Defining the future: creating and sustaining e-confident schooling

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…he had a wild gleam in his eyes. Mr Brainfright rubbed his hands together and smiled at us. "Well, Class 5C," he said. "What are you going to teach me this morning?"(Griffiths, 2008, p. 11)

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Abstract

Today there is unprecedented access to globally connected networks via powerful devices, high quality content and various forms of software applications. However, schools often lag behind society when it comes to innovative practice with Information and Communications Technologies (ICT) and e-learning. The challenge to transform schools to function in the 21st century is enormous. The full realisation of the educational potential of ICT requires school leaders, teachers, and students to be e-confident, creative and intelligent users of new technologies, communicating and collaborating in new and dynamic ways incorporating 21st century skills. In this way, schools are viewed as learning organisations that embrace ICT in authentic and meaningful ways. A new vision of education is required. This thesis aims to interrogate these phenomena and make suggestions regarding the future of schooling in the context of our changing world by:

1. *Identifying* the characteristics of:
    - the e-confident student;
    - the e-confident teacher;
    - the e-confident school leader and;
    - the e-confident school.

2. *Incorporating* these characteristics into a model that will inform possible innovations in schooling and provide a vision of the future.

3. *Describing* a case study of educational innovation with ICT which will act as an exemplar for whole school change.

The overall research design of the study was a mixed methods approach incorporating an Exploratory Case Study (Yin, 1994). Here, the case study subjects were a metropolitan Victorian government primary school, involving teachers, school leaders, and children. Subsequent data collection involved participants in a teacher focus group and respondents to an online survey.

This thesis seeks to make a contribution to the debate about the role of ICT in education, by exploring schooling and pedagogical perspectives, identifying elements demanding systemic attention and defining a vision that is relevant and challenging to Australian education. Examining the notion of what e-confidence means for students, teachers, school leaders and schools enables a consideration of what strategies can be deployed for achieving this in all Australian schools.

Master by Research Declaration

I, Nikki Deighton, declare that the Master by Research thesis entitled *Defining the future – creating and sustaining e-confident schooling* is no more than 60,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature [redacted] Date 21st August, 2013

Statement of Candidate

I hereby certify that this work entitled "Defining the Future: sustaining and creating e-confident schooling" has not previously been submitted for a degree, nor has it been submitted as part of requirements for a degree at any other university or institution other than Victoria University.

I also certify that the thesis is an original piece of research and it has been written by me.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by the Victoria University Human Research Ethics Committee, reference number: HRETH 08/218 in December, 2008. Additionally, the research presented in this thesis was approved by the Department of Education and Early Childhood Development, reference number: 2009_000278 in August, 2009.

[redacted]

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August, 2013

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Chapter 1 Introduction

1.1 Introduction

Rapid technological change surrounds us. While today there is unprecedented access to powerful devices and software, globally connected networks, and high quality content, schools often lag behind when it comes to 'new learning' (Australian Council of Deans of Education, ACDE, 2004) or innovative practice with information and communication technologies (ICT). Traditional approaches are transforming as the relationship between knowledge (Owen, Grant, Sayers & Facer, 2006), learning behaviours, activities and learning spaces and places is shifting. The skills that citizens need for the future are different from those needed in the past (Morgan, 2007; ACDE, 2004). And yet, while we are living in the 21st century, our schooling system has failed to keep pace with the social and technological innovations of the new millennium. Many researchers (such as Yelland, 2007; Heppell, 2008; Robinson, 2010; ACDE, 2001, 2004; Pearlman, 2011) agree that it is time for the science of teaching, structures and processes of education to connect more effectively with their experience and to prepare students for the future (United Nations Educational, Scientific and Cultural Organisation, UNESCO, 2008).

Globalisation and technological change are impacting on all of our social, political and economic structures and consequently redefining the value of talents, skills and knowledge (Pink, 2005). To ensure that students are adequately prepared for their futures, it is time that schools develop appropriate structures, protocols, policies and practices to respond to and be cognisant of these global and technical influences. The intersection of emerging social software technologies and new educational agendas and priorities offer "potential for radical and transformational shifts in educational practice." (Owen et al., p.4). The full realisation of the educational potential of digital technologies requires school leaders, teachers, and students to be e-confident, creative and intelligent users, communicating and collaborating in ways required by the 21st century world. Hence, a new vision for education is fundamental.

Today's students were born into, navigate and inhabit a highly technological world (Australian Ministerial Council of Education, Employment, Training and Youth Affairs MCEETYA, Pedagogy Strategy, 2004). In response to changing digital platforms, practices and forums, their learning behaviours and interactions are changing. Students converse and communicate in ways previously not possible. They create, celebrate,

customise, contribute, communicate, collaborate and consume like never before (Deighton, 2009). To be empowered and discriminating users, and effective knowledge workers, students will require the skills and predispositions to creatively problem solve, embrace change, relate interpersonally, be socially responsible, take risks and stay safe and to become e-confident.

This chapter provides the outline, aims and structure of this thesis for defining an e-confident vision. The rationale for this study focuses on why e-confidence is crucial for school leaders, teachers, students and schools. The nature of the research and research design are discussed in the context of Research Questions. A definition of e-confidence is provided and terminology used throughout this document is addressed.

1.2 Thesis outline and rationale

Globalisation and a user-driven ICT revolution are impacting education today (Small, 2007) and affecting social, political and economic structures. A critical issue that emerges from this restructuring is the central role of knowledge, education and learning. Relationships to knowledge are changing (Kalantzis & Harvey, 2003) as knowledge is becoming an increasingly important production factor for the success of the global information economy:

> *The forces of globalization entail major changes in all our lives: I refer here to the increasing power of and reliance on science and technology; the incredible connectivity that results; the enormous amount of information, often of dubious quality, that is at our fingertips; the convergence of cultures in economic, cultural, and social terms; and the incessant circulation, intermingling, and periodic clashing of human beings of diverse backgrounds and aspirations. Intimately and inextricably connected to others, we need to be able to communicate with one another, live with one another, and, where possible, make common cause…. (These are) the kinds of minds that we should cultivate in the future. Three of these minds are primarily cognitive: the disciplined mind, the synthesizing mind, and the creating mind. Two minds deal with the human sphere: the respectful mind and the ethical mind. (Gardner, 2011, p.10)*

Social networking phenomena like Facebook, Flickr, Wikipedia, instant messaging, massive multi player online games, YouTube and blogs are creating communities of

publishing, innovation and connection that enable knowledge to be built, distributed and shared in different ways (Owen et al., 2006) and for different purposes. As people modify code, live out virtual lives in cyberspace, begin and nurture relationships and share resources across the web, a new democracy is emerging that is cooperative, collaborative and community-based (Small, 2007). While significant debate has taken place on educational change (O'Rourke, 2003), the rise of Web 2.0, social software and increasingly mobile technology innovations are impacting on the dialogue of change and placing greater pressures on schools which maintain heritage learning ecologies and schooling.

Creating effective change in education has proven to be difficult and takes time. It is the cause of much debate. Along with this comes a growing understanding that ICT holds tremendous potential for preparing students to succeed in today's globalised knowledge economy. In response, education systems are making significant investments into ICT infrastructure in schools. Change based on new and emerging technologies tends to focus on provision of infrastructure, neglecting the important elements of capacity building. Sproull and Kiesler (1991) argued that these first-level effects focus on what is intended: productivity gains, where technology can increase the efficiency of a particular process. Emphasised above all others, these surface or *first level effects* often drive political debate and are used to legitimate massive investments in information technologies and to support the commercial hyperbole that surrounds these technologies. Thus, resulting programs may be ineffectively planned for and unsustainable. For example, when the Australian Labor Party released their New Directions Paper in 2007, they argued the "Australian economy needs an education revolution" (p.1). The federal Government's *Digital Education Revolution* (2008) subsequently aimed to "build…tomorrow's workforce through access to world class education… contribute sustainable and meaningful change to teaching and learning in Australian schools that will prepare students for further education, training, jobs of the future and to live and work in a digital world." (p.2) However, the bulk of the $1.2 billion dollar revolution spend was focused on the provision of hardware and connectivity. There were obvious omissions to the initiative, including investigations into and understanding of Sproull and Kiesler's (1991) *second-level effects* – those that are unintended – and which change the social system in which the process is embedded. Sproull and Kiesler (1991) described these as indirect, affecting organisational processes at a deeper level, prompting rethinking and reorganisation. Thus, considerations of *How ICT might be used in future innovative ways in education,* and *What were the capacity building needs of teachers, school leaders and schools in order to accommodate new learning opportunities afforded by ICT* were not addressed.

This focus on infrastructure and first order change highlights the importance of the social elements of second order change (Sproull & Kiesler, 1991) – the building of human capacity within the education system and the reorganisation of schools to enable them to connect more closely with the needs and preferences of 21st century learners (Yelland, 2007; Heppell, 2008; Robinson, 2010). This cannot be done without an understanding of the spectrum of e-confident skills and attributes needed by leaders, learners and workers in 21st century education. The challenge to transform schools for the 21st century is daunting. Effective change requires strong leadership, commitment to a new dynamic, strategic vision for the place and value of ICT in education, and associated planning, restructuring, coordination and capacity building. As Heppell (2008) argued, "It may be the death of education, but it's the dawn of learning."

A vision for the future could include an explication of e-confidence and e-competence, exploring what this means for teachers, students and the organisations and systems in which they find themselves. In fact, this has been an issue for education systems for the past 20 years. Many educators are finding definitions of teacher capabilities and student competence difficult to determine. Curriculum and assessment authorities seek to define student ICT skills and competence through 20th century frameworks and understandings (Yelland, 2007). Education systems have developed their own e-potential, e-capability matrices and standards for teachers, identifying a set of generic competencies and stages, designed to act as benchmarks for their educators, a line in the sand, a point from which planning can take place. These provide an insight into the everyday contexts for the teachers, schools and school leaders. What they often lack is a clear and positive vision of the future which incorporates a picture of what the education experience needs to be, strategies for successfully effecting change, where it will head, what the change could look like and ideas about how to get there; a vision that encompasses the needs of and imperatives that drive students, teachers, schooling and education systems in the 'business' of education while reflecting emerging practices in social software, collaboration and knowledge building is a view of the future. O'Rourke sought to address the dearth of Australian research into "Why Australian teachers use telecommunication technologies" (2003, p.4), by identifying classroom practices, influences and motivations for using ICT with students. Yelland (2001) identified the need for more Australian research to inform pedagogical practice in the use of ICT.

This project seeks to make an active contribution to the debate by exploring schooling and pedagogical perspectives, identifying elements requiring systemic attention and defining an E-confidence Framework that is relevant and challenging to Australian

education by examining the notion of e-confidence for students, teachers, school leaders and schools and exploring strategies for achieving this.

1.3 Defining e-confidence – an early exposition

E-confidence was a term initially defined by ten statements describing the e-confident school which formed the basis of the Strategic Leadership of ICT program (SLICT) head teacher training run by the National College of School Leadership, United Kingdom (NCSL, 2008), in collaboration with the British Educational and Communications Technology Agency, (Becta). These characteristics were:

1. High levels of staff confidence, competence and leadership;
2. Re-engineered teaching, learning and assessment, integrating effective use;
3. Leading and managing distributed and concurrent learning;
4. Effective application within organisational and management processes;
5. Coherent personal learning development, support and access – for all leaders, teaching and non-teaching staff;
6. Secure, informed professional judgement;
7. Appropriate resource allocation to ensure sustainable development;
8. Availability, access and technical support;
9. Pupils/students with high ICT capability;
10. School as the lead community learning and information hub. (NCSL, National Association of Advisors for Computers in Education (NAACE), Becta 2008)

When 'e' is appended to words like 'mail', 'learning', 'skills', 'assessment' and 'confident' it denotes an electronic, digital, technological element. However, it could be argued that the placement of 'e' could also encompass concepts such as *enhanced, empowered*, *effective*, *enriched* and *extended* - giving rise to a new meaning, related to the quality of learning experiences.

As a descriptor, 'e-confidence' appears to have been superseded by terms like 'digital literacy' and 'information literacy'. Arguably, with this shift in the language of ICT in education, the essence of e-confidence is diminished. E-confidence relates not only to understanding how to use ICT resources and functions but denotes a disposition, a set of attributes, a willingness to take risks and a state of competence and readiness for implementing and using ICT meaningfully in educational contexts – the *enriched, effective, extended, empowered, enhanced* representation of 'e'. In 2007, the NAACE argued that the acceptance of risk-taking, including the removal of any notion of 'failure', supported the development of e-confidence. E-confident learners understand

themselves as learners and work well within an e-confident school environment in which attributes, values and behaviours are shared, aligned and relate (NAACE, 2007). They are encouraged to take risks. Failure is rethought. The NAACE (2007) also distinguished the e-confident from the e-mature learner, describing e-maturity as a:

> *...stage beyond e-confidence where ICT practice is now starting to result in visible impact upon work completed. The e-mature learner will therefore be capable of using ICT effectively, where appropriate, in all aspects of life; and will be able to make decisions about when and where to use ICT to best effect, based upon an understanding of how to go about a learning activity; what sort of use of ICT is helpful; who they will work with in an increasingly co-operative working environment – or indeed whether it's best to use things other* than ICT. *(p.4)*

There are therefore a number of essential elements to creating and nurturing e-confidence in schools and in learners. These include: *school leaders* who have a clear e-learning vision, who understand the learner profiles and preferences of the students within their school and who are receptive to, even hungry for, new and emerging technological developments, who value the place of ICT in learning and build ownership of their vision across the school; *teachers* who are supported to develop the requisite skills and pedagogical understandings to use digital technologies meaningfully in their classrooms; *curriculum and assessment* processes which optimise, incorporate and embed authentic use of digital technologies; *physical learning environments* that promote access; and appropriate, robust and reliable *infrastructure* to support use.

To engage successfully with the current and future social and technological changes, students require knowledge and understanding of how to use ICT, and also the skills and attributes that include a willingness to take risks and a state of competence and readiness for implementing and using ICT meaningfully (Owen et al., 2006). This can only take place within classrooms that embrace and promote e-confidence, within schools that are e-confident learning organisations where innovations are streamlined and planned change is coherent and student-focused (Fullan, Cuttress & Kilcher, 2005).

1.4 Thesis Aims

This thesis aims to provide insights into and suggestions for education systems and schools in implementing effective first order and second order change (Sproull & Kiesler, 1991) in relation to ICT use in education, by:

4. *Identifying* the characteristics of:
    - the e-confident student;
    - the e-confident teacher;
    - the e-confident school leader and;
    - the e-confident school.

5. *Incorporating* these characteristics into a framework that could inform ICT innovations in schooling and provide a vision of the future.

6. *Describing* a case study of educational innovation with ICT which will act as an exemplar for whole school change.

1.5 Nature of the research and justification of the Research Design

The overall research design was a mixed methods approach using an Exploratory Case Study (Yin, 1994). Yin (1994) stated that this is useful in explaining complex causal links in real-life situations by investigating and describing how teachers create teaching and learning contexts, and the ways in which they initiate and react to change. Yin suggested that the use of an Exploratory Case Study is appropriate when the object of study is a contemporary phenomenon in a real life context and when it is desirable to use multiple sources of evidence. For this thesis, the Exploratory Case Study subjects were a metropolitan Victorian government primary school (involving teachers, school leaders, and children). Following the case study, a Teacher Focus Group was facilitated and an Online Survey administered.

Case studies present a range of perspectives and thereby help to bring out the details from the viewpoint of the participants by using multiple sources of data (Tellis, 1997). A number of researchers (Parsons, Brown & Palmer, 1997; Schon, 1983) have highlighted the ways in which we should seek to extend and develop the reflective capabilities of teachers. Kennewell (2003) created a framework to model this process and suggested that it could be disseminated using a system of classroom-based enquiry, sharing of ideas, and reflective practice. It has been suggested that by providing opportunities for teachers to document, share and examine practices enables them to become more reflective (Bachelard, 1964). To gather these reflective insights, this study took a unique methodological approach that incorporated interviews with case study subjects, classroom observation, and then facilitation of a teacher focus group and administration of an online survey that sought teacher, student and school leader insights into what comprises e-confidence.

Quantitative and qualitative data collection methods both have their critics, identifying different strengths and weaknesses. Tashakkori and Teddlie (2003) criticised quantitative methods as "sanitised and lacking in contextual realism" (p. 516). Yin (1994) argued that quantitative data collection is useful for answering *what* and *how* questions. Similarly, the heavy involvement of the researcher in the collection of rich qualitative data leads to criticism of potential bias, misinterpretation and missing important information (Carson, Gilmore, Perry and Gronhaug, 2001). However, as Yin (1994) contended, qualitative methods are suitable for addressing questions of *how* and *why* things occur. The advantage of a mixed methods approach is that the techniques of eliciting data through the qualitative and quantitative disciplines become entwined to "maximise the knowledge yield of research endeavour" (Tashakkori & Teddlie, 2003, p. 518). This allowed the researcher to discover and justify the framework components within one study.

1.6 The Research Questions

A set of queries guided how the data was gathered and summarised so that the data was able to be presented in a coherent and relevant manner. These included:

- What is currently happening in education in relation to ICT and e-learning that is new, changing, future-oriented?
- What characteristics of new learners are needed to enable students to thrive and learn in schools?
- What is the role of the teacher and school leader in facilitating learning that embeds ICT in a way that promotes engagement and transformation and builds e-confidence?

To answer these queries, the following four Research Questions were developed and guided all aspects of the research.

1. *What are the characteristics of e-confident schools, teachers and students?* (Data was gathered via interviews with case study school subjects, teacher focus group responses and online survey responses.)

2. *How important is school leadership in creating and enacting a vision or policies that will inform and sustain innovation that incorporates the use of new technologies?* (Data was gathered via interviews with case study school subjects, teacher focus group responses and online survey responses.)

3. *What strategies are most successful in promoting e-confident schools and teachers?* (Data was gathered via interviews with case study school subjects, teacher focus group responses and online survey responses.)

4. *What are the features that contribute towards successfully achieving an e-confident school, teachers and students?* (Data was gathered via interviews with case study school subjects and classroom observations.)

1.7 Thesis Structure

The first chapter of this thesis, Chapter 1 Introduction, provides an outline or summary of the thesis and related issues associated with the research design.

Chapter 2, the Literature Review, explores the themes of e-confidence, studies of ICT competence and effective educational change identified in the literature.

Chapter 3 describes the four stages of the Research Design, detailing the Exploratory Case Study Methodology and the rationale behind selecting this approach to answer the research questions.

Chapter 4, Exploratory Case Study, describes the data collected from the field visits and interviews at the selected Case Study School, Bright Town Primary School.

Chapter 5 presents the data collected from the Teacher Focus Group and the Online Survey.

Chapter 6 presents an analysis and synthesis of Findings and Discussion from all stages of the Research Design, and addresses the Research Questions.

Chapter 7, Conclusion, presents a definition of e-confidence derived from the Exploratory Case Study and subsequent data collections, and an E-confidence Framework. Future research opportunities that may be pursued are also discussed.

1.8 Terminology

Different and often interchangeable terminology that is used in today's lexicon when referring to terms such as *Information and Communication Technology (ICT)* and *digital*

technology and *e-learning* have been used at times in this document. They are designed to differentiate from the word 'technology'.

Information and Communications Technology (ICT) refers to a diverse set of technological tools and resources used to communicate and collaborate, and to create, disseminate, store, and manage information. These technologies include computers and other devices including mobile technologies and smart phones, the Internet, broadcasting technologies (radio and television), and telephony.

E-learning refers to powerful learning that is supported and afforded by using ICT. And of course, with the introduction of mobile devices, 'm' learning emerges as a subset of e-learning learning – learning that is electronic in nature, using handheld and portable devices that allow the student to not be location-bound and learn in different environments and not restricted to a classroom setting or desk (Bates, 2012).

1.9 Summary

This chapter has explored the rationale, aims and structure of this thesis and presented the purpose of this research and questions which informed the research design. The case study protocol was described and the methods planned for appropriate data collection and generation were discussed: school case study visits, classroom observations, case study subject interviews, teacher focus group facilitation and an online survey. This chapter also provided an overview of the research impelling educational change, explored the challenges mitigating effective transformation and proposed a definition of e-confidence.

This research has two main purposes – to develop a contemporary definition of e-confidence in the context of school leadership, teachers, students and schools – and to explore the range of strategies that might be most helpful in supporting the realisation of effective ICT-based change in schools.

The Literature Review which follows in Chapter 2 discusses the research as it pertains to the notion of e-confidence and ICT competence and explores the processes discussed in the literature about effecting successful change in educational contexts.

Chapter 2 Literature Review

2.1 Introduction

This chapter focuses on *why* change is imperative for education and the processes for effecting meaningful change in schooling contexts, particularly as it applies to effective and innovative ICT implementation. In so doing, the concept of e-confidence drawn from the literature is explored – for students, teachers, school leaders and schools themselves. The role of ICT in education is examined, incorporating a discussion of 21st century learning, learners and learning organisations. The impact of new and emerging technologies such as Web 2.0 and social software developments is explored.

The following elements identified in the literature are examined in this chapter:

- *Why educational change is important: current habits and future skills*
  The imperative for educational change as new skills and behaviours and new technologies that are demonstrated and used by students, impact on teaching and learning contexts;

- *E-confident students*
  The features of e-confident students who are increasingly more digitally and visually literate and multimodal in their learning;

- *E-confident teachers*
  The features of e-confident teachers (and the new pedagogies required to meet the challenge of engaging e-confident students), their central role in the knowledge economy and in effecting educational change;

- *E-confident leaders*
  The features of e-confident school leaders and the profound influence they can have on the extent and success of educational change;

- *E-confident schools*
  The features of e-confident schools and the types of actions at the school level that draw on the transformative power of ICT in enabling traditional structures to be re-examined and new futures to be imagined;

- *Making the system work – process of change*
  Effective approaches to implementation and processes for effecting change and the ways in which systems and schools initiate, create and sustain effective organisational change are discussed.

2.2 Why educational change is important: current habits and future skills

The Australian Communications and Media Authority (ACMA, 2011) described the future digital economy as the new economy, requiring "people who are innovative, flexible, creative and who have high levels of emotional and social intelligence and (digital literacy), the ability to access, understand and participate or create content using digital media." (p.10). Yelland (2007) agreed:

> *The new era gives premiums to those citizens who are able to be creative, innovative, and transformative in their use of knowledge and skills in order to create new products, ideas and services. (p. 7)*

However, generally schools have not kept pace with the changing skill sets that students need in order to succeed in life (ACDE, 2004; Pearlman, 2011). The relationship between knowledge, creativity and innovation is not necessarily reflected in schooling because, as Pearlman (2011) argued, practice in schools reflects old, traditional or heritage uses of ICT teaching that do not necessarily look to the future. Indeed it has been noted that many schools cannot be regarded as 21st century learning organisations (Stewart, 2001). In 2008, a study assessing levels of IT intensiveness was conducted by the US Department of Commerce. The research cohort covered 55 industry sectors. The study found that the Schools Sector was ranked the lowest in the cohort at 55 (COSN, 2008).

The ACDE (2004) contended that technology has the potential, once harnessed, to transform learning relationships and will "become central to all learning" (p.3). The Australian Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA, 2004) stated that education systems have attempted to respond to this contention and also acknowledge that ICT "capabilities are essential for participation in today's society and economy" (p.3). However, ICT is not a field of dreams that, once envisaged and built, serendipitously transforms everything it touches. While pre-millennium discussions viewed ICT as the quintessential 'Trojan Horse' (Papert, 1980), with the introduction of new technologies into education sparking high anticipation,

the school experience was often one of high cost, low impact, and only "a very superficial contact with them, that (did) not develop the necessary fluency to push the transformations in school's everyday life" (Blickstein & Cavallo, 2002, p.2). Pearlman (2011) agreed, suggesting that visits to any new school buildings across the United States, will yield the:

> *Same old 700- to 900- square-foot classrooms, superbly designed for a teacher to stand in front of a class of thirty students set in neat rows, listening, taking notes, and doing worksheets. Yes, you might see wiring for computers and interactive whiteboards at the head of the classroom, but other than that, little has changed. (p.117)*

In 21st century everyday life, learner experiences are media and technology-saturated. To navigate through these new experiences, a new literacy is required: the ability to be confident, empowered and discerning ICT users, able to competently and critically use digital information and resources for learning, communication, collaboration and creation. Yelland (2007) stated that digital literacy is vital for students in contemporary times. It enables full participation in the knowledge society, as students actively manipulate digital media to participate in school and their life out of school. And yet, many schools are still organised for the "old capitalism" (p.7) – a paradoxical situation when considering that society is calling out for new ways of doing, knowing and creating knowledge.

Robinson (2010) concurred, asserting that the industrial model of education is alive and well and that a radical shift is required from standardised schools and standardising school practices to personalised learning - creating conditions where students' natural talents can flourish. When characterising students as living in the "nearly now" where they reflect, retract, research and repeat in a "great world for learning" Heppell (2008) contended that a different type of school is required that embraces the challenge of engaging these collaborative, gregarious and "brave" students. This contention was supported by other researchers, such as Yelland (2007), Pearlman (2011) and Robinson (2010), who claimed that schools should become more agile and make the shift from *schooling* to *learning*, to move away from the linear, conforming industrial model to a transformed view of rich learning opportunities:

> *...we have to change metaphors. We have to go from what is essentially an industrial model of education, a manufacturing model, which is based on linearity and conformity and batching people...It's about customizing to your circumstances and*

> *personalizing education to the people you're actually teaching....Technologies, combined with the extraordinary talents of teachers, provide an opportunity to revolutionize education. And I urge you to get involved because it's vital, not just to ourselves, but to the future of our children. But we have to change from an industrial model to an agricultural model, where each school can be flourishing tomorrow (Robinson, online, 2010).*

However, building new software and creating new technologies does not in itself transform education. ICT can reinforce old ways of knowing and doing unless something intervenes to create new learning and new learning opportunities. It is teaching methods and learning that need to change to "engage students in ways not previously possible" (MCEETYA, 2004, p.2) and nurture in them the skills and attributes of e-confidence.

If schooling is to more effectively prepare our young to live meaningful and active lives into the future, education has a responsibility to provide students with new and different learning contexts, allowing them to inquire and practice new and emerging skills and use existing ideas to create new knowledge (p.8). Yelland argued that:

> *This can be achieved by participating in inquiries that are authentic and engaging, collaborating with others, seeking out expert assistance and knowledge from a variety of sources and communicating or disseminating the findings to others in an effective and appropriate way. (p.8)*

To achieve authentic and ICT-rich learning opportunities, schools cannot afford to be static places. By adopting change strategies that provide internal stability, they can move ahead (Silins, Zarins & Mulford, 2002) and become *learning organisations* – where the focus of any change strategy is on the *learning* that is actively modelled in all levels of the school; where performance is continually reflected on and improved upon; and human capacity is built in order to embrace and manage change in a borderless and dynamic environment (Silins & Mulford, 2002). Learning organisations focus on an innovation and learning culture, empowerment of all and building capacity. In a learning organisation, it is learning that permeates all functions of the organisation and curriculum, pedagogy, assessment and professional learning are all rethought. Learning organisations foster a *culture for learning*, ensuring that people consistently learn from each other, and become collectively committed to any planned change (Fullan et al., 2005). Change thrives in a learning organisation.

2.3 E-confident students

Young people are increasingly more digitally and visually literate and multimodal in their learning (Cisco, 2008). Many are online gamers, comfortable with exploring information in a non-linear way, creating links rather than following a narrative, selecting imagery first and then text to clarify and expand, and communicating via networks that are not bound by geography:

> *Today's pupils are no longer the people traditional educational systems were designed to teach. (Pedro, 2006, p.10)*

Forming the Net Generation (Oblinger & Oblinger, 2005), these "twitch speed" digital natives (Prensky, 2001) are first language ICT speakers, comfortable in virtual spaces, using hypertext, gaming and communicating in the ether. These *screenagers* have:

> *...a relaxed approach to 'play', viewing this as a valid activity and conceptualising the computers as primarily a 'play tool'; expecting intrinsic reward for activities; and having a model of doing in order to learn, rather than learning in order to do. … (they have a) relaxed acceptance of fantasy as a valid space of experience and a view of technology as a friend they have grown up with. (Futurelab, 2004, p. 17).*

There are many descriptors that commentators and academics have used to attempt to encapsulate the preferences, contexts and experiences of students today. They have been labelled technology-savvy and empowered "capable information technology users; information seekers, analysers and evaluators; problem solvers and decision makers; creative and effective users of productivity tools; communicators, collaborators, publisher, and producers; informed, responsible and contributing citizens" (UNESCO Policy Framework, 2008, p.1). Howe and Strauss (2000) described them as the 'Millennials', contemporary students who are new millennium learners:

> *Thought to be adept with computers, creative with technology and, above all, highly skilled at multitasking in a world where ubiquitous connections are taken for granted. (Pedro, 2006, p.2)*

Born after 1982, they are "the 'babies on board' of the Reagan years, the 'Have you hugged your child today?' sixth graders of the early Clinton years, the teens of Columbine…." (Howe & Strauss, 2000, p. 4). "Generation M", they are the digital media

generation (Pedro, 2006), voracious media consumers and producers (Kaiser Family Foundation, 2005). They have also been called, "Gen-Y and Gen Z, the C21 generation, the Internet generation, Google Gen, the X-boxers, Generation C (content and community) or Gen V (virtual)" (Deighton, 2008, 2011). They have been called the "IM Gen" - instant messaging generation (Carstens & Beck, 2005) – and "homo zappiens" due to their ability to simultaneously control multiple sources of digital information (Veen, 2003).

The youngest students in this group will graduate in 2025. They face a very complex world with the looming spectres of global warming and decrease in fossil fuels, a lack of water and an ageing population. They may never own a house but have experienced unprecedented prosperity, and now, unprecedented debt. They have never known life without mobile phones or the Internet, are concerned about terrorism and the environment and are the most educated generation ever (Deighton, 2011). They are also the most "watched-over generation in memory…smarter than most people think" with test scores that have risen in every racial and ethnic group (Howe & Strauss, 2000, p.9).

Twenty first century students have more information and communication devices than ever before in human history. Spending an enormous amount of time on digital media (Rideout, Foehr & Roberts, 2009), these students live a large part of their lives online and do not distinguish the online from offline (Palfrey & Gasser, 2008). They are constantly connected with friends both virtually and physically (Palfrey & Gasser, 2008; Tapscott, 1998), and they experience information in very different ways from older generations through multimedia and multi-tasking (Palfrey & Gasser, 2008; Cisco, 2008; Rideout et al., 2009).

Far from being passive in their use of ICT (Pedro, 2006), this group routinely use immediate communication devices, instant text and SMS messaging, and mobile conversations. They are defined by connectivity, not locale. They are comfortable in the socially networked world. They blog, create wikis, tag, syndicate content and share preferences through varied social networking channels.

They can access technology 24/7 and are capable of simultaneously listening to music, video-conferencing, texting and watching a documentary, with no information loss on intake (McDougall, 2006, p.4). They expect ICT to be part of their routine practice. The Australian Curriculum Assessment and Reporting Authority (ACARA, 2011) identified the importance of students engaging purposefully in creating preferred futures by using

technological processes, the processes of design and design thinking; learning about and using digital technologies; and managing projects effectively. Thus, students expect that the environments in which they live and work - school, at home, socially, at worksites and online - will be technologically-rich, compatible, interfaced and interconnected (MCEETYA, 2006).

This access to ICT resources brings new literacies including *digital literacies*. Being literate in the 21st century requires students and teachers to be socially responsible, aware, empowered and discriminating users who make informed choices about the information they seek, the products they want to create and find and the ways in which they acquire them (Deighton, 2011). Social software (online social networking sites like Facebook, weblogs/blogs, virtual learning environments such as the Ultranet and Moodle, wikis, online photo and video albums, online web spaces) enable people to communicate and collaborate easily. Ongoing, participatory and open authorship of content – such as in wikis and blogs – means that information cannot be guaranteed to be reliable and that personal and private information can readily become public knowledge. Cognisant of this, e-confident students are responsible and savvy and know how to stay safe online. Deighton (2009, 2011) contended that it is generally recognised that to be *digitally literate*, 21st century students need to be able to:

- work comfortably in an online medium;
- critically evaluate websites for their authenticity, accuracy, context, bias, author and points of view;
- participate in chat, discussion groups, wikis, blogs and other social networking contexts as active, informed and discerning participants;
- understand that what is omitted on the web is as important as what is included;
- be receptive to and understanding of the place and value of all kinds of electronic texts: images, animations, text links, videos, audios, etc;
- author digital media and engage in collaborative dialogue and projects;
- understand issues of ethical and responsible use of electronic materials, copyright, intellectual property and plagiarism;
- undertake effective, efficient and productive online searches for materials and resources, select and decipher RSS feeds and learn how to locate, retrieve, synthesise and customise content for their own purposes.

Howe and Strauss (2000) argued that students bring with them "enormous power" and untapped potential. They are the "found" generation (emerging from a time when opportunities for and access to fertility were high), optimistic, happy, confident and

positive, cooperative and accepting rule followers (pp. 7-8). They "believe in the future and see themselves as its cutting edge" (p.10).

Contemporary students have grown up accustomed to accessing information mainly in multimodal, digital, non-print forms; giving priority to images, movement and music over text; multitasking easily; gaining knowledge in non-linear ways (Pedro, 2006). Pedro argued that millennial learners have short attention spans, are impatient, intolerant, with low boredom thresholds, expecting information to appear quickly at their fingertips, rarely spending long hours thinking about the same thing. He also argued the implications may touch on a wider range of cognitive skills, incorporating multitasking and focusing on multimedia. In fact, research (Cisco, 2008) has shown that significant increases in learning can be accomplished through the effective use of visual and verbal multimodal learning with students engaged in learning that incorporates multimodal designs, on average, outperforming students who learn using traditional approaches with single modes (p.13).

Usability research, such as that undertaken by Neilsen (2002) into *how easy* it is for users to accomplish basic tasks the first time they encounter a digital resource, *how quickly* and easily tasks can be performed, how easily users can establish proficiency, how many errors they make, recovery from errors and their levels of satisfaction with what they have encountered, reinforced the different styles of reading/scanning on screen between adults and students. The differences in internet use highlighted students' preferences for visual, non-linear and multimodal styles. Neilsen (2002) found distinct differences between children and adult internet users: children like animation and sound effects and are willing to 'mine sweep' (scrubbing the screen with the mouse either to find clickable areas or simply to enjoy the sound effects that different screen elements played); they enjoy geographic and visual navigation through pictures and rarely scroll and mainly interact with information above the fold (of the computer screen); they interact immediately with content, are comfortable with non-linear information organisation and are highly visually literate. Yet, they are also happy to read some instructional information before playing a game and enjoy diverse design elements.

These students are also autonomous learners, accustomed to personalisation, who are keen for learning opportunities that involve communication, collaboration and interactivity (Pedro, 2006). According to a 2008 study by the Institute for Policy Studies in Education, UK, the e-confident student/learner:

- Has a wide range of generic ICT skills;

- Is able to learn new skills as needed;
- Can select the appropriate tool for the task;
- Can talk about the way ICT can enhance their learning;
- Knows when ICT can assist learning;
- Has a high level of information literacy;
- Is prepared to explore and experiment in the use of ICT;
- Uses ICT to learn away from school.

These students like to design, produce, evaluate and manage their digital projects. In doing so, they require a range of thinking and problem solving skills to create and communicate their ideas. Thus, they want to be informed, discriminating, ethical ICT users able to assess and manage risk. Because the demands of contemporary learning are dynamic, students also need to be flexible and responsive to changing circumstances (ACARA, 2011).

While most of today's students are regarded as being digital natives able to access new technologies 'at home', there is still a percentage who do not have easy access in their homes. There has been significant growth in Australia's access to and use of the Internet from 64% of Australian households in 2006-07 to 79% of Australian households in 2010-11. Even so, 21% of Australian households were still not connected in that time (Australian Bureau of Statistics, ABS, 2012). And, with the development and rollout of the National Broadband Network - a high-speed broadband network planned to reach Australians everywhere with a combination of fibre, fixed wireless and satellite technologies that can carry voice, video and information to people's computers all at the same time - the percentage of Australia households with access to the internet will continue to grow. ABS data indicated that income, location, educational attainment, family composition, and labour force participation impact significantly on connection and access (2007). In looking at social status and the use of new technology it is no surprise that, in terms of socio-economic status, the higher the status the more intense and varied the use. This was corroborated by Pedro (2006) who noted:

> *It seems to be that socio-economic status either reinforces a certain number of practices while avoiding some others, thus suggesting a diversity of NML profiles following diverse needs for peer-to-peer communication and knowledge management. (p.9)*

Furthermore, Yelland and Neal (2012) concurred, stating that there remain children and families who are not able to participate in this digital revolution for reasons that tend to

be closely aligned to social and economic circumstances. They also warned against thinking of the 'digital natives' or 'new millennials' as a homogenous group displaying similar patterns of behaviour and access to new technologies. Yelland and Neal (2012) described a 'new divide' that refers to the type and quality of uses of new technologies. They argued that uses range from those who are basic consumers to those who author and create their own content for comment, discussion and critique in the multitude of social forums that populate web 2.0 today (Yelland 2007, 2011; Yelland and Neal, 2012).

This emerging profile of the Generations Y and Z (the digital natives, the first language digital speakers) raises implications about how education is envisioned, designed, facilitated and experienced. The notion of playful learning, informal learning, learning to learn (Owen et al., 2006), experimentation, trial and error and simulation are well-accepted by educational instructional designers. Accommodating diverse learning styles and preferences and engaging these students for the future is a significant challenge for educators and education itself. If these issues aren't addressed, Yelland (2007) argued that schools will "not remain relevant to the lives of students" (p. 10). The realisation of this is (slowly) dawning (Yelland, 2007) as the digital immigrants (Prensky, 2001) move to adapt to new environments, new languages and new learning opportunities (Pedro, 2006).

It is important to consider the implications these changing behaviours, preferences, expectations and practices may have on future schooling, curriculum design and teaching. Schools may need to explore and establish structures that allow for dynamic and powerful personalised learning while ensuring students achieve the learning outcomes required by curriculum frameworks. As such, ICT which is already inherently student-centred can become a more powerful learning resource when it involves students driving their own interactions with the technology. With the onset of Web 2.0 social software, the intrinsic constructive qualities of student work means that this is an excellent opportunity for schools and educators to pursue and offer self-directed inquiry that allows students to actively participate in the learning process by authoring new content, examining sources, raising questions and debating meaning (Deighton, 2011).

The skills needed today are different to those required for 20th century citizens (ACDE, 2004). How we live, work, play and learn has been dramatically transformed by technology over the past 20 years. Cisco, Intel and Microsoft (2010) for example, have organised these skills under four groupings as follows:

Ways of Thinking

1. Creativity and innovation

2. Critical thinking, problem solving, decision making

3. Learning to learn, Metacognition

Ways of Working

4. Communication

5. Collaboration (teamwork)

Tools for Working

6. Information literacy

7. ICT literacy

Living in the World

8. Citizenship – local and global

9. Life and career

10. Personal & social responsibility – including cultural awareness and competence. (Cisco, Intel, Microsoft, 2010)

Educational institutions have a critical role to play in creating contexts in which such skills can be encountered, used and transferred to authentic contexts. Accordingly, there is an increasing recognition that schools can create a new vision for education (Fox, 2008) that supports students to become confident, flexible, adaptable, outward looking, active and creative global citizens. In Fox's model, the curriculum helps every student realise their potential by developing their strengths and also the prerequisite skills for living, working and succeeding in a global economy. Fox argued that students need to be adept, confident and knowledgeable users of the essential digital tools in order to achieve this. This requires school leaders to develop in their schools a strengths-based approach to education which is, of necessity, a student-centred, personalised learning approach. Thus, rather than offering a one-size-fits-all standardised curriculum, schools could incorporate personalised learning programs that begin with the student's strengths, interests, and abilities and align them with specified targets whether these be local or nationally set. Such programs would offer opportunities and resources to help students identify, develop, utilise, and demonstrate their strengths so as to develop their talents, skills, and knowledge that are unique and in demand in today's global society. A student-centred approach to teaching and learning seeks to develop 21st century skills in collaboration, communication, innovation, critical thinking and problem solving: e-confidence.

In the context of the Yelland and Neal (2012), ABS (2012) and OECD (2006) data, gaps in student access and usage of ICT raise concerns about the different opportunities and benefits from participating in the knowledge society for students from diverse backgrounds. It is important to ensure that the digital divide is not exacerbated or that those who are unconnected at home become excluded from learning communities in the online world (Owen et al., 2006). There is a clear role for schools in levelling the playing field by providing ubiquitous access to ICT resources at school for those students who cannot access them outside school and to encourage uses that enable students to perform as active, e-confident creators and not simply consumers of content.

2.4 E-confident teachers

It is thus established that 21st century learners are different to their predecessors. What are the ramifications of this for 21st century teachers?

Today's teachers are constantly required to respond to the demands of changing and crowded curriculum and new pedagogies, increasing student diversity and the emergence of new ICT resources and opportunities (ACDE, 2004). These changes demand a complex range of skills and knowledge. The ACDE argued that the "traditional view of educators as carers and nurturers has never seemed so inadequate" (p.21). This has been reinforced by Small (2007) who stated:

> *We are now at a point where we need to teach what no one knew yesterday, and prepare our students for what no one yet knows.* (p. 10)

Traditional educational practices "no longer provide…teachers with all the necessary skills for teaching students to survive economically in today's workplace" (UNESCO, 2008, p. 1). McLuhan (1994) proposed that students and teachers are part of the connected global village. This means that new technologies utilised effectively can optimise connections and create new ways of learning and doing. Additionally, Blikstein and Cavallo (2002) contended that pedagogies need to change as teachers develop increased fluency in ICT and transformation.

The teacher's role has been recognised as being crucial for change (MCEETYA, 2004) and a central profession within the knowledge economy:

> *Proposition 4 claims that Teaching is the central profession of the knowledge economy. The implications of the knowledge economy for educators are profound. Teaching is not alone in being substantially recast by the knowledge economy, but its particular relation to knowledge makes the profession pivotal to economic prosperity and social cohesion. (ACDE, 2004, p.2)*

New pedagogies engage students in new dimensions in "exploring and experimenting; thinking and working creatively; reflecting and planning; using feedback and self-assessment; creating new knowledge; communicating with others and working interactively with local and global learning communities" (MCEETYA, 2004, p. 4). Using ICT effectively demands reconceptualising the teacher/learner relationship (Becta, 2008; ACDE, 2004) as teachers are seen as knowledge workers of the 21st century, who are lifelong learners with their students. The ACDE (2001, 2004) described *old* and *new* learning. *Old learning* was the old world of work (Yelland, 2007), defined as mastery, scope and sequence, skill acquisition - "rigid" and "counterproductive" and "instantly redundant" with its focus on fixed content knowledge intended to last for life – "undeniable facts and theories-to-be applied, vocational skills and technical information" (p.21). Conversely, *new learning* involves the "imparting of defined knowledge and skills and more about shaping a person" (p.21), a person open to autonomous and collaborative learning experiences:

> *These are all knowledge things, relationship things, things of human rather than fixed capital. Most importantly, they are all things that are made by learning. Learning has become pivotal to the whole economy. And, for the learning which is now required, the old education simply won't do. (ACDE, 2004, p. 6)*

This notion of "new learning" supports a new educational direction in the 21st century (ACDE, 2001), conceptualised around 8 propositions:

1. Education has a much larger role to play in creating society.
2. Learning will be lifelong and life wide.
3. Education is one of the main ways to deliver the promise of democracy.
4. New basics are emerging.
5. Technology will become central to all learning.
6. The work of educators will be transformed.
7. The place of the public and private in education will be redefined.
8. The focus of education policy must change from public cost to public investment.

The argument for new learning recognised that new millennium workers "require skills and sensibilities that are significantly different from those of the past" (ACDE, 2001), p.31). To develop these skills in their students implies that teachers also develop e-confidence themselves. The UK Institute for Policy Studies in Education, (2008) asserted that the e-confident teacher had the following characteristics. They:

- Used ICT effectively at a personal and professional level;
- Used the technology to learn online;
- Were confident in judging standards;
- Used ICT effectively in their own teaching;
- Envisioned the future of an ICT-rich education for their students;
- Were prepared for students to know more than they do about ICT;
- Encouraged students to make choices about their use of ICT;
- Built on their knowledge of students' ICT capabilities for effective learning;
- Had high levels of information literacy; and
- Identified potential new approaches for the use of ICT in their teaching or subject.

The research also suggested that the repertoire of skills and behaviours of the e-confident teacher expanded more widely than the ICT usage addressed above. Cuthell (2005) stipulated that in order to accommodate new learners and foster new learning (ACDE, 2001, 2004) - a new pedagogy of e-learning (Cuthell, 2005), c-learning or 'pedagogy 2.0' (McLoughlin and Lee, 2008) was required. In his scenario, teachers are regarded as e-confident knowledge workers; embracing student driven, learner-centred curriculum and tasks and providing technology-supported learning opportunities for their students (UNESCO, 2008).

