

**TURNING THE TABLES:
STUDENTS MENTORING
TEACHERS IN ICT
PROFESSIONAL DEVELOPMENT**

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ABSTRACT

This dissertation evaluates the effectiveness of a programme where students mentored teachers as a form of professional development for teachers within the context of information and communication technologies (ICT) and to examine what the students and teachers gained from their involvement in the programme. The hypothesis was that when teachers had an authentic purpose for professional development then the learning resulted in a greater impact for the teacher and student learning.

Teachers are at different levels of implementation with ICT and there is the belief that teachers will need to embrace ICT and incorporate the technologies, into all aspects of their practice and use it effectively with students. Teachers professional development with ICT not only needs to focus on developing the technical skills to use the technologies, but to also increase teachers' pedagogical knowledge of how these technologies can be successfully integrated into developing effective student learning. Therefore it was appropriate to explore the importance of the professional development process for teachers and in particular the aspect of students mentoring teachers within a professional development programme. The literature review also focussed on the interaction of ICT and learning. The research identified the key components of a mentoring programme, where students as mentors assisted teachers to become proficient with ICT. An analysis of the effectiveness of the mentoring programme was examined by way of a key participant interview, four focus group discussions and an analysis of a reflective diary.

This research found that the individual professional development for teachers in an ICT context where they take part in an ongoing mentoring programme was effective. It has been clearly identified in this small project that setting up a programme where teachers have a student mentor who has both knowledge and skills with ICT, is a valuable component of their professional development. It is important that this aspect of professional development, where the student-teacher partnership develops goals that are focused, obtainable and have a specific purpose to ensure the process is completed and is made available for teachers to link into their appraisal goals.

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CHAPTER ONE

INTRODUCTION

ICT in schools

The introduction of information and communication technologies (ICT) into schools has been led by the Ministry of Education, with assistance from several groups such as school leaders, parents, students and the school community by extra funding being providing for this drive for ICT to happen (Lai, 2001). This drive has continued with many initiatives and contracts through the two early ICT strategies – Interactive Education (Ministry of Education, 1998) and Digital Horizons (Ministry of Education, 2002), being provided by the Ministry of Education. Schools were able to gain ICT focussed professional development through these initiatives with the intent to address some of the concerns identified by the Ministry of Education.

The Ministry of Education is concerned that as a small nation, our needs for the 21st century were not being addressed by the education system and that reforms were needed to raise the level of student achievement. The challenge was to ensure the learner was the centre of the education system so that innovation and entrepreneurship created the culture needed for New Zealand to become a prosperous nation. Maharey (2006) "in his belief that education can and should make a difference" states that "e-Learning has the potential to transform the way we learn" (p.3). Therefore, with appropriate use of the technologies students are provided with the opportunity to create their own learning through collaboration which will support them as valuable participants in the 21st century.

The expectation to integrate ICT (such as computers, interactive white boards and digital cameras) into the classroom has the potential to lead to innovative classroom practice or, on the other hand, to be an expensive exercise if the equipment purchased is under-utilised. There is the belief that teachers will

need to embrace ICT and incorporate the technologies into all aspects of their practice and use it effectively with students. Prensky (2001) demonstrates this when he says "Today's teachers have to learn to communicate in the language and style of their students" (p. 4). However, teachers often find it difficult to make the time and to find the support they need to enable the successful integration of these tools into their practice.

Fostering ICT professional development

The professional development programmes in secondary schools have over the past few years have been focusing on implementing the National Certificate of Educational Achievement (NCEA) and also other drives from the Ministry of Education to improve students' levels of literacy and numeracy. Generally, ICT professional development that has been run in schools has had a focus on skill-based programmes for teachers who are in the early stages of adoption. This enables them use the computers to complete the required administration tasks and generally improve their capability of using technologies or to use new equipment.

Teachers professional development with ICT not only needs to focus on developing the technical skills to use the technologies, but to also increase teachers' pedagogical knowledge of how these technologies can be successfully integrated into developing effective student learning. Higgins (2003) has identified a number of key messages from his research including effective learning "also depends on the choices that a teacher makes about how to use ICT as part of their teaching" (p. 17). It is his view, that teachers' beliefs in developing effective approaches to their practice, is the vital factor in whether they adopt the technologies into their classrooms, in innovative and creative ways that will enhance student learning.

An effective professional development programme in the use of ICT will enable teachers not only to gain confidence when using ICT tools, but also to encourage them to plan and prepare programmes that integrate ICT into student learning through facilitation where students select ICT media to source, manipulate and present their new learning. Guskey (2000) in his model of

teacher change suggests that change in classroom practices will lead to "significant change in teachers' attitudes and beliefs" and that this "occurs primarily *after* they gain evidence of improvements in student learning" (p. 139). Teachers, therefore, are the key factor in how effective ICT can be used to enhance teaching and learning.

