Chinese education has a greater impact on Chinese industry than in Australia. Its effects include a rapid growth in China’s competitiveness in international commerce, and in turn, the East/West collision of economies, and possibly, global stability.

7. The government has launched a large-scale program of literacy. Specific attention and support is given to Minority education, education for the disabled, radio and television education and the promotion of modern electronic teaching methods. Schools are encouraged to further expand the open up education, to strengthen national educational exchanges and cooperation.

8. Chinese education seeks talented individuals in all fields. The schools have a strong academic atmosphere. On the negative side, Chinese schools, teachers and parent stress test scores rather than self-development. Students tend to read the book to serve test results.

9. The reform of Chinese education is a high national priority.

The government increasingly encourages new teaching approaches, science, the arts and technological education. These are oriented toward modernization, the outside world and the future. The new trends include:

i. More respect for students

ii. The cultivation of creative thinking

iii. More attention to the overall development of students as people
iv. Communication skills
ix. Information literacy
v. Team building
vi. Collective sense of belonging
vii. Self-management skills
viii. High sense of individual and social responsibility
x. Improving teacher quality.

xi. Reform of the P-12 school system, including: increasing the reform of the early years of schooling and the grade school, replacing the hierarchical management system, deepening the reform of higher education, improving training and the graduate degree system, the reform of high school funding, make optimum use of macro-control means of funding.

xii. Increasing technical school and postgraduate enrolment and the graduate employment system so that the reform of secondary schooling is speeded up.

xiii. Improving the administration of education by actively reforming the personnel and distribution system in the internal management of the school system so that the personnel and labor system are matched with the education system.

xiv. Making English compulsory. Following developments in Shanghai, the Ministry of Education recommended that primary schools should offer English classes at Primary Three from the autumn of 2001. It was already a key subject in the high school exit examination

xiv. Strengthening theoretical research and testing.

An example of the changing approach to education in China is the Education for Global Citizenship (EGC) approach in Beijing established by joint American and Chinese efforts in 2005. This approach has three parts to it namely, fluency in two languages, experience in two cultures and two pedagogical approaches, child-centred and the knowledge-centred Chinese approach. The immersion program is a form of:

dual language education that draws from the best of the Eastern and Western learning traditions to provide children with a rich and supportive learning environment by teaching the core academic content in two languages: English and Chinese. The goal of this program is for all students to become bilingual, bi-cultural, and bi-literate while achieving at a high academic level.
Children spend part of each day in each environment so that they receive two school experiences. The school sets out to produce bilingual and bicultural graduates rather than those who can speak two languages and understand two cultures\textsuperscript{xiv}. Whether the model of two separate cultures achieves the synthesis is a moot point when it is embedded in a society dedicated to frequent tests (考试\textit{kaoshi}), culminating in the infamous the university entrance examination (高考\textit{gaokao}). This examination system in a limited number of discipline areas reflects China’s Confucian roots. Nevertheless, the EGC indicates a changing climate and a new openness to different education philosophies.

Especially important in this list is the improvement of teacher’s salaries to bring them into line with the wages of staff in government ministries and privately owned enterprises. Teacher quality is important to fully implement the national education policy and to improve the quality of education. China has long had teacher-training programs that provide approximately 11 million teachers for the world largest k-12 education system. Now the emphasis is on up skilling and improving the initial preparation of teachers.

Teachers have a particularly strategic role to play in modernizing China. The population of China is in excess of 1.4 billion people in a large country with vastly different landscapes. Much of the country is remote and difficult terrain so that transport and communications traditionally have been difficult to maintain. Apart from the Han majority, there are 55 minority groups and 70 million Chinese are non-Han. These are people who have distinctive languages, identity and place\textsuperscript{xv}.

In contemporary Chinese society the minorities have a valued place and it is instructive to see China’s emerging international haute couture using design themes from the Miao, a minority in Guizhou Province.

\textbf{Metamorphosis} transforms the exquisite traditions of the Miao into vibrant, contemporary collections. The butterfly, a mythical Miao symbol of metamorphosis, embodies the captivating ethnic minority's closeness to nature and is re-imagined in new, modern must-haves for Spring/Summer 2011\textsuperscript{xvi}.

The Ministry controls the education programs for these minority nationalities, including the coordination of educational aid to them.

Social cohesion and unity then are major issues for the central government. It is not difficult to understand why the Ministry plans and directs the ideological and political education in higher education and the moral, physical, health, arts and national defense education in all educational institutions. It also formulates
guidelines and policies for the national standardization, popularisation and testing of Mandarin language and minor nationalities’ languages xvii.