As constructivists and connectivists, McLoughlin & Lee (2008) contended that 21st century teachers focus on knowledge creation and community participation (Owen et al., 2006). They allow students to teach each other and encourage sharing (Small, 2007). They create learning environments that facilitate risk taking, embrace challenge and change and are flexible. They move beyond work-related basic, product-driven use of ICT (Negroponte in Bergstein, 2007). They have positive dispositions towards technology and integrate it consistently in their practice:

> *(They are) equipped with technology resources and skills and…can effectively teach the necessary subject matter content while incorporating technology concepts and skills. Interactive computer simulations, digital and open educational resources and sophisticated data-gathering and analysis tools are only a few of*

> *the resources that enable teachers to provide previously unimaginable opportunities for conceptual understanding. (UNESCO, 2008, p.1)*

E-confident teachers are fluent in the use of new technologies but they also are able to envision the ways in which transformation of schooling is possible (Owen et al., 2006). They reflect (Peters, Dobbins & Johnson, 1996), interact, empower, model (MCEETYA, 2004), reiterate, record, collaborate, communicate, commit to continuous improvement and are partners in learning, offering flexible opportunities for students to engage in learning that is authentic and relevant to their needs (and networked society) while providing necessary structure and scaffolding (McLoughlin & Lee, 2008; Deighton, 2009, 2011).

While the teacher's role remains crucial, new pedagogies that engage students in new dimensions allow for:

> *Exploring and experimenting; thinking and working creatively; reflecting and planning; using feedback and self-assessment; creating new knowledge; communicating with others and working interactively with local and global learning communities. (MCEETYA, 2004, p. 4)*

In 2008, UNESCO developed the ICT Competency Standards for Teachers (ICT-CST). The Standards aimed to:

> *Improve teachers' practice in all areas of their work, combining ICT skills with innovations in pedagogy, curriculum, and school organization as well as enhancing peer collaboration and sparking innovation. (UNESCO, 2008, p.5).*

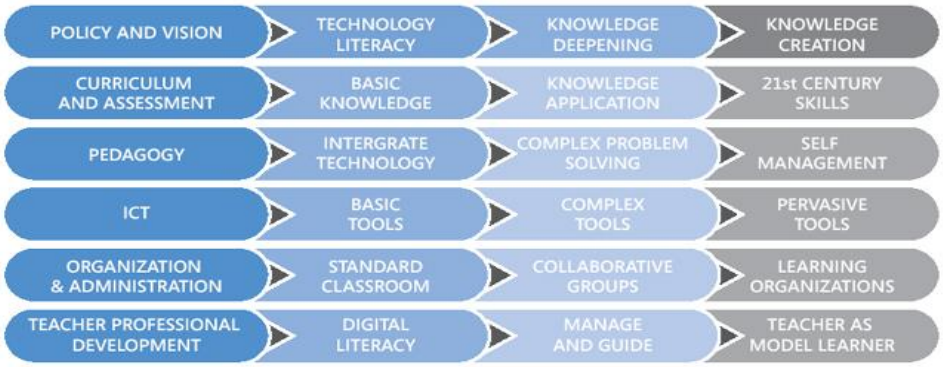

Figure 1: UNESCO ICT CST Policy Framework (2008, p.11)

The Standards were based on three factors that UNESCO economists believed to be crucial to provide growth based on human capacity: technology literacy, knowledge deepening and knowledge creation (p.8). These factors were then combined with the other five components for education reform and improvement (policy and vision, pedagogy, teacher practice and professional development, curriculum and assessment, school organisation and administration) to provide a framework for teacher improvement and professional development.

The Victorian Department of Education and Early Childhood Development (DEECD) *e-Potential ICT Capabilities Resource for Teachers* (2010), like many of its State and Territory counterparts, sought to outline a series of key areas of competency along four levels of capacity; foundation -> emergent -> innovative -> transformative. The resource aimed to support teachers in developing their skills to integrate ICT into their classrooms and enables "teachers to see and use the potential of ICT for powerful learning". The e-Potential survey is available to all Victorian Government schools. The highest level or transformative (or potentially *e-confident)*, teacher "transforms learning and teaching within and beyond the school". According to the resource continuum, the following attributes defined the transformative (4 star) teacher:

- *Learning and Teaching:* uses ICT innovatively to engage students in a way that was never possible before, leading to learning new things in new ways;
- *Assessment and Reporting:* encourages, develops and implements digital assessment and reporting tools for effective learning and teaching for whole school and beyond;
- *Classroom Organisation:* Creates environments where students are empowered to use ICT in a manner that meets their individual learning needs, maximising available resources;
- *ICT Ethics:* Leads student and peers in the socially responsible practice and access of ICT for learning and teaching;
- *Resources:* Contributes and provides leadership for the use of ICT resources for a richer learning and teaching practice;
- *ICT Professional Learning:* Leads, evaluates and supports Professional Learning for the optimal use of ICT for new and effective ways of learning and teaching;
- *ICT Leadership:* Provides leadership within and beyond the school for peers to integrate ICT for powerful learning and teaching.

E-confident teachers work with flexible and dynamic curricula to ensure they engage, stimulate and extend their students. They do not simply use ICT in heritage and

traditional ways, to reinforce and re-enact what they have always been doing (Yelland, 2007).

Capabilities models go some way to defining what it means to be a 21st century e-confident teacher. Yet simply identifying a set of attributes will not enable us to build up a picture of an e-confident teacher since there are many manifestations and interrelationships to be considered. As Yelland (2007) argued, "we should not be mapping the use of new technologies onto old curricula; rather, we need to rethink our curricula and pedagogies" (p.2). On their own, however, e-confident teachers will struggle to sustain ICT innovation. With visionary and supportive e-confident leadership, their skills and capacity for e-confidence are able to be nurtured and extended. Without such leadership, innovation can only be spasmodic and ad hoc (Fullan et al., 2005).

2.5 E-confident leaders

Effective leaders understand the transformative potential of digital technologies. They use their skills in creating new learning environments, and "ensuring the power of information communication technologies is used to transform pedagogies and learning in schools." (MCEETYA, 2006, p.12) In these ways leaders are proactive in creating productive 21st century schools. It is widely recognised that school leaders have a major impact as change agents and visionaries within learning organisations (Fullan et al., 2005). Supportive, pro-ICT leaders are the tipping point for effecting rich and sustained ICT change in schools:

> *Effective leaders will enthuse, guide and encourage their colleagues on a journey towards a goal. They must have (and be able to articulate) some idea about where they are going and what they are trying to achieve. They will also be ready to review and amend their ideas as the journey progresses… (Scribbins cited in the online DEECD e-Learning Showcase, 2009)*

There are many imperatives for change. While it is difficult to implement change successfully, school leaders who carefully consider their situation and choose a change path that they think will be appropriate to achieve their long term goals. Fullan (et al., 2005) argued that the history of educational reform is "replete with good ideas or policies that fail to get implemented" because the key missing ingredient is the leader's appreciation and use of "change knowledge" (p.54). School leaders aware of

the processes of change and the key drivers for implementing it, achieve greater success.

Eaker and Keating (2008) argued that a key factor found to influence the extent and success of educational change was the quality of school leadership. The literature concurred with this and expounded other factors such as the culture of a school – especially its capability to be collaborative (Hargreaves, 1994), the professional learning opportunities provided (Cole, 2004), teacher pedagogical understandings and changed practices (Elmore, 1996), the ability to be flexible and change practice, and cross teacher collaboration (Cuban, 1988). Thus, in addition to understanding the change process, successful school leaders understand the key drivers that contribute to creating effective and lasting change (Fullan et al., 2005).

These include:

1. *Engaging people's moral purpose* – the knowledge about *why* the change needs to occur;
2. *Building capacity* – developing policies, strategies, resources, and actions designed to increase people's collective power to move the system forward;
3. *Understanding the change process* and the energy, ideas, commitment, and ownership required to implement improvements;
4. *Developing cultures for learning* – so that people learn from each other (the knowledge dimension) and become collectively committed to the improvement;
5. *Developing cultures of evaluation* – evidence base and data;
6. *Focusing on leadership for change* – knowing what kind of leadership is best for the change process and ensuring that leadership spreads throughout the organisation;
7. *Fostering coherence making* – aligning the change, joining the dots, ensuring the pieces all fit together across the organisation; and
8. *Cultivating tri level development* – changing individuals, contexts and organisations.

Defining the Moral Purpose

When Fullan (et al., 2005) discussed *moral purpose,* they focused on *meaning.* For them, this is *why* of the change. It includes thinking about how society and the learning of the students will be improved as a result of the planned change. They argued that the *moral purpose* must be inherently student-centred. Fullan saw principals as leaders in a culture of change (2010). Fullan (2010) described the Culture Change Principal (CCP) as highly collaborative, able to grasp the big picture and make a positive difference by understanding the moral purpose for driving the change. Fullan (2002) argued that moral purpose without understanding of the change process is "moral martyrdom" (p.

5). Moral purpose is not an end point. It is a process. It requires educators to be engaged, the community to be involved and for the change process to be a collaborative and inclusive one. Fullan (et al., 2005) contended that if the *moral purpose* for the change is front and centre, then all other key drivers act to support the moral purpose.

Building Capacity

The second driver of change is *building capacity* (Fullan et al., 2005). It involves – individually and collectively - developing new knowledge, capacities, skills and understandings. Through building capacity, new resources, time, ideas, infrastructure and materials become available and a new identity and motivation emerge to embrace the change. Building teacher capacity is essential because teachers must develop (and have time to develop) the new skills and commitment to face the inevitable obstacles that ICT will bring, as well as the understandings of appropriate pedagogies, classroom management and ways of embedding digital technologies into their curriculum and assessment. To build capacity, school leaders need to work collectively with their teams. This is about working together differently and cannot be a one-off, front end professional learning experience. It has to be ongoing and flexible, sustained, targeted and rigorous. For example, there is no point in having a group of teachers within a school embracing the moral purpose of embedding ICT meaningfully into their routine classroom practice if they do not know what this means, how to do it, why they are doing it, don't have access to the digital resources necessary to achieve it or the professional learning support over time to enable changing practice (Deighton, 2011).

Research into teacher competency reflects Fullan's (et al., 2005) position that, without capacity and understanding being nurtured and built, any digitally-related change in schools will be unsuccessful. The NCSL (2008) expounded that the e-confident leader engages in specific types of behaviour. Specifically s/he:

- Judges whether the school's strategy and the implementation of ICT is secure and impacting on quality and standards;
- Judges standards in ICT and the degree of embedding with the curriculum and pedagogy;
- Demonstrates effective use and application of ICT within their own leadership role and teaching;
- Conceptualises what the school is currently doing and envisions, plans and communicates and engages others in action;

- Applies ICT systems to improve organisational effectiveness through internal and external communication, analysis and data exchange;
- Assesses the impact on the wider school, staffing and budgets for sustaining ICT;
- Understands how the application of ICT can enhance, improve and enrich the quality of learning and teaching now and in the future;
- Monitors, evaluates, makes judgements and provides constructive feedback about teaching and learning. (UK National College for School Leadership, NCSL, 2008; Advisory Matters, 2009)

Inherent to this is the belief that the ICT-based change has to occur within the context of exemplary school leadership. By maximising the possibilities of digital technologies, leaders of digitally rich learning organisations "can do more than enhance current practice. This leadership has the potential to transform learning, teaching and management" (MCEETYA, 2006, p.4).

Thus, the e-confident leader develops a cohesive and comprehensive strategy for enacting cultural change within their school. Without this vision, it would not be possible for a school to develop e-confidence.

2.6 E-confident schools

While the effective use of ICT has resulted in some educational change in education, Zhao and Lei (2009) and Pearlman (2011) contended that the changes can be very limited. ICT has often been used to improve teaching but this has taken place within existing school structures - within existing curriculum, existing class organisations, and existing timetables (Yelland, 2007). Only in some instances are ICT-based changes accompanied with repurposing, reorganisation or re-engineering. Instead, there are pockets of innovation – often an individual or small number of teachers using ICT in innovative ways. An all-encompassing ICT experience for students across all classes is not common.

Effective action at the school level recognises the transformative power of ICT (MCEETYA, 2004), re-examining traditional structures and re-imagining new futures (COSN, 2008). Redesigning curriculum and assessment and building strengths-based education (Fox, 2008) offers students opportunities to realise their potential in a myriad of ways, by developing their strengths, rather than fixing their deficit. ICT can play a useful role in personalising student learning. Bringing digital resources into the context can help students to think and collaborate differently in their work. It enables them to

access information that a generation ago would have been hard to obtain, to participate in worldwide discussions that previously may have been closed to them and to use software that allows them to follow their learning passions by enabling them to produce high quality products that extend beyond the traditional hard copy of their work (Deighton, 2011). This requires a redesign of schooling where school leaders stop and reconsider the purpose of education with their team, re-examine traditional structures of schooling and re-imagine schools for the 21st century (Heppell, 2008; Robinson, 2010).

If the core business of schools is *learning*, so a key question becomes: why is there such a lag, and in some schools active resistance, when it comes to using ICT and changing practice? There are a myriad of hypotheses about where the problem lies, but perhaps part of the reason is how schools actually perceive themselves – as creative places for learning or linear institutions imposing standardisation for learning? To move forward, it is argued that schools become learning organisations (Stewart, 2001) that foster 21st century skills and understandings in both their teachers and students and build their capacity as knowledge learners and workers (ACDE, 2004). Learning organisations facilitate lifelong learning; learner-driven learning; just-in-time learning; customised learning; transformative learning; collaborative learning; contextual learning and help learners to learn how to learn (Ellyard, 1998; ACDE, 2004).

Globally, education systems seem to be very concerned about these issues. For example, the UK National College for School Leadership (NCSL) described the School of the Future as an *E-confident School* (NAACE, 2008), which is characterised by:

1. High levels of staff confidence, competence and leadership;
2. Availability and access to technical support;
3. Re-engineering teaching, learning and assessment;
4. Leading and managing distributed and concurrent learning;
5. Effective application within organisational and management processes;
6. Coherent personal learning development, support and access - for all staff;
7. Secure, informed professional judgement;
8. Appropriate resource allocation to ensure sustainable development;
9. Pupils/students with high levels of ICT capability;
10. School as the community learning and information hub.

In 2007, the British Education Communication and Technology Agency (Becta) developed the Self Review Framework for schools to assist school leaders in identifying

the school's level of "maturity in its use of ICT" (p.1). Eight elements were interrelated to form a comprehensive framework describing the role and purpose of ICT in schools:

1. Leadership and management;
2. Curriculum;
3. Learning and Teaching;
4. Assessment;
5. Professional development;
6. Extending opportunities for learning;
7. Resources; and
8. Impact on pupil outcomes.

Each element was divided into strands and descriptors based on different levels of maturity in the use of ICT in schools – from Level 1 to Level 5. Once a school had undertaken the self-review, and had reached the national standard for ICT effectiveness, the school could then apply to be assessed for the UK ICT mark accreditation.

Figure 2: E-confidence model (NCSL, 2008)

E-maturity was a concept shared across Europe and the United Kingdom (UK). A 2008 study by the Institute for Policy Studies in Education, UK explored the characteristics of recently "improved schools", the role ICT played in their improvement, the use of ICT to reduce inequities and the use of ICT to improve achievement, behaviour, attendance and student aspirations. The study found that ICT provided an essential catalyst for facilitating change; improved school effectiveness and had an indirect influence on student achievement. The model of implementation identified three aspects of the process that were essential components for effective change implementation:

1. Vision: visualising the future potential of the use and impact of ICT;
2. Review: Self-assessment / knowing where you are now in your school; and
3. Implementation: planning a way forward to reach the vision, short and long term.

Thus, as the Self Review Framework illustrated, an e-confident school occurs at the intersection of e-confident teacher, student and leader.

Koehler and Mishra (2006, 2008, 2011) developed the *Technological Pedagogical Content Knowledge (TPACK)* framework for teacher knowledge for technology integration. This highlighted crucial key areas of understanding and capacity for teachers using digital technologies. At the heart of the TPACK framework, is the complex interplay of three primary forms of knowledge: Content (CK), Pedagogy (PK), and Technology (TK). Content knowledge relates to a deep understanding of the domain which is being taught. Pedagogical knowledge relates to deep knowledge about the processes and practices or methods of teaching and learning, and ways of best engaging students. Technological knowledge relates to our evolving understandings about technology, including new and emerging technologies. When each of these intersect, such as when Pedagogy intersects with Content Knowledge, the teacher demonstrates a deep understanding of the processes and practices involved in teaching the knowledge within the subject area. When all three intersect, then Technology, Pedagogy and Content Knowledge imply that the teacher understands the process and practices involved in teaching the domain knowledge within the context of relevant and appropriate technological applications. In other words, there is no point in a teacher having a deep technological understanding – being comfortable using a particular piece of software or hardware – without also understanding how to manage their classroom, engage their students and ensure solid links are made to the curriculum. Similarly, a teacher who has strong curriculum domain knowledge, without an understanding of effective pedagogies, is not going to be effective in creating a positive learning context within their classroom.

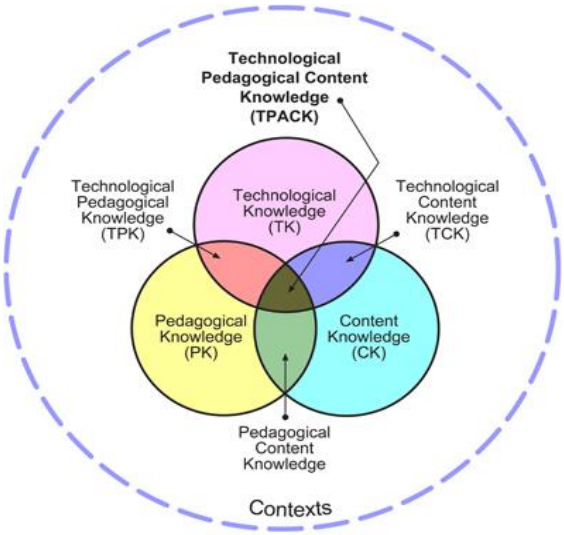

Figure 3: The TPACK model (Mishra & Koehler, 2006, 2011)

When all three domains intersect, powerful learning can happen: the teacher has a strong hold on the curriculum content, is clear on the pedagogical strategies they will use to manage and engage their students, combined with a good working understanding of how to best utilise available technologies for learning. This model can be used as a lens to determine the nature of support needed to build staff capability. If school leaders find that staff have a deficit in one of the knowledge domains, then this can form part of the performance planning process.

The International Society for Technology Educators (ISTE, 2009) identified a number of necessary conditions that enable school leaders to leverage technologies for learning. These included:

- *Shared Vision* for educational technology;
- *Empowered Leaders* in effecting change;
- *Systemic Implementation Planning*;
- *Consistent and Adequate Funding* to support technology infrastructure, resources and personnel;
- *Equitable Access* to technologies, resources and connectivity;
- *Skilled Personnel* in selecting and effective use of appropriate ICT resources;
- *Ongoing Professional Learning* with plans, opportunities and dedicated time to practice and share ideas;
- *Technical Support* for maintaining, renewing, and using ICT tools and resources;
- *Curriculum Framework* with content standards and related digital curriculum resources aligned with and supporting digital learning;
- *Student-Centred Learning* with planning, teaching, and assessment always informed by and focused on the needs and abilities of students;
- *Continuous Assessment and Evaluation* of learning, for learning, and of the use of ICT and associated resources;
- *Engaged Communities* with partnerships and collaboration within communities to support and fund ICT tools and resources;
- *Supporting Policies and Plans* including accountability measures and incentives ;
- *Supportive External Context* at the "national, regional, and local levels to support schools and teacher preparation programs in the effective implementation of technology for achieving curriculum and learning technology (ICT) standards".

In 2007 and 2008, the Australian MCEETYA ICT Taskforce attempted to define 21st century skills and new pedagogies and present a pathway for change in schools through creating a series of competencies in its *Monitoring Implementation Framework*. This was designed to support schools in meeting the *Contemporary Learning – Learning in an Online World* national vision of "all schools confidently using ICT in their everyday practices to improve learning, teaching and administration" (p.3). The framework outlined ten elements of quality schooling:

- Personalising and extending learning;
- Enabling leadership;
- Supporting professional learning;
- Connecting learning beyond the school;
- Improving assessment and reporting;

- Developing, measuring and monitoring ICT capabilities;
- Accessing and utilising student information;
- Providing, accessing and managing teaching and learning resources;
- Automating business practices; and
- Providing reliable infrastructure. Three levels of descriptors help to guide school self-review and evaluation: the developing school, the accomplished school and the leading school (p.4).

In this context, the following table summarises the capabilities of a leading (or potentially *e-confident*) school (p.22):

Element	**Description**
1. Personalising and extending learning	○ Makes school ICT decisions to support and enhance the implementation of coherent curriculum framework that informs learning, teaching and assessment. ○ Identifies and articulates how ICT will be used and adapted to differentiate the curriculum to enable, extend and personalise learning for individuals and groups. Students work collaboratively with other students, teachers and external experts on authentic tasks. ○ Integrates ICT across all curriculum areas, pedagogy and assessment. Students are given the opportunity to select from a range of technologies that takes account of and builds on their existing knowledge and ICT experience.
2. Enabling leadership	○ Uses collaborative teams to realise the clearly articulated shared vision for ICT in teaching, learning and assessment. ○ Diffuses leadership responsibilities, support roles and decision-making processes across the school. Effective communication and documentation of processes within the school community embeds a culture of shared leadership responsibility across the school. ○ Distributes and co-ordinates leadership for ICT across the school community to meet its varying needs and contexts. ○ Plans to use ICT in ways that are creative, flexible, reflective and outward-looking. The plans set challenging targets for anywhere, anytime access across the school and to local and global communities. ○ Uses a comprehensive whole-school approach to existing learning with ICT with clear delegation of responsibility and accountability.
3. Supporting professional learning	○ Demonstrates the high priority of professional learning with and about ICT for staff and the school learning community. ○ Ensures that professional learning is timely, focussed, practical, ongoing and reflective. Supports and encourages individuals to contribute to (or often lead) ICT professional learning networks. ○ Makes seamless connections between school and system ICT strategic priorities and directions, and pedagogical, technical, professional and learning needs. Constant dialogue and support is embedded in professional learning within and outside the school. ○ Uses a well-established evaluation process to measure the impact of ICT professional learning on the school, staff and teaching and learning. ○ Routinely shares effective practice across the school and on a planned and reciprocal basis with other schools. The school trails, supports and evaluates new ideas aimed at informing school, curriculum and professional learning plans.

4. Connecting learning beyond the school	○ Established local and global learning communities and routinely evaluates ways in which participation in global and local communities contributes to learning. ○ Implements policies and management practices that encourage and assume connection beyond the school. ○ Uses ICT to increase parent engagement and to provide relevant information, data and resources that enables families to contribute to their child's learning. ○ Has staff and students who understand and adhere to the protocols for the safe and ethical use of ICT when collaborating with and publishing to a wide range of audiences beyond the school. ○ Uses a wide range of electronic systems for effective and appropriate communication with different groups and regularly reviews and updates systems and processes to ensure they meet the needs of users.
5. Improving assessment reporting	○ Routinely uses and regularly reviews a range of ICT to enhance assessment and reporting. A range of formative, summative and collaborative assessment tools are evaluated for their suitability and used where appropriate. ○ Makes informed decisions about how ICT might be used to demonstrate connections between the curriculum, personalised learning goals, assessment criteria and learning, ICT products may be used as evidence and/or for vocational purposes. ○ Integrates electronic recording of achievement across all areas of the curriculum ○ Streamlines and enhances school assessment and reporting practices through the use of ICT, increasing the timeliness of feedback and staff access to information. ○ Engages parents and the community in the use of a range of ICT to provide relevant assessment information and feedback on student learning.
6. Developing, measuring and monitoring ICT capabilities	○ Has students who have high expectations about the use of ICT whenever and wherever appropriate within and out of school. Students make links between different learning contexts and are able to apply and further develop their own ICT capability. ○ Has students who demonstrate high levels of engagement, confidence and skill in using ICT in their learning. ○ Regularly uses, locally and nationally moderated evidence to evaluate student progress, using learning and assessment methods that reflect current best practice. ○ Routinely uses evidence of student ICT capability to inform planning, teaching and learning programs and assessment in all curriculum areas. ○ Has formal and informal accreditation or recognition processes that acknowledge a range of student ICT capabilities.
7. Accessing and utilising student information	○ Provides ubiquitous access to secure integrated ICT systems that record and analyses student information and performance data. Staff both access and contribute to these systems. ○ Maintains comprehensive accurate and cumulative student records that include all relevant academic, social, psychological, physical and family background data. Information is used effectively and communicated within and across schools. ○ Maintains a secure electronic system for communicating with students, parents and teachers that is connected to an integrated student information system. ○ Uses ICT to analyse individual and group learning outcomes which is encompassed in the school management system ○ Provides students and parents with access to appropriate data and enables them to make use of it.
8. Providing, accessing and managing teaching and learning resources	○ Provides dynamic systems that support the creation, use, review and re-purposing of rich digital teaching and learning resources. ○ Maintains a system of quality assured digital resources that are easy for users to locate, access and use. ○ Selects and tailors the content and use of digital resources to suit the individual needs of students. ○ Embeds system and nationally developed digital content in the curriculum.

	○ Facilitates and supports teachers to teacher sharing of digital curriculum resources.
9. Automating business procedures	○ Uses ICT across the school in a way that improves efficiency, quality and timeliness of school business. ○ Automates business processes to create efficiencies that free up effort to docs n teaching and learning. ○ Embeds a system enterprise solution that standardises business processes across the school and delivers sustainable and efficient practices that reduce duplication. ○ Systematically and routinely evaluates the business enterprise solution with outcomes informing strategic planning at the system level.
10. Providing reliable infrastructure	○ Provides an integrated, efficient system of connected digital devise and learning spaces appropriate to the full range of teaching, learning and administrative requirements ○ Provides efficient local and remote access to relevant curriculum and administrative resources for all members of the school community, ○ Systematically and routinely maintains and upgrades hardware, networking infrastructure and software. Evaluates emerging technologies to anticipate potential bandwidth and infrastructure demands. ○ Procures ICT resources to meet the current and future needs of the school as defined by the ICT strategy. ○ Provides technical support, managed by ICT stag, that minimises disruption to learning, teaching and administration caused by technical problems and maintenance. Systems of ongoing improvement are in place to manage and monitor the performance of technical support.

Table 1: Australian MCEETYA ICT Taskforce Digital education – making change happen framework

While some attempts have been made in documents such as MCEETYA's *Learning in an Online World I and II,* a clear articulation for Australian schools and the path to achieving transformation is currently absent. In the examples above, there is no mention of connecting with usage preferences and behaviours outside of school, in school. The emphasis is on supply and not demand. Effecting systemic change will support schools and their communities to take the journey towards becoming e-confident.

2.7 Making the system work - processes of change

When describing the *Forces for Leadership of Change* Fullan, Cuttress and Kilcher (2005) identified the importance of cultivating 'tri level' development. They acknowledged that meaningful change in education will only occur if it takes place at the school community level; the district/regional level; and the state/system level. Fullan (et al., 2005) argued that successful systemic change cannot happen until coherence is achieved across all three levels.

While ubiquitous technology has changed the way people work, live and play in contemporary society (Griffin, McGraw, Care, 2012) systemic changes to schooling

have not. Pedro (2006) argued that educational policies pertaining to the knowledge society have historically focused on:

- Infrastructure: guaranteeing access to ICT by reducing student:computer ratios and emphasising broadband connectivity;
- Investing in in-service teacher training;
- Promoting the use of digital media as educational resources;
- Setting incentives for fostering ICT-based educational innovations and experiments.

The problem with such policies is that they concentrate "exclusively on the supply side by creating the conditions for ICT incorporation into regular teaching practices" (p.14). Greater focus on the *demand side* would be beneficial (p.15). Twenty first century learners:

> *Are currently experiencing what it is to live in a networked society without necessarily realising the potential of a true knowledge society…to some extent their experiences stop when they cross the walls of educational institutions. (Pedro, 2006, p.15)*

O'Rourke (2003) contended that education should respond to labour market shifts and changing societal landscapes, and raised doubts about whether or not old, industrial age pedagogies and structures are adapting to these changes (Bigum, 2001; Papert, 1997; Yelland, 2001; Robinson, 2010; Pearlman, 2011). Cuthell (2005) expounded that ICT affordances facilitate enhanced learning opportunities, but the real challenge lies in incorporating these affordances within a new pedagogy for e-learning. In this context Silberman's (1970) questions remain relevant today:

> *What is education for? What kind of human beings and what kind of society do we want to produce? What methods of instruction and classroom organization as well as subject matter do we need to produce them? What knowledge is of most worth?* (p. 12)

Stewart (2001) acknowledged that it is difficult to bridge the conceptual and practical gap between individual understanding and organisational learning. Beliefs need to change first, behaviour follows (Fullan and Stiegelbauer, 1991; Eaker and Keating, 2008). Therefore, in exploring the "theories of action" that get results via change knowledge of education reform, Fullan (2006) described seven underpinning core premises: "a focus on motivation; capacity building, with a focus on results; learning in context; changing context; a bias for reflective action; tri-level engagement; persistence and flexibility in staying the course" (p. 8). Furthermore, Cole (2004) asserted that strategies designed to

help teachers implement required change should be action-focused, practical and bound by time. Consistent support involves authentic professional learning (including individual professional learning plans), effective school leadership, teamwork and team approaches (Cole, 2004).

Genuine change, particularly in an educational context, is rarely rapid (Alcorn, 1999). Achieving change on a systemic level adds more layers of complexity, as schooling and schooling systems balance political and educational imperatives. Stakeholders throughout the system need to consider all parts of the system, organisation and groups, how change in one area affects another, and how to coordinate change so that it furthers shared goals and visions (National School Boards Association (NSBA), n.d.). Key stakeholders across the system – students, teachers, school communities, school leaders, educational leaders and administrators – are all influential change agents helping to shape, articulate and strive to implement visions for future education (Alcorn, 1999). However, the process is invariably all too ad hoc and ineffective (Fullan, 2006).

Alcorn's (1999) summation of C.E. Beeby's strengths and achievements as a leading New Zealand administrator and change agent from 1940 - 1960, provided a telling insight into effective change within educational systems:

> *He never doubted the centrality of the teaching profession in education nor the need for administrators, planners and policy makers to support teachers through change, not to blame them. In insisting on quality as the aim of educational planning he was never blind to the need for adequate resourcing. He also insisted on the absolute need for the educational administrator to assert the needs of the students in policy and planning debates. The voices of educators as well as economists and financial planners are crucial…..he reiterated his plea for more research in the generalisation of educational change. He also contrasted the long term thinking needed to effect such change with the necessarily short-term focus of most politicians with their eye on the next election. Few of them last a single decade and most of them want to be remembered for effecting change.*

Re-culturing occurs first and is then followed by restructuring (Fullan, 1993; Hargreaves, 1994). However, alone, these factors will not produce educational change (O'Rourke, 2003). Reflexivity is required where teachers critique "their own and their colleagues'

practices…in light of their social, political and moral implications." (Peters, Dobbins & Johnson, 1996, p.60). As already discussed, there is an established understanding amongst researchers that significant improvement in schools emerges through reconceptualising schools as professional learning communities (Eaker and Keating, 2008). Eaker and Keating stated that for a professional learning community to flourish, there needs to be a deliberate transformation of school culture, involving a *seismic shift* across the organisation, reflecting new ways of thinking and working, focussing on learning rather than teaching. These professional learning communities structure work around their students' interests and experiences and require teachers to make a commitment (not just articulate a vision) because it implies immediate action.

What, then, are the appropriate policy responses to the new millennial learners when thinking about ways in which we can make their education more relevant to lives in the 21st century?

It would seem that it is desirable that more connection between learning preferences and ICT practices outside of school, and those within occurs, combined with greater pedagogical understanding and ICT capacity of teachers, able to work within structures which support and foster easy, intuitive and smooth access to the ICT resources:

> *It looks as if the promises of innovations which would radically improve both the quality and the results of school education, thanks to the availability of ICT coupled with well-trained teachers, will remain to be realised…Under present circumstance it would be hard to say that education systems are really preparing for the knowledge society.* (Pedro, 2006, p.14)

Current education processes do not enable new millennial learners to connect effectively with their experience. Pedro therefore contended that new education system policies need to aim at:

- Strengthening connections between at home use and at school use of ICT, focusing on interpersonal communication, collaboration and connection;
- Enabling New Millennial Learners (NML) to have a voice in their own education, providing channels for expression and means of capturing evolving practices and expectations;
- Addressing imbalances and coaching learners in societal and personal values when communicating and sharing knowledge;
- Creating links and incentives for the software industry to develop authentic and connected educational software;

- Engaging pre-service and in service teachers in capacity-building professional learning to explore new pedagogies (2006, p.15).

2.8 Summary

The rise of the new millennials (Pedro, 2006) has brought with it new learning styles and preferences that demand connection, collaboration and opportunities for creation, publishing and dissemination of content. This in turn creates impetus for educational change and raises questions about the most appropriate strategies for achieving this. This chapter has synthesised the literature about change imperatives and effective change processes in education and has identified that the road to enacting positive and sustainable educational change is a challenging one. The process of transformation is clearly not easy and has been likened to turning around a super tanker (Cuthell, 2005). Thus, this chapter argued that effort needs to be made across a range of sectors and a clearly defined view of the goals or end state needs to be understood and shared by all stakeholders. It has also been noted that the impact of technology also needs to be considered at two levels (Sproull & Kiesler, 1991) and should place students at the centre of the process (Fullan et al., 2005). Additionally, building teacher ICT capacity and exploring the potential of new learning (ACDE, 2011, 2004) will help to more effectively support sustainable ICT change in schools.

The features of 21st century skills and e-confidence emerging from the research have been explored. The potential of new technologies to transform learning has been discussed, within the context of research which argued that educational policy and practice lags significantly behind ICT uses in the wider society. The literature suggested that *old*, traditional, industrial, standardised and standardising (ACDE 2001, 2004; Yelland, 2007; Robinson, 2010) modes of education inhibit the growth and engagement of new millennial students (Heppell, 2008) and argued for schools to move towards *new* learning modes (ACDE, 2004).

The experience of a Becta ICT Research Network teacher described below captures the challenges that ICT-based change brings to education. This teacher's story outlines the issues and obstacles that resonate throughout the literature:

> *My experience and observations over several years as ICT Co-ordinator (sic) is that many teachers still lag greatly behind in an understanding and use of IT in and out of school. This also applies to recently qualified teachers. I do not necessarily blame the teachers,*

> *but a system of being overloaded in educational new directives and changes to the curriculum and how this is delivered. The curriculum advisors are often singing from their recent government song sheet, and few appear to see other advisors agendas between key stages. This impacts on pedagogy, and for example I have seen ICT suites unused in the mornings due to the structure of the literacy and numeracy sessions. Only schools which already have good results are handed the luxury of being able to do cross curricular work and allow the children to take some ownership of their learning and use the technologies that are available. Others are having to plan to the n'th degree...which stifles creativity and flexibility of the timetable which can lead to greater use of technology. Teachers are not given the luxury of an induction period when starting a new job so have to learn about IT systems/resources and available software on the hoof. Training is basic and they have no time to 'play' with equipment before using it. ICT training is often delivered after a full day of teaching…Whilst training, teachers are anxious about getting the following days teaching resources ready or having to mark at home to catch up. They rarely see the 'vision' of ICT because they are taught to do 'tricks' to tick another box. They are dominated by a requirement to produce evidence of outcomes which can be collated and used in a data format. Lose that, and they have 'no evidence'. Of course I do not wish to knock many schools that work hard and are successful in their use of ICT, but commend them in an understanding that they have had to put in many personal hours beyond that which should be expected in a teacher's life and workload. To understand why teachers lack knowledge and skills in ICT we need to appreciate the bigger picture of a teacher's role.*
> (Becta ICT Research Network teacher contribution, 24/12/2008)

These insights are also reflected in the Exploratory Case Study data presented in Chapter 4 and in the data collected from the Teacher Focus Group and Online Survey in Chapter 5.

The next chapter discusses the methodology and research design for this study which draws on the findings from this review of the literature and aims to achieve a contemporary understanding of case study subjects' perceptions of what comprises e-confidence.

Chapter 3 Methodology and Research Design

3.1 Introduction

This chapter explains the research approach and the methods of data collection and analysis used to investigate the research issues. The chapter describes:

- The four stages of the case study methodology (Yin, 1994) used by the researcher:
  - Designing the case study (including *Determining the required skills* and *Developing and reviewing the protocol)*;
  - Conducting the case study (including *Preparation for data collection*, *Conducting interviews* and *Distribution of the Questionnaire*);
  - Analysing and synthesising the case study evidence; and
  - Developing the conclusions, recommendations and implications.

The discussion of the analytic strategy for the research incorporates an exploration of the application of Grounded Theory in collecting, analysing and generating theories from data and the process of pattern-matching and explanation-building.

3.2 The four stages of the case

Yin (1994) described six sources of evidence for data collection in the case study protocol, with not every collection method required in every case study. These were: documentation, archival records, interviews, direct observation, participant observation, and physical artefacts. In this study, four methods were used: review of documentation, interviews, direct observation, and participant observation (via the interviews, focus groups and online survey). These varied data collection formats constituted an important and valuable triangulation strategy, which helped to ensure ethical accuracy and relevance and enabled the exploration of alternative explanations in the process of data analysis (Stake, 1995; Feagin, Orum & Sjoberg, 1991). This was recommended by Yin (1984) when he emphasised the need to focus on multiple sources of data. The five key case study components Yin (1994) outlined include: a study's questions; its propositions (if any); its unit(s) of analysis; the logic linking the data to the propositions; and the criteria for interpreting findings (p.20). As an Exploratory Case Study, this did not require a proposition (Yin, 1994). The units of analyses were a school (its school leadership, a sample of teachers and students) and individual teachers through their focus group and survey participation. The subsequent

linking of data to the study questions is represented in this study. Hence, the findings from the Literature Review informed the investigative processes and were later compared with the Exploratory Case Study, focus group and online survey findings and, through analytic generalisation (Yin, 1984); conclusions and a framework were then developed.

Yin (1984) identified three conditions for case study design: the type of research questions that were asked; the extent of control the researcher may have over what happens; and how much the case study focuses on contemporary occurrence. Based on Yin's (1994) case study methodology, the research questions discussed in Section 1.6 underpinned the four stages of the case:

1. Designing the case study;
2. Conducting the case study;
3. Analysing and synthesising the case study evidence; and
4. Developing the conclusions, recommendations and implications.

3.2.1 Designing the case study

The first stage of Yin's case study methodology is composed of two sub headings: *Determining the Required Skills* and *Developing and Reviewing the Protocol* (1994).

Determining the Required Skills

As Yin (1994) suggested, the researcher needed to possess the skills of being an effective communicator, with good questioning technique, in order to elicit meaningful answers from interview subjects and focus group participants, be a good listener and adaptable and able to respond and react to changing and varied situations. The researcher had 26 years' experience working in the education sector, as a teacher and an administrator. In the past ten years, the researcher has led an education consultancy with a significant focus on education research and use of qualitative data collection methods including field visits, focus group facilitation and development and administration of online and offline survey tools. Despite her keen grasp of the issues being studied, the researcher was consistently conscious of the need to be unbiased by preconceived notions.

Developing and Reviewing the Protocol

A draft of the research protocol was developed by the researcher and reviewed in collaboration with the Supervisor. It then underwent Ethical Review by Victoria

University. The purpose of this was to identify any potential problems in the planned study design, and to redress these early in the process. This included:

- An overview of the research project – project objectives, key research questions, potential issues and presentation of research plan;
- Field procedures – identification of appropriate procedures for gathering data (addressed through the Ethics Application and subsequent approval process and the DEECD Research Application Process) and location of data sources. A Case Study School Kit was developed and shared with the case study school (see Appendix 1);
- Case study questions – guided by the Research Questions, questions were developed for all data collection methods including the case study school field visit interviews, the focus group and the survey instrument (See Appendix 2 for sample questions for the case study school interviews, Appendix 3 for Focus Group questions and Appendix 4 for Online Survey questions);
- A guide for the case study documentation – an outline for this report was developed and reviewed with the researcher's Supervisor.

These protocols contributed to the overall structure, efficiency and progress of the study, enabling the researcher to maintain focus on the Research Questions which formed the goals of the study. A timeline for the study was developed.

As in all research, consideration was given to construct validity and reliability (Yin, 1989, 1994). The case study and associated research gathered multiple sources of evidence through:

- conducting a Literature Review;
- identification of a case study subject school nominated by the E-learning Manager at the Department of Education and Early Childhood Development (DEECD, Victoria) as exemplary in its use of ICT in teaching and learning which would be the venue for field visits, classroom observations and interviews conducted with the school leadership, teachers and students. This was done in order to maximise what could be learned in the period of time available (Tellis, 1997);
- extending the context of the case to include a focus group comprising teacher participants from four other Victorian schools (in teaching and leadership positions from two primary schools, one P12 school and one secondary school) in order to delve more deeply into issues arising from the literature and the case study;
- using the findings of the focus group and case study data to design a survey that was distributed to 100 Australian teachers;
- a synthesis of the data to generate the E-confidence Framework.

3.2.2 Conducting the case study

In the second stage of the case study methodology, Yin (1994) recommended three tasks that should be undertaken to achieve a successful outcome: *Preparation for Data Collection, Distribution of the Questionnaire* and *Conducting Interviews.* This involved the enacting of the plan of Stage 1, through the primary activity of data collection.

Preparation for Data Collection

As discussed earlier, Yin (1994) identified six sources of case study research evidence: documentation, archival records, interviews, direct observation, participant observation and physical artefacts. In this context, four of the sources to be used were evaluated for their potential strengths and weaknesses:

Evidence source	Evidence collected	Strengths	Weaknesses
Documentation	School Annual Report Publications around school Professional learning activity samples	Easy to obtain Little impact on case study participants Exist prior to case study commencing Precise, quantitative Helps to corroborate evidence gleaned from other sources	May be hard to access Selection of documents may be biased Privacy may be an issue
Interviews	Interviews with school leadership, teachers and students	Customised, targeted and designed to elicit useful information for the study Provides useful insights and enables causal inferences	Potential psychological risks - Students/Teachers could think that they are being assessed negatively while being observed Response bias (reflexivity) Teachers/ School students and their parents may be concerned that interview data might be discussed outside their environment, resulting in information about the students being reported publicly. There may be social risks associated with relationships between teachers and between students. For example, in interviews a teacher may criticise a colleague, or the principal. Or students may say something negative about a peer or

			teacher. The participants would want to be assured that they can say what they think and that their responses are de-identified.
Direct observation	Observation of Grades 3/4 and 5/6 classrooms	Authentic – covers real events synchronously Provides contextual insight	Takes time Reflexivity – presence of researcher might cause change Selectivity of researcher – might miss some events occurring Students and teacher could think that they are being assessed negatively while being observed.
Participant observation	Focus Group Online survey	As above	As above Teachers may become anxious because they are being observed. There may be social risks associated with relationships between teachers across different schools, and the school leaders who attend the focus group. For example, a criticism may arise, and something negative may be expressed. The participants would want to be assured that they can say what they think and that their responses are de-identified and confidential. Teachers/ School students and their parents may be concerned that survey data and/or interview data might be discussed outside their environment, resulting in information about the students being reported publicly.

Table 2: Evaluation of sources of evidence, drawn from Yin (1994, p.80)

Rich qualitative data was gathered through *interviews* with school leaders, teachers and students from the case study school. Teachers were invited to submit *reflective journals* describing their practice and *field visit/classroom observations* of in-classroom

practice were initiated. Ethnographic data gathered through the *classroom observation* supplemented the stories of the participants that were gleaned from the interviews (Charmaz, 2006).

A subsequent Teacher Focus Group was conducted, involving a sample of school leaders from Victorian government schools and an online survey of Australian teachers and school leaders was administered.

Conducting Interviews and taking observations

The interviews comprised of focussed and open-ended questions drawn from the case study protocols, to elicit informant opinions about the events that were observed in the school. Each interview was recorded on video and transcripts written. Interview questions can be found in Appendix 2. The researcher's classroom observations took place over two field visits to the case study school, following the interviews visit. The researcher observed events taking place within two classrooms over two days.

Distribution of the Questionnaire

Once the case was completed, further participant observation was elicited through subsequent focus group participation and online survey responses (See Appendices 3 and 4). The survey was distributed to 100 teachers throughout Victoria, South Australia and New South Wales. Participants in the teacher focus group and survey respondents were derived from those contacts that had been made by the researcher over the significant period of time she has worked in the education sector. The researcher used the following Communication Strategy to accompany the survey implementation:

- An initial email communication was sent to 100 teachers approximately one month prior to the survey, inviting their participation and providing information about the purpose of the survey, how the results would be used, who was conducting the survey, and the terms of anonymity and confidentiality. Eighteen teachers declined this invitation to participate at this point.
- Two subsequent email communications (the first, two weeks prior and the second, six days prior to the survey commencement) were sent from the researcher to the survey subjects to reintroduce the researcher, provide guidelines for administering the surveys, and give key dates and key actions and other instructions. This follows the advice of Deutskens et al (2004) that follow-ups assist in achieving high response rates.
- Respondents were given a sufficient amount of time to complete the survey: 28 days.