Research Rationale

Schools and teachers in general are expected to access more and more information from the Ministry of Education through their websites. Therefore, in 2003, the Donovan High School, Board of Trustees joined the 'laptops for teachers programme' offered by the Ministry of Education for secondary schools by providing funding for permanent full-time teachers to have the use of a laptop computer. The researcher for this project is the teacher who has the responsibility for ICT teaching and learning within Donovan High School.

Throughout 2004, Donovan High School was in the process of reviewing their technological needs as the school was growing and teachers were demanding better access to ICT. Also innovative uses of technologies were becoming prevalent in other schools. The technical support situation in the school was also about to change. This was then, the appropriate time, to assess how the use of computer software and other information and communication technologies had progressed and to see where and how new professional development training was needed.

About the same time I attended a Technology Users Association of New Zealand (TUANZ) conference, which provided the opportunity to hear the Principal of Wellington Girls' College speak about the Tech Angels programme that they had instigated in their school. The Wellington Girls' College initiative began when they realised that the need for development and support for teachers ICT skills could not be met by the staff available and their students were very capable of providing the necessary professional development.

In early 2006, Donovan High School installed two interactive whiteboards and although the interactive whiteboards remain at two, the Board of Trustees has since installed 25 fixed data projectors into classrooms adding to the few mobile ones that have been in great demand. Although teachers were now able to make further use of their laptop computer as they were beginning to make better use them as a static teaching tool by creating more detailed information for students to view in the classroom. There is still considerable opportunity for more interactive and innovative teaching to take place through the integration of ICT into student learning.

A programme based on the Wellington Girls' College model, began in the school along with after-school workshops for skill development. A key factor identified in my previous study at Unitec, undertaken as a small evaluation research project based on the ICT professional development, was that teachers gained the most from 'just in time' mini lessons. This was where teachers had identified a need to up-skill when using computers and other digital tools. They were able to relate the opportunity for learning a new skill, to a teaching strategy they were developing for their classroom programme.

Kenwell, Parkinson and Tanner (2000) identify the next stage in professional development for teachers to become ICT capable "means a fundamental change in teaching style" (p. 103). The 'Generation Y model' explored by Harper (2003) of a partnership between students and teachers has found to be "an effective professional development strategy for teachers, as well as an effective approach to increasing student engagement, student learning, and student leadership" (p. 310). When this occurs, students become change agents, by assisting teachers to create a learning environment where ICT is embedded into the context of the learning where students develop ownership of their own learning. The question is whether a student-mentoring of teachers programme could achieve a fundamental change in teaching style.

Turning the tables

A professional development programme for teachers where students are mentoring competent adults in a digital learning environment is being implemented in the researcher's school with the aim of assisting teachers to identify ways of developing ICT capability into their practice. The student-mentoring programme of teachers is one component of professional development that has the intention of assisting teachers to make that shift in teaching style.

This research project seeks to evaluate this student-mentoring programme of teachers in ICT professional development. The characteristics of learning partnerships in the process-orientated models of mentoring may provide the knowledge to underpin a mentoring programme for teachers where the mentor is the more experienced younger participant. It is anticipated that the research will identify the key components of an effective mentoring programme, where students as mentors assist teachers to become proficient with ICT. An analysis of the effectiveness of the mentoring programme will take place in order to identify recommendations to improve the quality of the outcome.

Research aim

The broad aim of the research was to examine the effectiveness of a programme where students mentored teachers as a form of professional development for the teachers and whether both participants in the programme gained from their involvement in the programme.

More specifically:

- To critically evaluate a teachers professional development programme, involving student-mentoring in the context of ICT.

Research questions

- What professional development do teachers need to enhance the use of ICT?
- What judgements can be made about the effectiveness of the programme?

Summary of chapters

Chapter One: Introduction

Chapter one provides a background to the drive to include ICT into schools and how teachers are being provided with professional development to learn the necessary skills to include the equipment into their teaching practices. The chapter then describes the setting for the research before stating the research aim and research questions that form the basis of the project.

Chapter Two: Literature review

The literature review chapter begins by identifying the importance of ICT in schools. The chapter then describes the significant issues and challenges of professional development, in particular with ICT, for teachers.

The review will look at adult learning and how the practice of mentoring in the Education sector, relate. The review concludes with understanding of how mentoring relationships evolve and how learning develops through a process that will form a foundation for implementing effective mentoring programmes in schools. The characteristics of mentoring programmes will be discussed and how these might support a student mentoring of teachers programme.