As part of the continuing growth of the education system in China, there is considerable investment in the recurrent costs of education and in capital costs. Recurrent costs of education include staff wages, staff welfare, grants and scholarships, expenses for equipment purchases and repair fees. Capital costs of education include school construction and large equipment purchases. The source of China’s investment in education is multi-faceted: with central government, provinces, autonomous regions and municipalities, counties (banners), sharing the financial allocation. There are also state-owned enterprises, collective enterprises and institutions which contribute to education spending, as well as the few individuals or families who pay for their education costs. In short, most schools are generally set up by local government and a few by private enterprises or individuals.

Reflections on the Chinese and Australia education systems xviii

The advantages of China’s education system lie in the basic education coverage and its comparative performance internationally. Chinese students rate highly in Language, Literature, Mathematics, Physics, Chemistry, Biology, Geography and History. Internationally they are amongst the top in Reading, Mathematics, Physics, Chemistry and Biology.

Disadvantages of China’s education system

China’s higher education entrance examination does not fully reflect the overall quality of students or their level of ability in the limited time of the test and limited subject tested. The tests illustrate China’s basic education principle of “examination-oriented education”. To some degree, it has led to the China education system focus on teaching academic knowledge and knowledge transfer, the memorization of key knowledge and the amount of information or knowledge gained by students as a measure of “academic” standards.

In addition, there is inequality and imbalance in access and outcomes of the system because of the difficulties in providing for remote rural people and minorities. There is also the widening income and cultural gaps between cities and the countryside.

Under the government policy of “One couple, one child”, the single child receives the combined attention of family adults. The child is greatly loved and valued by parents, grandparents and the rest of the family. The child carries the entire
family’s educational expectations. This is an especially heavy burden on the child
who realizes that everyone wants him or her to become a talented person who can
contribute to the family and society in the future. Students are constantly
pampered to make their life comfortable and they learn to be diligent and study
hard. But, in doing so, their independence is affected and they suffer the fear of
failure.

To this extent, based on my experiences in Australia, while China’s education
system has successfully focused on improving student test scores, it needs to pay
more attention to self-development aspects. I have observed the positive outcomes
of paying more attention to respecting students, the cultivation of student creative
thinking, communication skills, team building, a collective sense of belonging, self-
management skills, a high sense of responsibility, information literacy, and capacity
to use ICTs. The qualities seem to come from the efforts made by parents, schools
and teacher quality. I know that privately many Chinese parents would agree with
such outcomes. My view is that Chinese education would be amongst the best in
the world if these other qualities can be achieved.

However, the mix of academic excellence and great freedom and flexibility in the
student is difficult to achieve. First of all, it is not possible to just import bits and
pieces of another education system into one’s own. The Confucian tradition of
scholarship and learning by rote is deeply rooted in the Chinese mind, even mine.
Similarly, it would be difficult to require Australian parents and students to expect
that study should occupy perhaps 10 hours a day.

Second, the duty and responsibility of children to their parents, family and society
sets barriers to the autonomy and freedom of the child and student. These
fundamental aspects of Chinese society flow to the teachers in schools. They see
their job as making sure that students work hard, sacrifice their time and energy to
study and achieve for the good of society. Preparing teachers to spend time
encouraging creativity and developing the individual might well be seen as an
aberration in the eyes of Chinese educators and parents.

Historical change provides the possibility of bringing about change. As more and
more Chinese return from experiences of living in other countries, as the pace of
social change in the large coastal and regional cities accelerates and China becomes
more involved in the international community, schooling and university studies will
inevitably need to change to accommodate new conditions. On the one hand,
perhaps educated, socially mobile parents will want to see these changes sooner
rather than later. On the other hand, such parents may wish to reinforce and
celebrate the very education system that they themselves endured and that gave them success.

The advantages of Australia’s education system include focusing on socialization, humanity, individuality and equalization of education. 

Teaching life skills is a very important element of a student’s education in Australian education. To be blunt, I have noticed that parents reinforce the idea that ‘He or she who does not work shall not eat,’” a complete contradiction to the ideas of the Chinese family! However, while most parents and educators believe that industry is the parent of success, they also acknowledge that ‘all work and no play make Jill a dull girl.’ My observation is that Australian educators advocate the philosophy of “Stop, revive, and survive” in education.