The researcher sent reminders during the survey period, thanking the respondents who had already completed the survey while reminding others about the deadline, and responded individually by email or telephone to the any communications about the survey.

The researcher was an active participant in the focus group, as she led the discussion, and her voice is evident in the design of the survey tools. Therefore, it is accepted that there may be some bias in the instruments and facilitation. However, the use of multiple sources of data for effective triangulation of evidence (Yin, 1994) attempts to mitigate this and enabled the data from the different sources to be corroborated. Additionally, while the researcher clearly had no control over behaviouristic events (what was happening in the case study school at the time of the visits, responses or reactions of focus group participants or survey respondents), the nature of the study is a contemporary one. And, as such, the case study methodology is applicable, because it aims to explain what is happening today in authentic, real-life contexts.

A chain of evidence (Yin, 1994) was maintained with the collaboration of the senior researcher/Supervisor, throughout the data collection process, who was involved in the research from the development of the initial research questions through to the case study conclusions presented here.

3.2.3 Analysing and synthesising the case study evidence

The analysis of case study is perceived as the most problematic aspect of the case study methodology (Tellis, 1997). The researcher used her own experience, insights from the literature and patterns which had emerged from the investigations to present the evidence. Statistical analysis was used in the presentation of aspects of the survey data.

Grounded Theory

Grounded Theory was used for collecting, analysing and generating theories from the data (Charmaz, 2006; Goulding, 2005), thus providing "systemic, yet flexible guidelines for collecting and analysing qualitative data to construct theories 'grounded' in the data themselves." (p.2) Grounded Theory Methodology allows sampling, not for population representativeness, but in order to support the construction of theory. An inductive, theory discovery methodology, Grounded Theory enabled the researcher to develop insight into the general features of the case, while grounding the story in empirical observations and data (Glaser & Strauss, 1967). The process of the Grounded

Theory analysis effectively dovetailed with the Exploratory Case Study protocols and involved:

- *Initial data collection* through the semi-structured interviews with school leaders, teachers and students from the case study school (Goulding, 2002);

- *Open coding* as the data was analysed to enable the aggregation of concepts. Through close scrutiny of the data, labels emerged, and representational and conceptual codes were given to each and every incident highlighted within the data. As the process continued, iterative reflection of that already coded was considered so relevant new data could be collected. Coding continued until no new properties or dimensions of categories were found (Goulding, 2002);

- *Shaping constructs or theoretical coding* enabled the researcher to analyse the properties of categories and the relationships between them and then led to the construction of sub-core categories (Goulding, 2002);

- A *strategic organisational process* was then created;

- *Methodological soundness* was achieved through standard measures to ensure construct validity and reliability (Carson, Gilmore, Perry, & Gronhaug, 2001; Goulding, 2002):
  - the use of multiple sources of evidence (triangulation of data);
  - semi-structured interviews with school leaders, teachers and students from the case study school;
  - direct observation of classroom practice;
  - facilitation of the teacher focus group; and
  - the design and implementation of the online survey;

- *Reliability* was achieved through documentation of all case study protocols, appropriate documentation and making as many steps in the data collection process as transparent as possible (Carson et al., 2001).

Pattern-matching and explanation-building

Yin (1994) proposed that all investigations should have an analytic strategy to enable the researcher to identify what would be analysed and why. These included: pattern-matching, explanation-building and time-series analysis. In this case study, pattern-matching and explanation-building have been utilised. While the researcher's

discretion is intrinsic to this process, and could be infected by bias, as the patterns have emerged, the internal reliability of the study has been enhanced. Over time, explanations have been built – another form of pattern-matching – as the analysis of the case study has led to an explanation of the case as hypotheses have been generated, explored and confirmed through this Exploratory Case Study. This has been an iterative process involving review, refinement, revision and repetition.

The case study school experience, teacher focus group and subsequent online survey were organised in the following sequence of events: the initial Literature Review was conducted in the first stages of the research. In line with Grounded Theory, the Literature Review was revisited *after* the case study school field visits, the teacher focus group and online survey stages were completed. This contributed to a clearer and independent analysis.

In the data analysis phase, data source triangulation involved the researcher investigating if the data remained the same in the different contexts (Denzin, 1984) – the case study school, the focus group and through the online survey. The data gathered from the research enabled an iteration of a framework which described the factors inherent to e-confident schools, teachers, leaders and students. Sweeps of the data were made until the data was saturated, patterns emerged and drafts written. In these early stages, data was separated, sorted and synthesised through coding (attaching labels to data segments to describe what each segment was about). This enabled the data to be distilled and categorised, enabling the researcher to begin identifying patterns and make comparisons with other data sets. Following several drafts, the researcher made strong connections between what was found in the literature and evidence and insights gathered through the data.

By making and coding numerous data sets, preliminary analytic notes were made, capturing any comparisons or insights that the data was starting to exhibit. For example, the first case study school visit involved the interview with the school principal, highlighting the school's perceptions around e-confidence and the strategies they had put in place to achieve it. As each interview followed – with other school leaders, class teachers, and students – patterns began to emerge. The process of coding, comparison and documentation proceeded with each data collection, enabling the researcher to begin defining ideas and interpreting the data as tentative analytic categories (Charmaz, 2006). When questions arose, the researcher sought answers for this in subsequent data collections (interviews, the teacher focus group or the online survey). The relationships between the analytic categories enabled the researcher to

develop a conceptual vision of the research and to begin to design a model to interpret and represent the findings.

3.2.4 Developing the conclusions, recommendations and implications

Tellis (1997) argued that "case study is a reliable methodology when executed with due care". Yin's protocols (1984, 1989, 1993, 1994) were followed in this Exploratory Case Study to enhance the reliability and validity of what has been investigated.

Through the process of conducting the Exploratory Case Study, facilitating the Teacher Focus Group and administering the Online Survey, it became clear that a range of experiences and stories existed which could contribute to the development of a useful and usable framework for schools and education systems into the future.

3.3 Summary

This chapter provides an overview of the Exploratory Case Study methodology (Yin, 1984, 1994) used for this research. The research aims and questions were used as starting points to develop the appropriate methodology which followed Yin's (1994) four stages of the case approach. These involved the initial design of the case study protocol, conducting the case study, analysing and synthesising the case study evidence and, finally, developing conclusions. These stages indicated the most appropriate methods for data collection, generation, analysis and presentation. Issues related to data integrity and reliability have been raised and addressed in the context of this mixed methods approach.

The next chapter presents the case study results as gathered sequentially from the Exploratory Case Study school, followed in Chapter 5 by the Teacher Focus Group and the Online Survey.

Chapter 4 Exploratory Case Study

4.1 Introduction

As discussed in Chapter 3, using a mixed methods approach, this Exploratory Case Study (Yin, 1994) sought to explore and explain the concept of e-confidence and how this is enacted in one particular school. This was done through identifying complex causal links in real-life educational contexts by investigating and describing how teachers, students and school leaders in one case study school (here referred to under the assumed name of *Bright Town Primary School*) worked with ICT, what propelled them to develop e-confidence, the types of teaching and learning contexts they created, and the ways in which they initiated and reacted to emerging change and challenges.

This chapter describes the story of Case Study School (*Bright Town Primary School*). The organisation of this chapter begins with the background of *Bright Town Primary School*. This is a public metropolitan primary school with high numbers of students from non-English speaking and low socio-economic backgrounds. Details on the data collection methods that were used – classroom observations and interviews with the school leadership, teachers and students – are discussed. This is followed by a synthesis of what the data collection demonstrated about why *Bright Town Primary School* can be considered an ICT-rich learning organisation. In the final part of this section, a collective definition of e-confidence from the points of view of the case study school subjects is offered.

4.2 Case Study School (Bright Town Primary School)

4.2.1 Background

Case Study School (*Bright Town Primary School*) was identified by a Senior Manager from the Victorian Department of Education and Early Childhood Development (DEECD) as a school that demonstrated exemplary use of ICT due to its involvement in DEECD E-learning initiatives such as the Microsoft Partners in Learning (PiL) Project.

Bright Town Primary School is an eastern metropolitan Melbourne primary school, with approximately 400 students, representing 38 nationalities, 65 per cent with a language background other than English (LBOTE), and a high SFO (Student Family Occupation –

an indicator of socio economic status) of 74 per cent (signifying low socio-economic status). The workforce consists of three principal class personnel, 28 teachers, seven non-teaching staff and five tutors. The School Principal is considered an international leader in the use of ICT in schools and provides mentoring advice to school leaders across the world via his involvement as a Microsoft Innovative Educator as part of the international Microsoft Partners in Learning (PiL) Program. *Bright Town Primary School* is a Microsoft World Wide Mentor school and a CISCO Ingenious School in the CISCO Innovative Schools program. In 2010, *Bright Town Primary School* was awarded the Victorian Education Excellence Award for Curriculum Innovation. Each year, Victorian, national and international visitors attend *Bright Town Primary School* to observe their progressive practices, particularly around the use of flexible learning spaces and ICT.

4.2.2 The data collection protocols

The case study analysis of *Bright Town Primary School* documents and seeks to explore why this school has achieved such high levels of ICT uptake, e-confidence and innovation, through interviews conducted with the school leadership, teachers and students and short classroom observations. School visits took place annually, over a period of three years. Semi-structured interviews of an hour each comprising focussed and open-ended questions, were conducted with school leaders, teachers and students (See Appendix 2). Classroom observations were undertaken over several days over the three year period, each comprising two – three hours in each classroom of Years 3/4 and 5/6. (Interviewed teachers were asked to keep a brief e-journal over three terms. However, only one teacher submitted one e-journal. This has not been included in this qualitative analysis.)

Role in school	**Year level / demographic detail**
School Principal (P)	Male, 62 years old, at school for 19 years
Assistant Principal (AP)	Female, 39 years old, teaching for 8 years at this school
Teacher 1 (T1)	Female, 27 years old, has been teaching for 3 years, Prep/1
Teacher 2 (T2)	Female, 24 years old, teaching for 2 years, Years 3/4
Teacher 3 (T3)	Female, 30 years old, teaching for 4 years (prior to arriving in Australia, taught in Canada), Years 5/6
Student 1	Female, Year 6
Student 2	Female, Year 6
Student 3	Male, Year 5

Table 3: Profile of case study school interviewees

Following is *Bright Town Primary School*'s story.

4.2.3 An overview of the data collection process

Data collected from interviews with the School Principal, Assistant Principal and teachers reveal *Bright Town Primary School* as having a vibrant learning culture (Fullan et al., 2005) in which students, teachers and school leaders work collectively and learn from each other. Interview responses indicated a significant focus on building knowledge that pervades all levels of the school from school leadership to the student body. The teachers and leadership described theirs as a creative, flexible, forward looking learning organisation where student-centred commitment is evident at all levels.

Throughout the classroom observations and interviews, including those with students, key messages were consistently expressed that learning, risk taking and exploration were valued. Throughout all the interviews, there appeared to be a shared understanding that one needs to explore and try in order to learn, within the context of curriculum rigour and rich, powerful learning tasks and that teachers and students were continually encouraged to try new things and not be afraid of making mistakes.

Figure 4: Bright Town Primary School students have ubiquitous access to ICT tools.

Figure 5: Bright Town Primary School has a radio and television station that transmits daily.

Observations taken during classroom visits indicated that the pedagogical approaches discussed in the interviews were supported by easy access to portable electronic devices including tablets, games consoles, digital cameras, electronic whiteboards and computers, enabling the researcher to conclude that *Bright Town Primary School* was technologically rich – with pervasive and ubiquitous access provided to new and emerging technologies for use by teachers and students. On its website, the school actively promoted itself as a centre for 21st century learning:

(Bright Town Primary School) provides a safe and supportive environment with innovative use of ICT including:

- *Film Studio with Greenscreen*
- *FM Radio Station*
- *Sound Recording Studio*
- *iPods & iPads*
- *Probes, Microscopes*
- *Robotics (school website)*

During the interview with the School Principal, he shared the journey he had taken over the 19 years in which he had led the school, describing how the school had been repurposed and reorganised and how ICT had been utilised to improve the teaching and learning processes, enabling access to resources and promoting engagement of students:

> *The culture in the school is that **ICT is a tool of learning**. (School Principal)*

Figure 6: Learning Centres are bright and colourful, characterised by furniture that is child appropriate.

Figure 7: Classes have their own mascots (pets) and ICT is easily accessed – here via desktops and laptops on the trolley.

In its *2010 Annual Report to the School Community, Bright Town Primary School* described its focus:

> *The school's major focus is on teaching and learning, emphasising making the curriculum "authentic", and the **children accepting responsibility for their own learning**, along with **collaboration with peers**. Opportunities are also provided for students to **pursue personal learning passions** and negotiate their curriculum. There is a very **strong emphasis on the use of technology in all curriculum areas**. (p.2)*

The school is organised into four Learning Centres: Prep, Grades 1/2, Grades 3/4, and Grades 5/6. These equate to the VELS (Victorian Essential Learning Standards) Levels from 1 to 4. According to the School Principal, the school aimed for their students to:

Develop quality academic approaches to learning, relevant computer skills, determined self-direction, keen personal ambition and a desire to make a significant contribution to society.

The school leadership argued that they achieved this through an inclusive approach to all students with "a focus on developing, enhancing and nurturing each individual's talents and skills" (Assistant Principal).

Figure 8: Students can work individually or in groups. Classroom layout and furniture allow for this.

Figure 9: Year 1/2 students complete numeracy learning tasks on an iPad.

Classroom observations noted that each Learning Centre was flexible and open plan, with areas allocated for teacher preparation and student learning, delineated through the placement of furniture. Each Learning Centre had four teachers with their own year level classes. These teachers were responsible for working with their own students, but class lessons were arranged in such a way that teachers could become experts in a particular area and students then gravitated towards them as their interests or passions lead them:

> *The first class session involved the grade teacher conducting a whole class focus session with her particular grade and then students being permitted to break into interest groups or work individually to complete the tasks that had been set, or that they set for themselves. (Researcher notes, Classroom Observation, Day 1)*

As discussed, the School Principal had been at this school for 19 years and during his interview he indicated that he focused "on flexibility and providing opportunities for

teachers to plan together. We have a strong emphasis on powerful pedagogies and exploring new ways of optimising student learning."

The interview and classroom observation data showed that ICT was seen as a catalyst at this school – a management tool, a vehicle for teacher professional development and a way of encouraging staff, students and parents to collaborate.

Interviews with the students, teachers and school leaders demonstrated that ICT was viewed as an essential tool for learning and an intrinsic part of the school culture. The leadership team saw new and emerging technologies as opportunities for helping their staff to take "that next step forward" (Principal).

They viewed technology, as Prensky (2002) does – as a friend – and they used it to readily construct knowledge and take risks.

The interviews with the teachers indicated that *Bright Town Primary School* had embraced the MCEETYA (2004) view that ICT capabilities were essential for participation in society. There was a clear leadership expectation that staff were knowledge workers (Yelland, 2007) who modelled themselves as learners "trying new things, taking risks, making mistakes and learning from them" (Teacher 1, Prep/1). Peer coaching and mentoring systems were in place to support professional learning and annual performance reviews encouraged staff to be accountable for their learning and to reach beyond their "comfort zones" (Teacher 2, Grades 3/4).

Like Mishra and Koehler's TPACK framework (2008), the school leadership described how they had addressed the crucial key areas of building the understanding and capacity of teachers in using digital technologies. This was exemplified by the bespoke posters on display throughout the school (displayed in areas such as the Learning

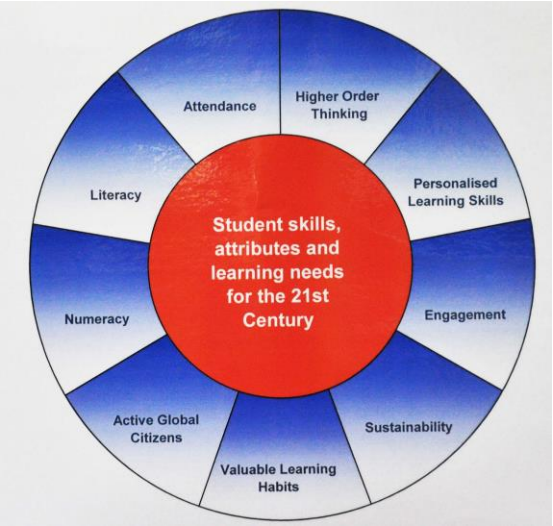

Figure 10: Bespoke posters remind staff and students of the curriculum and pedagogical focus.

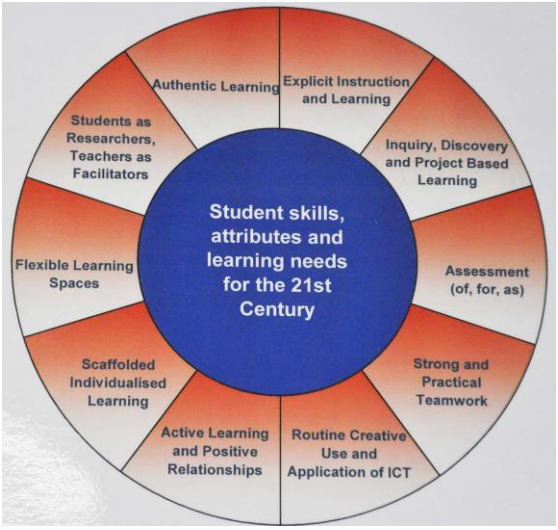

Figure 11: Another example of bespoke posters across the school that help to refocus and reiterate the pedagogical approach.

Centres, staffroom and conference room) as depicted in Figures 10 and 11. During his interview, the School Principal described how the staff worked:

> *To develop rich, engaging content, underpinned by strong and deep pedagogical understanding, exploiting the most appropriate and often new and emerging technologies to do so.*

4.2.4 Why *Bright Town Primary School* can be considered an ICT-rich learning organisation

At *Bright Town Primary School*, the school leaders who were interviewed described how they embraced their roles as change agents (Fullan et al, 2005) and focused on creating new learning environments, purposeful integration of ICT and transforming learning (MCEETYA, 2004, 2006). The data gathered through the interviews and classroom observations indicated that the school community achieved this through:

- *Placing students at the centre:* A clear student-centred school culture and vision was in place and ICT was valued in teaching and learning. Observations throughout the school noted that consistent messages about the central importance of students were promoted everywhere. Interviews with the school leadership and teachers expounded that flexibility was key and that it was vital for students to have a say in their learning and the decision-making around it. The researcher's classroom observation notes from Day 2 found:

  > *The approach to teaching and learning appears **fluid and flexible, highly student-centred, self-directed, self-negotiated and empowering**. **Ubiquitous access to ICT tools pervades all aspects of the learning experience**. There is a strong sense in this school that the vision for teaching is the handing of learning over to the students, learning is self-directed and the role of the teacher has essentially changed. (Researcher notes, Classroom Observation, Day 2)*

  The Principal argued that this had also created a change in pedagogy within the school, "with teachers accepting their role as facilitator while students are empowered to direct their own learning". Clarity of purpose was evident both in the physical manifestations of learning – the classroom organisation into Learning Centres, the classroom decorations, the posters around the walls, the sight of children on task working individually, in groups or one-on-one with their teacher –

and in the shared philosophy that ICT promoted connections (Gardner, 2011) and enhanced learning:

> *(The most successful pedagogical strategy) I think,* ***giving them choice****...they choose what they want to do, so all that integrated....It's all based in inquiry...the first week is when we give them a whole heap of information, then they can choose what part they're interested in and take it where they want to go...for example, we did 'Media Me' so we did television, old technology (newspapers, radio and movies) so they could choose one aspect of that and they could work by themselves or with a group and present their information however they want...We had kids making movies, or doing things on claymation, making newspapers, going into the radio and recording things so I think* ***because they're doing what they're interested in, they actually want to do it, want to learn more, and they're more engaged****. You can tell when you come to our learning centre that everything we're doing is integrated, everything is a buzz, they're completely doing what they want to do, (and it's authentic for them). (Teacher 2, Years 3/4)*

- *Creating a school culture that embodied the school as a learning organisation:* The School Principal described *Bright Town Primary School* as a learning organisation (Stewart, 2001, Silins et al., 2002) where the focus of any change strategy was "always on the *learning* that will take place" (Principal). The Assistant Principal described how performance was continually planned for via performance plans negotiated between teachers and the school leadership, reflected on, documented, and reported and improved upon:

> *I was kind of saying to (the principal) that I think I need to learn how to use a radio and I'd really like to learn how to use a TV studio and he was, like, '****you don't have to be an expert at everything; you just have to want to learn****'. (Teacher 2, Years 3/4)*

> *I'd love to get some of my friends and bring them here and show them how it can be done and how engaged our students are and how authentic the learning can be. We are not allowed to use worksheets here which doesn't cater to diversity anyway. But I just think if they could come and see how well the kids are doing and how much they enjoy coming to school, that we've got kids here at 8 o'clock because they want to use the Wii, then they would probably change things. But I guess you also have to have that*

> *confidence in yourself to be able to use these ICT programs and you have to be given time to learn how to use all these things because it takes up a lot of time to learn them, and then teach them and then, you know, really get into them and have a diverse range of ICT tools you can use.* ***So I think as a whole school, you have to have an ICT approach. I don't think it can be one teacher, pushing it****. (Teacher 2, Years 3/4)*

- *Modelling a love of learning:* Interviews and classroom observations demonstrated that learning was the central focus of the school. Classroom observations and insights gained from the interviews with students, teachers and school leaders attested that learning was actively modelled at all levels of the school. This was a learning organisation underpinned by a culture of learning and evaluation (Fullan et al, 2005). Every year, every Learning Centre (Prep, Years 1/2, 3/4, 5/6) undertook research and the "teachers became the explorers" (Principal):

> ***So every teacher is a learner*** *– in their discussions with me at the beginning and at the end of the year we talk about their learnings. (School Principal)*

Researcher observations corroborated the Principal's statement:

> ***The leadership team clearly understand the change process****. They share theory and professional readings, they foster the sharing of understanding, expectation and coherence as teachers are encouraged to attend and present at state, national and international conferences.* ***There is an expectation of self-improvement and collaboration and exploiting opportunities to be exposed to new thinking****. (Researcher notes, Classroom Observation, Day 2)*

- *Supporting and building teacher capacity:* The school leadership team described how they provided access to the latest research and focused on "offering rich and stimulating professional learning opportunities and encouraging teachers to explore, observe innovative practice and implement this in their classrooms" (Assistant Principal). Professional learning opportunities were sustained and ongoing and held every Thursday night, supplemented by 'techy brekkies' focused on key ICT initiatives, often involving the children teaching the teachers:

> *There is an **expectation that everyone who attends is open and prepared to learn**. (Assistant Principal)*

During his interview, the School Principal described that for some time at the school there had been no single ICT Specialist teacher (although this had recently changed and an ICT Specialist had been reappointed). He stated:

> *Instead, there was **an expectation that ICT skills and innovation were spread across the teaching staff with everyone a risk taker** focused on positive and productive relationships with students. The original ICT Specialist position was reviewed because there was little transference from what the ICT person was doing to practice within the classroom. There are ICT peer coaches and peer coaching occurs across the whole school. (School Principal)*

As Fullan (et al., 2005) recommended, people learned from each other and became collectively committed to the improvements lead by the school leadership. The interviews conducted with the teachers and students indicated that there was a strong sense of teacher and student ownership of their own learning. The Learning Centre staff described how they "try to explore opportunities to try new things and this is encouraged across the school because every teacher is a learner" (Teacher 1, Prep/1). The capacity building involved peer coaching, professional learning opportunities that were sustained and ongoing, professional performance plans and goals, working in teams and the expectation that all staff had the preparedness to grow and change:

> *I use my laptop, I had to catch up with the kids so I just got my iPhone two weeks ago so it's great being able to have that. Getting on and using those things – I was just in the staffroom then and (the principal) has got a bunch of iPads so we'll all get (he's really good like that – we all get to have a chance at doing that).... **The school principal is great with technology and probably the availability – so it's right there, there's no having to source it**. It's there, it's available to be used. (Teacher 1, Prep/1)*

- *Setting expectations for action and delegating responsibility:* The Principal, Assistant Principal and staff who were interviewed all described the accountability that was the basis of their teaching practice. The school leadership team were highly connected with international thinking and research concerned with ICT and education (as already mentioned, the School Principal is a Microsoft Partners in

Learning Lead Educator and the school itself is an international Microsoft Innovative School). The school leadership expressed that they felt these connections enabled them to provide links for their staff that might be harder to forge for schools without such networks. The staff described how they benefitted by being encouraged to read the latest research, to undertake their own investigations, and to attend and present at education conferences across the state, nationally and internationally:

> *And our goals, like you know I talked to (the principal) and he said 'I think you need to change this goal, you can have a greater goal than that' so you can go there with a thought in mind and they can challenge you again.* ***They're always constantly challenging us to be better teachers, be more savvy at ICT****, they'll just come in and say 'here, we've got a new tool, have a play with it, see what you can do with it, see what the kids can do, and then come back and let me know how you go'. (Teacher 2, Years 3/4)*

The demonstrated high levels of staff confidence, competence and leadership, reflect the descriptions of the e-confident school as developed by the UK National College for School Leadership (NCSL, 2008). Mature in its incorporation and use of ICT (Becta, 2006), this school saw ICT as an essential tool for self-improvement and student achievement (Institute for Policy Studies in Education, 2008) and ensured appropriate professional learning opportunities to support staff to reach the goals set by themselves and for them by the school leadership.

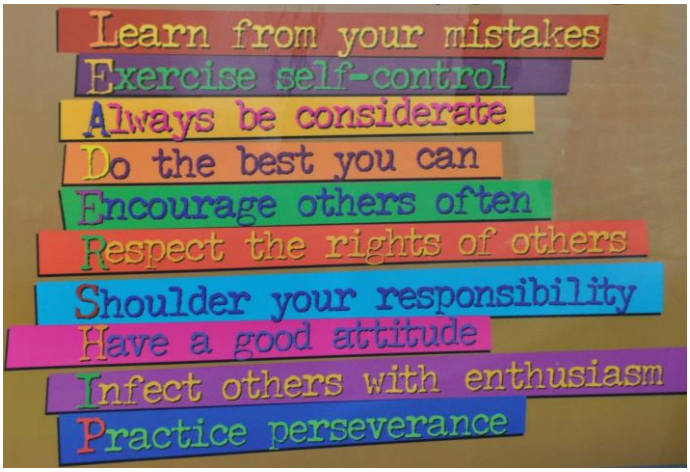

Figure 12: Leadership at Bright Town Primary School is explicit, supportive, empowering and reflective.

- *Supporting exploration, risk taking and learning from experimenting, playing and making mistakes:* Throughout all the interviews, and during the classroom observations, there was the consistent view was expounded that exploration and risk

taking – which embraced making mistakes and failing – were essential elements for effective learning. As the School Principal stated, "This takes away the fear that trying something new could fail and enables students, and teachers to take risks in a supportive environment." In so doing, the teachers developed deep and powerful understandings of technology integration into teaching and learning (Koehler and Mishra, 2006, 2011):

> *One thing that I do encourage with them is if they have chosen a way to present one time, then they find a new way the next time. That's trying to move them away from just sticking with what they're comfortable with.* ***I'm always trying to push them outside of their comfort zone.*** *I've banned PowerPoint presentations and said 'if you want to use PowerPoint, that's fine but it needs to become multimedia...you're beyond that...preps are making PowerPoints so by 5/6 we need to go beyond that'. It's always that 'let's push you a little bit harder, a little bit further'. They've created websites, some were creating blogs, others were creating multimedia, we had some kids do claymation, animations. Term 1 it was an actual group project, Term 2 was an individual project, this term it's a choice. Sometimes we set that parameter because I think it is important that they do both. (Teacher 3, Years 5/6)*
>
> ***I think that working in a school where the leadership is very open to us trying new things – they accept if we fail****. So they've set the ground where we're able to try new things and new projects without that fear of 'if it doesn't work out, my job's on the line'...I'm learning how to use Microsoft Kodu which is basically a Gaming programming language I have no idea about. But our leadership team is very open to that. The kids are extremely excited about it, so that's part of it: the fact that, as teachers we're willing to take risks. We're trying to find ways of engaging the students through those sorts of activities but we also have the support of our leadership which I think is paramount as well (Teacher 3, Years 5/6)*
>
> *Go and ask other people...if you keep trying to improve your skills and not just dabbling in one particular area of the technology, chances are you'll get better at it...****I would rather make mistakes than be the perfectest person in the world****. Because when you make mistakes, you can go back, you have time so you can go back, you can try it out again maybe in different ways to see how it works. I always make mistakes. (Student 1, Year 6)*

This removal of the notion of failure aligns with the NAACE definitions of e-confidence, where learners are encouraged to take risks and failure is rethought (2007):

> *I'm a novice but **I'm willing to have a go and to ask questions**. (Teacher 1, Prep/1)*

- *Building teacher capacity through collegiality and collaboration and ongoing, sustained, relevant and targeted professional learning opportunities:* The school leadership described how they used ICT as a catalyst for change and enhanced peer to peer collaboration. Throughout the year, teachers worked together in special interest and year level teams to document their curriculum and used this as a framework to inform any new ICT implementation. In the early days of his appointment, the Principal employed a discrete ICT Coordinator whose role was to teach children what were then seen as necessary and emerging ICT skills. It soon became evident that this model was unable to achieve the school leadership's goal of embedding and mainstreaming ICT. The Principal then closed down the ICT Lab and encouraged the ICT Specialist to work in a mentoring/coaching role with staff in their classrooms:

> *So we set up a **model where we had a lot of professional development for the teachers** and they were keen to do it because they could see it was the way it was going to go. (School Principal)*

The school leadership expressed the view that ongoing, contextualised professional learning (ISTE, 2009) resulted in significant changes in the ways teachers were beginning to use ICT in their own teaching. To support his staff further, the School Principal described how peer coaching was introduced, critical friendships were formed, performance plans reflected new areas teachers were keen to investigate and weekly professional learning sessions and 'techy brekkies' were run. Invariably, students were involved in leading these sessions for the teachers.

As staff became increasingly more confident, they were encouraged to lead sessions themselves:

> *I'm very up front to the kids about the fact that **we're learning together** when it comes to this sort of thing. And so, they teach me, I teach them. We all get on and do it. (Teacher 3, Years 5/6)*

Eventually, the Principal decided there was no need to employ the ICT Specialist in that role any longer and she was redeployed.

The focus on teamwork and collegiality permeated all interviews – the "leadership team", the "Learning Centre team" and "student teams" – were part of the lingua franca. In so doing, the school was able to achieve true, systemic change, cultivating the tri level development – individuals, the community and the organisation – described by Fullan et al (2005):

> *I think the **teachers are very supportive and encouraging**. They can see if we're having trouble, they will drop whatever they're doing and come and help us. Also, all of my friends and all of my peers, classmates, are very supportive as well. They are willing to teach others new things. And **they won't give up until we succeed**. (Student 2, Year 6)*

- *Fostering coherence across the staff and student community as they embrace the potential of ICT to engage, enhance and extend knowledge building and collaboration:* As described earlier, the consistency of the messaging promoted throughout the school's physical environment via posters and identified during the interviews with all subjects – *risk taking is good; while still a teacher, I am a learner; accountability is embraced; professional learning builds capacity; working in teams results in better outcomes; ICT enhances the learning experience* – indicated strong alignment of thinking and purpose across the school:

> *I think **ICT is really important** – just because I don't think it needs to be the focus, it just sits well right next to what you want to do. I would find it very hard not to find something based around technology and technology can help you deliver it. The engagement in my kids before we had interactive whiteboards or when you do a Maths activity – like when you don't use an interactive whiteboard versus when you do use it, the engagement is incredible. Just because they can all see it, it's all available to them, they can get up and they're a part of it so they can get up and move the pieces and choose the numbers and things like that. It gets a really good grade feel kind of thing going with a lot of support for and helping each other and they're constantly involved when it's something there they can use. (Teacher 1, Prep/1)*

> *I think it's **(ICT) extremely important. That's the reality of the future**. I was just teaching an economics lesson before coming here and the question was, they had to put themselves on a continuum between a need and a want and we talked about where computers fell. The majority of them said it was definitely both, some said 'you're not going to die if you don't have a computer' then they said 'yes that's true, except, how do you get your homework done?' They can't see life without it. I think that's very much a reality, so in terms of **my job which is preparing them for their future, I think it's extremely important. That is the future. It's the present too**, I suppose. (Teacher 3, Years 5/6)*

This coherence (Fullan et al., 2005) enabled the ICT-based changes to be aligned, for the teachers to join the dots, ensuring the pieces all fitted together cohesively across the organisation:

> *...I have a student at the moment who wants to use the Flip Cameras and I'm like ok and he had a bit of a play with it and I asked "So what are you going to film?" and he decided he wanted to film our new turtles that we've got in the learning centre. So now he's done a couple of filmings, we've watched it back and I've said "You can't really see the turtles in that one" and he's moving the Flip Camera here and there so we spoke about keeping it on the turtle and keeping it nice and steady and he's decided since then "I want to put my voice over the top" and I've asked "Do you want to make up a story or research or what do you want to do?" He said "I want to find out information about the turtles" so now he wants to record that over the top. (Teacher 1, Prep/1)*

- *Reorganising the physical layout of the school to reflect the philosophy of collaborative teaching:* The School Principal described that the changes that saw ICT embedded across the school how these had been accompanied by repurposing and reorganisation of the physical and organisational elements of the school (Zhao & Lei, 2009). However, unlike the limited changes described by Zhao and Lei, ICT was used within this case study school as part of a wider re-engineering and reorganisation process:

> *I had an ICT teacher in the school for a number of years and I went out and selected carefully – somebody who not only **had good ICT skills but was prepared to be innovative and try different things and was a risk taker**. So she went down the lines of establishing a*

television studio, radio station and film making and documentaries and all that sort of stuff that was outside the norm. But she had the relationship with the teachers and the kids that she could train them. But about five years ago, ***I changed her role completely because what was happening was they were doing some great things in ICT sessions, but they weren't bringing it back to the classroom****. Teachers were still doing mundane sorts of things in the classroom.* ***Suddenly, what was happening in the ICT sessions started happening in the learning centres because the children really wanted to do it and explore further****. (School Principal)*

And, instead of pockets of innovation, classroom observations indicated that a majority of the teaching staff were using ICT in innovative ways to engage their students:

Figure 13: Grades 3/4 flexible learning space.

The ***classroom is organised as a flexible learning space*** *with four classes using the open space across two year levels - Years 5/6. The students can work in different spaces and use different tools, depending on the task. (Researcher notes, Classroom Observation, Day 1)*

During the class observation of Years 3/4, the teachers used the early stages of the lesson to gather their classes together and to focus on the task at hand. Students were then allowed to follow their interests and break into small groups or work individually, to complete their work. (Researcher notes, Classroom Observation, Day 2)

During the classroom observations, the researcher noted that all students were on task once the whole group session had finished and were using a wide range of ICT

tools from electronic whiteboards, Flip digital cameras, iPads and desktop computers. The school leadership contended that there was whole school support for innovation on infrastructural, professional learning, curriculum and personal levels:

> *The **school has a positive and receptive view of the place of ICT**, understanding its potential and ensuring ubiquitous access. (Assistant Principal)*

Researcher observations noted that ICT resources were readily accessible "in the classroom and the school yard with mobile devices such as handheld game players and iPads, desktop computers, notebook computers, electronic whiteboards and gaming consoles" (Day 1). In this school, several Wii gaming consoles were strategically placed in the children's' yard and could be used at recess and lunchtime. There was a school television and radio station:

> *Through Discovery Time and everything we have the computers, or the mini laptops that the kids use. They use the iPod touches, interactive whiteboards, the digital cameras, Flip Cameras, the little EzySpeak microphones, we had some mp3 players that we used to use kinda(sic) been taken over by iPods now though. They might just say "I want to use the iPods and learn how to use them" or it might be ok well I want to talk about with the Grade 1s (because with the preps it can be very much one day at a time and they are starting to progress into projects)...the Grade 1s it might be something like they were doing 'weather' so they can get on the weather app and they can compare the weather from different places. That's something they like to do. We have big touch screen computers in the learning centre and we have one boy who is just amazed by maps and roads and knows exactly where he lives. So we get him on Google Maps and he can find places and he's drawn massive road maps of his area – he has this amazing visual memory for things like that. Being able to give them access to that and the motion of the touch screen and even with the iPods getting them on the little maps on there**, it makes it so much easier for them to use that kind of technology**. We have our digital portfolios for recording of reading Term 4 (we always leave it to the last term when they're at their best). (Teacher 1, Prep/1)*

Figure 14: Grades 3/4 students working on chosen ICT tools to complete project work

> *We have instead of having those (normal) classrooms,* ***we have four open space learning centres****. So that is, while you're working you can go (but not all the time) but you can go and just say hi to your friends. Yeah, we are lucky. (Student 2, Year 6)*

- *Researching, investigating and resourcing innovation:* It has already been stated that at *Bright Town Primary School* there was ubiquitous access to ICT equipment:

> *There are* ***always opportunities for students to use the equipment and explore this in their own way****. (Assistant Principal)*

Interviews with school leadership and teachers demonstrated that ICT was seen as an essential resource for children in their learning and was not taught in isolation. There was not a 1-1 focus, but an emphasis that appropriate infrastructure and devices were made consistently available to students:

> *We obviously went down the track for a few years of making sure that we had lots of resources – probably more than we really needed, but I thought "****if we're really going to embed it, we've got to make sure that the infrastructure is right, that the devices are there so the kids can use them when they need them and not have to wait to the afternoon because somebody else has got them****." So we spent a lot of money and a lot of research about them. In the school, with our devices whilst we haven't gone to a one-to-one program, there are 460 devices and 400 kids. And the children make the decision. (School Principal)*

4.2.5 Defining e-confidence – the case study school's perspective

During the interviews, respondents were asked to identify the key features of e-confidence: what comprised the e-confident teacher; the e-confident student; the e-confident school leader and the e-confident school. Following are their collated definitions, compiled in the data analysis phase.