Chapter Three: Methodology

The research methodology chapter explores the process of evaluation research in an education setting. Evaluation research characteristics and models are identified and explored. The data collection methods of focus groups discussions and interviews are discussed. Research ethics, validity and reliability as they relate to the research are investigated.

Chapter Four: Findings and analysis

This chapter details the findings of the interview with a Deputy Principal, the four focus group discussions and the opportunity to keep a reflective diary. This is where the students and teachers will be provided with the opportunity to evaluate the student-mentoring of teachers programme. The benefits and difficulties of the programme will be recognised and analysed during this phase in order to identify where improvements to the programme can be made. A

comparison of the data from the two participant group discussions and a summary of the data identifies, emerging components of effective mentoring programmes and reflects on the benefits from the programme.

Chapter Five: Conclusions and recommendations

Conclusions are drawn following the researcher's consideration and analysis of the key findings. These conclusions lead to recommendations being devised, which are presented in this chapter.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The aim of this review is to identify what the literature says about the importance of ICT in relation to teachers' professional development in ICT. This is to identify the enablers and barriers that will effect how ICT is integrated into teaching and learning. Links will be made to mentoring programmes, as one model of professional development and how teaching practice with ICT can benefit from this model.

The chapter describes the significant issues and factors that create barriers for teachers to make the shift to learn and teach in new ways and to incorporate ICT tools into their teaching practice. Consideration of these factors and issues will need to be taken into account when implementing a mentoring programme to enable teachers to make the change to embed ICT into their teaching. These factors include teachers' understanding of pedagogy, understanding of how ICT and learning interact, having a sense of purpose to use ICT, ownership of the task, time management and professional development support. These factors have been identified by Dawes (2001) and are common in other literature. More recent research has identified that the pedagogical factors are not so dominant and that ICT innovation is a gradual process. Bolstad and Gilbert (2006) state that:

while once it seemed that individual teachers' ideas about teaching and learning were the main factors influencing their uptake of ICT, it is now fairly widely recognised that a complex web of (practical and social) factors act to support or thwart the initiation and spread of innovative ICT use in schools (p. 17).

Bolstad and Gilbert (2006) cite the factors that Peck, Cuban, and Kirkpatrick (2002) identified, as the school structure, time constraints and teachers

technological issues which include access and reliability along with competing priorities are the main factors that influence ICT uptake.

A focus on mentoring will be reviewed to identify how this has been utilised in education. This research will focus on the professional development aspect of mentoring where individual needs are taken into consideration to facilitate learning that will empower the process of engagement as suggested by Zachary (2000). An analysis of the term 'mentoring' as a means of providing support and professional development for teachers will identify what the literature says about the mentoring process and in particular how this has been utilised in professional development programmes for teachers.

The importance of ICT for schools in New Zealand

The invention of the printing press in 1450 had a major impact on the world of learning which allowed knowledge to be distributed firstly throughout the academic institutions and the upper classes then to the general population. The next major revolution to the dissemination of knowledge did not occur until the 20th century with the development of the microchip and personal computers.

Computers and other digital technologies are now a significant factor in globalisation and in shaping today's world with the generation of new demands and expectations on people. Because of this revolution it is now commonly understood that the young people of today will have a number of different occupations during their lifetime, with many of these occupations not yet invented. As Maharery (2006) suggests "e-Learning has the potential to transform the way we learn" (p.3). It has become vital to prepare our students for an unknown future in a way that will equip them with the skills to be adaptable, to have the ability learn and to problem solve so that they can contribute well to the society of their complex and unknown future.

New Zealand being a small isolated country with many small isolated schools, connection to the global community is vital for innovation and economic development which is made easier through the development of information and communication technologies. The Ministry of Education (2006) was concerned

that New Zealand's needs for the 21st century were not being addressed by the present education system. Therefore, reforms were needed to raise the level of student achievement and to create a learning environment that will not only keep pace with global changes but will also equip our students to be life long learners and active participants in the global community. Gipson (2003) explains that "if schools are to effectively educate young people to take their place in the 21st century, then they must provide an education that incorporates ICT" (p. 6). Students will not only need to know how to use the technologies but to also understand how the technologies will work for them.

Students in schools today have grown up in an ICT-rich environment, and thus it is important to continue to empower learners through the integration of ICT into the 21st century learning environment. What will be of utmost importance to develop this environment, will be when teachers make the shift to understand that the digital technologies will not in themselves transform education, but it is the way the technologies are used, that will. Prensky (2007) argues that when teachers are involving students through exploring new learning environments and extending horizons to construct their own learning, both will then be able contributors in a world of profound change. Trinidad (2003) supports this with her discussion on the shift from teacher-centered instruction to a learner-centered environment in a global community that it offers "new and exciting approaches to teaching, learning and assessment" (p. 98). Although the key to an educational shift from a teacher-centred instruction to a learner-centered environment, recognises that ICT has the potential to be a major factor in developing a powerful revitalised education system, it is how ICT will be used that will prepare our students for participation in a global community.