Teachers and parents want students to be creative as well as academic bookworms. I was initially surprised to notice that Australian students do not have holiday homework during school vacations. Furthermore, I was also surprised to see that they do not have standardized textbooks and examinations during the time they are in school. Each school adapts the curriculum and attempts to develop each student’s creative and flexible abilities and this is seen to be just as important as focusing on standardized textbooks for Australian education.

I also discerned that Australian education pays attention to training students for the hardships of life and developing bravery and adventure in them. It concentrates on students becoming independent because most things they do in life will depend on their ability to cope. They must stand up by themselves when faced with barriers rather than assume that their family will help them.

Australian education also pays more attention to developing a more international outlook in students. It seems to me that they are more socially responsible from a young age. To get this outcome, schools and parents try to develop respect in students and they protect children’s personalities and rights. Importantly, they try to develop communicative abilities in children as a way of preparing them for the hot competition they expect to find in the future global society. Nevertheless, I am amazed at how few Australian students learn foreign languages like Mandarin compared to China where every child speaks a regional dialect (or two), most speak Mandarin or are learning it in school and virtually every child is learning English.

At the higher education level, Australia’s education and training diplomas and degree qualifications are recognized internationally. Compared to China, the teaching practices are distinctive. Again, they are much more concerned with showing students the meaning of integrity, excellence, respect, responsibility,
cooperation, participation, caring, fairness and democracy. More generally, in my short stay in Australia I have noticed that these characteristics are very important in the life philosophy of each Australian I met. In the family and at school, these things are learned even in tiny matters like picking up litter in the street to keep the environment clean and unpolluted.

I have concluded that one of the deep purposes of teaching students about these things is training them in life skills, independence and creativity for a future society. This is like the Chinese concern about “ideology and morality” but it is done in a different way.

Australia’s education is a kind of multicultural education with diverse, unique courses. One of the main objectives of Australia education is the development of student thinking ability. Critical and creative thinking are thought to lead to careers in the future and to make better-educated citizens for society and the State. The idea of student-oriented teaching is emphasized and teaching methods are flexible and innovative, with increasing use of technology so that students are encouraged to research and ask questions. I thought about my English classes of 60 or so students and wondered if I could ever apply these methods.

From my Chinese perspective, if I had a child who was to be educated in Australia, the greatest disadvantage of the Australian approach is that the basic knowledge of students is relatively weak by Chinese standards. I have read that this perceived weakness is an effect of the less systematic teaching of core knowledge and lack of regular training in the pre-secondary years in areas such as writing habits. Compared to China, the Australian curriculum is fragmented school-to-school and state-to-state. Again, in comparison with China, the teaching approaches and classroom structures are more casual than those with which I most familiar. I have noticed that students who lack self-control and self-management skills learn nothing during their study periods. This means that teachers are less productive too.

Of course, each country has its own education patterns for students with different cultural backgrounds and customs. We can’t just say one is right or wrong because different educational systems suit different social patterns and environments. China’s modern education system is emerging from the traditional, Confucian examination-oriented education. The results of China’s education system remain to be seen, with the heavy expectations by all Chinese people and the rest of the world. Some people say that soybean milk (Chinese education system) is acid in the bowl (exists with many disadvantages). If you a pour a glass of acidic soybean milk
into a beautiful glass or porcelain bowl, it is still sour, acidic, soybean milk. It cannot change into coffee or Ginseng.

So, many Chinese people believe that, despite all the expenditure and effort that has gone into Chinese education, it remains like soybean milk, and the "system" is unchanged. But China’s education system has not yet had the opportunity to be successful. However, we can use differences for reference and then select the best to use in our systems, a successful Chinese tactic. We all need to work towards sharing our humanity and our resources, including education.

Reference List

1 The term “transgressive” has a particular meaning for us. Following Novotny, we define teacher education and the learning contexts of the knowledge/creative society as a situation in which we are compelled to respond to questions that we have not necessarily chosen, in contrast to for example, research activity. Consequently, in such fields, we are constantly forced to transgress the limits of both our own competence and that of colleagues, the boundaries of our disciplines and the constraints of our own limits, especially our shared histories in education.