The e-confident student

A collective definition derived from interviews with the school leadership, teachers and students revealed that they viewed an *e-confident student* as one who appreciates ICT as a natural tool for learning and recognises when to use it to support their learning. They described such a student as discriminating, knowing what they want to use and how they might learn to use it, understanding that one can use different ICT devices for a range of different purposes and able to select the appropriate ICT tool and function required to effectively complete the task at hand. They thought an e-confident student had the skills and knowledge to find out what they don't know and was able to access networks and pathways to do this. Working collaboratively with others, an e-confident student teaches others what they know and does not feel inhibited by ICT. A mature and independent learner, they are brave and willing to try something new, not afraid to use new technologies and willing to take risks:

> *(They)* ***Teach each other****. Through experiencing ICT, they build the confidence and then they share it with everyone else.* ***Have to be willing to learn from the students****. (Teacher 1, Prep/1)*

> ***Someone who is confident enough to teach other people what they know, but someone who is willing to learn and experience things*** *so if they go into a reality group they are learning a new program like Marvin, (and I don't know anything about Marvin), but they want to learn, they're just to learn, just to be keen, you know, the kids look at things in such different ways to what we do – you know, it's just so fresh and new, and exciting and they take it and do things you never imagined or thought they could so. So, (Teacher 3) was telling us about the new pencil application we could use with one of our kids who is not very bright, and is quite low, but really excelled in this class because it was new and he could do it and it was interesting and hands-on and it was authentic to him, he could put his learning into it. So, I think* ***an e-confident school, teacher and student are those who are willing*** *– you have base knowledge, then* ***you'll always learn and grow but you've got to be willing to learn new***

> ***things and not be afraid to take risks and try something new*** *because you probably will fail every now and again. (Teacher 2, Years 3/4)*
>
> *On Thursday I introduced a new program called PencilICT – an animation program – to a group of kids. Now I figured out on the holidays how to basically do your first drawing, put the onion skin, draw it and then you press PLAY and it does a sequence – and that's what I figured out. And I said "here's the basics, now go." And, within a two hour session, they had created full-on animations with people falling off mountains and being eaten by sharks and all this stuff and you just go "that's e-confidence" in my mind:* ***a willingness to just have a go and to try it and to not feel inhibited by it*** *I guess. (Teacher 3, Years 5/6)*
>
> *This person would obviously know a lot but they wouldn't show off about it. They'd be very humble, encourage others to learn what they are doing (like), they'd be really* ***good independent workers and they need to be mature with the amount of technology they're using****. That's basically what we do (at our school) I guess! (Student 2, Year 6)*
>
> *The person would be* ***willing to help other people and not just helping themselves and being selfish****. They would have to be smart and good at a lot of subjects. (Student 3, Year 5)*

The e-confident teacher

In the interviews, the students, teachers and school leaders were asked what attributes they thought an e-confident teacher should have. On the basis of this data, the following themes emerged. The subjects felt that an e-confident teacher has a level of ICT savviness and is comfortable providing students access to ICT and allowing them to use ICT devices in their own learning. They develop and encourage differentiated activities and are prepared to learn with their students, possessing the "courage" to learn alongside them and share in the learning journey. An e-confident teacher is receptive and open to new ideas and new, emerging technologies. They have a level of competence but do not feel they have to know more than the students they teach. Exploring, questioning and experimenting with ICT, they are responsive and not obstructive, saying "yes...even if they don't immediately know how" (Teacher 1, Prep/1). They are flexible, willing to take risks and to learn new things while also understanding that they don't have to know everything:

(They are) ***responsive, they say yes even if they don't know how, understand and appreciate that they don't have to know everything****. If a student came up to them and said "I'd like to use this in my learning", any device, any program or they want to develop something using technology, an e-confident teacher will say "yes" and I think* ***they would say yes even if they didn't know how to use that device or haven't used that device because they realise by students using the technology they'll explore, they'll experiment, they'll actually get the job done****. So, an e-confident teacher* ***doesn't necessarily have to know everything and they will let the students use the technology when they want to****. (Assistant Principal)*

Someone who has some kind of knowledge but I like the way we do it here in that quite often our PDs are revolving around the IT that we have available so it's good to be able to learn how to use that in that environment in which you're quite happy to have a go with your colleagues. You need to be ***flexible*** *because quite often it might not work so you've got to have something to back it up....you've got to be* ***a bit of a risk taker and willing to have a go. And, if it fails go (shrug) ok, well...it didn't work****. Technology isn't going to solve everything but also be willing to practice – for example "I think that worked that way today, but I might try it another way." Even different things like* ***letting the student choose who goes next because they see who has been involved and they can recognise the skills of someone who has been listening, watching and learning. The willingness to allow students to have more profile and more control. Handing the resources to the students*** *"Here's my digital camera – go and take some photos." (Teacher 1, Prep/1)*

So I think it's ***to want to learn more, like if you're not open and ready to learn new things and show the kids that you don't know everything about ICT, and that they can teach you sometimes, and they do, you know, that shows you that you are confident, if you're open and willing to learn new things****. The kids play on things, they're interested and they go through things. So, you can sit down with a kid and he can explain something to you, then that's brilliant because they know exactly how to do it and you're learning with them. I think they really enjoy that when they can see that you're learning with them instead of standing out the front and saying' look, this is what you need to do.' So,* ***I don't think you have to be***

really good at everything, you have to be open, and have a really good kind of broad knowledge of ICT but you don't have to be brilliant in everything. *(Teacher 2, Years 3/4)*

*One of the ways that I've changed as a teacher since starting is that when you go through your teachers training it's very much stand up the front, speak to your children, and I've kind of stepped back and said "we're all learning together – sometimes I'm going to be the one to teach you because sometimes I know it, sometimes you're going to be the ones to teach me because you know it better". When we do our integrated projects, I say "**your task is to share with me your learning and to teach me something I didn't know and if you can do that, then you've done enough research because that's how it goes. I don't know everything, and I'm going to teach you this little bit and you're going to help increase my knowledge and yours.**"(Teacher 3, Years 5/6)*

*I reckon they **wouldn't be afraid to learn from the students**. They would help them... (Student 3, Year 5)*

*This teacher **wouldn't be afraid to ask questions** and if one of the students or maybe another teacher knows, they would definitely go and ask and once they knew, they'd be willing to help out as much as they could and be confident in that way. (Student 2, Year 6)*

*I think with the students they would be patient, **listen to what the student has to say**. They should discipline the students pretty good and I think they'd also have the courage to learn from the students or to teach something new while incorporating a bit of fun and enthusiasm. (Student 1, Year 6)*

The e-confident leader

In the interviews, the students, teachers and school leaders were asked what attributes they thought an e-confident leader should have. On the basis of this data, a collective definition indicated that an e-confident leader is a role model for staff, supporting them, encouraging them and consistently receptive to them trying out new ICT. They felt that an e-confident leader provides professional learning support to build staff ICT capacity (as well as new ICT tools and devices) and resources the ICT program appropriately. The e-confident leader has a clear vision that ICT needs to be ubiquitous and embedded and shares this with their staff. They see ICT as an opportunity for teachers to improve their teaching and to deliver the curriculum. They encourage sharing and celebration of

success. They challenge their teachers to be learners, build accountability and have high expectations of widespread ICT use across the school. The e-confident leader trusts their staff, encourages risk taking and also learns along with the staff:

> *In our case,* ***each learning centre is well resourced*** *because you know that if teachers have to go and look for it, they won't use it and if students also don't see it in their learning environment, they also won't use it. So, a leader has got to make sure that each sort of area (and not just the classroom), the art room, environmental studies – don't leave out the specialists like the PE teacher, whatever they want you have to sort of try and provide it for them.* ***Leadership is crucial – the principal's vision and his finance and resourcing the school*** *I think is a credit to him because he's probably had this vision, even before I came here (I've been here 8 years) but coming here and working under him has been great. I think you've got to have that vision right up to the principal so he does a great job there. (Assistant Principal)*
>
> *Obviously,* ***knowledgeable, always willing to learn new things, kind, encouraging, supportive****, basically everything (our principal) is. He won't have a favourite group of people. He will try and get everybody to have a shot – whatever it is and share around all the opportunities. (Student 2, Year 6)*
>
> *Has to have a lot of experience, life, and to see if there's any problems he'd know before it happened. (Student 3, Year 5)*

The e-confident school

In the interviews, the students, teachers and school leaders were asked what attributes they thought an e-confident school should have. On the basis of this data, the following themes describing an *e-confident school* emerged. An e-confident school has a culture that values technology and sees it as an essential tool for the future. It enables seamless transference of skills while also recognising that technology doesn't need to be used for everything. An e-confident school provides choice and avenues for exploration whilst having appropriate structures in place to promote and optimise ICT use. An e-confident school has a supportive leader who is a role model – who can speak the language, provides appropriate and stimulating professional learning for teachers, ensures the school is well resourced, has a vision that is shared and understood, knows where they want the school to go and makes themselves available. Appropriate resourcing is provided and ICT usage is embedded in regular classroom

practice. An e-confident school has an e-learning action plan, policy, goals, targets and vision as well as structures in place to achieve this vision that include professional learning teams and school community support involving the parent body and school council. Staff confidence in using ICT - through strategies such as providing time, support and peer coaching – is built in an e-confident school. Opportunities are provided to make global connections and staff are willing to explore new technologies and new opportunities for implementing them. An e-confident school is flexible (physically and pedagogically) and values risk taking - seeing failure as an essential part of the learning process:

> *School:* ***has the structures in place to propel ICT use*** *– school community support so I believe that our parent body, even our school council really support the use of ICT and the involvement and buy in of the parent body and school council. We have an e-learning action plan with policy which is always looked at every year, so you have some goals or targets and your vision put in place. So that's always reviewed, reflected on and new goals are developed. It's also supported because we have ICT Peer Coaches to support each other, work hard with the staff and school leaders and talk all the time – our school will give people time to go and support the teachers in the classroom.* ***Consistent messages*** *– we talk from principal down – we work hard with our leaders, we communicate with them, so you know you just talk all the time so everyone's hearing that same message so whether it's from the principal to us, assistant prin to the curriculum leaders, curriculum leaders down to teachers, teachers down to students, and then you've got your parents: everyone's receiving the same message. (Assistant Principal)*
>
> ***Supportive school leadership*** *– otherwise it's going to be really difficult just to be able to obtain those resources.* ***And if the school leadership don't respect the possibilities, respect how beneficial this can be in the classroom, then that's not going to get across to the teachers. It needs to come from above because using technology can be fairly daunting for some people****. It might not be something they're used to or confident in. So, if you've already got people that are confident in it AND confident in you using it, then you've already won half the battle I think.* ***An e-confident school has to provide time.*** *Just like how I provide the children time, the school needs to provide the teachers time: "We just got this new program, come in and have a look, take them home and have a play..." Enables the*

teachers to get used to it on their own terms before they can be willing to put it out there to a bunch of kids who probably know more than them. The resources are for the kids to use. It's considered a resource for teachers to document their learning but it's all about the children. So, if they need the camera, they get it. And if something happens to it, well, we'll deal with it when it comes. For instance, I had students obsessed with the play centre and they decided to make a book about it themselves. They did it all themselves. They came back and I just downloaded the pictures and printed them off. Students have time to be able to absorb and have a go. That time where there is no expectation of what's going to come of them using the technology – just that time to play and explore what's available to them. Because we work in teams, it's easier to bring in technology as well – because you've got 5 people you work with every day you can bounce ideas off them and you kind of learn from them as well. You'll watch them do it and then give it a go. When you've got someone to show you and give you a go, and then run with it. (Teacher 1, Prep/1)

***I think you've got to have as much as we have and have it available**. I think it's hard when you go to other schools and you say to them 'you need to incorporate this into your learning' but it's not there to do. Whereas, in our learning centre, you could go to any corner and have an interactive whiteboard, have the robots there, have the iPods, so you can go and it's all accessible. So you can come up with a great idea and you know tomorrow you can have the stuff that we've got to do it. **The PD that we do every second Thursday that helps us kind of get us on track**. I think **the support we have from everyone** – like, you know, you can always go to someone else who has got a better idea about something. They're really open. Like the (school leadership) you could go to them and say to them 'I'm not sure what to do with this, who can I go to?' and they'll show me who to go to. Each term we have an ICT goal and each person will be different, depending on what level you are. Part of my goal is to have learned so many ICT programs this semester and teach two teachers and a group of students and they can go on and teach other people. So my groups of students that I teach will then go on and teach another group and teach another group and then it'll start all over again. I'll learn another program and I'll teach them and I'll keep going. Myself and another colleague are going to NZ in October and we're going to present on how we use ICT and integrated in the upper years to keep it*

authentic and to prepare our kids for 21st century learning. So that's a big goal, so I'll have to prepare a presentation and then see how it goes. And the kids have goals as well – so in their digital portfolio they have a personal, interpersonal, ICT English and Maths. So each term they have to set their own goals. We've actually got our Student-led Conferences tomorrow and they'll be setting their own goals with their parents so they also set a goal each term. (Teacher 2, Years 3/4)

To be an e-confident school, ***you need to have access to resources****. I think there's a lot of schools out there that all they have are desktop computers, and maybe one in each classroom or a few more but if you don't have it, you can't really be considered an e-confident school. I think it's one where when the latest technologies come out, they grab them and they bring them in. (Our principal) is really good at that – he'll often have a couple of something, he'll say "use them and if you figure out that we need more, we'll get more but how can we use these in the classroom." I think that* ***willingness to explore that this is supposed to be a really good thing so let's see how we can use it keeps us up to date with what's out there and what's new and what's the future of technology and where we're heading****. Each week* ***we have PDs and through those we're encouraged to say areas that we're feeling less confident in, and they'll bring people in and if there's a staff member who's more confident, they might share it****. We're encouraged to look for PDs whether it's online or wherever.* ***We're also given time to try new things, to have a play with different programs, and again I thinks it's too that if you've got a fear of things you still have that support to go and find out more****. Straight away, my leadership is "great, go use it." And when it doesn't work, all's well and when it does work excellent. Here we've got so many resources (and this comes from the principal too), that he's very much of the belief that it's for the kids, so let them use it. It's not hidden away where they can't touch it. They have access to all the laptops, all the computers, cameras, iPods, the Nintendo DS, whatever it is. They know how to get access to and it's not kept hidden away. So that in itself has drastically influenced the way I teach because we do have access to all these things. It has stretched my imagination as well as I explore how to teach the same concepts but in new, refreshing, more interesting ways.....At first (it was intimidating)...at first I didn't know how to incorporate and I think through discussions with other people, and I think part of being in* ***an open plan school where we're constantly***

***team teaching it kind of takes away a little bit of that, that you're constantly sharing ideas, and hearing others and watching other people try things out and then gaining ideas from that**. I think that helps out a lot. The quality of what we do is increased because we're sharing the workload. (Teacher 3, Years 5/6)*

*I think an e-confident school should be really flexible. It should have (like) **different opportunities where you can go and (like) talk with another teacher or another student** outside of your specified class and the teachers and the students should be willing to heal each other. The **confidence to be a risk taker and try new things, to be (like) open minded** and that sort of stuff. (Student 1, Year 6)*

*I think an e-confident school is a school that is **willing to take risks**, take pride in their work, and they know that making mistakes is how we learn. We **constantly share information with everybody**. We look up to our leaders – principals, teachers – and we're not afraid to take information from the younger students as well. So, kind and caring. That's what I think an e-confident school would be. (Student 2, Year 6)*

*Well I think **an e-confident school would have to have e-confident teachers, leader,** and if the students aren't that e-confident then the teachers could help them with stuff that they aren't so good with. They could also learn from other students. (Student 3, Year 5)*

4.3 Summary

The Exploratory Case Study has examined the experiences of *Bright Town Primary School* in its journey to become an ICT-rich learning organisation. The commitment of the school leadership, the extensive supports in place to build staff ICT capacity – including consistent, ongoing and sustained professional learning opportunities, mentoring and critical friendships – were combined with provision of a wealth of ICT devices so that access was consistently easy for both staff and students. The teacher-student relationship became a collegial, collaborative one as the teachers and their students embarked on their e-confidence journey together. Accountability was achieved through performance planning and professional learning team planning in each Learning Centre. The teachers at *Bright Town Primary School* were also learners. Like their students, they were encouraged to take risks, to try something new, to change their practice and to find out about new ways of thinking about teaching through access to contemporary research, conferences and professional networks. This was

clearly a dynamic place of learning where ICT was seen as intrinsic to the learning process.

This investigation into *Bright Town Primary School* was then followed by a Teacher Focus Group involving teacher participants who further explored the notions of ICT innovation and e-confidence first explored in this chapter. Finally, an online survey instrument was developed and disseminated to 100 teachers from three states (Victoria, South Australia and New South Wales). Chapter 5 explores the data collected during the Teacher Focus Group and Online Survey.

Through using multiple sources of evidence – including the focus group and online survey explored in Chapter 5 - the researcher was able to identify patterns that informed the development of the E-confidence Framework which will be presented in Chapter 7.

Chapter 5 Teacher Focus Group and Online Survey

5.1 Introduction

This chapter presents the data collected during the Teacher Focus Group and from the Online Survey. The focus group and survey data assist in elaborating on the data derived from the case study school which was obtained in observations and interviews.

The first section of the chapter describes the data collected from the Teacher Focus Group which explored participant's feelings about a range of ICT-related issues: their ideas about different pedagogical approaches using ICT; what they thought were the most effective strategies for engaging and stimulating student learning with ICT; the changes that had occurred in their classrooms and the wider school since using ICT; and the different characteristics that they felt best contributed to effective ICT-focused school change. As with *Bright Town Primary School*, participants were asked to define their perceptions of an e-confident student, teacher, school leadership and school.

The second section of the chapter presents the data gathered from the Online Survey, to which there were 55 responses. The survey was designed following the Literature Review in Chapter 2 and the data collection processes in Chapter 4 and in Section 5.2 of this chapter. As with the other sources, a definition of e-confident students, teachers, school leaders and schools was developed. The different components of 21st century learning and the perceived impact of Web 2.0 and other emerging social networking technologies on teaching and learning were also explored. Survey respondents identified the key elements contributing to whole school transformation in using ICT and provided their perspectives on what education systems need to consider when developing forward-looking ICT policies.

5.2 Teacher Focus Group

Facilitating a focus group of experienced teachers provided an opportunity for the researcher to interrogate more deeply questions and patterns arising from the Literature Review and the Case Study School investigation.

This was another useful data source for gaining further insight into the experiences of teachers from different schools and helped to develop a clearer understanding of e-confidence characteristics.

5.2.1 The data collection protocols

Four teachers/school leaders, including two primary teachers (one of whom was a school leader), a P12 teacher and a secondary teacher, attended the two and a half hour focus group. Teacher participants were *not* from the case study school. The profiles of the four teachers who participated in the focus group included:

Year levels taught	Role in school / Year level(s) taught
Teacher 1	Primary, Years 5/6, Assistant Principal
Teacher 2	Primary, Years 3/4
Teacher 3	P12, IT Specialist
Teacher 4	Secondary, Work Experience Coordination, Years 7, 9, 12

Table 4: Profile of Teacher Focus Group participants

Through a series of focused and open questions, the researcher was able to elicit detailed responses about the strategies and resources that were considered to most effectively engage students in learning in the 21st century and the features of e-confident students, teachers, leaders and schools. The focus group discussions were organised around the following key questions (See Appendix 3 for the Focus Group Plan):

1. *What Information and Communication Technologies (ICT) do you use in your classroom?*
2. *Describe the pedagogical approaches you take when using ICT with your students.*
3. *What do you find are the most effective strategies to engage and stimulate student learning?*
4. *What changes have occurred in your classroom since you have been using ICT?*
5. *What changes have taken place within your school?*
6. *Describe the characteristics you feel make an e-confident student.*
7. *Describe the characteristics you feel make an e-confident teacher.*
8. *Describe the characteristics you feel make an e-confident school and school leadership.*

5.2.2 The ICT focus group participants used in classrooms

Participants were asked to describe the various ICT resources they were using with their students. They cited their use of Interactive Whiteboards (IWB); digital (still) cameras; Flip/digital video camera; desktop, laptop and notebook computers; iPads and tablets;

iPods; mpg players; game consoles such as Wii / Playstations, Gameboys; TV/DVD; and online networking Web 2.0 software such as MS SharePoint, Learning/Content Management systems such as the DEECD Victoria Ultranet. The main technologies used were IWBs, computers and digital still and video cameras. In one school, there was some increasing use of tablet and notebook computers.

5.2.3 Pedagogical approaches using ICT

The participants described that there had been a shift in their teaching practice towards personalising student learning and creating opportunities for student-driven, student-centred, constructivist and connectivist learning experiences. In these contexts, students could negotiate and follow their own interests and passions to create learning artefacts of their own choice, using ICT appropriate to the tasks:

> *I'm thinking about how to **more effectively personalise their learning** all the time – things have changed. (P12 Teacher)*

The participants stated that involving their students in the decisions about learning tasks enabled them to forge more authentic and meaningful links across the school and beyond to the wider local and global community:

> *It helps them **own things** more. (Secondary Teacher)*

> *By **linking authentically**, you build on prior knowledge. (Primary Teacher 2)*

The focus group participants said their students were using a much wider range of ICT devices outside of school than those offered in school and were keen to bridge what one participant called "the disconnect between what engages students outside of school and the possibilities for what might then engage them in learning within school" (Secondary Teacher).

> *As teachers, we are **learning to take more risks** – we're encouraged to do this because technology makes us and our kids like taking risks as they use ICT we don't even consider in school yet. But things are changing as we walk the learning journey with them and when we all take risks, we know we are learning. (Primary Teacher 1)*

The participants described new teaching practices that involved stronger focus on community learning, communicating with others and building connections through collaborative learning opportunities and group interaction. The participants believed that their students developed a range of experiences and skills as a consequence of the new community, connective, collaborative learning approaches, including the ability to:

- Communicate between groups both within their classrooms and outside them;
- Link with many people, including experts;
- Gather and share a vast array of resources;
- Develop discrimination as they analysed and assessed information that came to them through utilising new tools of knowledge integration;
- Create new content and exhibit new knowledge;
- Use ICT tools that publish in many different contexts and on platforms appropriate to them as creators, others as recipients and depending on the context.

The participants described the new pedagogical approaches they were using with ICT. Their responses can be categorised into the following: more focus on personalising student learning; creating more opportunities for collaboration and connection; changing assessment practices to incorporate ICT resources; with more emphasis placed on encouraging their students to take risks and experiment with their own learning.

Personalising Learning

Throughout the focus group discussions, there appeared to be a strong emphasis on student-centred, student-led tasks and autonomous approaches. The participants consistently referred to the learner as being at the centre of their thinking – with tasks described as authentic, personalised, learner-driven (McLoughlin and Lee, 2008) – and the curriculum being flexible enough to facilitate and accommodate learner input:

> *I try to **make the learning meet them at their level of interest and capability**. (Primary Teacher 1)*

> *Everything I do, I do with the **student at the core of my thinking**. (Primary Teacher 2)*

Throughout the session, the focus group participants expressed an awareness of how ICT had impacted positively on their students' learning, particularly in empowering and engaging them in the learning process:

> *The most amazing thing has been **seeing the excitement and enthusiasm of my students** to get going! (Secondary Teacher)*

Collaborations and Connections

The focus group participants described the learning tasks they were designing as increasingly more focused on collaboration and networked interaction. There was a sense that tasks were more "dynamic and interactive" (Primary Teacher 2) which allowed for "deeper learning and quick feedback from students and teachers" (Primary Teacher 1). Three of the focus group participants – one primary teacher, the P12 teacher and the secondary teacher - had begun to explore Web 2.0 tools such as blogs and wikis within their classrooms. When discussing the role of ICT and more particularly social networking tools, the focus group participants described the transition in their roles as teacher/instructor with both the teacher and student becoming the "co-learner" (Primary Teacher 2):

> *They're **more connected** – so we can help to make more connections in their learning. (Secondary Teacher)*

One participant described how this helped to "take the pressure off" (Secondary Teacher) but the process "also contributes to individual learner empowerment" (Secondary Teacher).

The focus group participants described how blogs, for instance, were used to:

- Create a community of learners focussed on a particular topic of study (Primary Teacher 1);
- Run a project-based term long learning inquiry (P12 Teacher);
- Communicate, interact, debate, relate, provide feedback and collaborate with teachers, students and contacts across the world (Primary Teacher 1);
- Document, reflect on and track understanding (Secondary Teacher);
- Highlight class news and focus on emerging inquiry questions (Primary Teacher 1);
- Provide feedback (Secondary Teacher); and
- Link to a suite of newly identified resources (Secondary Teacher).

> *It's amazing how our **use of ICT has initiated and consolidated the links**. ICT is no longer a chore or a novelty - it is now accepted as a part of everyday life. Staff are wanting to learn more and are no longer scared of it…[ICT] is embedded in everyday teaching and learning rather than a once a week technology lesson…(Secondary Teacher)*

Assessment changes

Three of the four participants – both primary teachers and the P12 teacher – described how they were using ICT to record the formative learning journeys of their students over time. These three focus group participants stated that the use of Web 2.0 tools in teaching and learning supported the ability to document learning, to reflect and share learning, to share knowledge, to network with peers and to access a global audience. One participant stated that her "students had greater learner autonomy, agency, and through more opportunities for personalisation, felt heightened ownership of their own learning" (Primary Teacher 1). The secondary teacher was still grappling with ways of using ICT in assessment, beyond the summative recording and reporting tasks of marking software:

> *The **struggle is with time and competing priorities**. I'd love to do learning portfolios online but we just can't fit it into the 47 minute period allotted! (Secondary Teacher)*

The value of taking risks

Like the teachers at *Bright Town Primary School*, the focus group participants discussed the need and value of creating and nurturing learning environments that allowed for and encouraged risk taking. One participant described this as "essential to the learning process" (P12 Teacher). However, the participants also acknowledged that to achieve this was "quite a shift in thinking" (Primary Teacher 2), "challenging for many – especially when we have to teach towards external testing and the VCE" (Secondary Teacher). Taking risks was an "alien concept" (Primary Teacher 1) for some staff because it impelled them to confront and accept change, "when change is something they don't like" (Primary Teacher 1), pushing some to become more flexible and begin to explore ICT applications that were more creative than the basic uses of ICT.

5.2.4 The most effective strategies for engaging and stimulating student learning with ICT – the role of the teacher

The focus group participants contended that they felt the teacher still played the most important role in engaging and stimulating students' learning. They described how the role of the teacher facilitates this, through:

> *Taking **risks and model** themselves as learners. (Secondary Teacher)*

> ***Trying new things*** *and learn new things themselves. (P12 Teacher)*
>
> *Reading widely, stay up to date,* ***understand new and emerging theories of learning****. (Primary Teacher 1)*
>
> ***Always using the language of learning****, such as "good learners take risks..." (Primary Teacher 2)*
>
> *Showing interest in,* ***a passion for and love of learning****. (P12 teacher)*
>
> *Designing all tasks with* ***student learning at the centre*** *of the plan. (Primary Teacher 1)*

The participants also expressed the desire to continue to transform the learning in their classrooms and to be lifelong learners themselves:

> *The real journey never ends in education. (Secondary Teacher)*
>
> *20 years in and I've only just begun! It's* ***a great time to be teaching****! (Primary Teacher 1)*

5.2.5 Changes that had occurred in the classroom since using ICT

The focus group participants described themselves as "keen advocate" (Primary Teacher 2), "champion" (Primary Teacher 1), "struggling but genuine leader" (Secondary Teacher 2) intent on embedding ICT in routine teaching and learning tasks. However, even with such positive attitudes towards ICT, some described their ICT journey as "a journey of learning to let go, and there has been a struggle, at times, to hold onto the reigns" (Secondary Teacher).

Participants were asked to identify the changes that had taken place through their use of ICT in their classrooms. Their collated responses follow.

Feeling challenged and uncomfortable

All participants described times when they felt challenged and uncomfortable, particularly in the early days "when networks did everything but work" (Secondary Teacher) and "when I thought I had to know it all" (Primary Teacher 1). Two of the focus group participants – one primary teacher and the secondary teacher - described how

they had felt far outside their comfort zone in the early stages of ICT use in their classrooms.

The support of school leadership

Participants identified positive support by the school leadership as being critical to helping them persist with ICT. They described the positive aspects as "someone who walked the journey alongside me" (Primary Teacher 1), urging them to keep going, to take more risks – "after all, that's what we ask our students to do every day they enter our classrooms" (P12 Teacher). They argued that by taking risks themselves, they were also providing invaluable modelling for their own students about "what it means to be a lifelong learner" (Secondary Teacher). The outcomes of this persistence were viewed by all focus group participants as extremely positive. When describing this receptiveness towards trial and experimentation - "It's OK to make mistakes because by making mistakes, you learn" (Primary Teacher 1) – one participant said it made her "feel more comfortable and clear about my role in designing learning opportunities for students to explore, create, problem solve and experiment with ICT" (Primary Teacher 2).

The secondary teacher who described her learning context as a "more formal situation" felt she had achieved slower or less progress than the other three participants. When asked why she might think this had occurred she stated "We needed to get the curriculum digitised first – it's lock step and then there's the VCE to think about." (Secondary Teacher)

ICT as an enabler for student centred pedagogies

All focus group participants felt strongly about the positive place and role of ICT in their classroom, particularly where there was a critical and creative thinking component within student-driven, student-centred, self-directed pedagogical approaches:

> *It's great to finally see our **students rise to the challenge and in charge of their learning**. They are so involved and excited! (Secondary Teacher)*

> *I want my students to be **able to dream, to take every opportunity with hands outstretched, to teach what they know, to think outside the box** and as big as they can, and to enjoy the moment and create. (Primary Teacher 2)*

5.2.6 Changes that had taken place within the school

The participants were asked to describe the situation at their school at the beginning or in the early stages of their schools' ICT journeys, and to compare this with their current situations. They were also asked to identify what they felt were the main reasons for the shift from the *then* to *now*. Participants said that they felt that in the beginning their schools did not have a clear vision of how ICT could be integrated meaningfully into their teaching and learning. However, they agreed that their schools were moving towards understanding its value and place.

The participants described how they had initially lacked the confidence, skills and knowledge to use technology and had employed traditional teaching and learning approaches with minimal integration of ICT. They reported that, with a clearer vision and leadership and peer support, teachers in their schools were gradually becoming more e-confident and capable as they became more "open and receptive" (Secondary Teacher); considering and embracing new technologies and different teaching practices. In the earlier days, they said their students had limited meaningful access to ICT in their learning and had used technology at home in engaging ways that were not being reflected at school. Access to new and enhanced ICTs at school had increased over time, with students allowed to have a stronger voice in identifying the ICT tools they wanted to use and how they would like to use them.

The participants generally indicated that the effective use of a range of ICT appeared to have enabled students to connect more effectively with their school. There was a perception by participants that there had been positive changes to student engagement in their learning because they wanted and expected technology to be part of it. Additionally, they felt that some (but not all) teachers in their schools had learned and developed ICT confidence, knowledge and skills. The participants felt their schools were more connected, because staff were communicating more effectively and that the culture had changed to one where technology was beginning to be more embedded in routine class work.

The following table documents the main themes of their stories:

Participant 1: Primary school teacher

Then – at the beginning	○ Teachers didn't connect, communicate or share resources ○ Teachers had a minimal understanding of ICT or its potential in teaching and learning

	○ There were problems at the school with two different platforms – Mac and PC ○ Students were not willing to communicate with other students in constructive ways for learning ○ There were huge variations in ICT interest and expertise across staff ○ There were huge variations in ICT interest and expertise across students
Now	○ A sense of the staff and students being connected with each other but also with the world ○ There is more communication and interaction ○ Learning tasks are designed with a clear learning intent in mind ○ There are many new ideas and insights for the future for staff and students
How they got there	○ Staff and students were upskilled in the use and applications of ICT tools ○ Communication was facilitated and established through an online tool called SharePoint ○ The school leadership utilised outside expertise to educate staff and students ○ Linked ICT-embedded learning to the curriculum
Participant 2: P-12 school teacher	
Then – at the beginning	○ There was a school policy of 'no electronic submission of work' ○ Many staff had negative attitudes towards ICT
Now	○ Policy virtually reversed – many students upload their work electronically ○ More and more technology is being made available to staff and students – aiming for ubiquitous access ○ The classrooms are being changed so the physical layout is different ○ There are almost no dinosaurs left – positive attitudes towards ICT have emerged ○ Technology has become a central point of what is done at the school ○ The school culture has changed to the extent that technology is embedded
How they got there	○ Provision of staff laptops ○ School leadership championing and support ○ Internal and external professional learning opportunities have been provided to upskill staff ○ An ICT e-learning committee has been established and has created engagement across school
Participant 3: Primary school teacher	
Then – at the beginning	○ The school had many experienced teachers who just taught same ways as they always had ○ Staff were basically interested in ICT but there was a significant lack of ability so that ICT scared them ○ There were laptops/computers for confident users but these were under-utilised
Now	○ There is an increased focus on student engagement through various different teaching practices so that new ways of teaching are being discussed and explored across the staff ○ There is an awareness of the need for digital literacy (for students and staff) ○ There has been a steady increase in ICT use, with some communications from the school leadership only via digital means (email etc) and this has worked to gently force people to use ICT
How they got there	○ There has been staff training, awareness-raising activities, and accountability of powerful pedagogy such as e5 from the school leadership team

	○ There is clear leadership support of ICT ○ All teachers have school laptops in their classrooms and more IWBs are being installed
Participant 4: Secondary school teacher	
Then – at the beginning	○ ICT use was disorganised ○ Teachers were uninterested and uninformed about the use and value of ICT ○ Many teachers were resistant and felt overwhelmed with the expectation that they might have to use ICT in their classroom ○ Any ICT initiative was under-resourced ○ There was a lack of ICT throughout the curriculum
Now	○ Some staff are still feeling overwhelmed with so many ICT initiatives (such as Ultranet) happening across the board, and so many demands being placed on them ○ There is still a sense that ICT is under-resourced at the school ○ New developments have seen a great relationship emerging between staff who work together on ICT ○ An emerging ICT and online community is being built
How they got there	○ Professional learning opportunities that encouraged teachers to reflect on their practice ○ Discussion / communication of expectations from the school leadership to staff ○ Those who wanted to give the initiative a "go" were encouraged to stick at it (no matter what) and in so doing, achieved significant progress ○ An online collaborative space was set up to enable teachers to communicate online ○ More ICT tools provided to staff and students ○ The parent community became more interested and School Council helped to fund new purchases

Table 5: Moving from 'then' to 'now' – the stories of Focus Group participants.

Key enablers

The focus group participants were asked to identify what they felt the key enablers were that drove or influenced any shifts in their perception of ICT and its increased use. Their collated responses have been categorised as:

- *Provision of sustained, meaningful, targeted and relevant professional learning opportunities*

  Participants argued that professional learning was key to helping them feel "more comfortable and confident" (Secondary Teacher) with ICT. Professional learning opportunities designed to "up-skill teachers" (Primary Teacher 2) and build capacity and confidence, resulted in increased understanding, skills and expertise, and helped teachers to push the boundaries and work "outside their comfort zones" (Primary Teacher 1). There was a feeling across the group that professional learning; "targeting the needs of the staff" (Secondary Teacher) forced "changes in attitudes

towards technology, exposing teachers (and subsequently students) to a range of richer ICT experiences" (Secondary Teacher);

- *Peer to peer collaboration and sharing*
  Providing opportunities for staff to work together in teams, and for a more confident or skilled staff member to mentor the less confident were regarded by participants as very effective in helping to build staff ICT capacity:

  > *I **learn best from peers** in the context in which I'm working. (Primary Teacher 1)*

  Participants also described the value of:

  > ***Allowing for and facilitating professional discourse and networking** and taking advantage of authentic networking and sharing opportunities with other teachers. (Secondary Teacher)*

- *The emergence of social media / Web 2.0*
  The participants described the positive impact that increasing access to and use of Web 2.0 online environments was having. They talked about how social software was "enabling teachers and students to more safely communicate, collaborate, publish and connect with each other" (Primary Teacher 1) (both within schools and with, often remote, or distant other schools) and "utilise a broader number of social software tools such as wikis, blogs, discussions and surveys to make learning more interesting" (Primary Teacher 2);

- *Adequate resourcing of ICT and providing access to hardware and software*
  All participants emphasised the importance of school leadership resourcing any ICT initiative. They felt that providing appropriate access to equipment and software – "I need it when I need it, no point waiting!" (Secondary Teacher) was crucial to motivating, prompting and urging teachers to use the tools in their classrooms;

- *Changed learning activities*
  The participants described how the introduction of ICT had encouraged them to "change the way I design learning tasks" (Primary Teacher 1) for their students, as well as "engaging students more authentically" (Primary Teacher 2) in designing their own learning tasks. They felt that learning activities needed to be:

> ***Purposeful, relevant and authentic*** *- based on powerful pedagogy – self-directed learning, higher order thinking, flexible and adaptable to suit each student's individual needs, able to evolve to sustain interest and motivation through a process of reflection and review. (Primary Teacher 2)*

The participants described learning activities as "student-centred" (Primary Teacher 1), "involving students and listening to them about what they feel is important" (P12 Teacher) and "allowing them to lead in the use of technology" (Primary Teacher 2).

By designing learning tasks this way, the focus group participants felt that their students were developing "positive dispositions" (Primary Teacher 1), as they became "the confident risk takers" (P12 Teacher), "brave exponents trying new things and solving new problems" (Primary Teacher 1) through effective "communication, collaboration, creation of content and cooperation" (Secondary Teacher);

- *Supportive leadership*

  All four participants stated that supportive, strategic leadership in the schools embodied and drove the vision for embedding ICT in teaching and learning:

  > *The **principal has got to be on board**, or don't bother. (Primary Teacher 1)*

- *Evaluating progress and reflecting and reorienting*

  The participants described the value of ongoing reflection and self-improvement for both teachers and students, and the need to collect data and use this to inform future ICT plans:

  > *Data should inform all decision making. (Secondary Teacher)*

  > *Take the time to **reflect** – to think about what went well and what didn't so you don't make the same mistake next time. (Primary Teacher 1)*

- *Looking beyond the classroom walls – go global*

  The focus group participants described how the use of ICT allowed their students to feel part of a global community:

> *We are **part of a big wide world** and it's just at the end of our fingertips. (Primary Teacher 2)*

At the same time, the group stressed the need to reach out and involve themselves in the wider school and local communities:

> *It's important to be part of something local, close so students know they can influence what happens at a range of levels and **use ICT tools in different contexts for solving problems**. (P12 Teacher)*

5.2.7 Defining e-confidence – from the perspectives of the focus group participants

Participants discussed their perceptions of e-confidence, particularly as they related to the skills, attributes and understandings of students, teachers, school leaders and schools themselves. For each category, a generalised description was generated, drawn from the input of all participants.

The e-confident student

Discussions with participants about e-confidence yielded a collective definition that an *e-confident student* is flexible and agile and happy taking risks. Participants felt that an e-confident student was comfortable and confident using ICT, able to work independently and in groups and to negotiate and work in teams. There were organised, resilient and able to plan.

The e-confident teacher

When asked to describe an *e-confident* teacher, focus group participants described someone who is flexible and responsive to (and not scared of) change and comfortable taking risks. They saw an e-confident teacher as modelling learning for their students, and one who understands learning is not an end point but a process. An e-confident teacher is positively disposed towards ICT and happy facilitating rather than being the expert. They show a good mix of skills – including technical, pedagogical and collaborate with others. They are also able to model "stickability" (Primary Teacher 1), resilience, persistence, cooperation, organisation, creativity, confidence with a "you too can do it attitude" (Secondary Teacher).

The e-confident school and school leadership

The participants identified the following characteristics that they felt contributed to the ability for a school, and its leadership, to develop and demonstrate e-confidence. An e-confident school and its leadership would demonstrate a vision for ICT change (and there would be devolved responsibility and shared ownership of the school's ICT vision). There would be clear leadership commitment to ICT in teaching and learning and staff committed to continuous improvement. ICT planning would always be strategic and incorporate project planning and evaluation. Team work would be commonplace. A learning culture that values risk taking would be created and maintained and teacher ICT capacity would be built through a commitment to ongoing professional learning and professional discourse. The power of reflective practice would be understood. Partnerships would exist between schools, community, parents and corporate partners, helping to provide the ICT resources including equipment/hardware and ancillary opportunities that stimulate uptake. There would be effective communication of the ICT vision and expectations with staff and the wider school community. The school would be an organisation that is supportive and receptive to new ideas. ICT would be embedded across the mainstream curriculum and technology would be used beyond basic, work-related tasks, and instead for rich, adaptive, synthetic and evaluative purposes. The gap between home and school use of ICT would be bridged: from standard work-related at-school product-driven tasks to social networking, synchronous, interactive, multimedia and social software and games. There would be consistent accountability and reflection on the success of any ICT initiatives. Student-driven projects and learning tasks would be championed.

The online survey sought to gain further insight into and build on these definitions of e-confidence.

5.3 Online Survey

An online survey was designed by incorporating the findings from the initial Literature Review, the Case Study School investigation and the focus group teacher responses (See Appendix 4). The survey data contained a mix of qualitative and quantitative responses in relation to ICT use and experiences and e-confidence. All survey questions were designed to elicit responses that addressed the Research Questions (see Section 1.6). The online survey was administered over four weeks.

5.3.1 Survey sample

One hundred teachers from across Victoria, New South Wales and South Australia were invited to complete the survey. The majority of these teachers were contacts the researcher had established over many years working in the education sector. As Dillman (2000) argued, follow-up contacts are consistently reported as being the most powerful technique for increasing response rates in all types of surveys, including mail and online. The research (Dillman, 2000; Deutskens, De Ruyter, Wetzels & Oosterveld, 2004) and the researcher's experience with online survey design and implementation, has shown that response rates can be optimised by ensuring that the survey design is staged, clear and easy to complete, and is supported by an effective communication strategy (see Section 3.2.2 for more detail). Fifty five teachers responded, yielding a 55 per cent response rate.

While the cohort was a small one, triangulation of the findings from this data source with data gathered from the Exploratory Case Study and the teacher focus group was employed to identify, support and confirm the emerging patterns of behaviour, experience and approaches. These patterns informed the development of the E-confidence Framework presented in Chapter 7 of this thesis.

Demographic details

The 55 teacher respondents who completed the online survey represented 53 organisations, including schools, regional offices and education services consultancies. The graph below shows the state/territory locations of the respondents:

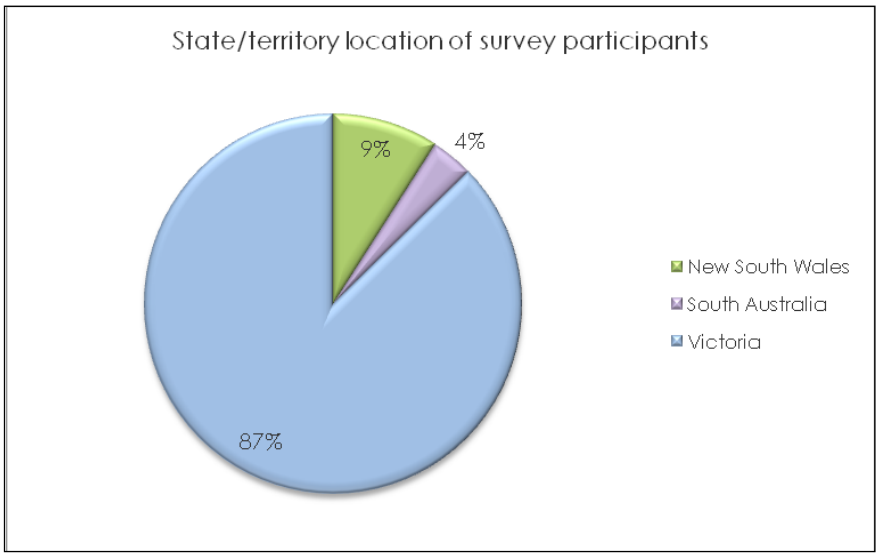

Figure 15: The locations of survey respondents.

The ages of participants reflected the ageing population of teachers (ABS, 2001), with 51.9 per cent of respondents falling within the 50-59 years age group.

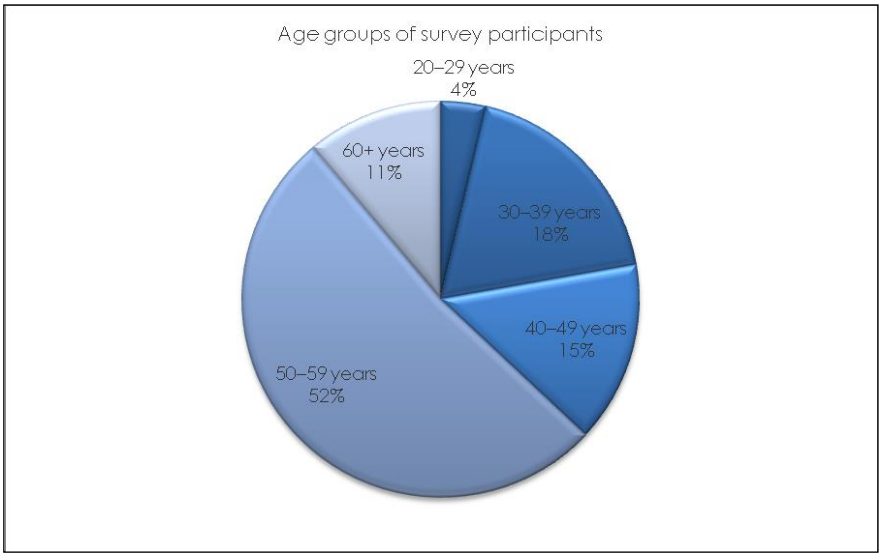

Figure 16: Age groups of survey respondents.

Again, the gender breakdown of survey respondents reflected the higher proportion of females in the teaching workforce (ABS, 2002), with 69.1 per cent of respondents being female:

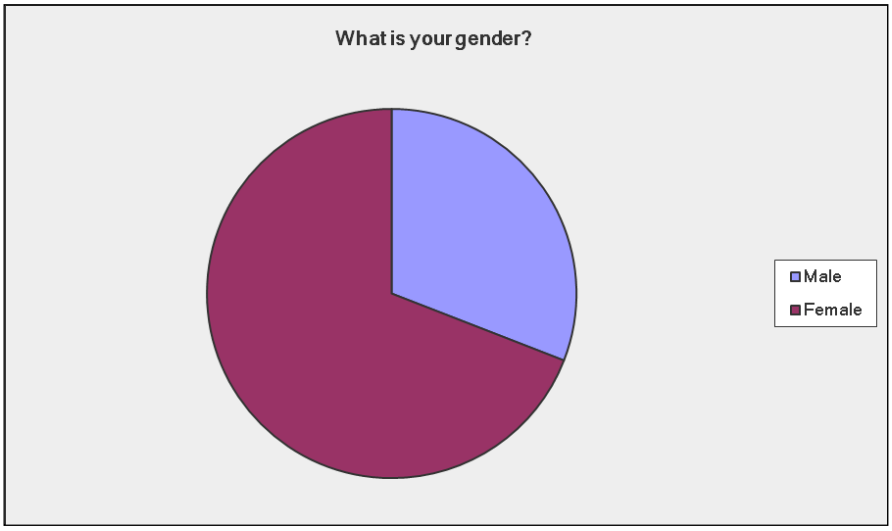

Figure 17: Gender breakdown of survey respondents.

The majority of survey respondents were primarily classroom teachers, with a range of others in school leadership positions such as Assistant Principal, ICT Coordinator and Head of Department/KLA Coordinator.

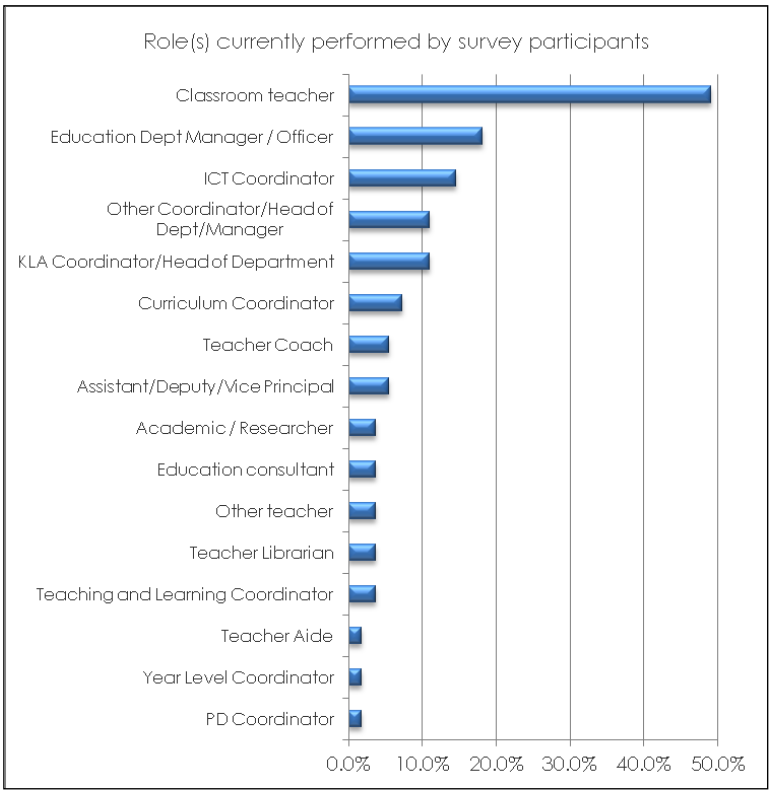

Figure 18: School roles of survey respondents.

Most survey respondents were based in schools. The types of school settings in which they worked, were spread across primary, secondary, P12, special development and language schools, with six respondents working in regional or educational consulting roles.

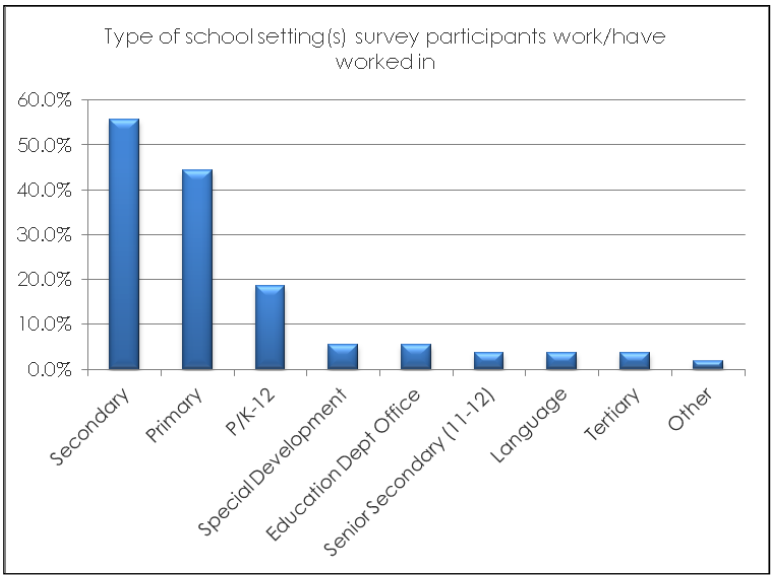

Figure 19: Types of school setting(s) in which survey respondents worked.

The year levels taught by the survey respondents also showed a spread from Prep to Year 12:

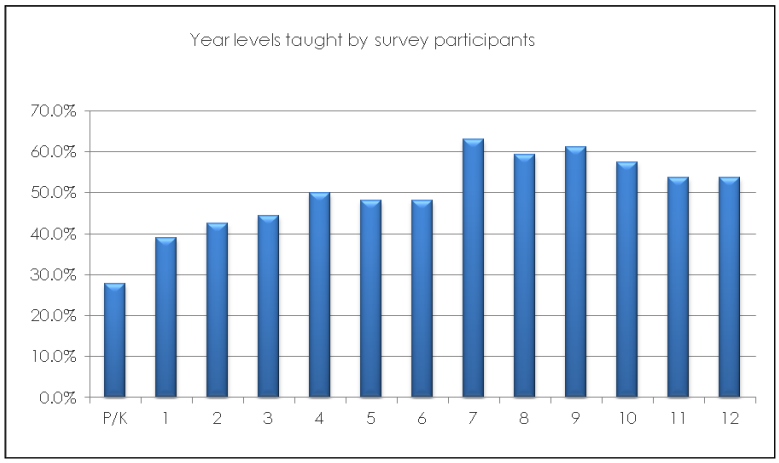

Figure 20: Year levels taught by survey respondents.

5.3.2 E-confident students

Respondents were asked to identify up to ten skills and features of an e-confident student from eighteen options presented to them. The following graph ranks the responses of those most selected (75.5 per cent identified e-confident students as those who "are prepared to explore and experiment with new and emerging ICT") to those least selected (6.1 per cent identified "work at twitch speed"):

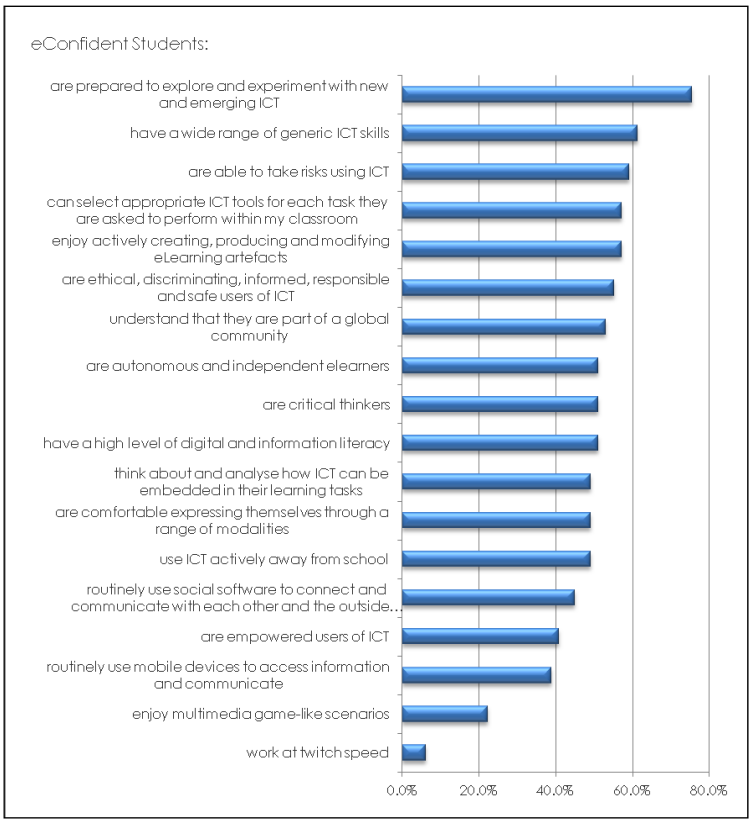

Figure 21: Key features of e-confident students.

The following table provides the detailed breakdown of these responses, with the top ten highlighted:

E-confidence Feature	Percentage identified
1. are prepared to explore and experiment with new and emerging ICT	**75.5%**
2. have a wide range of generic ICT skills	**61.2%**
3. are able to take risks using ICT	**59.2%**
4. enjoy actively creating, producing and modifying e-learning artefacts	**57.1%**
5. can select appropriate ICT tools for each task they are asked to perform within my classroom	**57.1%**
6. are ethical, discriminating, informed, responsible and safe users of ICT	**55.1%**
7. understand that they are part of a global community	**53.1%**
8. have a high level of digital and information literacy	**51.0%**
9. are critical thinkers	**51.0%**
10. are autonomous and independent e-learners	**51.0%**
11. use ICT actively away from school	49.0%
12. are comfortable expressing themselves through a range of modalities	49.0%
13. think about and analyse how ICT can be embedded in their learning tasks	49.0%
14. routinely use social software to connect and communicate with each other and the outside world	44.9%
15. are empowered users of ICT	40.8%
16. routinely use mobile devices to access information and communicate	38.8%
17. enjoy multimedia game-like scenarios	22.4%
18. work at twitch speed	6.1%

Table 6: Features of an e-confident student.

Seven qualitative responses supplemented the identified descriptors. They described an e-confident student as:

> ***Enthusiastic*** *- attend scheduled gatherings, maybe, not consistently but spasmodically to keep in touch with and communicate.*
>
> *Econfident students* ***'do' or use digital media and applications intuitively****.*
> *Skilled at self protection when using ICT.*
>
> ***Want to be connected****. Want to be included socially. Curious about what is happening.*

***Critical and do not fall into a heap when the technology does not work**, as it often does in the country, where technical support is not always available at the "click" of a button, 2 weeks waiting time for the IT "guy" to come!*

*Having **frequently had opportunities to access ICT** for a range of purposes.*

*A lot of e confident students are not necessarily good at using a range of ICT but **think they are good at using a range of ICT**.*

5.3.3 E-confident teachers

Respondents were asked to identify up to ten skills and features of an e-confident teacher from 34 options presented to them. The following graph ranks the top ten responses from those most selected (75 per cent identified e-confident teachers as those who "are prepared to accept that their students may know more than they do about their use of ICT") to those least selected (43.8 per cent identified "are able to envisage an e-learning future for their students"). Interestingly, in the context of Prensky's work (2001) and reflecting the e-confident student responses, respondents appeared to struggle with the concept of 'twitch speed', with 8.3 per cent identifying teacher e-confidence as understanding "that their students work at twitch speed and create learning experiences to accommodate this".

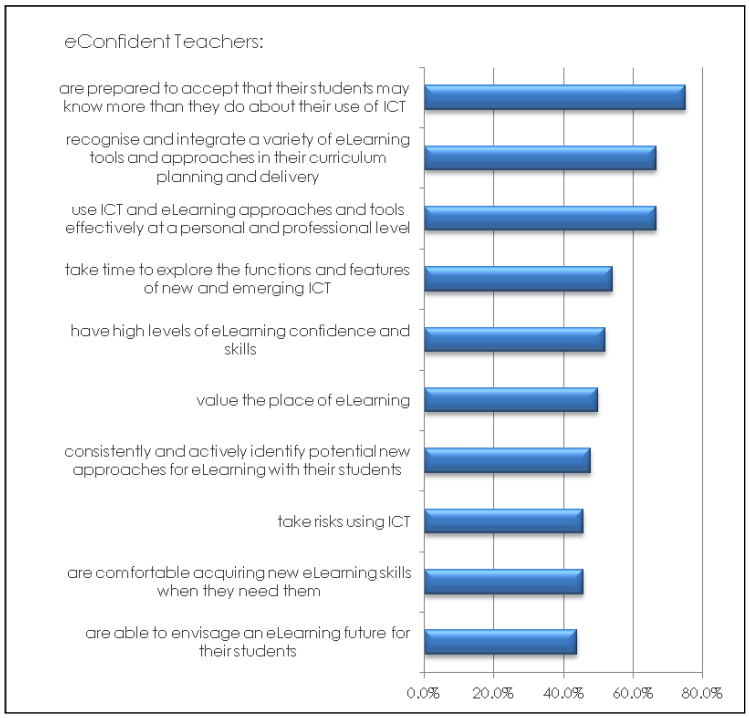

Figure 22: Key features of e-confident teachers.

The following table provides the detailed breakdown of the survey responses, with the top ten selections highlighted:

E-confidence Feature	Percentage identified
1. are prepared to accept that their students may know more than they do about their use of ICT	**75.0%**
2. use ICT and e-learning approaches and tools effectively at a personal and professional level	**66.7%**
3. recognise and integrate a variety of e-learning tools and approaches and tools in their curriculum planning and delivery	**66.7%**
4. take time to explore the functions and features of new and emerging ICT	**54.2%**
5. have high levels of ICT e-learning confidence and skills	**52.1%**
6. value the place of ICT and e-learning	**50.0%**
7. consistently and actively identify potential new approaches for ICT and e-learning with their students	**47.9%**
8. are comfortable acquiring new ICT and e-learning skills when they need them	**45.8%**
9. take risks using ICT	**45.8%**
10. are able to envisage an ICT and e-learning future for their students	**43.8%**
11. are able to reflect upon and demonstrate their understanding of how e-learning and ICT can enhance their own learning and teaching	41.7%
12. review and reflect on how they are using ICT and e-learning in their own teaching and learning	39.6%
13. use ICT actively away from school	39.6%
14. understand that they are part of a global community	37.5%
15. understand the different e-learning approaches and ICT tools that support critical thinking and problem solving skills in their students	37.5%
16. are ethical, discriminating, informed, responsible and safe e-learners	35.4%
17. are accessing digital learning resources available in their own teaching	33.3%
18. think about and analyse how ICT and e-learning can be embedded in the learning tasks they set their students	31.3%
19. share e-learning content with colleagues	31.3%
20. provide their students with opportunities to collaborate using ICT and e-learning tools	29.2%
21. develop and publish learning activities online for student completion anywhere, anytime	27.1%
22. create, modify, edit and tweak their own e-learning tasks using appropriate ICT tools	25.0%
23. enjoy actively producing e-learning tasks	22.9%
24. routinely use mobile devices to access information and communicate	20.8%
25. can select appropriate ICT tools for each task they are asked to perform within	18.8%

their classroom	
26. are comfortable expressing themselves through a range of modalities	18.8%
27. are autonomous and independent e-learners and e-teachers	18.8%
28. routinely use social software to connect and communicate with each other and the outside world	14.6%
29. author, publish and share self-created e-learning tasks	12.5%
30. are highly connected communicators	10.4%
31. are empowered and discriminating e-learners	10.4%
32. enjoy presenting their students with opportunities to explore multimedia game-like scenarios	10.4%
33. manage their personal e-learning spaces to record their own learning journey	10.4%
34. understand that their students work at twitch speed and create learning experiences to accommodate this	8.3%

Table 7: Features of an e-confident teacher.

Again, qualitative responses supplemented the identified descriptors. These described an e-confident teacher as:

> *Good teachers who are **student-focussed**.*
>
> ***Focus on learning first and foremost**...focus on their own learning about teaching.*
> *Flexible.*
>
> *Have endeavoured to **keep their ICT skills current**.*
>
> ***Seek assistance** with ICT when required.*
>
> *Are **responsive and proactive**.*

5.3.4 E-confident school leaders

This part of the survey was divided into three sections, comprising items about:

1. E-confident school leaders as *practitioners and role models*;
2. E-confident school leaders with *vision;* and
3. E-confident school leaders as *strategic planners.*

Respondents were asked to select up to five features under each category from an extensive list of available options which were drawn from the literature, the case study school investigation and the focus group responses

An e-confident school leader is an ICT practitioner and role model

Of 21 available options, the top five selected features of an e-confident leader as a practitioner and role model is a leader who:

- uses ICT effectively and confidently at a professional level (63.4 per cent of selections);
- values and understands the place of e-learning (61 per cent of selections);
- understands that their school, their students and themselves are part of a global education community (51.2 per cent of selections);
- consistently and actively seeks out and identifies potential new approaches for e-learning with the students and teacher in their school (46.3 per cent of selections);
- is comfortable acquiring new ICT and e-learning skills when they need them (41.5 per cent of selections).

An e-confident school leader has a clear ICT vision

Of 23 available options, the top six features (those ranked 4th, 5th and 6th all received the same selection percentage) of an e-confident leader in establishing an ICT vision for their school is a leader who:

- embraces and envisages an ICT and e-learning future for their students (68.3 per cent of selections);
- promotes, supports and recognises the value of integrating a variety of ICT and e-learning approaches and tools in curriculum planning and delivery (56.1 per cent of selections);
- has an holistic view of the school as a learning organisation and a clear understanding of how ICT and e-learning can improve processes and outcomes throughout (51.2 per cent of selections);
- understands how to support their students to be ethical, discriminating, informed, responsible and safe e-learners (36.6 per cent of selections);
- inspires colleagues and other stakeholders to value the place of ICT and e-learning (36.6 per cent of selections);
- is open and receptive to new ideas and new ways of doing (36.6 per cent of selections).

An e-confident school leader plans strategically to enact their ICT vision

Of 21 available options, the top five features of an e-confident leader's strategic planning, included:

- understanding change processes and how to build a positive ICT and e-learning culture within the school (48.7 per cent of selections);

- building staff ICT and e-learning confidence and commitment by prioritising it, monitoring ICT and e-learning-focused staff professional development and incorporating it into all curriculum planning (46.2 per cent of selections);
- understanding the importance of aligning any ICT and e-learning planning and implementation to the school's Strategic Plan (43.6 per cent of selections);
- ensuring that ICT and e-learning implementation supports individual, team and whole school improvement (38.5 per cent of selections);
- actively working with other school leaders and members of the school community in developing an e-learning Plan for the school (35.9 per cent of selections).

The total selections are presented in the Online Survey Results Tables in Appendix 5.

5.3.5 E-confident schools

Similar to the E-confident School Leader element of the online survey, the E-confident School section was divided into seven sections, comprising items about:

1. The *school culture and leadership* of an e-confident school;
2. The *shared vision and goals* of an e-confident school;
3. The *curriculum delivery, assessment and reporting* of an e-confident school;
4. The *professional learning* in an e-confident school;
5. *Accountability practices* in an e-confident school;
6. *Learning Communities* in an e-confident school; and
7. The *infrastructure and physical environment* of an e-confident school.

Respondents were asked to select up to five features under each category from an extensive list of available options which were drawn from the literature, the case study school investigation and the focus group responses.

School culture and leadership

Of 13 available options, the top six features (those ranked 5th and 6th received the same selection percentage) of an e-confident school's culture and leadership were:

- there is appropriate technical support to maintain, renew and use ICT and e-learning tools across the school (65.8 per cent of selections);
- ICT and e-learning are valued (50 per cent of selections);
- the ICT and e-learning skills and capabilities of teachers and leaders are being built (44.7 per cent of selections);

- learning environments are student-centred and rich in ICT tools and e-learning approaches, tools and resources that effectively meet the diverse needs of students (44.7 per cent of selections);
- equitable access to ICT and e-learning opportunities is provided for all students (42.1 per cent of selections);
- there is a clear understanding of how ICT and e-learning can improve student learning outcomes (42.1 per cent of selections).

The ICT vision and goals are shared

Of seven available options, the top five features of an e-confident school's shared vision and goals were:

- clear ICT and e-learning priorities and goals, underpinned by clear achievement strategies (64.9 per cent of selections);
- builds a shared understanding of the potential of the ICT and e-learning to support and enhance the school's strategic targets (64.9 per cent);
- provides opportunities for all staff to understand and share in the school's vision for ICT and e-learning (64.9 per cent);
- empowers others and support them in the development of their own vision for ICT and e-learning (62.2 per cent);
- has an inclusive vision of how ICT can enhance the all aspects of the school (59.5 per cent).

Curriculum delivery, assessment and reporting in corporate ICT

Of six available options, the top five features of an e-confident school's curriculum delivery, assessment and reporting were:

- consistently identifies how ICT tools and e-learning will enable curriculum differentiation and personalisation to students (80.6 per cent of selections);
- ensures that all ICT and e-learning decisions are informed by pedagogy and curriculum (75 per cent of selections);
- ensures that ICT tools and e-learning approaches are integrated in a range of assessment practices and tasks (72.2 per cent of selections);
- consistently articulates how ICT and e-learning will help to support effective curriculum delivery (63.9 per cent of selections); and
- ensures that ICT tools and e-learning approaches are integrated across all curriculum areas and pedagogical approaches (50 per cent of selections).

Professional learning builds staff ICT capacity

Of ten available options, the top six features (those ranked 5th and 6th received the same selection percentage) of professional learning in an e-confident school were:

- provides staff with time to build their ICT and e-learning skills, capacities and understanding (73 per cent of selections);
- ensures ICT and e-learning competence and confidence is always closely linked to pedagogy and curriculum (56.8 per cent of selections);
- prioritises ICT and e-learning in all professional learning plans for staff (54.1 per cent of selections);
- celebrates and share staff experiences with ICT and e-learning (54.1 per cent of selections);
- provides appropriate access to hardware and software so staff have an opportunity to explore and experiment with new and emerging technologies (51.4 per cent of selections); and
- encourages staff to experiment with and take risks in using ICT and e-learning within their own personal and professional practice (51.4 per cent of selections).

Accountability practices ensure quality ICT implementation and ongoing improvement

Of 15 available options, the top five features of accountability practices in an e-confident school were:

- consistently reviews and evaluates ICT and e-learning implementation and makes ongoing improvements and shares these evaluations (57.9 per cent of selections);
- establishes clear processes for operational management of ICT and e-learning access such as account and password management for all staff, students and parents (50 per cent of selections);
- establishes processes for disseminating, managing and archiving information (47.4 per cent of selections);
- supports a culture of informed, ethical, safe and responsible use (44.7 per cent of selections); and
- ensures parents and students have been kept informed throughout the stages of ICT and e-learning implementation (39.5 per cent of selections).

Learning communities are established and nurtured using ICT resources

Six available options described the features of learning communities in an e-confident school. Respondent selections from highest to lowest were:

- provide opportunities for staff to share effective ICT and e-learning practice (86.1 per cent of selections);

- encourage staff to share curriculum resources with each other using ICT tools and e-learning approaches (75 per cent of selections);
- encourage staff to collaborate and interact using ICT tools and approaches (72.2 per cent of selections);
- encourage staff to collaborate with teachers in other schools (61.1 per cent of selections);
- provide opportunities for staff to discuss and share their ICT and e-learning experiences using online collaboration (58.3 per cent of selections);
- encourage staff to join online professional e-learning communities (58.3 per cent of selections).

ICT Infrastructure and physical environment are managed, maintained and budgeted for

Of 11 available options, the top five features of an e-confident school's infrastructure and physical environment were:

- ICT and e-learning infrastructure and environment are efficiently managed, maintained and effectively budgeted for (81.6 per cent of selections);
- classrooms in the school are equipped to facilitate students' and teachers' access to ICT and e-learning (65.8 per cent of selections);
- appropriate technical support is provided to ensure hardware, networking infrastructure and software run smoothly (57.9 per cent of selections);
- ongoing technical improvements of hardware, networking infrastructure and software are planned and budgeted for (52.6 per cent of selections); and
- hardware, networking infrastructure and software are systematically upgraded (44.7 per cent of selections).

The total selections are presented in the Online Survey Results Tables in Appendix 5.

5.3.6 Contemporary ICT and teaching and learning

Survey participants were asked to respond to a series of qualitative questions related to ICT-based pedagogies, 21st century learning, Web 2.0, whole school and systemic transformation. The responses have been analysed and categorised as follows.

Features of effective e-pedagogies

The survey respondents indicated contemporary pedagogies that incorporate and exploit ICT involve:

- Self-directed learning in flexible student-centred learning environments;
- Collaboration and networking;

- Routine use of portable and mobile devices;
- Students being creators, discriminating researchers and publishers;
- Critical thinking, reflection and evaluation;
- Students understanding the rights and responsibilities of digital citizenship and this being embedded across the curriculum; and
- Assessment practices that use ICT tools.

> *Providing **flexibility to students to decide what ICT they will use** and allowing them to be as creative as they want to be. (Survey respondent)*

The following table presents the qualitative data gathered about new pedagogies for incorporating ICT into teaching and learning. As sweeps of the data were undertaken, a suite of patterns became apparent. These categories appear below.

The new pedagogies being used that incorporate ICT to engage and stimulate students provide opportunities for:

Self-directed learning in flexible student-centred learning environments	○ ICT skills become embedded into a self-directed pedagogical framework such as the self-directed learning framework ○ Teachers and students creating learning tasks ○ Students working at their level whether it be above or below the expected level
Collaboration and networking	○ Facilitating regular, consistent and sustained collaboration and networking opportunities in the classroom through either secure online collaborative spaces or wikis hosted externally or within school intranets ○ Collaboration opportunities that use online dialogue, interactivity between learners and feedback from teachers ○ Routine 'Think pair share' processes to facilitate meaningful interaction ○ The teacher working "as facilitator of learning rather than the holder of knowledge" ○ In-house blogs and wikis can be set up by teachers or students, and are useful for developing collaborative habits in students
Routine use of portable and mobile devices	○ The increased portability of devices makes the use of tools such as tablets, iPads or mobile phones in classes whenever and wherever appropriate to complement the learning ○ Introduction of one-to-one device programs allow "all students to be expected to use them in every class in some way and teachers are asked to plan accordingly"

Students being creators, discriminating researchers and publishers	○ Creative tasks using online resources such as mashing and cultural mixing ○ Students use multimedia to create and present work ○ "Students use technologies to research, remix and recreate. They are taught to discriminate."
Critical thinking, reflection and evaluation	○ Students need the skills of critical thinking, reflection, evaluation, effective communication ○ Provide thinking, creating and communication tools to support and extend the pedagogical practice in schools.
Understanding the rights and responsibilities of digital citizenship across the curriculum	○ Digital citizenship and e safety into all subject areas ○ Integrating ICT across the curriculum and not as a standalone discipline ○ All curriculum areas using technology every day in their classrooms/lessons
Assessment using ICT	○ Use of frameworks such as "Blooms Digital Taxonomy, TPAC, e5, Timperley" ○ Video conferencing to discuss and provide evidence of student performance ○ Archiving students' and teachers' work and assessments

Table 8: Key features of new pedaogies that incorporate ICT to engage and stimulate students.

The components of 21st century learning

The survey respondents were asked to provide their own definitions of 21st century learning. These have been collated and include:

- Students developing contemporary learning skills;
- Students working globally and understanding their place in the global world;
- Moving away from the one-size-fits-all, input/output industrial education model;
- Students being able to utilise the appropriate digital tools for the task at hand;
- Having ready access to information;
- Safe and responsible use of ICT;
- Students being critical, discriminating and empowered users who create content and construct new knowledge and share it with others;
- Students having opportunities for collaboration and communication; and
- Enabling students to personalise their learning.

> *21st century students have never known an unconnected life. They are* ***comfortable working collaboratively online*** *in a way my generation find hard to understand, even though that's the way we work. They are* ***able to multitask...the task just has to be relevant, authentic and not boring****. (Survey respondent)*

*C21 learning involves **Digital Content / Communication / Collaboration / Critical Thinking / Creation**. (Survey respondent)*

The following table provides a summary of the qualitative data gathered about the components of 21st century learning. As sweeps of the data were undertaken, a suite of patterns became apparent. These categories appear below.

Defining the components of 21st century learning:

Students developing contemporary learning skills	○ Students learning the skills required in today's world. ○ "Learning that is new and incorporates ICT."
Students working globally and understanding their place in the global world	○ Students "learn the lot in a global environment and do not forget there are people behind each computer screen, do not forget contact in the flesh, not only by click" ○ Taking the learning beyond classroom walls. ○ Students understand ICT is not just about online dissemination of information, it's about creating and reflecting to a worldwide audience.
Moving away from the one-size-fits-all, input / output industrial education model (Robinson 2010)	○ "Basically a recognition that we've moved beyond the factory approach."
Students being able to utilise the appropriate digital tools for the task at hand	○ Online or digitally-based learning that utilises the capabilities of modern hardware and software options, so students use "the right tool for the task". ○ Students using the appropriate tool to question, discover, experiment and construct and evaluate knowledge. ○ Multimodal e-learning using a variety of media in the learning process. ○ Integration of tools in a highly technological world to live and learn. ○ Anytime, anywhere learning using a range of devices, software and digital content. ○ Students being able to select from a range of available formats to produce information products while using reflection, problem solving and thinking skills.
Having ready access to information	○ "Learning that allows access to the limitless information available to learners today." ○ Where ICT is used to enhance the learning and provide access to real, authentic, rigorous data and primary resources.
Safe and responsible use of ICT	○ Where students understand safe, responsible use of e technology in a global world.
Students being critical, discriminating and	○ "Students learning in the 21st century using digital technologies and media from a critical and evaluative perspective." ○ Enabling the creative use of ICT to encourage students to think

empowered users who create content and construct new knowledge and share it with others	creatively and critically and produce creative final products that demonstrate high levels of synthesis. o "21st century learning goes beyond listening, watching and remembering into actively engaging, constructing new learning and knowledge and then proving or disproving what you have learnt, sharing it with others and taking ownership and responsibility for what you have done." o Providing learning opportunities that are flexible, proactive, and creative so that students are able to generalise their learning to a number of different areas. o "Promoting thinking, not just creating but working out why and how."
Students having opportunities for collaboration and communication	o Providing opportunities for students to be connected with each other o Promoting collaboration.
Enabling students to personalise their learning	o Students use new and emerging ICT tools to allow differentiation, learning anywhere/anytime and individualisation. o Individual learning plans. o Where the teacher is the facilitator of learning.

Table 9: Key components of 21st century learning.

Web 2.0 and emerging social networking technologies

The survey respondents described how they thought Web 2.0 and social networking impacts on ICT use and teaching and learning. These have been collated and include perceptions that Web 2.0 and social networking:

- Enables students to be connected;
- Enables differentiation;
- Shifts the role of the teacher;
- Provides easier access to experts;
- Redefines remoteness and physical location;
- Enables all members of school communities to communicate more effectively;
- Enables learners to be content creators.

> *Student experience is of a **socially connected and digitally rich environment** (mobile phones, laptops, etc) outside of school and schools need to plug into this mindset and utilise it to deliver teaching and learning outcomes. (Survey respondent)*

> *Web 2.0 and social **networking opens up new audiences as well as possible relationships for understanding selves** as living in global community. (Survey respondent)*

The following table provides a summary of the qualitative data gathered about the role of Web 2.0 and emerging social networking technologies on the ICT used in schools and the way teachers teach and students learn. As sweeps of the data were undertaken, a set of patterns emerged. These categories appear below.

The role of Web 2.0 and other emerging social networking technologies on the ICT used in schools and the way teachers teach and students learn:

Enable students to be connected	○ Web 2.0 tools such as blogs, wikis, text messaging, video conferencing and collaborative spaces enable communication and connection. ○ Students are able to share with a global audience such as through interesting cross-school and inter-subject projects. ○ Supports immediate learning and feedback from peers as well as teachers. ○ Frees up and opens up communication within the school and the global community. ○ Enables collaboration anytime, anywhere. ○ With larger and diverse audience, fosters different ways of thinking, editing, producing and publishing work. ○ Allows students to learn in global contexts, so that "no longer is learning contained within the 4 walls of the classroom". ○ "Sharing and learning can occur beyond the classroom walls and after 3:30pm."
Enables differentiation	○ Enables more engaging, differentiated and efficient learning opportunities. ○ Supports teaching and Learning in the 21st century as the tools are new, emerging and ever changing.
Shifts the role of the teacher	○ "Teachers are no longer the experts, they need to be facilitators of learning in this new era of educational possibility." ○ "A big one! Some traditional aspects of teaching/learning have been superseded by Web2.0 tools, while opportunities to do things differently have arisen." ○ Web 2.0 tools can facilitate a 'partnership' relationship among teachers and students, "which is far more productive".
Provides access to experts	○ Students can make contact with authors, scientists, thought leaders, artists, community organisations to enrich their curriculum experiences and enhance their learning. ○ Students are not confined the world of their immediate vicinity – they can contact and participate in initiatives on the other side of the world with the "click of a button".
Redefines remoteness and physical location	○ Collaborative online environments have the potential to level playing fields in terms of physical (location) and social factors.
Enables school communities to communicate	○ "I think Web 2.0 is a great medium for teachers and students to communicate but also for teachers and parents to communicate. It's excellent for exchanging ideas and resources easily and quickly."

Enables learners to be creators	o Web 2.0 technologies allow teachers and students to be creators of content rather than consumers. o Web 2.0 technologies can enhance information products, communicate information and provide an alternative for teachers and students to present information to individuals, groups or the world.

Table 10: The role of Web 2.0 and social networking.

Key elements for achieving whole school transformation using ICT

The survey respondents described the key elements for achieving whole school transformation in using ICT. Forty per cent of the qualitative responses to this question identified school leadership as the essential element for achieving whole school transformation in using ICT. These respondents identified the important role of the leadership in establishing the ICT vision, strategic planning for its implementation and effective resourcing. Their responses have been collated as follows:

- School leadership that embraces ICT and communicates a strategic vision to all staff and the school community;
- Strategic planning for ICT use;
- Building teacher capacity, confidence and positive attitudes towards ICT;
- Providing professional learning opportunities to support the development of confidence, competence and capability; and
- Effectively resourcing the ICT plan.

> ***Vision is key**, as is providing the necessary infrastructure and technical support, providing the necessary time for staff and students - even in small groups at a time - to experiment together and work on things like podcasting for example and then share what they have learned with others, time for staff professional development, **allowing students the freedom and flexibility to create interesting ICT products of their choice**, **building ICT activities into teaching programs so they become the norm and not the exception, keeping up to date with the latest ICT trends and incorporating them into classroom activities** e.g. using mobile phones in a positive way as a learning tool rather than viewing them as items to be confiscated! (Survey respondent)*
>
> *A **clear vision and support** that must include a considerable investment in time and money to establish it. Also it must be supported by leadership within the school and be a part of the strategic plan. (Survey respondent)*

Vision, energy, strategic planning, supply and support of resources *to engage fully and safely in e learning, professional development for staff, constant review of policy and procedures to ensure all aspects are considered. (Survey respondent)*

The following table provides a summary of the qualitative data gathered about the key elements identified by survey respondents for achieving whole school transformation. As sweeps of the data were undertaken, a series of patterns emerged. These categories appear below.

The key elements for achieving whole school transformation in using ICT:

School leadership that embraces ICT and communicates a strategic vision to all staff and the school community	○ The school leadership is critical in embedding an expectation of ICT use by all teachers in all subjects in all classes. ○ Strong enthusiastic leadership who understands change management and the value and importance of communicating and collaborating with the whole school community. ○ Establishing a shared and agreed vision with an effective leadership team that provides opportunities for staff and students to share their ICT learnings. ○ The existence of a leadership vision that shows a commitment to supporting teachers/students in increasing their skills in ICT. ○ Support comes from the principal and school leadership team who articulate a clear vision for the ICT goals to be achieved. "Mostly this would take the form of a survey of current practice, collaborative (with the entire school community - students, teachers, exec and parents) development of outcomes to be achieved and a strategic implementation plan, linked to the school plan." ○ "A whole school approach, common language, expectations and non-negotiable progress must be in place for success to occur." ○ This establishes a school climate that values ICT (and learning) encourages and values all.
Strategic planning	○ Whole school planning for ICT needs to emerge from a School Strategic Plan, be linked to an Annual Implementation Plan, involve School Self Evaluation and report through the School Review as part of an entire, robust and rigorous school improvement framework. ○ A multi-factor approach to continuous whole school planning, data collection and evaluation - evidence based decision making. ○ Communicating with the wider school community such as Parents – to encourage their support of school approaches.
Building teacher capacity and confidence and positive attitudes towards ICT	○ The aim needs to be the development of confident/competent teachers who are passionate about ICT and learning. ○ The school leadership need to expect digitally capable and innovative practice for whole school improvement and also should support staff in achieving this. ○ "All stakeholders across the school should be using a common

	approach e.g. all classes have a blog, use wikis as part of learning tasks etc."
Providing professional learning opportunities	o Appropriate, sustained and ongoing ICT teacher professional development allows staff to access best practice globally and communicate and collaborate with like-minded peers and their students in topical stimulating discussion and sharing of resources opening the students up to new possibilities. o Training for staff needs to be accompanied with hands on and regular reminders that provide opportunities for change. o Peer mentoring - earlier adopters can share successes and help to support others. Teachers can be exploring, learning, sharing ICT together. "You need a team, not just one or two strong guns who use it, but a group who want to improve their skills." o Giving time to explore - teachers and students need time to explore and develop ideas for applications of ICT tools into teaching and learning.
Resourcing ICT	o Robust and reliable infrastructure needs to support use. o There needs to be adequate access to equipment which is in good working order. o "Get the technology right and use a happy mix!" o Providing technical support

Table 11: Key elements for achieving whole school transformation in using ICT.

What needs to be considered when developing forward-looking ICT policies

The survey respondents were asked to describe what they thought education systems need to consider when developing ICT policies. The collated responses included:

- Appropriate resourcing of ICT initiatives;
- Building in reviews and improvements;
- Planning for, resourcing and building school leader and teacher capacity;
- Being aware of and receptive to societal trends in ICT; and
- Strategic planning and budgeting for sustainability.

> *Funding should come from external sources.* ***Money should be available to all schools, regardless of their status, and it should be earmarked for ICT****. It should not have to come from within the school budget, and it MUST include money for tech support. (Survey respondent)*

> *There is so much information out there which teachers simply don't have the time to look at. It needs to be* ***presented in a systematic way****; with regular follow up PD's so teachers actually implement these changes, not just talk about it. (Survey respondent)*

> *'Good' systems wanting to become 'great' should devolve more decision-making to schools and making it ok for champions to experiment. On the other hand,* ***schools need support in implementing change and that support can comprise centralised expertise****. Balancing these two factors is the challenge for leaders of education systems in the face of contracting budgets world-wide. (Survey respondent)*

The following table provides a summary of the qualitative data gathered about what survey respondents believe education systems need to consider when developing ICT policies. As the data was investigated, a set of patterns emerged. These categories appear below.

What education systems need to consider when developing forward-looking ICT policies:

Appropriately resourcing the initiative	○ Appropriate finance and infrastructure – including technical support are needed. ○ Provide school budgets for maintenance of systems and hardware and ongoing improvements to infrastructure of hardware and software.
Build in reviews and improvements	○ Systems need to be prepared to review constantly, consider the needs of all parties, and not "lose sight of the need for balance and preserve what needs to be preserved".
Plan for, resource and build school leader and teacher capacity	○ Systems should build the capacity of their teachers and school leaders to utilise ICT for improved learning in a safe environment. ○ Provide pedagogical support to teachers who are working in a changing context. ○ Provide regular, sustained, ongoing professional learning on ICT for teachers.
Be receptive to societal trends	○ Systems "need to consider the trends in society and the tools and technologies that are used in the wider community and how these can be incorporated into school curriculum in a meaningful way. They need to consider what ICT skills students will need to function effectively in our future society and produce policies that are relevant to our changing future." ○ Technologies are becoming more sophisticated and change rapidly. "Systems need to be prepared for change and for a student driven learning focus rather than political imperatives driving the agenda". ○ Systems need to understand and embrace the changing nature of technology and the need to be proactive rather than reactive.

Strategic planning and budgeting for sustainability	○ A long term, clearly outlined ICT plan should be flexible, regularly revised and always focuses on improving student engagement and learning outcomes.

Table 12: What survey respondents felt that education systems need to consider when planning ICT policy.

5.4 Summary

This chapter presented an analysis of the data gathered through the Teacher Focus Groups and Online Survey. It provided an overview of definitions of e-confidence collated through discussions with focus group participants and responses from online survey participants. Notions of new pedagogies, 21st century learning and effective strategies that may support the achievement of positive ICT change in schools drawn from teacher focus group and online survey responses have also been discussed.

The data collection serves several purposes: to assist in answering the Research Questions presented in Section 1.6 through the development of contemporary e-confidence definitions via qualitative enquiry, to establish the types of strategies that may contribute to successful and sustainable ICT change in schools, and to contribute to the design of an E-confidence Framework which will be addressed in Chapter 7.

As in Chapter 4, as the data was analysed, similarities across the subject cohorts (focus group participants and the online survey respondents) became evident, and the following descriptions of e-confidence draw together these similarities.

E-confident students were consistently described as being digitally and information literate and discriminating in their use of ICT. The participants described e-confident students as effective communicators keen to collaborate, connect and work globally and able to work effectively both independently and in groups. Finally, the e-confident student was seen as one who thinks critically, creatively and reflectively.

E-confident teachers were also seen as digitally and information literate. The participants commonly described an e-confident teacher as one who embeds effective ICT use in their own teaching because they have a receptive and positive attitude towards ICT and are willing to experiment and explore with it. E-confident teachers were identified as teachers who explore new pedagogies of engagement afforded by ICT and work alongside their students as facilitators of their learning. There was significant emphasis on the role teachers play in modeling learning, taking risks and

being comfortable with change. And, like the students they teach, e-confident teachers were described as wanting to collaborate, connect with and mentor others.

An e-confident school leader was described as one who is an ICT practitioner and role model with a positive attitude towards ICT, who uses ICT to improve business operations and systems within and across the school. The e-confident leader was seen as a good strategic planner who has a clear vision for learning and ICT and is willing to build staff ICT capacity. The e-confident leader embeds accountability, evidence and research into any planned ICT change and, like the e-confident student and teacher, is comfortable with and encourages risk taking. The participants described the e-confident leader as one who is supportive, inclusive and, just like the students and teachers within their school, one who values collaboration and communication.

In describing the features of an e-confident school, the participants identified a place where school leadership fosters a school culture that refocuses the school as a learning organisation and where the ICT vision and goals are shared. There was common agreement that in such a school there would be strategic, systematic planning for ICT change which incorporated accountability. Curricula, pedagogies, assessment and reporting would be reconceptualised. In an e-confident school, students would acquire 21st century skills and the ICT capacity of all staff would be supported and built through ongoing, sustained, relevant and targeted professional learning opportunities, making links to new thinking and research. As in the descriptions of the e-confident student, teacher and school leader, an e-confident school was consistently described as a place where ICT would be actively used, explored and experimented with. People would be able to connect, collaborate and communicate within an environment where innovation was resourced, physical spaces were reorganised and appropriate infrastructure would be provided.

The inter-relationships and interdependence of these elements became apparent as the data was analysed and have informed the E-confidence Framework presented in Chapter 7.

The next chapter explores the synthesised findings in greater detail by further addressing the notion of e-confidence within the context of the Literature Review and Exploratory Case Study, Focus Group and Online Survey.

Chapter 6 Findings and discussion

6.1 Introduction

The purpose of this chapter is to present the synthesised findings from the data collected in the Exploratory Case Study in Chapter 4, and from the Teacher Focus Group and Online Survey data in Chapter 5. This data is linked to the main ideas identified throughout the literature in Chapter 2. This chapter is concerned with further refining notions of e-confidence as they relate to students, teachers, school leaders and schools. These are examined within the context of the Research Questions which were initially introduced in Section 1.6:

1. *What are the characteristics of e-confident schools, teachers and students?*
2. *How important is school leadership in creating and enacting a vision or policies that will inform and sustain innovation that incorporates the use of new technologies?*
3. *What strategies are most successful in promoting e-confident schools and teachers?*
4. *What are the features that contribute towards successfully achieving an e-confident school, teachers and students?*

In this chapter, each question is addressed with related data and analysis. The discussion in Sections 6.2, 6.3 and 6.4 draws together findings from the literature and the insights shared through the Exploratory Case Study - interviews conducted with *Bright Town Primary School* personnel, classroom observations taken during field visits to *Bright Town Primary School* - and responses from teacher focus group participants and online survey respondents. The literature is cited where relevant.

6.2 Research Question 1: What are the characteristics of e-confident students, teachers and schools?

6.2.1 E-confident students

Today's students have been called the *homo zappiens* of the third millennium's Net Generation, *screenage digital natives* working in digital and social media (Veen, 2003; Oblinger & Oblinger, 2005; Futurelab, 2004; Pedro, 2006) immersed in and comfortable with life in virtual and offline worlds (Palfrey & Gasser, 2008; Tapscott 1998). Highly connected, they happily inhabit a socially networked world (Pedro, 2006). They are tech-savvy, empowered information seekers and analysers (UNESCO, 2008; Rideout et

al., 2009) with access to more information and communication tools than ever before in human history:

> *I would imagine a person and they would have glasses. They would look really professional and smart and they would be (like) really good with technology. They would go and help people (like) their maturity at a high level I think. They'd look very neat...I would presume, that they should have a high maturity level. Know what you have to do, do it...I think that* ***they should be (like) brave to try something new*** *and, I mean, if it doesn't work out, they could always go back and try it again. (Interview with Student 1, Year 6, Bright Town Primary School)*

The literature, and insights shared through the interviews with case study school personnel, focus group participants and online survey responses, provided a perspective on the attributes and skills possessed by an e-confident student. These have been analysed and synthesised into the following categories, describing an e-confident student as:

- *An ICT natural - digitally and information literate*

  The e-confident student has a wide range of generic ICT skills and a high level of digital and information literacy, appreciating ICT as a natural tool for learning. Confident and capable in using ICT (UNESCO, 2008), their learning style is flexible and agile:

  > *(They) would* ***know what they want to use, aren't afraid to use new technology, have the skills and knowledge to find out what they don't know, can access networks and pathways to do this****. They will know what kind of product or device they would like to use in their learning, but they won't be afraid to use new technology either because they'll have the skills or the knowledge of finding out how to use things. (Interview with the Assistant Principal, Bright Town Primary School)*

  Positive, cooperative and uninhibited by technology, they seek information, analyse and evaluate it (Howe & Strauss, 2000; UNESCO, 2008and multitasking as they do so (McDougall, 2006).

- *Discriminating in their use of ICT*

  The e-confident student recognises and discriminates about when to use ICT to support their learning, selecting the appropriate ICT tool and function required to effectively complete the task at hand:

> *A student who will **recognise that there are times when they can use the technology to support their own learning, will accept the fact that there are different sorts of technology used for different roles and somebody who will just naturally go and use it as a tool of learning** - just like, 'I'll go and get a pencil for drawing, or a ruler for ruling' they'll go and use some sort of technology for whatever they need. They have an idea of the sorts of technologies appropriate to what they need to do. (Interview with Principal, Bright Town Primary School)*

  They understand that one can use a range of devices for varying purposes. They are ethical, discriminating, informed, responsible and safe ICT users.

- *Taking risks, experimenting and exploring with ICT*

  The e-confident student is resilient, able and comfortable taking risks, making mistakes, "brave" (Heppell, 2008, np) and willing to try something new. New technologies empower them rather than instilling fear or discomfort:

> ***They take risks, not afraid to have a go**. Students as a whole are very e-confident in that you throw a program in front of them and they just figure out how to use it and I think they're not afraid that they're gonna(sic) break the computer or that they're gonna(sic) do something that's going to stuff it up...they just have a go and they play with it. (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

  They are problem solvers and decision makers (UNESCO, 2008). Prepared and keen to explore and experiment with new and emerging ICT, the e-confident student has the skills and knowledge to find out what they don't know by accessing networks and pathways to do this, knowing or investigating what they want to use and exploring ways they might learn to use and apply ICT:

> *The perfect person would be a bit boring to be. If you make a mistake you can always go back and you have fun doing it again! But the perfect person 'ha, got it right...what do I do now?' They'd*

> *just sit there...**Our teachers, they constantly say to us (especially when we're doing projects and we're expected to create our actions) 'it doesn't matter...try to do something new** because they'd prefer it if we made a mistake by doing that' rather than us doing something that we've always done. They'd prefer us to make a mistake and we can go back next year and have a shot at it. (Interview with Student 2, Year 6, Bright Town Primary School)*

- *Communicating, collaborating, connecting and working globally*

  The e-confident student has a world view and understands that they are part of a global community. They work collaboratively with others and are comfortable teaching others what they know:

  > *They **teach each other**. (Interview with Teacher 1, Prep/1, Bright Town Primary School)*

  They are mobile and connected (Pedro, 2006) and hungry for access to ICT resources through which they can connect with others:

  > ***ICT is the way the world is evolving and I think we need to move and develop the skills getting students to experience the technology**. There's a wealth of information technology-wise so why should we just have information in the four walls, there is so much out there that broadens our children's knowledge, skills, finding out things. (Interview with Assistant Principal, Bright Town Primary School)*

- *Having the learning dispositions to work effectively independently and in groups*

  The e-confident student is a mature, autonomous and independent learner able to negotiate with others and work independently and in groups and teams:

  > ***Through experiencing ICT, they build the confidence and then they share it with everyone else**. They have to be willing to learn from other students. (Interview with Teacher 1, Prep/1, Bright Town Primary School)*

- *Using ICT resources to support thinking, creativity and reflection*

  The e-confident student thinks critically. They are organised, able to plan and reflect. They enjoy using ICT in actively creating, producing and modifying content and authoring, publishing, producing and distributing digital learning artefacts (UNESCO, 2008; Deighton, 2009, 2011):

> *They are **critical and do not fall in a heap when the technology doesn't work.** They think about what they are doing. (Online survey respondent)*

6.2.2 E-confident teachers

The research literature and this study have highlighted a view of e-confident students as first language digital speakers. This raises questions about how contemporary education is envisioned, designed, facilitated, experienced and assessed to effectively cater for these students' attributes and skills and also prepare them for life and work in the 21st century. What is the role of teachers in this? E-confidence reflects a continuum of skills, attributes, knowledge and understandings. Many manifestations of e-confidence were highlighted in the literature, and emerged from the responses shared via the interviews with case study school personnel, focus group participants and online survey respondents:

> *It varies from the really highly competent ones to the ones who are exploring it. An e-confident teacher is not necessarily one who needs to know every device and how it works and every bit of software but who is **comfortable with allowing their children to use any device**. Comfortable in the fact that if a child wants to try something different, the teacher encourages them and the teacher is prepared to learn with the child on how to do it. We might talk about going from blogs to wikis, to online conferencing, to using various pieces of software but a person who is very open to any new idea, any bit of technology and encourages the children and supports the children in using it. Sure, **they have to be confident in their own ability with technology but they don't have to know everything and they don't have to be able to know more than the children. I think an e-confident teacher is someone who accepts the fact that children are probably going to know more than them**. (Interview with School Principal, Bright Town Primary School)*

The role of the teacher continues to be crucial (MCEETYA, 2004) while the paradigm shifts (Robinson, 2010; Yelland, 2007). New pedagogies of engagement that utilise ICT to optimise connections and create new ways of doing, pose real challenges to educators and schooling (MCEETYA, 2004; UNESCO, 2008). This involves teachers developing and demonstrating deeper understanding of technology, pedagogy and content knowledge (Mishra & Koehler, 2006, 2011); a pedagogy of e-learning (Cuthell, 2005) or pedagogy 2.0 (McLoughlin & Lee, 2008). To meet this challenge, teachers

need to be supported to cultivate and display qualities of e-confidence so that they can create learning environments that facilitate risk taking, embrace challenge and change and exhibit flexible, positive dispositions towards technology so that it is integrated consistently in their practice (UNESCO, 2008).