Expertise in learning management then is transgressive in two senses. First, it confronts issues, practices with consequences that have to be analysed and assessed and special local matters like teacher education structures and procedures that have a societal context have to be accounted for. We have to understand the links between what goes on in universities and schools, the IT communications industries, institutions such as the school, training and university education providers and very diverse professional, union, parent, school principal and political networks. Second, learning industry expertise is transgressive because it deals with audiences that are never just fellow-experts in the academy. There is a wide range of demands and expectations in the experience of mixed audiences. This inherent transgressiveness of expertise increases its vulnerability to contestation and opposition. Having a higher degree, citing research evidence or theory or seeking to exclude the non-initiated from decision-making do not guarantee immunity against contestation. Indeed, Novtony makes the point that the “complexities of the social and political world demand the contrary: a widening of scientific–technical expertise, exercises in comparative judgement and the ability to move back and forth, that is, to transgress the boundaries between specialised knowledge and its multiple, many-layered (and often unforeseeable) context of implication”.


iii "The Analects." http://classics.mit.edu/Confucius/analects.2.2.html


vi It was not a religion but a way of life.

vii The concern about plagiarism by Chinese students in Australian universities can be understood against the background of the Confucian tradition. See for example Brennan, L., Durovic, J. “Plagiarism” and the Confucian Heritage Culture (CHC) Student. http://www.newcastle.edu.au/conference/apeic/papers_pdf/brennan_0512_edd.pdf

viii The State Council of the People’s Republic of China, namely the Central People’s Government, is the highest executive organ of State power, as well as the highest organ of State administration. The State Council is composed of a premier, vice-premiers, State councillors, ministers in charge of ministries and commissions, the auditor-general and the secretary-general.
The premier of the State Council is nominated by the president, reviewed by the NPC, and appointed and removed by the president. Other members of the State Council are nominated by the premier, reviewed by the NPC or its Standing Committee, and appointed and removed by the president. In the State Council, a single term of each office is five years, and incumbents cannot be reappointed after two successive terms.


ix Deng Xiaoping's Thought on Military Education. http://eng.hi138.com/?i74947

x Socialism is derived from the writing of Marx. Tensions between Moscow and Beijing about the 'correct' reading of Marx and Lenin and the application of socialist principles led to the development of “Chinese” characteristics in Mao Zedong’s era to distinguish Soviet and Chinese “Socialism”.

xi The statistics are from Chinese government sources translated by Fei Guanghui.


xvi http://www.shanghaitang.com/download-our-latest-seasonal-catalogue

xvii For example: HKIEd Collaborates with State Language Commission of China to Nurture Quality Putonghua Teachers.


xviii These are predominantly Fei Guanghui’s impressions of Australian education.

xix My experience of course is limited. I stayed with two families where there were grandchildren and young children respectively. I visited schools to observe and teach Mandarin. I spoke to many parent and children as well as my academic colleagues. I constantly reflected on my Australian observations and what I know of children and college students in China.


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"The Analects." http://classics.mit.edu/Confucius/analects.2.2.html

http://www.newfoundations.com/GALLERY/Confucius.html

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It was not a religion but a way of life.

The concern about plagiarism by Chinese students in Australian universities can be understood against the background of the Confucian tradition. See for example Brennan, L., Durovic, J. “Plagiarism” and the Confucian Heritage Culture (CHC) Student.

The State Council of the People's Republic of China, namely the Central People’s Government, is the highest executive organ of State power, as well as the highest organ of State administration. The State Council is composed of a premier, vice-premiers, State councillors, ministers in charge of ministries and commissions, the auditor-general and the secretary-general. The premier of the State Council is nominated by the president, reviewed by the NPC, and appointed and removed by the president. Other members of the State Council are nominated by the premier, reviewed by the NPC or its Standing Committee, and appointed and removed by the president. In the State Council, a single term of each office is five years, and incumbents cannot be reappointed after two successive terms.

Deng Xiaoping's Thought on Military Education. http://eng.hi138.com/?i74947

Socialism is derived from the writing of Marx. Tensions between Moscow and Beijing about the ‘correct’ reading of Marx and Lenin and the application of socialist principles led to the
development of “Chinese” characteristics in Mao Zedong’s era to distinguish Soviet and Chinese “Socialism”.

xi The statistics are from Chinese government sources translated by Fei Guanghui.


xvi http://www.shanghaitang.com/download-our-latest-seasonal-catalogue

xvii For example: HKIEd Collaborates with State Language Commission of China to Nurture Quality Putonghua Teachers.


xviii These are predominantly Fei Guanghui’s impressions of Australian education.

xix My experience of course is limited. I stayed with two families where there were grandchildren and young children respectively. I visited schools to observe and teach Mandarin. I spoke to many parent and children as well as my academic colleagues. I constantly reflected on my Australian observations and what I know of children and college students in China.