The literature, and insights shared through the interviews with case study school personnel, focus group participants and online survey responses, provides a perspective on what it means to be considered an e-confident teacher. These have been analysed and synthesised into the following categories, describing an e-confident teacher as:

- *Digitally and information literate*

  The e-confident teacher demonstrates high levels of e-learning confidence, ICT savviness and competence. They use ICT and effective e-learning approaches and resources at a personal and professional level (Institute for Policy Studies in Education, UK, 2008). They are resilient, persistent and bold ICT users:

  > *Someone* ***willing to have a go, able to navigate around ICT, understand it's a shared learning journey with the kids and with each other****. Has some ICT savviness – being willing to have a go, willing to say "let's have a try at this, let's figure it out". (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

  They value, recognise and integrate a variety of ICT resources and e-learning approaches in their curriculum planning and delivery. They are comfortable acquiring new ICT and e-learning skills when needed.

- *Effectively embedding ICT use in their own teaching*

  The e-confident teacher uses ICT to engage students in new learning (ACDE, 2004; Yelland, 2007) in fresh, challenging and stimulating ways (DEECD, 2010):

  > *I guess how the teachers and staff incorporate fun into all our learning. It's not just 'today we're going to sit a maths test, don't even smile'. We have so much* ***fun while we're doing all this work*** *and I guess I'm really grateful for that because my parents have told me they didn't have as many opportunities and technology as we do. I just love the fact that they (teachers) understand us. I love IT – I love computers. I have a fascination with computers. I've got other*

> *passions, but I am just fascinated by computers. (Interview with Student 2, Year 6, Bright Town Primary School)*

They explore the potential of, develop and implement ICT-based assessment and reporting tools (DEECD, 2010). They enable rich learning to happen through a deep understanding of the potential of ICT, mixed with strong domain and curriculum knowledge and powerful and thorough pedagogical understanding (Mishra & Koehler, 2011). The e-confident teacher understands their ethical responsibility in using ICT in teaching and learning (DEECD, 2010).

- *Having a receptive and positive attitude towards ICT which incorporates experimentation and exploration*

  The e-confident teacher is positively disposed towards and values the place of ICT in teaching and learning and is receptive and open to innovative ideas and new, emerging technologies. They envision an ICT-rich education future for their students (Institute for Policy Studies in Education, UK, 2008) and integrate ICT consistently in their practice:

  > *We're* ***constantly in our planning and things encouraged to incorporate more ICT*** *and explore how we could better do this or that. (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

  Responsive and not obstructive to new developments in ICT, the e-confident teacher says "yes...even if they don't immediately know how" (Teacher 1, Prep/1, *Bright Town Primary School*). They are curious about, question and experiment with ICT, taking time to explore the functions and features of new and emerging ICT.

  They consistently and actively identify potential new approaches for e-learning with their students. They seek feedback, undertake self-assessment and reflect on their ICT use, aiming for ongoing improvement (MCEETYA, 2004; Peters et al., 1996). They are comfortable allowing students to use ICT devices in their own learning.

- *Exploring new pedagogies of engagement afforded by ICT*

  The e-confident teacher embraces student-driven, learner-centred curriculum (UNESCO, 2008; Fox, 2008) by differentiating and personalising student learning. They empower students to pursue their own passions and interests and allow them to make their own choices about the ICT resources they will use for learning tasks:

> *It's **their choice in which direction they will continue their learning** and that it's also their choice how they go about presenting it or sharing the learning. (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

They create learning environments where students use ICT to meet their individual learning needs, maximising available resources (DEECD, 2010) by offering flexible learning opportunities that are authentic and relevant to their students' needs while providing the necessary structure and scaffolding (McLoughlin & Lee, 2008). They focus on knowledge creation (Owen et al., 2006) and use ICT to help students create new knowledge (MCEETYA, 2004).

- *Working alongside students as a facilitator of their learning*

  The e-confident teacher partners students in their learning (McLoughlin & Lee, 2008) and has the courage to learn alongside their students; sharing the learning journey:

> *We **walk the journey with them**. (Primary Teacher, Focus Group)*

They are happy facilitating rather than always being the expert, not feeling they have to know more about ICT than the students they teach because they accept that their students may always know more than they do about their use of ICT.

- *Modeling learning and risk taking and being comfortable with change*

  The e-confident teacher consistently models learning for their students – demonstrating that, as teachers, they are also continually learning about ICT as well as about learning itself. They model learning for their students, use the language of learning and demonstrate a love of learning (Owen et al., 2006):

> *They have **interest in, a passion for and love of learning**. They are learning to take more risks. (P12 Teacher, Focus Group)*

Committed to being a lifelong learner (Kalantzis &Harvey, 2003), they design all tasks for learning and show they can be risk takers, willing to learn new things using ICT while not being afraid to fail (NAACE, 2007). The e-confident teacher understands that learning is not an end point, but a process. They model resilience, persistence, cooperation, organisation, creativity, confidence and a "*you too* can do it attitude" (Primary Teacher 1, Focus Group). They are flexible and comfortable with change; embracing, preparing for, responding to and not scared of it.

- *Collaborating and connecting with and mentoring others*
  The e-confident teacher communicates, interacts and collaborates with others using ICT tools (MCEETYA, 2004; McLoughlin & Lee, 2008):

> *(The **most profound influence is) your peers, the people around you, being able to go to professional development, being able to ask questions of people**...our assistant principal came to me with a list of schools in the area that use the program I was using and said "go through your email and if you want to go and visit them, feel free." But just that constant support that they're looking for our best interests as well so I think that helps. (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

They interact locally and globally (MCEETYA, 2004). They focus on community participation (Owen et al., 2006) and contribute to and provide leadership and mentoring for peers in integrating ICT into learning and teaching practice (DEECD, 2010).

In the context of the e-confident student attributes, the profile of the e-confident teacher in the 21st century reflects a similar positive disposition toward ICT, willingness to learn new things and to take risks.

These are the teachers whose pedagogical styles and curriculum delivery enable them to more effectively connect with and build e-confidence in the students in their classrooms.

6.2.3 E-confident schools

In the process of becoming e-confident, the traditional structures and organisation of schools are re-examined (COSN, 2008). Curriculum and assessment are redesigned and learning needs are personalised (Fox, 2008). E-confident schools are creative places for learning, providing conditions where students' natural talents flourish (Heppell, 2008). They are a different type of school, released from the old industrial education model, grasping the challenge of engaging and connecting with their collaborative, gregarious and brave e-confident students (Heppell, 2008; Robinson, 2010):

> *Our whole **philosophy was around flexibility, children having a lot of say in their learning, children making decisions about how they wanted to do the presentations. So suddenly the ICT became very***

> ***important because the kids wanted to use it in various forms to do their presentations and to help their learning***. *The teachers then realised that they didn't have to know everything and didn't have to teach the kids everything; they had to give the kids the opportunity to use the equipment, and to explore in their own way. Over the last four or five years it has blossomed- in as much as the children now see it as a tool of learning (the same as a pencil or ruler), it's not taught in isolation, we don't go to computer classes, we don't go to do ICT lessons in another classroom – it's just there. And the children make the decision about how to use it. (Interview with School Principal, Bright Town Primary School)*

These schools are agile. They have made the shift from *schooling* to *learning* (Yelland, 2007). They have become *learning organisations* (Stewart, 2001) that nurture and foster 21st century skills in both their teachers and students.

These learning organisations build capacity, facilitate lifelong learning (Kalantzis &Harvey, 2003) and adopt change strategies that provide internal stability while moving ahead (Silins et al., 2002). They focus on a learning culture of innovation and empowerment of all (Fullan et al., 2005). Their school leadership shows high levels of ICT commitment. ICT is embedded: in the curriculum, learning and teaching and assessment processes; in professional learning; and in the resources provided (Becta, 2006). E-confident schools exhibit an e-maturity that articulates and enacts a consistent, pervasive and strong ICT vision. They achieve ongoing iterative improvement through careful, strategic ICT implementation and self-review. Like *Bright Town Primary School*, these schools have leaders, teachers and students who are sharing the ICT journey: enjoying, thriving on and embracing their roles as change agents; characterised by their positive and receptive attitude towards ICT, their focus on changing learning environments and their purposeful integration of ICT into teaching and learning in order to transform learning (Fullan et al., 2005; MCEETYA, 2006).

The literature, and insights shared through the interviews with case study school personnel, focus group participants and online survey responses, provides a perspective on what it means for a school to be considered e-confident. These have been analysed and synthesised into the following categories, describing an e-confident school as an organisation in which:

- *The school leadership fosters a school culture that refocuses the school as a learning organisation*

  In an e-confident school, leadership is enabling and supportive (MCEETYA, 2008), learning and innovation are the focus and the school culture explicitly values technology – seeing it as an essential resource for the future. For example, teachers at *Bright Town Primary School* were asked to describe the importance of school leadership in supporting their development of ICT skills and capabilities:

  > *Very high – **I think because they enable it and they expect it in every class, it's always there**. And our goals, like you know I talked to (the principal) and he said 'I think you need to change this goal, you can have a greater goal than that' so you can go there with a thought in mind and they can challenge you again. They're always constantly challenging us to be better teachers, be more savvy at ICT, they'll just come in and say 'here, we've got a new tool, have a play with it, see what you can do with it, see what the kids can do, and then come back and let me know how you go'. (Interview with Teacher 2, Years 3/4, Bright Town Primary School)*

With a clear understanding of how ICT and e-learning can improve student learning outcomes, the e-confident school provides appropriate technical support to maintain, renew and use ICT tools and e-learning across the school. In an e-confident school, opportunities enable teachers and school leaders to constantly build their ICT skills and capabilities:

> *Where a **culture exists across the whole school that technology is important to the children's learning and technology is going to be something these children will need for their future**. Whilst we accept that the technology they are using now is not necessarily the technology they will be using when they join the workforce, it's the transference of skills from using it now to a new piece of technology to another new piece down the track and it becomes seamless across the whole school. Also, a school that recognises that you don't use technology for everything – sometimes pencil and paper is just as important. But the children have a lot of choice and a lot of avenues to explore the different technology. (Interview with School Principal, Bright Town Primary School)*

In an e-confident school, student-centred environments are rich in ICT resources and e-learning approaches. Equitable access is provided to ICT for all and programs are resourced effectively to meet the diverse needs of students.

The school leadership is empowered to effect change (ISTE, 2009) and involves others in owning the change process. In an e-confident school, love of learning is modelled at all levels and the focus of any change strategy is the *learning* that will take place. Here ICT is seen as essential for students in their learning and is not taught in isolation.

- *The ICT vision and goals are shared*

  In an e-confident school there is a clear, inclusive, shared vision for how ICT can enhance all aspects of the school, enabling coherence (Fullan et al., 2005) across the staff and student community. There is a shared philosophy that ICT promotes connections and enhances learning (Gardner, 2011) and a collective understanding of the potential of ICT and e-learning to support and enhance the school's strategic targets. Opportunities are provided for all staff and the wider school community to understand and share in the school's vision for ICT:

  > *The **knowledge that when students use ICT they gain knowledge, their engagement increases and they are more motivated to learn**. Seeing what students can develop with technology and I think if they didn't have the technology, would they have expanded their learning and I don't think so because when I first started teaching, there were hardly any resources and I think back to what they used to learn and the learning now – the way students react to technology has probably been my biggest influence. (Interview with Assistant Principal, Bright Town Primary School)*

  Staff are supported and empowered to develop their own vision for ICT.

  In an e-confident school, there is an expectation that ICT skills and e-learning innovations are spread across the school, with everyone a risk taker motivated and willing to explore new technologies and new opportunities for effectively implementing them and focused on positive and productive relationships with their students.

- *There is strategic, systematic planning for ICT change*

  The e-confident school has an ICT/e-learning action plan with clear policies, priorities and goals underpinned by appropriate achievement strategies. In an e-confident school, there is a focus on tri-level development (Fullan et al., 2005) and

on second order change, as well as first order effects (Sproull & Kiesler, 1991). Messages are always consistent and cohesive (Fullan et al., 2005), ensuring strong alignment of thinking and purpose across the school. The school leadership advocates for ICT, supports staff and acts as a role model using the language of ICT, providing appropriate and stimulating professional learning for teachers, ensuring the school is well resourced, with a vision that is shared and understood, knowing where they want the school to go and making themselves available:

> *I used **ICT in the early days as a catalyst**...because it was new, it was something different, it was new for the kids, it was new for the teachers and teachers suddenly had to learn new devices and how to use new software. And so they were asking other people how to do it...Whilst I wasn't trying to teach them the ICT, **I was trying to get them to work together but I used it as a management tool to do it**. The things I put in place were: professional learning every Thursday night once a week, and also having the children teach the teachers because they knew a lot more about the software than the actual teachers did. So it became very open and teachers were prepared to learn and that was a good starting point. (Interview with School Principal, Bright Town Primary School)*

In an e-confident school, all ICT decisions are informed by pedagogy and curriculum and parents and students are kept informed throughout all stages.

- *There is accountability for learning*

  In an e-confident school, ICT is seen as an essential mode for self-improvement and student achievement (Institute for Policy Studies, 2008). Performance is continually planned for through clearly set expectations. Performance plans that are negotiated between teachers and school leadership are documented, reported and reflected on. There is an expectation of self-improvement, collaboration and exploiting opportunities to be exposed to new thinking through policies and plans that explicitly outline accountability measures and incentives (ISTE, 2009). In an e-confident school staff and student ICT capabilities are developed, measured and monitored (MCEETYA, 2008):

  > *(The biggest influence on me has been) **someone having the confidence in me and saying I'm doing a great job** – so you strive to get better or improve what you've already done. And just being able to watch and learn from others and then giving it a shot, willing*

to take risks. (Interview with Teacher 1, Prep/1, Bright Town Primary School)

In an e-confident school, clear processes are established for the management of ICT for all staff, students and parents because a culture of informed, ethical, safe and responsible use is supported. Reviews and evaluations of ICT implementation consistently take place. Ongoing improvements are made and these evaluations are shared with the staff.

- *Curriculum delivery, assessment and reporting are rethought*

In an e-confident school, access is provided to rich ICT teaching and learning resources.

Teaching, learning and assessment are re-engineered and improved (NAACE, 2008; MCEETYA, 2008). Curriculum planning, pedagogy, and assessment are always informed by and focus on the needs and abilities of all students (ISTE, 2009) and incorporate ICT resources where appropriate to support effective curriculum delivery.

> *(The **school leadership) see ICT as an opportunity for teachers to improve their teaching, an opportunity to integrate into the curriculum, deliver the curriculum**. The leadership want to know how it goes – if it doesn't work they want to know and they encourage you if you've found something you think is really good, to share it with everyone. Everyone is very open to that as well. (Interview with Teacher 1, Prep/1, Bright Town Primary School)*

The place of ICT in enabling curriculum differentiation and personalisation to students is consistently identified. Remoteness and physical location are redefined in an e-confident school.

- *Powerful pedagogies that place students at the centre are actively promoted*

In an e-confident school, there is movement away from the old, one-size-fits-all, input/output industrial education model (ACDE, 2004; Yelland, 2007; Robinson, 2010) because students are at the centre and the role of the teacher shifts to facilitating student learning. New learning is able to be personalised, self-directed and extended (ACDE, 2001, 2004; MCEETYA, 2008) and choice and avenues for exploration are provided:

> ***Handing the learning to the students*** *– not like we used to teach many years ago. Where* ***learning is self-directed and the role of the teacher is like a coach, it's changed****. And it has changed here. They're more a* ***facilitator, they guide, they assist, give children feedback*** *on what they want to learn about. Basically, students directing their own learning to where their needs are. (Interview with Assistant Principal, Bright Town Primary School)*

Students have a say in their learning and the decision-making around it so that many tasks are student-centred, student-led and self-negotiated. In an e-confident school, there is a strong sense of student and teacher ownership of their own learning. Teaching approaches are fluid and flexible in dynamic learning environments. Students collaborate and network with each other and beyond the classroom walls. There is routine use of new and emerging technologies as well as portable and mobile devices. Students work as creators, discriminating researchers and publishers while critical thinking, reflection and evaluation are encouraged:

> *Providing* ***flexibility to students to decide what ICT they will use*** *and allowing them to be as creative as they want to be. (Survey respondent)*

At an e-confident school, there is easy access to experts and it is recognised that technology doesn't need to be used for everything.

- *Students develop 21st century skills*

  Students attending an e-confident school understand digital citizenship and that they live and work locally and globally. They understand their personal and social responsibilities – including cultural awareness and competence (Cisco, Intel, Microsoft, 2010). They appreciate their place in the world and this is embedded in the curriculum. Utilising the appropriate ICT tools for the task at hand, these students have high levels of ICT capacity (NAACE, 2008), as well as ready access to various sources of information. There is seamless transference of skills:

  > *I want my students to be able to* ***dream, to take every opportunity with hands outstretched, to teach what they know, to think outside the box*** *and as big as they can, and to enjoy the moment and create. (Primary Teacher 2, Focus Group)*

Students in an e-confident school can personalise their learning and become content creators who use ICT safely and responsibly. They can become critical, discriminating and empowered users who create content, construct new knowledge and share it with others. In an e-confident school, emerging social networking technologies are used to enable students to be connected, to collaborate and communicate. New ways of thinking are encouraged: creativity, innovation; critical thinking, problem solving, decision making; and learning to learn (Cisco, Intel, Microsoft, 2010). New ways of working are achieved through communication, collaboration and teamwork (Cisco, Intel, Microsoft, 2010). New tools are used for working and developing student information and ICT literacy (Cisco, Intel, Microsoft, 2010).

- *The ICT capacity of all staff is supported and built through ongoing, sustained, relevant and targeted professional learning opportunities, making links to new thinking and research*

  In an e-confident school, ICT is prioritised in all professional learning plans for staff. Professional learning opportunities are sustained and ongoing and enable staff to meet the goals they set for themselves or are set by the school leadership. High levels of staff ICT confidence, competence and leadership (NAACE, 2008) are developed through appropriate professional learning opportunities and over time, enable staff to build their ICT skills, capacities and understanding:

> ***Out of (the professional learning opportunities) will come a commitment to follow through on things***. *I give the teachers a lot of ownership of things...So a lot...comes from them, a lot of the programs. We talk about 'from the bottom up' but it really happens if you give them the ownership and the earning centre people an opportunity to try new things.....A lot comes from them.....When there's a difficult teacher you can give them time and support but in the end of the day, they're either on the bus or they're at the station or they're in front of the bus about to get bowled over by the bus!* ***The teacher has got to make the decision...it's about being professional. You talk to the teachers about part of being professional is moving with the school's culture and if you can't do that, then you've got to make a decision to be part of this school or not****.....For those who won't grow, then sure sometimes you've got to have that crucial conversation. We've been down that track, we've done that. Over the years, I've had a couple of teachers who have left because they don't particularly want to work in this environment, they wanted a more traditional approach.*

> *Unfortunately for them, they're going to struggle – fortunately for us, they made the decision to move on. (Interview with School Principal, Bright Town Primary School)*

Staff explore and observe innovative practice and implement this in their classrooms with ICT consistently linked to pedagogy and curriculum. In an e-confident school, staff work in teams, with peer mentors, critical friends and coaches to develop deep and powerful understanding of technology integration into teaching and learning (Mishra & Koehler, 2011). Staff are encouraged to experiment with and take risks in using ICT within their own personal and professional practice. Comfortable with and able to manage change, the ICT and e-learning experiences of staff in an e-confident school are celebrated and shared. There is appropriate access to ICT hardware and software so that staff have an opportunity to explore and experiment with new and emerging technologies.

- *There are high levels of teacher connection, collaboration, communication and collegiality*

  In an e-confident school, ICT is seen as a catalyst for change and enhanced peer to peer collaboration. People consistently learn from each other and become collectively committed to any planned change (Fullan et al., 2005). Learning communities are nurtured in an e-confident school, providing opportunities for staff to share effective ICT practice face to face and through online channels. Teachers collaborate and interact with their peers at their school and with teachers at other schools using ICT tools; they share curriculum resources and effective e-learning approaches with each other and join online professional communities of practice:

  > ***Peer coaching has had a huge impact**. Suddenly ICT had impact across the whole school and not just in an ICT lesson. (Interview with School Principal, Bright Town Primary School)*

  In an e-confident school, members of the school community communicate effectively as the school becomes a community learning and information hub (NAACE, 2008). Partnerships are developed that help to support ICT initiatives within the school. Learning is borderless and exists beyond the school (MCEETYA, 2008; Silins & Mulford, 2002) – facilitated through learning tasks that focus on collaboration and networked interaction.

- *There is ICT exploration, experimentation, risk taking and 'failure' is redefined*

The learning environments in an e-confident school allow for and encourage risk taking by both teachers and students. This is viewed as essential to the learning process because risk taking and failure are valued:

> ***Supporting teachers – if teachers say "I want to do this", we support them, we help them work out where to go to do it. Nothing's ever too hard. And our teachers are learners.*** *This comes out strong because you've gotta risk take – they come up with ideas, we talk them through with them and I say "look, give it a go, you've got to stop, reflect, and take risks and it's good to make mistakes." If you want to try something, try it. You're going to have to take the risk and then you'll find out and then you can share your experiences. (Interview with Assistant Principal, Bright Town Primary School)*

In an e-confident school, learning is actively modelled at all levels across the school.

- *The physical environment is reorganised and appropriate infrastructure is provided and resourced*

  In an e-confident school, appropriate structures are in place to promote and optimise ICT use because there has been repurposing and reorganisation of the physical and organisational elements of the school (Zhao & Lei, 2009). Consistent and adequate funding and resources are appropriately allocated (NAACE, 2008; ISTE, 2009):

> ***ICT is a big part of what we do here****. We have a TV studio here and a radio station. We have a segment called 'School News' so a few times a month or a term students will go in there – it doesn't matter what grade they're in – and they'll have some fun there and talk about what's been going on in the school so maybe cross country, or the upcoming dancing and stuff like that. That's really fun to use. (Interview with Student 1, Year 6, Bright Town Primary School)*

There is efficient management, maintenance and budgeting for appropriate ICT infrastructure and environmental improvements:

> *We've got a lot of technology here.* ***Technology is part of our learning in many ways*** *(like) we use computers to research, we have iPod Touches, DS Lites, iPads, laptops, cameras, digital cameras, video cameras...it's just endless really. And it's just so much fun to learn while, you know, using them. They're really just so much*

> *fun to use. Right now our learning centre which is the grade five and sixes, are currently in the process of making documentaries so for that we're not allowed to use anything that other people have videoed so we have to take everything ourselves. So, we can video stuff with the cameras, take some pictures, maybe go online and research. (Interview with Student 2, Year 6, Bright Town Primary School)*

The physical environment in an e-confident school has classrooms that are flexible learning spaces, equipped with the ICT resources needed to facilitate easy access to ICT and e-learning for students and teachers:

> *We have instead of those (normal) classroom, we have* ***four open space learning centres.*** *So that is, while you're working you can go (but not all the time) but you can go and just say hi to your friends. Yeah, we are lucky. (Interview with Student 3, Year 5, Bright Town Primary School)*

In an e-confident school there is effective use and application of ICT within organisational and management processes. Appropriate and skilled technical support is readily available to ensure hardware, networking infrastructure and software run smoothly. There are plans and budgets for ongoing technical improvements of hardware, networking infrastructure and software.

E-confident students and teachers cannot exist or thrive in a school that does not embody their ICT vision. Those schools that provide flexibility and value the place of ICT in teaching and learning enable the e-confident teacher and e-confident student – and the innovations they initiate - to explore and grow.

6.3 Research Question 2: How important is school leadership in creating and enacting a vision or policies that will inform and sustain innovation that incorporates the use of new technologies?

To begin and sustain e-confidence, schools require effective and proactive leadership. Eaker and Keating (2008) argued that the key factor in determining the extent and success of educational change is the quality of school leadership. Thus, with the potential to "transform learning, teaching and management" (MCEETYA, 2006, p.4), the e-confident school leader is the central change agent and visionary within a learning

organisation (Fullan et al., 2005). The e-confident leader is a high quality, visionary school leader with an inclusive, collaborative leadership style, who values the place and potential of ICT in teaching and learning:

> *I would say if I could take (our principal), as an example, he's very knowledgeable, always wears his tie, is always neat, very smart and elegant-looking. They would have, like, the* ***wisdom to lead the school****. (Interview with Student 2, Year 6, Bright Town Primary School)*

School leaders that create and drive a change culture (Fullan, 2006) are engaged in the change process, bringing others in the school community with them through a collaborative and inclusive approach. They understand the change process and the essential need to build teacher capacity and work collectively to achieve this. As such, they are intrinsic to effecting rich and sustained ICT-based change.

The literature, and insights shared through the interviews with case study school personnel, focus group participants and online survey responses, provides a perspective on what it means for a school leader to be considered e-confident. The data has been analysed and synthesised into the following categories, describing an e-confident school leader as:

- *An ICT practitioner and role model*

  An e-confident school leader values and understands the place of e-learning, is comfortable acquiring new e-learning skills when they need them and uses ICT effectively and confidently at a professional level:

  > *They understand ICT. They* ***champion it and they're not scared of change****. (Primary Teacher 2, Focus Group participant)*

  The e-confident school leader understands that they, their school, teachers and their students are part of a global education community and actively seeks out, identifies and shares potential new and emerging ICT tools and approaches for e-learning with the students and teachers. They see ICT as an opportunity for teachers to improve their teaching and to better deliver the curriculum. They learn along with the staff and are open and receptive to new ideas and new ways of doing (DEECD, 2010):

  > *(An e-confident) leader is a* ***role model for staff****, they* ***speak the language and provide PD for teachers****, they are* ***well resourced and***

> ***have a vision**, they know where the school wants to go with technology and make appropriate resources available, they know that **ICT needs to be ubiquitous and embedded**. (Interview with Assistant Principal, Bright Town Primary School)*

- *Having a vision for learning and ICT*

  The e-confident school leader clearly understands the moral purpose of the proposed ICT change and places students at the centre of it (Fullan et al., 2005). They embrace and envisage a rich and engaging e-learning future for their students and have a clear vision of how the application of ICT can enhance, improve and enrich the quality of learning and teaching. With an holistic view of the school as a learning organisation and a clear understanding of how ICT can improve processes and outcomes throughout, the e-confident school leader understands how to effect sustainable ICT change:

  > *They have a **vision for change** and clear leadership commitment to ICT. (Secondary Teacher, Focus Group participant)*

  They believe that ICT needs to be ubiquitous and embedded and share this with their staff. They promote, support and recognise the value of integrating a variety of ICT tools into curriculum planning and delivery and understand how to support their students to be ethical, discriminating, informed, responsible and safe e-learners. The e-confident school leader inspires colleagues and other stakeholders to value the place of ICT. They champion student-driven, student-centred teaching and learning and foster coherence so that any planned ICT change aligns with all initiatives across the school (Fullan et al., 2005).

- *A strategic planner*

  The e-confident school leader understands change processes, the type of leadership required to implement it most successfully and the need to cultivate tri-level development which involves individuals, teaching and learning contexts and the school in the change process (Fullan et al., 2005). The e-confident school leader has the energy, ideas, commitment and ownership required to achieve improvement and knows how to build a positive e-learning culture within the school (Fullan et al., 2005):

  > *When I became Principal 19 years ago, I approached a mentor of mine to get some advice on this leadership thing. He said to me, you can choose to be a **manager or a leader of education**. I chose*

to be a leader of education. (Interview with School Principal, Bright Town Primary School)

They conceptualise what the school is currently doing and envision, plan, communicate with and engage others in action. They build staff ICT confidence and commitment by prioritising it, monitoring ICT-focused staff professional development and incorporating it into all curriculum planning. The e-confident school leader ensures that ICT implementation supports individual, team and whole school improvement and understands the importance of aligning any ICT and e-learning planning and implementation to the school's Strategic Plan. Actively working with other school leaders and members of the school community in developing an ICT and e-learning Plan for the school, the e-confident school leader resources ICT programs appropriately, provides access to new ICT resources and devices and devolves responsibility to foster shared ownership of any ICT change. They ensure that ICT is embedded across the mainstream curriculum and bridge the gap between student home and school use of ICT. The e-confident school leader regularly assesses the impact of sustaining ICT on the wider school, staffing and budgets.

- *Building staff ICT capacity*

The e-confident school leader develops policies, strategies, resources and actions designed to increase peoples' collective power to move the school forward (Fullan et al., 2005). Because they understand the need to support staff, the e-confident leader encourages and is receptive to staff needs, urging exploration and implementation of new ICT resources and e-learning approaches. They provide opportunities for professional learning support to build staff ICT capacity and encourage sharing and celebration of success:

> ***Learning together is part of our unwritten code. We all share this vision together*** *and I think that's probably part of it. Not that we get rid of staff who don't follow the same philosophy, but I think you probably don't want to work here if that's not how you believe. I do think it comes from the leadership: they're alright with the fact that we don't know everything. They encourage us to be like that. And so, that's what I tell the students 'Look, I don't know everything and I'm not pretending to so let's learn together. Sometimes you (the student) are the expert and that's ok. Then you can teach us.' (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

They challenge teachers to also be learners and value and encourage team work.

- *Embedding accountability, evidence and research into any planned ICT change*

  The e-confident school leader has high expectations of widespread ICT use across the school. They are informed by research, build accountability and incorporate review and evaluation into any planning. By developing a culture of evaluation, based on evidence and data (Fullan et al., 2005), the e-confident leader ensures there is consistent accountability and reflection and, thus, ongoing improvement:

  > *....we talk about the **research element in their plans**, as well as improvements in their own practice. That is embedded, so teachers now sort of do more than they expected in the research. They'll come back and explore other things and say 'let's have a look at this and let's try this and what do you think about having a look at this?' (Interview with School Principal, Bright Town Primary School)*

  The e-confident school leader analyses and judges whether the planned strategies and implementation are impacting on the quality of teaching and learning by monitoring, evaluating, analysing and providing constructive feedback about teaching and learning.

- *Encouraging risk taking and redefining the notion of 'failure'*

  The e-confident school leader creates and maintains a learning culture that values risk taking by delegating and trusting their staff to explore and experiment with ICT. They understand the power of reflective practice and how this contributes to continuous improvement:

  > *...we've got the Nintendo DSs and we've got the Wii and we've got the dance mat and things like that, so our PDs will be regularly around using the technology we've just got or, for instance with the iPods and the DSs it came to holiday time and (the Principal) said "if anyone wants to take these home over the holidays come and sign them out." So we get to take them home and play and see how it all works so you can just have a go. **It's not until you have a go and understand what you can actually do with it.**.. (Interview with Teacher 1, Prep/1, Bright Town Primary School)*

  While only 9.8 per cent of survey respondents identified risk taking as en e-confidence feature of a school leader, 59.2 per cent identified it as a key feature of an e-confident student and 45.8 per cent identified it as a key feature of an e-

confident teacher. It is worth noting that this particular focus on risk taking as an element of school leadership e-confidence is derived from the literature, the consistent emphasis on risk from all levels of the school which emerged from the interviews with the case study school subjects and teacher focus group responses.

- *Valuing collaboration and communication*

  The e-confident school leader develops cultures for learning so that staff are able to learn from each other and become collectively committed to the ICT changes that are planned (Fullan et al., 2005). They establish partnerships between schools, community, parents and corporate partners to help to provide the equipment/hardware and ancillary opportunities and effectively communicate ideas, plans and expectations to staff and the wider community.

  The e-confident school leader values and actively encourages professional discourse:

  > *I send people away a lot. I've sent groups to England, I've sent groups to New Zealand to have a look at the practices over there. We've got two groups going to New Zealand in the next two months to look at schools – to look at specific things. Next time we're looking at personalised learning in a different way.* ***I send teachers around to other schools that I see have good practices and I send people to a lot of conferences so they get a lot of opportunities.*** *(Interview with School Principal, Bright Town Primary School)*

- *Supportive and inclusive*

  The e-confident school leader is supportive and delegates responsibility for ICT change. They challenge the status quo and are receptive to new ideas:

  > *The* ***school leaders care****. I think that has a lot to do with it – they put trust in us but they also* ***encourage us to take risks which is I mean, what we encourage kids to do don't we?*** *(Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

- *Using ICT to improve business operations and systems within and across the school*

  The e-confident school leader applies ICT systems to improve organisational effectiveness through internal and external communication, analysis and data exchange.

The data gathered on e-confidence in Sections 6.2 and 6.3 provides a perspective on the attributes and skills of e-confident school leaders, teachers and students and the features of an e-confident school. This therefore highlights the need to investigate potential strategies for promoting, nurturing and sustaining e-confidence.

6.4 Research Question 3: What strategies are most successful in promoting e-confident schools, students and teachers?

As discussed in Chapter 1, practice in schools invariably lags behind policy. The literature, and insights shared through the interviews with case study school personnel and case study school field visits, focus group participant insights and online survey responses indicated that to move schools forward, requires a new, strategic vision (Owen et al., 2006). This involves the school shifting to a being a learning organisation in which learning is modelled at all levels with any change strategy closely informed by the student-centred moral purpose underpinning it (Fullan et al., 2005). In these contexts, building capacity is a major priority, professional learning opportunities are directed, ongoing and relevant and performance is supported, planned for, reflected on and continuously improved (Silins et al., 2012).

The following discussion is drawn from the data and explores the strategies education systems may consider the following strategies when envisioning, planning and enacting ICT-based change:

- *Build school leadership capacity*

  It is important that school leaders understand change processes (Fullan et al., 2005). They are intrinsic to the successful promotion of any planned change (Eaker and Keating, 2008). School leaders can be effective champions of ICT (Pedro, 2006) by embracing and communicating a strategic ICT vision to all staff and the school community. This is critical to effective ICT implementation and any successful re-engineering or reorganising of the school to optimise the potential of ICT. Integrating the skills and attributes of e-confidence is key to any system approach to school leadership capacity building. E-confident leaders support staff to grow and change and develop ICT skills and innovation across the school:

  > *The real influence on me has been **seeing what the students can do with the technology and how they gain knowledge, get more engaged and are more motivated to learn** through using ICT. (Interview with Assistant Principal, Bright Town Primary School)*

- *Develop and communicate a new strategic ICT vision*

  Developing a shared philosophy that ICT promotes connections and enhances learning (Gardner, 2011), motivates (Fullan et al., 2005) and encourages schools to develop positive attitudes towards ICT and e-learning:

  > *A **shared ICT vision** that is developed, understood and agreed on by the system, as well as the whole school community, is vital. (Survey respondent)*

  A systemic strategic ICT vision reflects an awareness of societal trends in ICT and emerging practices in ICT use (social software, collaboration and knowledge building). It is informed by an understanding of the needs and imperatives that drive schools. Once developed, it is crucial that the vision is communicated through coherent messages and engenders commitment across all levels of the system – tri level development – to achieve meaningful educational change (Fullan et al., 2005). Consistent communication of key messages enables strong alignment of thinking and purpose across the system.

- *Support schools to become learning organisations*

  By systems deliberately aiming to transform the culture of schools (Eaker & Keating, 2008) into innovation and learning cultures (Fullan et al., 2005), the focus shifts to learning rather than teaching (Eaker & Keating, 2008):

  > ***We are all learners** – and this makes responding to change easier. (Primary Teacher 1, Focus Group)*

  This ensures that learning permeates and is modelled in all functions of the system and curriculum, pedagogy, assessment and professional learning can be rethought. A sense that all schools are part of the lifelong learning continuum also helps them respond to changes in social interaction and emerging technologies into the future (Owen et al., 2006).

- *Encourage schools to foster a culture for learning and collaboration*

  Schools can be reconceptualised as professional learning communities (Eaker & Keating, 2008), and the system can be promoted as a wider professional learning community:

  > *When we **work, plan and teach together**, the outcomes are better. (Interview with Assistant Principal, Bright Town Primary School)*

This can be achieved by creating and nurturing a collaborative systemic culture (Hargreaves, 1994; Cuban, 1988) that focuses on interpersonal communication, collaboration and connection (Pedro, 2006), enabling schools to own their own learning and to learn from each other through school to school, peer to peer collaboration, coaching, mentoring and sharing. By encouraging cross-school and intra-school teamwork and team approaches to investigating and scoping, planning for and implementing planned ICT changes (Stewart, 2001) and exploiting social media tools, schools can more safely communicate, collaborate, publish and connect with each other.

- *Put programs in place that build student and teacher ICT and e-learning capacity and commitment*

  Investment in and provision of quality, sustained, meaningful, targeted and relevant systemic professional learning opportunities, builds teacher capacity (Cole, 2004; Pedro, 2006). Professional learning can support the development of ICT understanding, confidence, competence, capability and practice (DEECD, 2010):

> *My **critical friend supports me, my performance plan keeps me on track as I record and report on my own development**, our Thursday professional learning stretches me and my attendance at conference opens up my mind and helps me build professional networks. (Interview with teacher 2, Years 3/4, Bright Town Primary School)*

  Schools can be encouraged to develop professional learning strategies that are research-based, action-focussed and practical (Stewart, 2001). Teachers and school leaders can be supported to develop their understanding of change processes (Stewart, 2001; Fullan et al., 2005). System-wide professional discourse and networking can be facilitated, with access provided to the latest research and thinking in ICT and education. They can be urged to explore, persist and be flexible and given the systemic supports to "stay the course" (Fullan et al., 2006, p. X). Setting and clearly communicating system expectations and requiring schools to make a commitment to ICT leads to action (Eaker & Keating, 2008).

- *Support the creation of new and different learning contexts and activities that incorporate ICT*

  New learning contexts and opportunities allow students to enquire and practice new skills, experiment with emerging technologies and use existing ideas to create new knowledge (Yelland, 2007):

> ***Expose schools to what's new and different*** *– in time, not too late! (Survey respondent)*

Deeper teacher pedagogical understandings and changed practices can be supported across the system (Elmore, 1996) as new pedagogies of engagement are explored and implemented (MCEETYA, 2004). These can involve student-centred, purposeful, relevant and authentic self-directed learning, demand higher order thinking and are sufficiently flexible and adaptable to suit individual needs. Systems can encourage schools to involve students in designing their own learning, allowing them to lead in the use of ICT. They can actively encourage schools to take risks – helping to redefine the notion of failure. Furthermore, looking beyond the classroom walls to the wider context allows schools to feel part of a state wide, nationwide and global community as well as their local communities:

> ***Ours are children of the world.*** *They need to know how to operate in it. (Primary Teacher 2, Focus Group)*

- *Effectively resource ICT initiatives and innovation*

  Systemic ICT plans require effective resourcing and budgeting for sustainability. By providing uniform anytime, anywhere ICT system access, students will have appropriate and equitable opportunities to use ICT resources and experience e-learning (DEECD, 2010):

  > *Appropriate* ***finance and infrastructure*** *– including technical support – are needed. (Survey respondent)*

  Access to high quality tools and infrastructure, resources (DEECD, 2010), content and data need to be provided to all schools within the system. Guaranteeing access to ICT by reducing student:computer ratios and emphasising connectivity (Pedro, 2006) helps to address any imbalances and ensure equitable ICT access. Enabling schools to reorganise their physical layouts can then reflect the burgeoning philosophy of collaboration, new pedagogies and further embed ICT use and access.

- *Implement strategies and support that aid reflection, revision, reiteration, ongoing improvement*

  Focusing on results (Fullan, 2006) and collecting school-based and system-wide data to inform future ICT plans and evaluate existing programs, allows improvements to continuously be made:

> *Systems need to be prepared to **review constantly, consider the needs of all parties and not lose sight of the need for balance**…and preserve what needs to be preserved. (Survey respondent)*

Involving schools in reflecting on programs, enables them to critique and improve their practice (Peters et al., 1996) and ensures that accountability permeates all practices across the system.

- *Strengthen connections between home and school*
  Strengthening connections between at home ICT use and understanding how and what and for what purposes ICT are used at school (Pedro, 2006) enables system ICT programs to be more effective at hitting the mark and connecting with students' expectations, preferences and interests:

> *It's great to be **using some of the tools the students are using in their own home time**. (P12 Teacher, Focus Group)*

6.5 Research Question 4: What are the features that contribute towards successfully achieving an e-confident school, teachers and students?

The story of *Bright Town Primary School* is presented in Chapter 4. The data described why this school is perceived, system-wide and internationally, as a place of exemplary ICT innovation. The school visits, interviews and classroom observations identified a set of features that appeared to have contributed to the development of e-confidence across this school community. These were outlined in Section 4.1.3 and are revisited here. At *Bright Town Primary School*:

- *Students are at the centre of all strategic plans and decision-making*
  The skills, attributes and learning that the school believes are required for their students to be active participants in the 21st century, inform all decisions made at the school. Learning is student-centred, self-directed, negotiated and empowering (See Figure 12, p.71):

> *We get to **follow our passions and interests**. Learning is fun! (Interview with Student 2, Year 6, Bright Town Primary School)*

- *The school culture has enabled the school to become a learning organisation*
  When change is planned at *Bright Town Primary School*, the focus is on the learning that will take place. Performance is continuously planned, reflected on and improved:

> *We are **given time to learn, to experiment, to try new things, new tools** (the principal) has bought. After all, it's what we expect from our students. (Interview with Teacher 1, Prep/1, Bright Town Primary School)*

- *A love of learning is modelled across all levels at the school*
  Teachers are encouraged to be explorers, learn alongside their students, to share theory and professional readings, to work with their critical friends, mentor each other, present at professional learning events and attend conferences:

> *School leaders and teachers **model a love of learning**. Every learning centre researches something and that's part of their role. We want teachers to research it, the same as kids. So every learning centre has a research area that they have to explore and then present. (Interview with School Principal, Bright Town Primary School)*

- *The school leadership sets expectations for staff to incorporate ICT into teaching and learning, while also delegating responsibility for achieving ICT change*
  Clear expectations that staff use ICT in their teaching practice are articulated by the school leadership:

> *They (the school leadership) **enable it (use of ICT) and they expect it** in every class, it's always there. (Interview with Teacher 2, Years 3/4, Bright Town Primary School)*

- *Accountability is central to whole school improvement*
  Accountability is seen as central to effective teaching practice:

> *Accountability: at the beginning of the term we'll go to them and say 'this is my goal, this is how I'm going to achieve it' and then at the end of the cycle, we will then go back to them or your critical friend (who also knows about the goals) so I plan my goals with my critical friend so I'll say to her ' I'm having trouble, look I don't know how to complete this goal, can you give me some assistance with it?' So, we're **constantly always referring back to that goal and***

> ***you'll go through it with the leadership team and then they'll say whether you achieved it or not, and why didn't you****, or 'excellent, that's good now this is where we want you to go in the future'. (Interview with Teacher 2, Years 3/4, Bright Town Primary School)*

- *Exploration, risk taking and learning from experimenting, playing and making mistakes are encouraged for both students and teachers*

  Exploration, risk taking and learning from your mistakes were consistent messages that emerged from all interviews held with subjects at *Bright Town Primary School*. By taking away the traditional notion of failure, students and teachers were emboldened to try new things, using new technologies in different contexts:

> *Sure,* ***some things fail, but out of what they've tried will come something else*** *and we encourage that across the whole school....Without coming in with a hammer, you can make subtle changes: peer coaching, professional development plans and putting specific goals. (Interview with School Principal, Bright Town Primary School)*

> ***We're constantly in our planning and things encouraged to incorporate more ICT, and explore how we could better do this or that.*** *They're constantly looking for new things and pushing us to think of new ways or incorporate in different ways and they always say too that "if you don't use it, you'll lose it." So, if we're not using it, they'll give it to a different learning centre and so it's kind of this battle to be the ones who are using it cause you don't want to end up losing it. (Interview with Teacher 3, Years 3/4, Bright Town Primary School)*

- *Teamwork, collaboration and collegiality are advocated for both students and teachers*

  ICT is used as a driver for collaboration. Teamwork – for both students and teachers – is championed:

> *Working in teams –* ***it's hard to hide in a team*** *and whilst we've teachers at different levels of their learning, what I'm expecting from everyone is preparedness to change and grow. (Interview with School Principal, Bright Town Primary School)*

- *Teacher ICT capacity is consistently supported and grown*

  Access is given to the latest educational research, stimulating professional learning opportunities are offered and teachers are pushed to explore innovative practice:

  > *We are **constantly being supported to try something new**. We learn from each other and from the kids. (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

  > *We're so lucky that we've got it all. Before I came here I never planned to use ICT in everything. But **now I can see the possibilities**. (Interview with Teacher 2, Years 3/4, Bright Town Primary School)*

- *Professional learning is ongoing, sustained, relevant and targeted to the needs and interests of staff*

  Staff are supported in developing their ICT skills and capabilities through a comprehensive professional learning program that involves peer coaching, critical friendships, performance planning and regular weekly sessions. These are invariably led by students. Teachers are also expected to lead a session themselves over the year:

  > *I think the fact that we're **encouraged to take professional development**, so the fact that if we've got questions about things, we've got that support from that side of it. Having that support where it's alright when you don't know anything and I think that's part of it too. (Interview with teacher 3, Years 5/6, Bright Town Primary School)*

- *Coherence is fostered through consistent messaging about the value and potential of ICT to engage, enhance and extend knowledge*

  Consistent messages emanated from every interview conducted with subjects at *Bright Town Primary School*. These included: ICT is valuable in teaching and learning; experimenting, trying new things and learning from mistakes makes the learning better; professional learning is essential to building capacity; teachers are also learners; accountability leads to ongoing improvement; working in teams leads to better outcomes. This coherence (Fullan et al., 2005) and consistency indicated strong alignment of thinking across the whole school:

  > *It's good to hear they're saying similar things. This **consistent messaging makes making change easier**. (Interview with School Principal, Bright Town Primary School)*

- *The physical layout of the school has changed to reflect the whole school philosophy of collaboration*

  Bright Town Primary School classrooms are flexible and open learning spaces:

> *I opened it (the school) up very early. I'm talking about 18 years ago, I* ***opened the school up and took away the barriers for teachers not to work together****. And so, gave them the opportunity that they could work together and plan together and share their children. (Interview with School Principal, Bright Town Primary School)*
>
> *The very first school that I taught in was an open plan school, with barriers up everywhere so that we built the four walls. All that was, was a noisy classroom because I could hear everything that was going on but I couldn't actually see it. Whereas here, it really is an open plan classroom. Not very often do we have just our own grade in a corner somewhere, we're often bringing groups of kids together, mixing them around, teaching with others. We do all our planning together, which is something I'd never done before here. Within the 5/6 unit we are all on the same page, all the time. We know each other's kids, we know what's going on, and we know that each one of those kids is getting the same education basically which I think is very different. In my (previous) school I was responsible for my grade, I was responsible for my day from 9 to 3:30 and what happened there was my responsibility. It probably took me six months to really appreciate it. At first I went 'oh my goodness, what's going on?', I felt a little bit like maybe my creativity was maybe being stifled because I was just doing what other people were doing and I wasn't kind of doing my thing. But once I got my feet planted, I realised that that was actually not true – now, instead of having to plan twelve projects, I only really need to plan one or two and I can put in a lot more effort and go a lot further. I find that* ***the quality of what we do is increased because we're sharing the workload amongst four of us****. (Interview with Teacher 3, Years 5/6, Bright Town Primary School)*

- *Research underpins all initiatives*

  School leaders and teachers at *Bright Town Primary School* undertake their own research, share their findings and access local and international networks to gain knowledge.

- *Innovation is resourced and access to ICT resources is ubiquitous*
  ICT resources are viewed as essential to student learning. There are 460 ICT devices and 400 students:

> ***There's not many lessons where I'm not touching something****, whether it's cameras or something else. (Teacher 3, Years 5/6)*

6.5 Summary

This chapter synthesised the findings regarding perceptions of the characteristics of e-confidence in students, teachers, school leaders and schools. The discussion also explored the strategies seen as most useful in promoting e-confidence that emerged from the literature and data collection. Synthesis of the data indicated that e-confidence in all four contexts (students, teachers, school leaders and schools) encompasses similar dispositions, employment of related strategies and typical skills and attributes. Therefore, it can be argued that those individuals or organisations that demonstrate e-confidence show evidence of: positive predispositions towards ICT; digital and information literacy; discrimination, empowerment and the ability to make informed decisions about ICT use; a willingness to explore and experiment with new and emerging technologies; embedding ICT use in routine practice; using ICT to collaborate, communicate and connect with others; and flexibility with, comfort with and understanding of ICT change.

The final section of this chapter detailed the features of exemplary case study school *Bright Town Primary School* and demonstrated that e-confidence as defined here, at all levels from school leadership to teachers and students, can be achieved and nurtured in real life contexts. The final chapter, 7, builds on these findings and presents an E-confidence Framework.

Chapter 7 Conclusion

7.1 Introduction

This research began with the challenge of defining e-confidence within the educational context. The literature indicated that the rapid technological change outside schools was not being reflected in them (ACDE 2004; Owen et al., 2006; Yelland, 2007), with old and traditional educational approaches failing to keep pace with developments in the new millennium (Yelland 2007; Heppell, 2008; Robinson, 2010; Pearlman, 2011). It was argued that a new approach to learning is required (ACDE; 2001, 2004; Yelland, 2007) and that the knowledge economy demands new skills – the ability to work flexibly and to harness the potential of new and emerging technologies. The literature also contended that teaching is the central profession of the knowledge economy (ACDE, 2001). Thus, to optimise the potential of ICT in teaching and learning, it was contended that school leaders, teachers and students become e-confident, discriminating, empowered and intelligent ICT users who collaborate, communicate, connect, access information and create new knowledge to be able to exist, compete and thrive in the globalised, socially networked, hyper-connected 21st century world.

These considerations influenced the research methodology chosen and provided the focus of the analysis. After all, if the 21st century world demands new ICT skills for teachers, then it is logical that the skills of the students with whom teachers seek to connect, and the attributes of the school leaders who provide the crucial supports for building teacher capacity and effectively implementing change, be further investigated. Equally, it was necessary to scrutinise the notion of the school as a 21st century learning entity – an organisation in which learning, experimentation (rather than standardisation and conformity) could flourish. Thus, the Exploratory Case Study approach was chosen because it enabled the researcher to examine and explore the features of e-confidence that emerged from interviews with subjects and classroom observations in an exemplary case study school, from discussions with teachers who attended a focus group and responses elicited from teacher participants in an online survey.

The resulting analysis and synthesis of the data, presented in Chapter 6, contributed to an understanding of:

- what e-confidence means for schools, teachers and students;

- the importance of school leadership in creating and enacting a vision that encourages and sustains ICT innovation ;
- the strategies most successful in promoting e-confident schools and teachers; and
- the features of an exemplary case study that is well advanced on the e-confidence journey.

This chapter provides a final commentary on e-confidence and argues that this is an aspirational concept. Like all learning, e-confidence is a continuum of capability and experience; a journey and not a destination. It could not be, and should not be, expected that every student, every teacher, every school leader or, indeed, every school in a system could possibly be at a similar level of e-confidence. Such a notion would be blind to the many different and demanding educational contexts and the difficulties the sector experiences with educational change (Zhao & Lei, 2009). Like learning itself, the road to e-confidence is lifelong and ongoing. E-confidence is not educational nirvana or pedagogical self-actualisation. It is a concept that may inspire discussion, spark interest or help to launch change that can positively impact on the learning experiences of students in schools by enabling teachers and schools to more effectively connect with them.

This chapter also describes the persistence of the digital divide and explores how it continues to impact on the ability for e-confidence to become a reality for all students within the system. Finally, an E-confidence Framework is presented.

The contribution of this study is a practical one as it provides an accessible and realistic E-confidence Framework for schools and education systems to consider. The elements in the framework expounded in this chapter are drawn directly from the experience of teachers and school leaders at the coalface. The framework celebrates the voices of students and places them firmly at its centre. The framework reflects teaching practice and pedagogical concerns and the authentic context of schools and goes beyond the use of ICT in classrooms. It provides a lens through which innovation can be reflected upon by consistently reinforcing the inter-connected relationships of teachers with their students, students with each other, the school leaders with the school community and the value and importance of the school being a learning organisation which celebrates and advocates learning as its core business.

7.2 Defining e-confidence – a final commentary

The term 'e-confidence' denotes notions of competence, confidence and capability beyond the ability to operate the functional aspects of an ICT tool. 'Confidence' is referred to by ACARA in its 2011 Technologies Shaping Paper (p.5):

> *...to develop knowledge, understanding and skills in the discriminating, ethical, innovative, creative and enterprising use of a range of technologies and the processes through which they can create, design, develop and produce innovative technological solutions. They need opportunities to play, learn, create and produce using a range of technologies from the early years and to be able to pursue a continuum of technologies learning through to the senior secondary years. They should also have the* ***confidence****, knowledge, understanding and skills to access, manipulate, create, critique and ethically produce digital information and systems to meet personal, family and community needs, and to be imaginative and innovative in their production of solutions. All students need opportunities to make their personal contribution by being given an active voice on things that are relevant to them.*

This 'confidence' could also easily refer to e-confidence, as explored in this study. Discussions with teachers, students and school leaders throughout this Exploratory Case Study indicated that 'e-confidence' is a term that resonates with them and with which they are comfortable. Throughout the interviews at *Bright Town Primary School*, all informants were able to provide their own ideas about what they took e-confidence to mean. This was again demonstrated with the four focus group participants and in the responses to the online survey. Thus, through this research, clear patterns have emerged (Yin, 1994) and explanations for these have been explored because consistent perceptions of the key elements of e-confidence were expressed throughout. While the researcher's discretion has been intrinsic to this process, and could be infected by bias (Tellis, 1997) the patterns that have emerged are based on internal reliability: explanations have been systematically developed as the Exploratory Case Study analysis investigated and realised a definition of e-confidence at the student, teacher, school and school leadership levels followed by the subsequent Teacher Focus Group and Online Survey data collection.

Thus, review, refinement, revision and repetition have found the following e-confidence characteristics:

For individuals (students, teachers, school leaders)	For the school as a learning organisation
o Developing 21st century skills; o Being digitally and information literate; o Discriminating in the use and application of ICT; o Taking risks, experimenting and exploring with ICT and redefining the notion of failure; o Communicating, interacting, connecting and working globally; o Collaborating with and mentoring others; o Working effectively individually and in teams; o Thinking, creating and reflecting; o Embedding ICT and e-learning in routine practice; o Having a receptive and positive attitude towards ICT; o Being comfortable with change;	o School cultures and learning organisations that value learning; o Exploring new, powerful pedagogies of engagement afforded by ICT; o Placing students at the centre; o Rethinking and re-engineering curriculum delivery, assessment and reporting; o Teachers and students working alongside each other in the learning process; o Modelling learning at all levels of the school; o Sharing the ICT vision; o Strategically and systematically planning for ICT change; o Supporting and building ICT capacity for all in the school community; o Ongoing, sustained, relevant and targeted ICT-based professional learning; o Reorganising the physical learning environment; o Accountability; and o Resourcing ICT innovation.

Table 13: The elements of e-confidence

7.3 E-confidence is an aspirational concept

It is also worth noting that the key features of e-confidence discussed in this chapter are highly aspirational. It would not be expected that every student, teacher, school leader or school would have or be able to demonstrate *all* the elements that are discussed here. Furthermore, the research reveals that the schooling context continues to be an extremely complex one in which teachers and students daily face competing demands and challenges to effective learning and teaching. As discussed, the research indicated that education is a sector which, on the whole, demonstrates limited educational change (Zhao & Lei, 2009) and is invariably ranked lowly in studies investigating ICT innovation and intensiveness (COSN, 2008). Competing priorities, leadership and teacher capacity and commitment, the crowded curriculum, issues to do with resourcing and funding, and the changing nature of the student demographic which can influence student willingness to engage with school, all impact on the ability

or preconditions that would enable a school to demonstrate, or even beginning the journey towards e-confidence.

It is hoped that the findings from this research may contribute positively to the discussion and perhaps even assist some schools in their future planning.

7.4 The digital divide still exists

It continues to be important to note that not all students have routine access to ICT tools, at home or some even at school, that some students continue to use ICT for basic purposes (Yelland and Neal, 2012) and that the playing field is not consistent across all schools in a system. This reflected Pedro's (2006) arguments that the higher the socio-economic status, the more intense and varied the use; "it seems to be that socio-economic status either reinforces a certain number of practices while avoiding some others, thus suggesting a diversity of NML profiles following diverse needs for peer-to-peer communication and knowledge management." (p.9) These students have a harder road to travel to become e-confident than those with either ubiquitous access at school (like those students attending *Bright Town Primary School*), those with teachers sufficiently e-confident and committed to innovating and experimenting with new learning using ICT or those with computers and internet connections at home.

While the percentage of Australian households who have access to the internet continues to grow – from 64% of households in 2006-7 to 79% of households in 2010-11 (ABS, 2012) – and improvements in the delivery of high-speed broadband to households regardless of geographic location through the National Broadband Network, there is still a significant percentage (21%) of households which do not currently have access to the internet. Income, location, educational attainment, family composition, and labour force participation continue to impact significantly on connection and access (ABS, 2007). And so, while many of today's students experience valuable opportunities to be e-confident and develop e-confidence, those who still aren't connected at home, need to be given the opportunity to develop these skills, behaviours and attributes at school.

7.5 An E-confidence Framework

To further explore and explain the notion of e-confidence, this research project has enabled the generation of an E-confidence Framework which incorporates students, teachers, school leaders and the school itself as a learning organisation. E-confidence,

within the context of the framework, really refers to effective teaching and learning practices that are built on positive, supportive relationships across the school community, with the added emphasis of using ICT resources and e-learning approaches to fully engage and stimulate student learning. The concept of e-confidence outlined here shifts from models of ICT competence presented in the literature, for example, by Mishra & Koehler (2006, 2011), the MCEETYA ICT Taskforce (2008), ISTE (2009), Becta (2006) and the Victorian DEECD (2010) because the focus is less on the ICT skills and more on the student – placing them firmly at the centre, providing the moral purpose (Fullan et al., 2005) for everything which extends from it. The elements of risk taking and redefining the notion of failure (NAACE, 2007), the critical emphasis on the place of school leadership in enacting and implementing e-confidence and the need to build capacity distinguish this framework from others. This framework incorporates both first order and second order foci (Sproull & Kiesler, 1991), and demonstrates a shift towards new learning and away from heritage practices (ACDE 2001, 2004). Thus, the dominant focus is the e-confident student: the essential focal point for any ICT-based plan in schools. The student is central to and the catalyst for any work undertaken by school leaders, teachers and throughout the learning organisation – they are the point of intersection between all three elements and inform all decision-making.

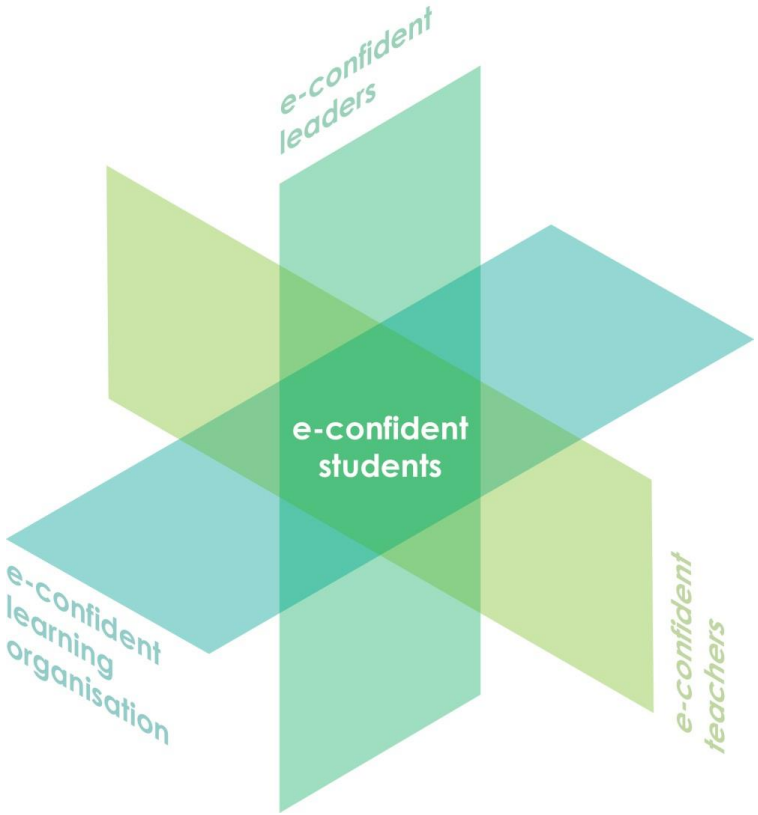

Figure 23: The E-confidence Framework

The elements of the Framework are depicted as a series of overlapping shards to form a pinwheel-like shape in which each shard touches all other elements, and in these spaces, is where essential elements of the framework are addressed in order to effect meaningful change in a school. The concept of the pinwheel also symbolises momentum, dynamism, ongoing improvement, reflecting the arguments presented in this study that schools, as learning organisations cannot afford to be static places.

Hence, the key framework components are:

7.5.1 E-confident students

Students are at the centre of this framework. As Fullan (et al., 2005) argued, students provide the moral purpose for any educational innovation. As such, teachers, school leaders and the school as a learning organisation itself should place students at the centre of any decision-making.

First language digital natives (Prensky, 2001), these ICT naturals, work in the nearly now (Heppell, 2008), hungry to use ICT and the online world (Palfrey & Gasser, 2008) to converse, consume, collaborate, reach out and connect widely to a social community beyond their immediate world. They spend large amounts of time (Rideout et al., 2009) accessing, envisaging, designing, creating, celebrating, criticising, repurposing, editing and customising digital content (Deighton, 2009, 2011). They publish and distribute and are brave and gregarious (Heppell, 2008). They contribute, communicate and connect with social networks not bound by classroom walls, geography or time (Deighton, 2009). They are global participants. Digitally and information literate, they are autonomous and discriminating in their use of ICT, selecting the right tool for the task or exploring and investigating new options if the tool is not immediately accessible.

E-confident students seek autonomy, are empowered and want to drive the agenda. They demand content, teaching quality and access to resources that meet their learning needs and expectations (Deighton, 2009). To operate actively in the online world, these students need to develop and exploit their 21st century skills and take risks as they experiment and explore learning with ICT.

But, students cannot develop or even extend their e-confidence without skilled, e-confident teaching. This is explored in the next element.

7.5.2 E-confident teachers

The teacher's role remains central to student learning (MCEETYA, 2004). Teacher quality is vital to student achievement (Rockoff, 2004). Therefore, in order to develop and nurture e-confidence in students, it is essential for teachers to develop and demonstrate characteristics of e-confidence as well.

E-confident teachers have receptive and positive attitudes towards ICT, are flexible, agile (Deighton, 2011) and comfortable with the change inherent in introducing any ICT-based initiative (Fullan et al., 2005). They take their own risks in experimenting with and exploring ICT, so that the notion of failure is rethought (NAACE, 2007). E-confident teachers understand when it is appropriate to deploy ICT resources, and when not to. They understand teaching and learning in the 21st century and seek to embed ICT in their routine practice, both personal and professional. They demonstrate a deep pedagogical understanding, thorough curriculum and content understanding, combined with sound technological understanding (Mishra & Koehler, 2011). Willing to develop their ICT competence and capability, e-confident teachers model learning and work as partners in and facilitators of student learning. They understand safe, ethical ICT use and consistently reflect on their usage of ICT, constantly seeking ways of improving their practice (Deighton, 2011). They collaborate with and mentor others and communicate locally and globally through contributing to professional discourse about the way ICT and e-learning can be effectively implemented.

E-confident teachers focus on what engages and stimulates their students

The e-confident teacher understands and embraces the learning styles and preferences of the e-confident student. By valuing and prioritising ICT as an important element in the teaching and learning process, they use ICT to help students create new knowledge (MCEETYA, 2004) and seek to build their students' understanding of and capacity to use ICT in their own learning. They explore new pedagogies of engagement that are facilitative and partnering (McLoughlin & Lee, 2008), student-centred and student-driven (UNESCO, 2008). They seek to differentiate and personalise student learning (Fox, 2008).

E-confident teachers appreciate that the e-confident student, or the student on the path to developing e-confidence, needs to explore and experiment, take risks and learn from failures. They allow students to follow their own passions and empower them to make their own choices about the ICT tools they will use for learning tasks. They

maximise available resources (DEECD, 2010) and offer flexible opportunities for learning that connect authentically with their students' interests and experiences.

E-confident teachers have supportive school leadership

School leadership can inspire teachers to change or improve their practice. Thus, e-confidence is encouraged and nurtured in teachers, through explicit support from the school leadership. Through sharing their ICT vision (Gardner, 2011), school leaders engender shared ownership, collaboration and collegiality, motivate teachers to develop e-confidence, set expectations for performance and make them accountable for their own e-confidence development.

E-confident teachers embrace, rather than resist, ICT accountability set by school leadership as they plan for improvements in their own performance.

Provided with relevant, targeted and ongoing professional learning opportunities and supports through initiatives such as peer mentoring, coaching and critical friendships as well as performance planning and reviewing, the ICT capacity and confidence of teachers can be consistently built upon. Progress is celebrated and shared as staff explore and observe innovative practice. Like e-confident teachers do with their students, risk taking with ICT is encouraged by school leaders. Failure is redefined because this is viewed as essential to the learning process. This helps to develop e-confidence as teachers use ICT and e-learning to engage their students in new, challenging and stimulating ways (DEECD, 2010).

Without explicit school leadership support, it would be difficult for teachers to develop e-confidence and any ICT innovation would struggle to be mainstreamed, instead only existing in pockets of practice across the school.

E-confident teachers work within an e-confident learning organisation

Learning is the central focus of the learning organisation. Teachers embrace their role as learners. The place of ICT is explicitly valued as it is seen as an essential tool for the future. Teachers are provided with appropriate access to resources and technical support to maintain, renew and use ICT tools. Professional learning opportunities help them to build their ICT capabilities. The physical environments in which they work are flexible and ICT rich, resourced effectively to meet their needs and the diverse needs of their students. ICT plans, policies and goals across the school target and envisage an ICT-rich future for the students by providing strong supports for the teachers to enact this.

This focus on learning and building capacity enables teachers to walk the e-confidence journey alongside their students and not be burdened by a perception that they have to know more about ICT than their students – an unsustainable and unrealistic proposition.

The next element describes the place of e-confident school leadership as intrinsic to the ability for teachers to develop and exhibit e-confidence and to nurture this in their students.

7.5.3 E-confident leaders

An e-confident leader is a Culture Change Principal (Fullan, 2010) who understands, creates and drives an innovative change culture that embraces ICT. A key factor in determining the success of educational change (Eaker & Keating, 2008), e-confident leaders have the potential to transform learning and teaching in their school (MCEETYA, 2006).

The e-confident leader values ICT and e-learning and understands 21st century teaching and learning processes. With a positive attitude towards ICT, they have a clear vision for learning and ICT and can effectively communicate this with their school community. They are strategic and embed accountability in any planned ICT improvements, gathering and analysing data, drawing on research and reviewing and evaluating initiatives for ongoing improvement.

The e-confident leader models learning and investigates, explores, practices with and role models ICT use in their own personal and professional practice. They communicate, interact and connect with others using ICT tools. They have a clear ICT vision for their school and know how to apply this vision. They are able to be strategic, empower and build capacity across the learning organisation and know how to improve business operations and systems. They are supportive, inclusive, collegial and collaborative. They delegate and encourage staff to work in teams. They engage with the community and provide appropriate infrastructure and ubiquitous access to ICT and e-learning opportunities for all.

E-confident leaders understand the needs and preferences of their students

With students forming the moral purpose (Fullan et al., 2005) for any ICT or e-learning plans, the e-confident leader envisages an ICT rich future for their students.

Championing student-centred and student-driven learning, they have a clear vision of how the application of ICT can enhance, improve and enrich the quality of learning and teaching now and into the future. They understand how important it is for their students to know how to be ethical, discriminating, informed, responsible and safe e-learners. Receptive to new ICT developments and new and emerging technologies, e-confident leaders seek to strengthen home-school connections and streamline student ICT use at home, with the ICT tools and practices they undertake at school in order to build connectedness and foster engagement.

E-confident leaders support and inspire their teachers

E-confident leaders understand that a key factor in effecting ICT-based change within their school is building the ICT capacity, ownership and understanding of their staff. The e-confident school leader develops policies, strategies, resources and actions designed to increase the collective power of the staff to move the school forward (Fullan et al., 2005). They build staff ICT and e-learning confidence and commitment by making it a high priority, resourcing capacity building professional learning programs, providing adequate resources and allowing staff to have time to explore. The e-confident leader has high expectations of widespread ICT use across the school and gives practical support in order to achieve this. Like teachers with their students, the e-confident school leader creates and maintains a learning culture that values and encourages experimentation, entrusting their staff to take risks with ICT. By giving staff access to the latest research on ICT in education, the e-confident leader actively encourages professional discourse. By providing opportunities to attend professional learning events to stimulate thinking, they enable staff to create valuable professional learning networks, share the learning and collaborate so they can learn from each other (and even from the students). This way, collective commitment to any planned ICT changes is garnered (Fullan et al., 2005).

Without inspiring leaders who value ICT and e-learning and envisage an ICT future, schools will struggle to achieve any widespread ICT change.

E-confident leaders have a clear strategic vision for their school as an e-confident learning organisation

The e-confident leader knows that schools cannot afford to be static places (Silins et al., 2002). They place learning and innovation as the central focus of the school culture. They have a vision for change and commitment to ICT. They understand the type of leadership required to effect change most successfully and cultivate tri-level (Fullan et al., 2005) commitment involving individuals, teaching and learning contexts and the

entire school in the change process. They focus on both first order and second order change (Sproull & Kiesler, 1991). They conceptualise what the school is currently doing and envision, plan, communicate and engage others in action. A shared strategic vision is crucial to effective and cohesive implementation of any ICT plan (Gardner, 2011).

As explored in the next element, e-confident leaders are fundamental drivers in schools being able to become e-confident learning organisations.

7.5.4 E-confident learning organisations

An e-confident learning organisation has leaders, teachers and students who are sharing the e-confidence journey: enjoying, thriving on and embracing their roles as change agents; characterised by their positive and receptive attitudes towards ICT, their focus on changing learning environments and their purposeful integration of ICT into teaching and learning in order to transform learning (MCEETYA, 2006; Fullan et al., 2005).

The focus of an e-confident learning organisation is *learning* and *ICT innovation*. Leadership is distributed and ICT capacity is proactively built at all levels. The school community has shared vision and goals for ICT, ensuring ICT supports curriculum delivery and assessment and reporting. Opportunities are provided for stimulating professional learning within a culture committed to ongoing evaluation, improvement and accountability. Learning communities and collaboration are advocated while appropriate, proactive and flexible infrastructure, support and flexible physical learning places and spaces are provided.

An e-confident learning organisation nurtures e-confident students

Students are at the centre of an e-confident learning organisation. And so, the development of e-confident skills and behaviours are the highest priorities. Students provide the moral purpose (Fullan et al., 2005) and are the lens through which any planned change is imagined, designed and implemented. Flexible learning environments and robust infrastructure give students appropriate access to ICT and e-learning tools. Re-engineered curriculum delivery, pedagogy and assessment, resources and technical support give students the opportunity to develop and extend their e-confidence.

An e-confident learning organisation has e-confident leadership

E-confident leadership sets the tone for valuing ICT and e-learning in the school (MCEETYA, 2006). E-confident leaders plan strategically to effect positive ICT change. If the school leadership does not value ICT and e-learning and does not demonstrate some level of e-confidence, then any planned initiative is destined to fail.

An e-confident learning organisation has e-confident teachers

Teachers are vital to student engagement and achievement (Rockoff, 2004). They interface between the school's aims and expectations and the reality of student learning. Teachers are at the coalface enacting school policy, goals and strategic plans in classrooms. Therefore, they are essential to the development of an e-confident learning organisation. Logically, then, they too need to have their e-confidence developed and built – their capacity to understand and appreciate the value and application of ICT in teaching and learning and their ability to use ICT in an empowered and discriminating way to teach students and engage them in their learning.

Without focusing on e-confidence capacity building of staff, any e-confidence vision for an organisation cannot succeed.

7.6 Future research

Part of the role of this study was that it was designed to elicit more information about the types of strategies considered most successful in promoting e-confident schools, leaders, teachers and students. This research found that building school leadership, teacher and student ICT capacity was essential to enacting a new strategic ICT vision and that schools should be supported to become learning organisations, connecting more effectively with their students, in the context of a culture of collaboration.

The findings outlined in Chapter 6 also discussed the need to support the creation of new and different learning contexts that involve ICT while effectively resourcing initiatives and innovation, and argued the value of putting strategies and supports in place that aid reflection, revision and ongoing improvement. Simply providing more ICT without building understanding and capacity was seen by the teachers involved in this study, and through the literature, as only part of what is needed to effect meaningful and sustainable ICT change.

This study stopped short of being an examination of how to achieve whole school change. This is an area of research that needs further exploration. Ways of engaging

teachers and the wider school community in the ICT –focused change processes and the types of strategies for modifying school leader and teacher attitudes to ICT could be investigated.

Further examination of the elements of second order change (Sproull & Kiesler, 1991) could be undertaken. For example, questions could be posed such as: *What can be done to arouse teacher interest in ICT if they are initially resistant to its use in their classrooms or demonstrating low levels of e-confidence? What opportunities could be afforded to school leaders to help them to embrace a positive ICT vision and become champions for it in their schools?* To enable this transformation, at leadership and teacher levels, further research into the most effective professional learning approaches and establishing the types of content such learning would comprise could be initiated.

For, if teachers continue to view themselves as experts and are unwilling, or unable, to embark on the journey towards e-confidence, the question needs to be asked *What professional learning (including strategies and content) would best support them to develop e-confidence?*

Further research would then be required to explore *How would we know such professional learning would be effective in achieving these aims?*

7.7 Summary

The rationale for this study was to investigate e-confidence and to identify ways forward in implementing positive ICT-based educational change. Omnipresent technological change demands e-confidence – a new vision for education and of new learning (ACDE, 2004) that optimises the potential of ICT. The focus is:

> *Less about imparting defined knowledge and skills and more about shaping a kind of person: somebody who knows what they don't know; knows how to learn what they need to know; knows how to create knowledge through problem solving; knows how to create knowledge by drawing on informational and human resources around them; knows how to make knowledge collaboratively; knows how to nurture, mentor, and teach others; and knows how to document and pass on personal knowledge. In sum, this kind of person is open to autonomous, assisted and collaborative learning. (ACDE, 2004, p.21)*

Thus, by providing a contemporary definition of e-confidence and examining a range of strategies that contribute towards success in promoting it, this thesis has explored ways in which education systems, schools and teachers could enrich what happens in their classrooms, making the learning experience more relevant to the students they teach (Yelland, 2007). As Yelland contended:

> *An education population needs to show the capacity to be innovative and creative, as well as being able to work collaboratively and flexibly on authentic tasks that have been generated by the students themselves as well as by teachers. (p.23)*

New technologies are an integral part of this approach. E-confidence is the means by which the potential of these technologies can be recognised and harnessed. We know that supportive and visionary leadership changes the culture of schools and inspires teachers to move forward (Fullan, 2010). We also know that the essential building blocks of effecting sustainable change are building teacher and school leader capacity. In order to spread a vision of e-confidence across the system, tri-level commitment needs to be cultivated (Fullan et al., 2005).

In the future, individuals, schools and education systems will need to work cohesively to achieve ICT innovation and establish an e-confident system. This will require a focus on second order (Sproull & Kiesler, 1991) empowerment through new knowledge and understanding, increased awareness of opportunities and potential, risk taking and experimentation. Once these are in place, the potential the significant investment made into first order (Sproull & Kiesler, 1991) ICT infrastructure can be more fully exploited. The data from this thesis supports the notion that ICT and e-confidence can no longer be at the periphery of educational planning, curriculum delivery or pedagogy. They are central to engagement because they are a routine part of the lives of the young people in our schools and key to our success as a nation in the digital economy.

This is an exciting time to be working in education. It is time to move forward. The technological landscape is changing too swiftly to go back or to stand still. As Alice said "I can't go back to yesterday because I was a different person then." (Lewis Carroll, Alice in Wonderland) Thus, what the new knowledge economy and the 21st century global village demand is a brave shift away from old ways of working in schools towards new learning (ACDE, 2004) which is networked, collaborative and global – a new e-confidence. This could be a perfect storm that propels educational innovation:

All this offers clear enough opportunities - and good reasons - to explore alternative ways to teach and learn, but there are further drivers of change too: the new technologies in your students' pockets and hands; the plea from employers for new employees that are comfortable with ambiguity, are team players, have ingenuity; the 24/7 connectivity of our world; tightening finances... and more. This perfect storm of progress is inevitably sweeping away the old factory schools of the last century, but it also provides a unique opportunity to shape what comes next. (Heppell, 2011, np)

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Appendix 1

Case Study School Kit

Defining the Future: creating and sustaining e-confident schooling project

X
Principal,
X Primary School
X Street
X Suburb

Dear T,

As you know, following our recent correspondence, your school was nominated by the Department of Education and Early Childhood Development as an exemplary learning organisation using Information and Communication Technologies (ICTs) to effectively engage and stimulate learning.

The School of Education at Victoria University has invited your school to be a part of an evaluation into what makes students confident users of technology at school and what the characteristics are of an e-confident school and e-confident teachers. The intended outcome of the research is to develop a future vision for how technology can be used in schools to help engage students and the professional development needs of teachers to achieve this.

The project is entitled 'Defining the Future: creating and sustaining e-confident schooling'.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs) and the range of strategies teachers use to create opportunities for deep and powerful learning. With the advent of the Federal Digital Education Revolution, many questions are being raised about effective pedagogies and school approaches to incorporating ICT into the curriculum.

The research involves three aspects:

1. Gathering student data:
    - one face to face interview, held at your school with a small sample of up to five students with their teacher present . The interview may be videotaped, if participant permission has been granted. The video tape will be stored securely and participant privacy will not be compromised at any time.
    - and may involve one online or hard copy survey.

2. Gathering teacher data:

- interviews with a small number of teachers from your school. The interview may be videotaped, if participant permission has been granted. The video tape will be stored securely and participant privacy will not be compromised at any time.
- asking 5 teachers to complete an online survey and
- inviting representatives from your school to possibly participate in a focus group focused on teaching and learning with ICT
- asking a small number of teachers to complete a brief monthly electronic journal over a short period of time to record tacit insights into what has been happening in their classroom.
- Classroom observation of up to 3 classes.

Thank you for agreeing to assist me in this research.

I am keen to visit your school in early Term 1, 2010 and would appreciate the opportunity to discuss this research with your further and to coordinate the most convenient process for selecting teachers, students and maintaining communication with yourself and them.

The outcomes of this Masters research would be shared with your school once it is completed.

If you have any concerns about your school's participation in this project please contact Nikki Deighton at nikki@dk2.com.au or Nikki.deighton@live.vu.edu.au or 0409 357 309.

The School of Education at Victoria University in collaboration with interested schools, looks forward to developing stronger partnerships that support learning for all participants.

Thank you for your time,

Nikki Deighton

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

Defining the Future: creating and sustaining e-confident schooling project

Information Kit

Information Kit Table of Contents

The Information Kit included with this letter provides you with:

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

School Principal

Defining the Future: creating and sustaining e-confident schooling project

You are invited to participate in this research

Your school is invited to participate in a research project entitled 'Defining the Future: creating and sustaining e-confident schooling'.

Project explanation

This project is being conducted by student researcher Nikki Deighton, as part of a Masters of Education at Victoria University under the supervision of Professor Nicola Yelland from the School of Education.The research focuses on how students, teachers and schools utilise Information and Communication Technologies (ICTs) and what the characteristics are of a confident student/teacher and school incorporating ICTs effectively into teaching and learning programs.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs) and the range of strategies teachers use to create opportunities for deep and powerful learning.

What will your staff be asked to do?

You will be asked to nominate a key contact person for the research. This person will be the main communication contact for the researcher through the life of the study which will span approximately six months at your school.

A process for communicating with staff, students and parents involves:

- an initial visit to your school by Nikki Deighton to discuss the project
- nomination of a key contact person at your school
- an Information Session for interested parents of students/teachers who have been nominated as potential participants in the research
- dissemination and collection of Consent Forms and Plain Language Information as contained within this Information Kit.

This process can be reviewed at any time. We understand that schools are busy places and we appreciate your willingness to support this research.

The research involves:

- face to face interviews (held at your school) with up to 5 students and 5 teachers
- may involve completing one online or hard copy survey for up to 5 students and 5 teachers survey
- a small sample of willing teachers maintaining a one-pager electronic journal over a 4 – 6 month period
- interested teachers and school leaders (members of the principal class or leadership team, such as Curriculum Coordinators, teaching and Learning Coaches or Professional Learning Coordinators) attending a 1 ½ - 2 hour focus group
- up to 3 classroom observations

All responses will be treated as confidential, and details of your identity will not be conveyed.

What will my school gain from participating?

This is an opportunity for the innovation and excellence in your school to be showcased to the wider education community and to inform the discussion as the future trends in ICT-based education. This is an opportunity to share your thinking about the place of ICT in teaching and learning and the types of strategies, and vision for the future, that could best engage and stimulate student learning. This will assist the researcher in developing an idea of what could be possible in education in the future.

The insights gained from your school's involvement in this research will enable the researcher to develop a broad picture of the possibilities for using technology in future education to more effectively engage and stimulate students.

How will the information I give be used?

The insights your staff and students will share will help the researcher to formulate a view of what ICT tools and strategies are most effective in helping students learn and teachers to be confident users of ICT in today's and tomorrow's classrooms.

Interviews may be videotaped, if you grant the participants (and their parents) give permission to do so. The videotape will be stored securely and their privacy will not be compromised at any time. Edited excerpts of the interview will only be used in professional contexts if you agree to allow this.

The intended outcome of the research is to develop a future vision for how technology can be used in schools to help engage students.

The researcher will ensure that all data is de-identified (i.e. there will be no names of teachers or schools). Any public reporting of the research will not include identifying information about your child.

What are the potential risks of participating in this project?

While there is minimal risk to each participant, (interviews will be kept short and focussed, each subject's identity is protected and the focus of the interview will be on the technologies they use and how they use them), there may be a time when a subject shares information which may be sensitive about a colleague or peer. All participants are assured that they can say what they think, that their responses will not be able to be identified and are confidential.

The researcher will make herself available to inform participants what is happening and to respond to any concerns.

You will also be able to withdraw your involvement in the short research project at any time.

In the event that research participants become concerned with any aspect of the research, they will be able to consult with Ms Anne Graham, a trained psychologist. Ms Graham can be emailed at anne.graham@vu.edu.au and contact via telephone on 9919 2159.

How will this project be conducted?

The researcher is visiting up to 3 schools and inviting students and teachers to be interviewed, complete surveys and share their observations about how they use ICT and what works best for them and their learning in their classrooms. A focus group will be held with teachers and school leaders and some teachers will be asked to keep a record of their classroom activities over a short period of time.

Who is conducting the study?

In summary, the research is being conducted by student research Nikki Deighton for a Masters of Education in the School of Education at Victoria University.

Nikki Deighton can be contacted via email on nikki@dk2.com.au or Nikki.deighton@live.vu.edu.au or via her mobile on 0409 357 309.

Nikki's Supervisor is Professor Nicola Yelland of the School of Education at Victoria University. Professor Yelland can be contacted via email on Nicola.Yelland@vu.edu.au and via telephone on (03) 9919 4904.

The School of Education at Victoria University in collaboration with interested schools, looks forward to developing stronger partnerships that support learning for all participants.

Any queries about your participation in this project may be directed to the Principal Researcher listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

Teachers and School Leaders

Defining the Future: creating and sustaining e-confident schooling project

You are invited to participate in this research

You are invited to participate in a research project entitled 'Defining the Future: creating and sustaining e-confident schooling'.

Project explanation

This project is being conducted by student researcher Nikki Deighton, as part of a Masters of Education at Victoria University under the supervision of Professor Nicola Yelland from the School of Education. The research focuses on how students, teachers and schools utilise Information and Communication Technologies (ICTs) and what the characteristics are of a confident student/teacher and school incorporating ICTs effectively into teaching and learning programs.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs) and the range of strategies teachers use to create opportunities for deep and powerful learning.

What will you be asked to do?

The research involves:

- one face to face interview (held at your school) and
- may involve completing one online survey

You may also be asked to attend a small focus group at a later date and to complete a brief one-pager electronic journal for 4-6 months, if you agree to do so.

The researcher is keen to ensure your feel comfortable and secure during the interview and throughout the research and will treat your responses with sensitivity and discretion.

Your responses are valuable and you can be assured that your identity is protected.

The interview will take less than an hour and will not focus on personal issues. The questions will target ICT use and the types of strategies that work effectively in your classroom or across your school.

Your responses will be treated as confidential, and details of your identity will not be conveyed.

What will I gain from participating?

This is an opportunity for you to share your thinking about the place of ICT in teaching and learning and the types of strategies, and vision for the future, that could best engage and stimulate student learning. This will assist the researcher in developing an idea of what could be possible in education in the future.

The insights gained from your interview will enable the researcher to develop a broad picture of the possibilities for using technology in future education to more effectively engage and stimulate students.

How will the information I give be used?

The insights you share will help the researcher to formulate a view of what ICT tools and strategies are most effective in helping students learn and teachers to be confident users of ICT in today's and tomorrow's classrooms.

The interview may be videotaped, if you grant your permission to do so. The videotape will be stored securely and your privacy will not be compromised at any time. Edited excerpts of the interview will only be used in professional contexts if you agree to allow this.

The intended outcome of the research is to develop a future vision for how technology can be used in schools to help engage students.

The researcher will ensure that all survey and interview data is de-identified (i.e. there will be no names of teachers or schools). Any public reporting of the research will not include identifying information about your child.

What are the potential risks of participating in this project?

While there is minimal risk to each participating student, (the interview will be kept short and focussed, each subject's identity is protected and the focus of the interview will be on the technologies they use and how they use them), there may be a time when a subject shares information which may be sensitive about a colleague. All participants are assured that they can say what they think, that their responses will not be able to be identified and are confidential.

The researcher will make herself available to inform participants what is happening and to respond to any concerns.

You will also be able to withdraw your involvement in the short research project at any time.

In the event that research participants become concerned with any aspect of the research, they will be able to consult with Ms Anne Graham, a trained psychologist. Ms Graham can be emailed at anne.graham@vu.edu.au and contact via telephone on 9919 2159.

How will this project be conducted?

The researcher is visiting up to 3 schools and inviting students and teachers to be interviewed, complete surveys and share their observations about how they use ICT and what works best for them and their learning in their classrooms. A focus group will be held with teachers and school leaders and some teachers will be asked to keep a record of their classroom activities over a short period of time.

Who is conducting the study?

In summary, the research is being conducted by student research Nikki Deighton for a Masters of Education in the School of Education at Victoria University.

Nikki Deighton can be contacted via email on Nikki.deighton@live.vu.edu.au or via her mobile on 0409 357 309.

Nikki's Supervisor is Professor Nicola Yelland of the School of Education at Victoria University. Professor Yelland can be contacted via email on Nicola.Yelland@vu.edu.au and via telephone on (03) 9919 4904.

If you are willing to give your consent for you to be involved in this research, please read and sign the Consent Form for Subjects Involved in Research and return it to <insert teacher at school contact name> by <insert date>.

The School of Education at Victoria University in collaboration with interested schools, looks forward to developing stronger partnerships that support learning for all participants.

Any queries about your participation in this project may be directed to the Principal Researcher listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

Students and Parents/Guardians

Defining the Future: creating and sustaining e-confident schooling project

Your child is invited to participate in this research

Your child is invited to participate in a research project entitled 'Defining the Future: creating and sustaining e-confident schooling'.

Project explanation

This project is being conducted by student researcher Nikki Deighton, as part of a Masters of Education at Victoria University under the supervision of Professor Nicola Yelland from the School of Education. The research focuses on how students use technology at school and what the characteristics are of a confident student using technology.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs). To assist in her findings, the researcher Nikki Deighton, is keen to speak with students about what interests them most and what they would like to do with ICT in the classroom if given the chance.

What will your child be asked to do?

The research involves:

- one face to face interview (held at your child's school with their teacher present) and
- may involve completing one online or hard copy survey.

The researcher is keen to ensure your child is comfortable and secure during the interview and will treat their responses with sensitivity. Your child will be made to feel that their responses are valued and assured that their identity is protected. The interview will take less than an hour and will not focus on personal issues. The questions will target ICT use and the types of strategies that work effectively in the classroom. Your child's responses will be treated as confidential, and details of their identity will not be conveyed.

What will my child gain from participating?

This is an opportunity for your child to share his/her thinking about what Information and Communication Technologies (ICT) and classroom activities they like to do in class and to assist in developing an idea of what could be possible in education in the future. The insights gained from the interview with your child will enable the researcher to develop a broad picture of the possibilities for using technology in future education to more effectively engage and stimulate students.

How will the information my child gives be used?

The insights shared by your child will help the researcher to formulate a view of what ICT tools and strategies are most effective in helping students learn in today's and tomorrow's classrooms.

The interview may be videotaped, if you grant your permission to do so. The videotape will be stored securely and your child's privacy will not be compromised at any time. Edited excerpts of the interview will only be used in professional contexts if you agree to allow this.

The intended outcome of the research is to develop a future vision for how technology can be used in schools to help engage students.

The researcher will ensure that all survey and interview data is de-identified (i.e. there will be no names of parents, students or schools). Any public reporting of the research will not include identifying information about your child.

What are the potential risks of participating in this project?

While there is minimal risk to each participating student, (the interview will be kept short and focussed, each student's identity is protected and the focus of the interview will be on the technologies they use and how they use them), there may be a time when a student shares information which may be sensitive about a peer or teacher. All participants are assured that they can say what they think, that their responses will not be able to be identified and are confidential.

The researcher will make herself available to inform participants what is happening and to respond to any concerns.

You will also be able to withdraw your child's involvement in the short research project at any time.

In the event that research participants become concerned with any aspect of the research, they will be able to consult with Ms Anne Graham, a trained psychologist. Ms Graham can be emailed at anne.graham@vu.edu.au and contact via telephone on 9919 2159.

How will this project be conducted?

The researcher is visiting up to 3 schools and inviting students and teachers to be interviewed, completed surveys and share their observations about how they use ICT and what works best for them and their learning in their classrooms. A focus group will be held with teachers and school leaders and some teachers will be asked to keep a record of their classroom activities over a short period of time.

Who is conducting the study?

In summary, the research is being conducted by student research Nikki Deighton for a Masters of Education in the School of Education at Victoria University.

Nikki Deighton can be contacted via email on Nikki.deighton@live.vu.edu.au or via her mobile on 0409 357 309.

Nikki's Supervisor is Professor Nicola Yelland of the School of Education at Victoria University. Professor Yelland can be contacted via email on Nicola.Yelland@vu.edu.au and via telephone on (03) 9919 4904.

If you are willing to give your consent for your child to be involved in this research, please read and sign the Consent Form for Subjects Involved in Research and return it to <insert teacher at school contact name> by <insert date>.

The School of Education at Victoria University in collaboration with interested schools, looks forward to developing stronger partnerships that support learning for all participants.

Any queries about your participation in this project may be directed to the Principal Researcher listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

The e-confident schooling project

TEACHER/SCHOOL LEADER

INFORMATION TO PARTICIPANTS:
We would like to invite you to be a part of a study into what makes students and teachers confident users of technology at school. The intended outcome of the research is to develop a future vision for how technology can be used in schools to further engage students.

The project is entitled 'Defining the Future: creating and sustaining e-confident schooling'. The project is led by Professor Nicola Yelland of the School of Education at Victoria University and Masters Research student, Nikki Deighton.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms through the Digital Education Revolution, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs) and the characteristics of teachers working with ICT to create powerful, deep learning.

To assist in her findings, the researcher Nikki Deighton, is keen to speak with teachers about what interests them most and what they would like to do with ICT in the classroom if given the chance.

To gain these insights, the research involves one face to face interview of about an hour, held at your school and may involve answering one online survey.

The researcher is keen to ensure you feel comfortable and secure during the interview and will treat your responses with sensitivity. The interview will take less than an hour and will not focus on personal issues. The questions will target ICT use and the types of strategies that work effectively in your classroom and across your school. Your responses will be treated as confidential, and details of your identity will not be conveyed. In the filming, pseudonyms will be used and no identifying information about yourself or school will be evident.

Videotaping the interviews

If your permission is granted to do so, the interview may be videotaped to assist in the research. This would enable the researcher to gather rich snapshots of contemporary teacher thinking towards technology at school.

In addition, some interviews may be edited to create short excerpts that will only be used in professional contexts, such as presentations to education audiences. This will only occur if you agree to this. You will be shown a copy of the edited video before it will be able to be used at all in any professional contexts.

A copy of the videotaped interview will be available to you at your request.

If you agree to participate in this research, please complete the form below.

Thank you for your time. If you have any questions or concerns please email Nikki Deighton at Nikki.deighton@live.vu.edu.au or on 0409 357 309.

CERTIFICATION BY PARTICIPANTS

I, **…….. (teacher name)**

of **…….. (school name)**

certify that I agree to participate in this research by Masters of Education student, Nikki Deighton, from Victoria University.

I certify that the objectives of the project and the two activities - one face to face interview, held at my school and one online survey - have been fully explained to me by Nikki Deighton and that I freely consent to my participation involving these procedures:

- A survey
- An interview

I understand that the interview will only be videotaped if I grant my permission to do so. These video tapes will be stored securely.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time.

I have been informed that the information I provide will be kept confidential unless otherwise negotiated.

I therefore agree to: *(please tick the statement(s) with which you agree)*

1. ☐ participate in the survey and interview
2. ☐ allow my interview to be videotaped.
4 ☐ allow the video tape of my interview to be edited and used for professional purposes only.

Teacher name:.....Signature……

Date: .....

Any queries about your participation in this project may be directed to the researcher Nikki Deighton, School of Education, Victoria University (ph. 0409 357 309).

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University, PO Box 14428 MCMC, Melbourne, 8001 (telephone no: 03-99194781).

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

The e-confident schooling project

STUDENT/PARENT

INFORMATION TO PARTICIPANTS:
We would like to invite you to be a part of a study into what makes students confident users of technology at school. The intended outcome of the research is to develop a future vision for how technology can be used in schools to help engage students.

The project is entitled 'Defining the Future: creating and sustaining e-confident schooling'. The project is led by Professor Nicola Yelland of the School of Education at Victoria University and Masters Research student, Nikki Deighton.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs). To assist in her findings, the researcher Nikki Deighton, is keen to speak with students about what interests them most and what they would like to do with ICT in the classroom if given the chance.

To gain these insights, the research involves one face to face interview of about an hour, held at your child's school and may involve answering one online or hard copy survey.

The researcher is keen to ensure your child is comfortable and secure during the interview and will treat their responses with sensitivity. Your child will be made to feel that their responses are valued and assured that their identity is protected. The interview will take less than an hour and will not focus on personal issues. The questions will target ICT use and the types of strategies that work effectively in the classroom. Your child's responses will be treated as confidential, and details of their identity will not be conveyed.

Videotaping the interviews

If your permission is granted to do so, the interview may be videotaped to assist in the research. This would enable the researcher to gather rich snapshots of student thinking towards technology at school.

In addition, some interviews may be edited to create short excerpts that will only be used in professional contexts, such as presentations to education audiences. This will only occur if you agree to this. You will be shown a copy of the edited video before it will be able to be used at all in any professional contexts.

In the filming, pseudonyms will be used and no identifying information about your child's class or school will be evident. A copy of the videotaped interview will be available to you at your request.

If you would like a teacher to attend the interview, this can also be organised or if your child would like to attend the interview with another student, that can also be arranged.

If you agree to your child participating in this research, please complete the form below. Thank you for your time.
If you have any questions or concerns please email Nikki Deighton at Nikki.deighton@live.vu.edu.au or on 0409 357 309.

CERTIFICATION BY PARTICIPANTS

I, **…….. (parent/guardian)**

of …….. **(suburb)**

certify that I am giving my consent for my child …… (name / grade / school) to participate in this research by Masters of Education student, Nikki Deighton, from Victoria University.

I certify that the objectives of the project and the two activities - one face to face interview, held at my child's school with a teacher present if I request this and one survey - have been fully explained to me by Nikki Deighton and that I freely consent to participation involving the use on my child of these procedures:

- A survey
- An interview

I understand that the interview will only be videotaped if I grant my permission to do so. These video tapes will be stored securely.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw my child from this study at any time.

I have been informed that the information I provide will be kept confidential unless otherwise negotiated.

I therefore give my permission for: *(please tick the statement(s) with which you agree)*

1. ☐ I give permission for my child to participate in the survey and interview.
2. ☐ I would like a teacher to be present during the interview.
3. ☐ I give permission for my child's interview to be videotaped.
4. ☐ I give permission for the video tape of my child's interview to be edited and used for professiona purposes only.

Student name:.....Signature……

Parent /Guardian Name.....Signature……

Date: .....

Any queries about your participation in this project may be directed to the researcher Nikki Deighton, School of Education, Victoria University (ph. 0409 357 309).

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University, PO Box 14428 MCMC, Melbourne, 8001 (telephone no: 03-99194781).

CONFIDENTIALITY AGREEMENT FOR TEACHERS ATTENDING STUDENT INTERVIEW

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

The e-confident schooling project

INFORMATION TO PARTICIPANTS:
Thank you for agreeing to attend the student interview conducted by Masters of Education research student, Nikki Deighton.

The intended outcome of the research is to develop a future vision for how technology can be used in schools to help engage students.

The project is entitled 'Defining the Future: creating and sustaining e-confident schooling'. The project is led by Professor Nicola Yelland of the School of Education at Victoria University and Masters Research student, Nikki Deighton.

Schools today are changing and with more and more emphasis on computers being delivered to classrooms, this research is seeking to find out what most engages and stimulates students in their learning with Information and Communication Technologies (ICTs). To assist in her findings, the researcher Nikki Deighton, is keen to speak with students about what interests them most and what they would like to do with ICT in the classroom if given the chance.

Your attendance in the interview has been requested by your school or the student's parent.

Please sign the confidentiality statement below to ensure that no information discussed in the interview will be shared with any parties thereafter.

Thank you for your time and cooperation.

If you have any questions or concerns please email Nikki Deighton at Nikki.deighton@live.vu.edu.au or on 0409 357 309.

CERTIFICATION BY PARTICIPANTS

I, …….. **(teacher name)**

of …….. **(school name)**

certify that I agree to maintain confidentiality and will not discuss information arising from the interview conducted with this student by Masters of Education researcher Nikki Deighton.

I certify that these confidentiality obligations have been fully explained to me by Nikki Deighton and that I freely agree to be bound by these expectations.

Teacher name:.....**Signature**……
Date: .....

Any queries about your participation in this project may be directed to the researcher Nikki Deighton, School of Education, Victoria University (ph. 0409 357 309).

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University, PO Box 14428 MCMC, Melbourne, 8001 (telephone no: 03-99194781).

Appendix 2 - Interview questions

School Leader

1. Collection of general demographic data (age, gender, class level(s) taught, subject area(s).	
2. Describe your vision for teaching and learning at your school.	
3. What sorts of ICT(s) do you use at school (in your own personal professional learning, administration, planning etc)? (hardware and software) What do your teachers use?	
4. What has driven or enabled usage of these at school? What have the barriers been?	
5. How would you describe your level of skill in using ICTs?	
6. What sorts of ICT(s) do the students in your school use in their classroom? How does this compare to the ICTs they use at home?	
7. A. What value do you place on ICT tools and functions in the teaching and learning at your school? Is there a difference between how you, your teachers and students are working now and how you all worked previously? (in previous years) B. What caused the change?	
8. How does the management of the school incorporate effective use and access to ICT? (school strategic plan, e-learning Plan etc?)	
9. Have you noticed any changes in the classrooms through incorporating ICT into teaching and learning? o What pedagogical strategies do you believe have been most successful? o Which ICTs do you believe have had the greatest positive impact on student learning outcomes? How and why?	
10. What are your future plans for ICT across your school?	
11. What types of professional learning do you find most beneficial in improving your teachers' (i) pedagogical repertoire and (ii) enhancing their understanding of	

the potential educational application of new and emerging technologies?	
12. What do you believe are the characteristics of an: ○ e-confident teacher ○ e-confident school leader ○ e-confident student ○ e-confident school	
13. What has been the most profound/important influence in helping the staff and students at your school to become ICT savvy?	

Teacher #

Position/Year level taught

1. Collection of general demographic data (age, gender, class level(s) taught, subject area(s).	
2. Describe your approach to teaching and learning – what strategies do you find are most effective in engaging your students?	
3. What sorts of ICT(s) do you use at school (in your own personal professional learning, administration, planning and in class)? (hardware and software)	
4. What has driven or enabled you to use these at school?	
5. How would you describe your level of skill in using ICTs?	
6. What sorts of ICT(s) do your students use in your classroom? How does this compare to the ICTs they use at home?	
7. Describe the sorts of activities you and your students undertake when using ICT in your classroom.	
8. A. What value do you place on ICT tools and functions in your teaching? Is there a difference between how you are working now and how you worked previously? (in previous years) 9. B. What caused the change?	
10. How does your classroom management incorporate effective use and access to ICT?	
11. Have you noticed any changes in your classroom through incorporating ICT into your teaching and learning? 12. Are there any pedagogical strategies you have found most successful? 13. Which ICTs do you believe have had the greatest positive impact on student learning outcomes? How and why?	
14. What are your future plans for using ICT in your classroom?	
15. What types of resourcing and professional learning do you find most beneficial in improving your (i) pedagogical repertoire and (ii) enhancing your understanding of the potential educational application of new and emerging technologies?	

16. What do you believe are the characteristics of an: o e-confident teacher o e-confident school leader o e-confident student o e-confident school	
17. What has been the most profound/important influence in helping you to become ICT savvy?	

Primary School

Student #

Grade

1. Collection of general demographic data (age, gender, class level(s)	
2. What do you like most about your school?	
3. How would you describe your level of skill in using ICTs?	
4. What sorts of ICT(s) do you use in your classroom? How does this compare to the ICTs you use at home?	
5. Describe the sorts of ICT activities you do in your classroom.	
6. What is your favourite activity at school?	
7. What would you like to be able to do in the future?	
8. What do you believe are the characteristics of an: o e-confident teacher o e-confident school leader o e-confident student o e-confident school	
9. What has helped you most in building your knowledge of ICT?	

Appendix 3 – Focus Group Questions and Plan

Introduction and Welcome

Purpose of session	This will enable the researcher to delve more deeply into questions and patterns arising from the Literature Review and the Case Study School investigation. This is a useful vehicle for gaining a shared understanding of the experiences of different schools and helped to develop a clearer understanding of e-confidence characteristics.
Discussion Questions	1. What Information and Communication Technologies (ICTs) do you use in your classroom?
	2. Describe the pedagogical approaches you take when using ICT with your students.
	3. What do you find are the most effective strategies to engage and stimulate student learning?
	4. What changes have occurred in your classroom since you have been using ICTs?
	5. What changes have taken place within your school?
	6. Describe the characteristics you feel make an e-confident student.
	7. Describe the characteristics you feel make an e-confident teacher.
	8. Describe the characteristics you feel make an e-confident school and school leadership

Close and thanks

Appendix 4 – Online Survey Tool

eConfidence survey

Introduction

Thank you so much for taking the time to complete this short survey which forms part of my Masters of Education research.

The survey:
• Should take approximately 20 minutes to complete
• Is a mix of multiple choice and open-ended questions
• Enables you to re-enter the survey at any time to update your responses, providing you access the survey from the same computer
• Enables you to go back to previous pages and update your responses.

Your survey responses are confidential.

If you have any questions about the survey, please contact me via email on nikki@dk2.com.au

1. What is the name of the school/organisation you are currently working at?

2. What state/territory are you currently working in?

- ◯ Australian Capital Territory
- ◯ New South Wales
- ◯ Northern Territory
- ◯ Queensland
- ◯ South Australia
- ◯ Tasmania
- ◯ Western Australia
- ◯ Victoria

3. What age are you?

- ◯ 20 – 29
- ◯ 30 – 39
- ◯ 40 – 49
- ◯ 50 – 59
- ◯ 60 +

4. What is your gender?

- ◯ Male
- ◯ Female

Page 1

eConfidence survey

5. What role(s) do you currently perform? (Tick one or more)

- [ ] Principal
- [ ] Assistant Principal/Deputy Principal/Vice Principal
- [ ] Classroom teacher
- [ ] Curriculum Coordinator
- [ ] KLA Coordinator/Head of Department
- [ ] Teaching and Learning Coordinator
- [ ] Teacher Librarian
- [ ] ICT Coordinator
- [ ] PD Coordinator
- [ ] Year Level Coordinator
- [ ] Other (please specify)

6. What type of school setting do you work / have you worked in?

- [ ] Primary
- [ ] Secondary
- [ ] P/K-12
- [ ] Special Development
- [ ] Language
- [ ] Other (please specify)

7. What year levels do you teach / have you taught? (Tick one or more)

- [ ] P/K
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [ ] 11
- [ ] 12

eConfidence survey

Econfident students

What do you think are the key characteristics of econfident students?

Select up to 10 from the following list.

8. Econfident students:

- [ ] have a wide range of generic ICT skills
- [ ] have a high level of digital and information literacy
- [ ] are critical thinkers
- [ ] are able to take risks using ICT
- [ ] are prepared to explore and experiment with new and emerging ICT
- [ ] use ICT actively away from school
- [ ] are empowered users of ICT
- [ ] understand that they are part of a global community
- [ ] are ethical, discriminating, informed, responsible and safe users of ICT
- [ ] enjoy actively creating, producing and modifying eLearning artefacts
- [ ] are comfortable expressing themselves through a range of modalities
- [ ] are autonomous and independent elearners
- [ ] work at twitch speed
- [ ] enjoy multimedia game-like scenarios
- [ ] routinely use social software to connect and communicate with each other and the outside world
- [ ] routinely use mobile devices to access information and communicate
- [ ] can select appropriate ICT tools for each task they are asked to perform within my classroom
- [ ] think about and analyse how ICT can be embedded in their learning tasks

9. Please feel free to provide more descriptors if you believe it is not covered in this list:

eConfidence survey

Econfident teachers

What do you think are the key characteristics of econfident teachers?

Select up to 10 from the following list.

10. Econfident teachers:

- [ ] have high levels of eLearning confidence and skills
- [ ] use ICT and eLearning approaches and tools effectively at a personal and professional level
- [ ] are able to envisage an eLearning future for their students
- [ ] are prepared to accept that their students may know more than they do about their use of ICT
- [ ] consistently and actively identify potential new approaches for eLearning with their students
- [ ] take time to explore the functions and features of new and emerging ICT
- [ ] recognise and integrate a variety of eLearning tools and approaches and tools in their curriculum planning and delivery
- [ ] value the place of eLearning
- [ ] develop and publish learning activities online for student completion anywhere, anytime
- [ ] review and reflect on how they are using eLearning in their own teaching and learning
- [ ] are comfortable acquiring new eLearning skills when they need them
- [ ] can select appropriate ICT tools for each task they are asked to perform within their classroom
- [ ] are able to reflect upon and demonstrate their understanding of how eLearning and ICT can enhance their own learning and teaching
- [ ] take risks using ICT
- [ ] use ICT actively away from school
- [ ] are highly connected communicators
- [ ] provide their students with opportunities to collaborate using eLearning tools
- [ ] are empowered and discriminating elearners
- [ ] understand that they are part of a global community
- [ ] think about and analyse how eLearning can be embedded in the learning tasks they set their students
- [ ] enjoy actively producing eLearning tasks
- [ ] author, publish and share self-created eLearning tasks
- [ ] are comfortable expressing themselves through a range of modalities
- [ ] are autonomous and independent elearners and eteachers
- [ ] create, modify, edit and tweak their own eLearning tasks using appropriate ICT tools
- [ ] are ethical, discriminating, informed, responsible and safe elearners
- [ ] understand that their students work at twitch speed and create learning experiences to accommodate this
- [ ] enjoy presenting their students with opportunities to explore multimedia game-like scenarios
- [ ]

- [ ] routinely use social software to connect and communicate with each other and the outside world
- [ ] routinely use mobile devices to access information and communicate
- [ ] understand the different eLearning approaches and tools that support critical thinking and problem solving skills in their students
- [ ] are accessing digital learning resources available in their own teaching
- [ ] manage their personal eLearning spaces to record their own learning journey
- [ ] share eLearning content with colleagues

11. Please feel free to provide more descriptors if you believe it is not covered in this list:

eConfidence survey

Econfident school leaders

What do you think are the key characteristics of econfident school leaders?

Select up to 5 from the lists under each category.

12. Econfident school leaders as PRACTITIONERS and ROLE MODELS:

- [ ] use ICT effectively and confidently at a professional level
- [ ] regularly take time to explore and experiment with new and emerging ICT
- [ ] value and understand the place of eLearning
- [ ] have a wide range of generic eLearning skills - a high level of digital and information literacy
- [ ] are comfortable acquiring new eLearning skills when they need them
- [ ] can select appropriate ICT tools for each task to be undertaken in the classroom
- [ ] use ICT actively and confidently for personal purposes
- [ ] understand that their school, their students and themselves are part of a global education community
- [ ] are ethical, discriminating, informed, responsible and safe elearners
- [ ] are passionate about the potential of eLearning to engage students and transform teaching and learning
- [ ] regularly take risks using ICT
- [ ] author, publish and share self-created eLearning tasks
- [ ] enjoy communicating and collaborating with others online
- [ ] routinely use social software to connect and communicate with other colleagues and the outside world
- [ ] routinely use mobile devices to access information and communicate
- [ ] use similar ICT applications at school and outside school
- [ ] model innovative ICT usage and eLearning approaches
- [ ] consistently and actively seek out and identify potential new approaches for eLearning with their students and teachers in their school
- [ ] encourage others to develop and publish learning activities online for student completion anywhere, anytime
- [ ] manage personal eLearning spaces to record their own learning journey
- [ ] regularly share eLearning content with colleagues

13. Econfident school leaders with VISION:

- [ ] embrace and envisage an eLearning future for their students
- [ ] accept that their students may know more than they do about their use of ICT
- [ ] promote, support and recognise the value of integrating a variety of eLearning approaches and tools in curriculum planning and delivery
- [ ] provide students with rich opportunities to collaborate using eLearning tools
- [ ] understand how to support their students to be ethical, discriminating, informed, responsible and safe elearners
- [ ] understand that many of their students are connected communicators
- [ ] understand that their students work at twitch speed and create learning experiences to accommodate this
- [ ] understand and use the different eLearning tools that support critical thinking and problem solving skills in their students
- [ ] have an holistic view of the school as a learning organisation and a clear understanding of how eLearning can improve processes and outcomes throughout
- [ ] have an inclusive vision of how eLearning can enhance the work of their school across all areas
- [ ] understand how vision and strategy align to create change in their school
- [ ] inspire colleagues and other stakeholders to value the place of eLearning
- [ ] advocate for eLearning across the school
- [ ] understand how to create positive change within the school community to help move it towards an eLearning future
- [ ] explore and support eLearning innovations and encourage others to take risks and experiment creatively with eLearning approaches and tools
- [ ] are open and receptive to new ideas and new ways of doing
- [ ] facilitate opportunities for staff to develop a shared understanding of the place and value of eLearning
- [ ] actively facilitate and contribute to professional learning communities that focus on the place and value of eLearning in education
- [ ] regularly share new eLearning approaches and tools with staff
- [ ] understand and communicate their understanding that student-centred environments rich in eLearning tools and resources effectively meet the diverse needs of their students
- [ ] actively involve staff in order to share ownership and understanding of their eLearning vision
- [ ] empower others and support them in the development of their own vision for eLearning
- [ ] use collaborative teams to realise a shared vision for eLearning in teaching, learning and assessment

14. Econfident school leaders as STRATEGIC PLANNERS:

- [ ] understand change processes and how to build a positive eLearning culture within the school
- [ ] understand the importance of aligning any eLearning planning and implementation to the school's Strategic Plan
- [ ] actively work with other school leaders and members of the school community in developing an eLearning Plan for the school
- [ ] understand the need to assess eLearning capabilities and how these can be improved as part of the eLearning planning process
- [ ] ensure that eLearning implementation supports individual, team and whole school improvement
- [ ] plan approaches to eLearning implementation that are creative, flexible, reflective and innovative
- [ ] have clear eLearning priorities and goals, underpinned by clear achievement strategies
- [ ] are effective at delegating leadership responsibilities, support roles and decision-making processes across the school in relation to eLearning implementation
- [ ] share strategic plans and timelines for implementing eLearning
- [ ] monitor, review and update school policies and processes with regard to e-safety strategies and ways of working safely online
- [ ] appreciate that they need to use evidence and data to monitor and improve the education of their students and must incorporate this into any eLearning planning
- [ ] set expectations with the school community, including teachers, students and parents for adopting or enhancing eLearning
- [ ] build staff eLearning confidence and commitment by prioritising it, monitoring eLearning-focused staff professional development and incorporating it into all curriculum planning
- [ ] acknowledge and share the successes realised by staff who are early adopters of ICT and eLearning
- [ ] use a range of communication channels to drive staff towards using ICT and eLearning tools and approaches
- [ ] encourage staff to review their ICT skills as a professional learning tool
- [ ] encourage teachers to use digital content and resources that are relevant to school curriculum needs
- [ ] understand how to create positive change within the school community to help move it towards an eLearning future
- [ ] understand that resources (hardware, software) and infrastructure (connectivity, eLearning spaces) requirements must be part of eLearning planning
- [ ] understand and plan for budgetary impacts of any eLearning implementation
- [ ] understand the importance of regularly monitoring, evaluating and re-adjusting our eLearning implementation

15. Please feel free to provide more descriptors if you believe it is not covered in these lists:

eConfidence survey

Econfident schools

What do you think are the key characteristics of econfident schools?

Select up to 5 from the lists under each category.

16. Econfident schools have a SCHOOL CULTURE and SCHOOL LEADERSHIP that:

- [ ] values eLearning
- [ ] undertake inclusive and systematic eLearning implementation planning
- [ ] provide equitable access to eLearning opportunities for all students
- [ ] have teachers and leaders who are building their own eLearning skills and capabilities
- [ ] have teachers and leaders who model eLearning approaches in their own work
- [ ] have appropriate technical support to maintain, renew and use eLearning tools across the school
- [ ] have a clear understanding of how eLearning can improve student learning outcomes
- [ ] have staff with a shared understanding of the place and value of eLearning
- [ ] actively facilitate and contribute to professional learning communities that focus on the place and value of eLearning in education
- [ ] have student-centred environments rich in eLearning approaches, tools and resources effectively meet the diverse needs of students
- [ ] have an inclusive vision of how ICT can enhance the all aspects of the school
- [ ] have teams to build ICT capacity in all staff
- [ ] empower others and support them in the development of their own vision for eLearning

17. Econfident schools have SHARED VISION and GOALS that:

- [ ] have clear eLearning priorities and goals, underpinned by clear achievement strategies
- [ ] have a vision for how eLearning will support the delivery of the school's aims and objectives
- [ ] build a shared understanding of the potential of the eLearning to support and enhance the school's strategic targets
- [ ] provide opportunities for all staff to understand and share in the school's vision for eLearning
- [ ] empower the leaders within the school to effect change
- [ ] have an inclusive vision of how ICT can enhance the all aspects of the school
- [ ] empower others and support them in the development of their own vision for eLearning

18. In their CURRICULUM DELIVERY, ASSESSMENT and REPORTING econfident schools:

- [ ] ensure that all eLearning decisions are informed by pedagogy and curriculum
- [ ] consistently articulate how eLearning will help to support effective curriculum delivery
- [ ] consistently identify how eLearning will enable curriculum differentiation and personalisation to students
- [ ] ensure that eLearning tools and approaches are integrated across all curriculum areas and pedagogical approaches
- [ ] foster connections beyond the school
- [ ] ensure that eLearning tools and approaches are integrated in a range of assessment practices and tasks

19. In their PROFESSIONAL LEARNING econfident schools:

- [ ] prioritise eLearning in all professional learning plans for staff
- [ ] establish formal evidence-based processes for demonstrating staff eLearning commitment
- [ ] implement a school eLearning professional learning framework
- [ ] ensure eLearning competence and confidence is always closely linked to pedagogy and curriculum
- [ ] provide appropriate access to hardware and software so staff have an opportunity to explore and experiment with new and emerging technologies
- [ ] provide staff with time to build their eLearning skills, capacities and understanding
- [ ] encourage staff to experiment with and take risks in using eLearning within their own personal and professional practice
- [ ] provide opportunities for mentoring
- [ ] document staff experiences with eLearning
- [ ] celebrate and share staff experiences with eLearning

20. In their ACCOUNTABILITY PRACTICES econfident schools:

- [ ] establish processes for disseminating, managing and archiving information
- [ ] ensure parents and students have been kept informed throughout the stages of eLearning implementation
- [ ] consistently communicate developments and progress with all staff through effective eLearning channels
- [ ] share key documents and policies through effective eLearning channels
- [ ] establish clear processes for operational management of eLearning access such as account and password management for all staff, students and parents
- [ ] enable students to publish and share their eLearning artefacts with their parents/carers via their personal online learning space
- [ ] plan for how student information and data will be managed and administered
- [ ] share information about students and their learning with parents/carers
- [ ] establish a pilot group of parents/carers who provide feedback and advice on eLearning implementation
- [ ] consistently review and evaluate eLearning implementation and making ongoing improvements and sharing these evaluations
- [ ] publish and share information on school news and events
- [ ] use ICT in a way which consistently improves the efficiency, quality and timely completion of business procedures
- [ ] support a culture of informed, ethical, safe and responsible use
- [ ] have developed and published e-safety documents and resources to raise awareness of all members of the school community
- [ ] have policies and procedures in place to ensure student data is secure and privacy is protected

21. Econfident schools have LEARNING COMMUNITIES that:

- [ ] provide opportunities for staff to share effective eLearning practice
- [ ] encourage staff to collaborate and interact using eLearning tools and approaches
- [ ] encourage staff to share curriculum resources with each other using eLearning tools and approaches
- [ ] provide opportunities for staff to discuss and share their eLearning experiences using online collaboration
- [ ] encourage staff to collaborate with teachers in other schools
- [ ] encourage staff to join online professional eLearning communities

eConfidence survey

22. Econfident schools have INFRASTRUCTURES AND ENVIRONMENTS that:

- [ ] are efficiently managed, maintained and effectively budgeted for an appropriate eLearning infrastructure and environment
- [ ] enable the smooth and seamless running of all eLearning systems, tools and approaches across the school
- [ ] provide ubiquitous access to staff to robust and secure ICT systems to house student data
- [ ] ensure classrooms in the school are equipped to facilitate students' and teachers' access to eLearning
- [ ] provide spaces other than classrooms within the school for accessing eLearning opportunities
- [ ] provide student access to the school's digital learning resources outside school hours
- [ ] have plans and resources in place to ensure equitable student access to eLearning opportunities
- [ ] provide all members of the school community with access to reliable hardware, networking infrastructure and software
- [ ] systematically upgrade hardware, networking infrastructure and software
- [ ] provide appropriate technical support to ensure hardware, networking infrastructure and software run smoothly
- [ ] systematically monitor technical performance across the school
- [ ] plan and budget for ongoing technical improvements of hardware, networking infrastructure and software

23. Please feel free to provide more descriptors if you believe it is not covered in these lists:

eConfidence survey

Features of new e-pedagogies

24. What new pedagogies are being used within the school that incorporate ICT to engage and stimulate students?

25. What is meant by 21st century learning?

26. What role does Web 2.0 and other emerging social technologies have in the ICTs used in schools and the way teachers teach and students learn?

27. What are the key elements for achieving whole school transformation in using ICT?

28. What do education systems need to consider when developing forward-looking ICT policies?

Appendix 5: Online Survey Results Tables

E-confident School Leaders

E-confidence Feature – practitioner and role model		Percentage identified
1.	**use ICT effectively and confidently at a professional level**	**63.4%**
2.	**value and understand the place of ICT and e-learning**	**61.0%**
3.	**understand that their school, their students and themselves are part of a global education community**	**51.2%**
4.	**consistently and actively seek out and identify potential new approaches for e-learning with their students and teachers in their school**	**46.3%**
5.	**are comfortable acquiring new ICT and e-learning skills when they need them**	**41.5%**
6.	model innovative ICT usage and e-learning approaches	39.0%
7.	regularly take time to explore and experiment with new and emerging ICT	36.6%
8.	are ethical, discriminating, informed, responsible and safe e-learners	36.6%
9.	regularly share e-learning content with colleagues	36.6%
10.	have a wide range of generic ICT e-learning skills - a high level of digital and information literacy	34.1%
11.	are passionate about the potential of ICT and e-learning to engage students and transform teaching and learning	34.1%
12.	can select appropriate ICT tools for each task to be undertaken in the classroom	24.4%
13.	use ICT actively and confidently for personal purposes	22.0%
14.	routinely use social software to connect and communicate with other colleagues and the outside world	14.6%
15.	encourage others to develop and publish learning activities online for student completion anywhere, anytime	14.6%
16.	regularly take risks using ICT	9.8%
17.	author, publish and share self-created e-learning tasks	9.8%
18.	enjoy communicating and collaborating with others online	9.8%
19.	routinely use mobile devices to access information and communicate	9.8%
20.	use similar ICT applications at school and outside school	7.3%
21.	manage personal e-learning spaces to record their own learning journey	4.9%

Table 14: Features of an e-confident school leader as practitioner and role model.

E-confidence Feature – establishing vision		Percentage identified
1.	**embrace and envisage an ICT and e-learning future for their students**	**68.3%**
2.	**promote, support and recognise the value of integrating a variety of ICT and e-learning approaches and tools in curriculum planning and delivery**	**56.1%**
3.	**have an holistic view of the school as a learning organisation and a clear understanding of how ICT and e-learning can improve processes and outcomes throughout**	**51.2%**
4.	**understand how to support their students to be ethical, discriminating, informed, responsible and safe e-learners**	**36.6%**
5.	**inspire colleagues and other stakeholders to value the place of ICT and e-learning**	**36.6%**
6.	**are open and receptive to new ideas and new ways of doing**	**36.6%**
7.	accept that their students may know more than they do about their use of ICT	34.1%
8.	have an inclusive vision of how ICT and e-learning can enhance the work of their school across all areas	34.1%
9.	understand how vision and strategy align to create change in their school	29.3%
10.	empower others and support them in the development of their own vision for ICT and e-learning	26.8%
11.	provide students with rich opportunities to collaborate using ICT and e-learning tools	24.4%
12.	understand that many of their students are connected communicators	24.4%
13.	understand how to create positive change within the school community to help move it towards an e-learning future	22.0%
14.	advocate for ICT and e-learning across the school	19.5%
15.	facilitate opportunities for staff to develop a shared understanding of the place and value of ICT and e-learning	19.5%
16.	regularly share new ICT and e-learning approaches and tools with staff	19.5%
17.	actively involve staff in order to share ownership and understanding of their ICT and e-learning vision	19.5%
18.	actively facilitate and contribute to professional learning communities that focus on the place and value of ICT and e-learning in education	17.1%
19.	use collaborative teams to realise a shared vision for ICT and e-learning in teaching, learning and assessment	17.1%
20.	explore and support ICT and e-learning innovations and encourage others to take risks and experiment creatively with e-learning approaches and tools	14.6%
21.	understand and communicate their understanding that student-centred environments rich in e-learning tools and resources effectively meet the diverse needs of their students	14.6%
22.	understand and use the different ICT and e-learning tools that support critical thinking and problem solving skills in their students	12.2%
23.	understand that their students work at twitch speed and create learning experiences to accommodate this	0.0%

Table 15: Features of an e-confident school leader with vision.

E-confidence Feature – strategic planner		Percentage identified
1.	**understand change processes and how to build a positive ICT and e-learning culture within the school**	**48.7%**
2.	**build staff ICT and e-learning confidence and commitment by prioritising it, monitoring ICT and e-learning-focused staff professional development and incorporating it into all curriculum planning**	**46.2%**
3.	**understand the importance of aligning any ICT and e-learning planning and implementation to the school's Strategic Plan**	**43.6%**
4.	**ensure that ICT and e-learning implementation supports individual, team and whole school improvement**	**38.5%**
5.	**actively work with other school leaders and members of the school community in developing an e-learning Plan for the school**	**35.9%**
6.	plan approaches to ICT and e-learning implementation that are creative, flexible, reflective and innovative	33.3%
7.	set expectations with the school community, including teachers, students and parents for adopting or enhancing e-learning	33.3%
8.	are effective at delegating leadership responsibilities, support roles and decision-making processes across the school in relation to e-learning implementation	30.8%
9.	understand that resources (hardware, software) and infrastructure (connectivity, e-learning spaces) requirements must be part of ICT and e-learning planning	28.2%
10.	understand and plan for budgetary impacts of any ICT and e-learning implementation	28.2%
11.	have clear ICT and e-learning priorities and goals, underpinned by clear achievement strategies	23.1%
12.	encourage staff to review their ICT skills as a professional learning tool	23.1%
13.	encourage teachers to use digital content and resources that are relevant to school curriculum needs	20.5%
14.	understand how to create positive change within the school community to help move it towards an ICT and e-learning future	20.5%
15.	appreciate that they need to use evidence and data to monitor and improve the education of their students and must incorporate this into any ICT and e-learning planning	17.9%
16.	use a range of communication channels to drive staff towards using ICT and e-learning tools and approaches	17.9%
17.	understand the importance of regularly monitoring, evaluating and re-adjusting the ICT and e-learning implementation	17.9%
18.	understand the need to assess ICT and e-learning capabilities and how these can be improved as part of the e-learning planning process	15.4%
19.	share strategic plans and timelines for implementing ICT and e-learning	15.4%
20.	monitor, review and update school policies and processes with regard to e-safety strategies and ways of working safely online	15.4%
21.	acknowledge and share the successes realised by staff who are early adopters of ICT and e-learning	12.8%

Table 16: Features of an e-confident school leader as a strategic planner

E-confidence Feature – school culture and leadership		Percentage identified
1.	**have appropriate technical support to maintain, renew and use ICT and e-learning tools across the school**	**65.8%**
2.	**values e-learning**	**50.0%**
3.	**have teachers and leaders who are building their own ICT and e-learning skills and capabilities**	**44.7%**
4.	**have student-centred environments rich in ICT and e-learning approaches, tools and resources effectively meet the diverse needs of students**	**44.7%**
5.	**provide equitable access to ICT and e-learning opportunities for all students**	**42.1%**
6.	**have a clear understanding of how ICT and e-learning can improve student learning outcomes**	**42.1%**
7.	undertake inclusive and systematic ICT and e-learning implementation planning	39.5%
8.	actively facilitate and contribute to professional learning communities that focus on the place and value of ICT and e-learning in education	28.9%
9.	have an inclusive vision of how ICT can enhance the all aspects of the school	28.9%
10.	empower others and support them in the development of their own vision for ICT and e-learning	28.9%
11.	have teachers and leaders who model ICT and e-learning approaches in their own work	26.3%
12.	have staff with a shared understanding of the place and value of ICT and e-learning	23.7%
13.	have teams to build ICT capacity in all staff	13.2%

Table 17: Features of an e-confident schools' culture and leadership.

E-confidence Feature – shared vision and goals		Percentage identified
1.	**have clear ICT and e-learning priorities and goals, underpinned by clear achievement strategies**	**64.9%**
2.	**build a shared understanding of the potential of ICT and e-learning to support and enhance the school's strategic targets**	**64.9%**
3.	**provide opportunities for all staff to understand and share in the school's vision for ICT and e-learning**	**62.2%**
4.	**empower others and support them in the development of their own vision for ICT and e-learning**	**62.2%**
5.	**have an inclusive vision of how ICT can enhance the all aspects of the school**	**59.5%**
6.	have a vision for how ICT and e-learning will support the delivery of the school's aims and objectives	54.1%
7.	empower the leaders within the school to effect change	48.6%

Table 18: Features of an e-confident schools' shared vision and goals.

E-confidence Feature – curriculum delivery, assessment and reporting		Percentage identified
8.	**consistently identify how ICT tools and e-learning will enable curriculum differentiation and personalisation to students**	**80.6%**
9.	**ensure that all ICT and e-learning decisions are informed by pedagogy and curriculum**	**75.0%**
10.	**ensure that all ICT tools and e-learning approaches are integrated in a range of assessment**	**72.2%**

	practices and tasks	
11.	**consistently articulate how ICT and e-learning will help to support effective curriculum delivery**	**63.9%**
12.	**ensure that ICT tools and e-learning approaches are integrated across all curriculum areas and pedagogical approaches**	**50.0%**
13.	foster connections beyond the school	33.3%

Table 19: Features of an e-confident schools' curriculum delivery, assessment and reporting.

E-confidence Feature – professional learning		**Percentage identified**
1.	**provide staff with time to build their ICT and e-learning skills, capacities and understanding**	**73.0%**
2.	**ensure ICT and e-learning competence and confidence is always closely linked to pedagogy and curriculum**	**56.8%**
3.	**prioritise ICT and e-learning in all professional learning plans for staff**	**54.1%**
4.	**celebrate and share staff experiences with ICT and e-learning**	**54.1%**
5.	**provide appropriate access to hardware and software so staff have an opportunity to explore and experiment with new and emerging technologies**	**51.4%**
6.	**encourage staff to experiment with and take risks in using ICT and e-learning within their own personal and professional practice**	**51.4%**
7.	implement a school e-learning professional learning framework	35.1%
8.	provide opportunities for mentoring	35.1%
9.	establish formal evidence-based processes for demonstrating staff e-learning commitment	29.7%
10.	document staff experiences with e-learning	2.7%

Table 20: Features of an e-confident schools' professional learning.

E-confidence Feature – accountability practices		**Percentage identified**
1.	**consistently review and evaluate ICT and e-learning implementation and making ongoing improvements and sharing these evaluations**	**57.9%**
2.	**establish clear processes for operational management of ICT and e-learning access such as account and password management for all staff, students and parents**	**50.0%**
3.	**establish processes for disseminating, managing and archiving information**	**47.4%**
4.	**support a culture of informed, ethical, safe and responsible use**	**44.7%**
5.	**ensure parents and students have been kept informed throughout the stages of ICT and e-learning implementation**	**39.5%**
6.	have policies and procedures in place to ensure student data is secure and privacy is protected	36.8%
7.	consistently communicate developments and progress with all staff through effective ICT channels	34.2%
8.	have developed and published e-safety documents and resources to raise awareness of all members of the school community	34.2%
9.	plan for how student information and data will be managed and administered	31.6%
10.	share key documents and policies through effective ICT channels	23.7%
11.	enable students to publish and share their e-learning artefacts with their parents/carers via their personal online learning space	21.1%
12.	use ICT in a way which consistently improves the efficiency, quality and timely completion of business procedures	15.8%
13.	share information about students and their learning with parents/carers	13.2%

14.	publish and share information on school news and events	5.3%
15.	establish a pilot group of parents/carers who provide feedback and advice on e-learning implementation	2.6%

Table 21: Features of an e-confident schools' accountability practices.

E-confidence Feature – learning communities		Percentage identified
1.	provide opportunities for staff to share effective ICT and e-learning practice	86.1%
2.	encourage staff to share curriculum resources with each other using ICT tools and e-learning approaches	75.0%
3.	encourage staff to collaborate and interact using ICT tools and approaches	72.2%
4.	encourage staff to collaborate with teachers in other schools	61.1%
5.	provide opportunities for staff to discuss and share their ICT and e-learning experiences using online collaboration	58.3%
6.	encourage staff to join online professional e-learning communities	58.3%

Table 22: Features of learning communities in an e-confident school.

E-confidence Feature – infrastructure and physical environment		Percentage identified
1.	**are efficiently managed, maintained and effectively budgeted for an appropriate ICT and e-learning infrastructure and environment**	**81.6%**
2.	**ensure classrooms in the school are equipped to facilitate students' and teachers' access to ICT and e-learning**	**65.8%**
3.	**provide appropriate technical support to ensure hardware, networking infrastructure and software run smoothly**	**57.9%**
4.	**plan and budget for ongoing technical improvements of hardware, networking infrastructure and software**	**52.6%**
5.	**systematically upgrade hardware, networking infrastructure and software**	**44.7%**
6.	provide all members of the school community with access to reliable hardware, networking infrastructure and software	42.1%
7.	enable the smooth and seamless running of all e-learning systems, tools and approaches across the school	36.8%
8.	provide ubiquitous access to staff to robust and secure ICT systems to house student data	34.2%
9.	have plans and resources in place to ensure equitable student access to e-learning opportunities	34.2%
10.	provide student access to the school's digital learning resources outside school hours	28.9%
11.	provide spaces other than classrooms within the school for accessing e-learning opportunities	23.7%
12.	systematically monitor technical performance across the school	10.5%

Table 23: Features of infrastructure and the physical environment in an e-confident school.