ICT – The scope and policy framework

The Ministry of Education has provided support to schools with three initiatives, these being "Interactive Education", "Digital Horizons" and more recently "Enabling the 21st Century Learner", with each initiative building on the progress of the preceding one. The Ministry of Education (2006) identified

an overall strategy for ICT in education that encompasses the following four areas:

- improving learning experiences and outcomes for all students;
- supporting educators in integrating ICT into curriculum and management practices;
- increasing efficiency and effectiveness of educational management and administration; and
- developing partnerships with communities, businesses and other stakeholders.

Throughout the 1990s the Ministry of Education provided funding through a series of contracts mainly to regional School Support Services who had the role of providing schools with a one year professional development programme which was free to schools as it was funded by the Ministry of Education. In addition many teachers also enrolled in tertiary courses to gain diplomas and degrees with an ICT focus on the use of educational technologies.

In 1998 the funding system changed to give schools the ability to apply directly to the Ministry of Education for funding to develop their own professional development programmes through an ICT cluster model. These programmes were available to clusters of schools as participants and were to last for three years with the funding to be for teachers professional development and not for infrastructure. Schools were then able to have more control over what happened in their own learning community (Ham, 2002). The evaluation of this programme indicates that the initiative was clearly a worthwhile strategy as the ICT Cluster Model has continued to gain Ministry of Education funding. Teachers in general were able to achieve their professional development goals to increase their skills, confidence and use of ICT in the classroom through a variety of methods.

Other initiatives including the Ministry of Education 'Digital Opportunities' Model (Digi Ops) which was a three-way partnership between the Ministry of Education, businesses and schools to provide information and communication technologies in schools, the 'Laptops for Teachers' programme and the 'TKI On-line Learning Website'. These initiatives provide a variety of strategies for schools to developing highly effective professional development programmes,

although many are not yet embedded into daily teaching practice (Ministry of Education, 2006).

Professional development

Professional development programmes in schools need to be of high quality in order to have the effect that brings about change to improve education. Guskey (2000) identifies the two key factors, of beliefs and the process of teacher change are important for teacher professional development programmes. Guskey's model of teacher change presented in Figure 2.1, illustrates that "significant change in teachers' attitudes and beliefs occurs after they have gained evidence of improvements in student learning" (p. 139).

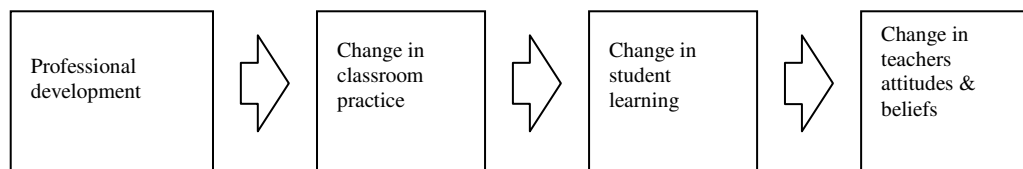


Figure 2.1. Guskey's model of teacher change (Guskey 2000 p. 139)

This model of professional development identifies the process teachers go through to improve student learning by changing their classroom practices and through these experiences they will see improvements in student learning, which will ultimately change teachers attitudes and beliefs. The incremental steps over a period of time require effort and positive results often simulate further changes. As the change is gradual, regular feedback through evidence of student learning and continual support that follows the professional development programme, are crucial factors for the implementation of the changes to be sustained into teachers practice.

The notion of professional development amongst educators has a varying degree on effectiveness. Guskey (2000) explains that educators "frequently regard professional development as having little impact on their day-to-day responsibilities", although he goes on to say that "not all professional development in education is ineffective, meaningless, and wasteful" (p. 4). What is important is when major changes in educational reform occur then effective professional development plays an important part in the success of the

reforms. Guskey (2000) states that research evidence show "that notable improvements in education almost never take place *in the absence* of professional development" (p. 4).

The latest Best Evidence Synthesis (BES) report on 'Teacher Professional Learning and Development' (Timperley, Wilson, Barrar & Fung, 2008) looks at the effectiveness of professional learning and development in New Zealand schools. Erb (2008) in his review in the New Zealand Education Gazette on the BES report, establishes that it is "the new knowledge and the thinking processes that teachers use to adopt relevant learning into their practice" (p. 14), that is more significant than the way the professional development is provided. He has included the following points in his summary that are the key findings:

1. Extended time for teachers to learn is necessary but not sufficient;
2. Teachers need to engage in the process at some point;
3. Teachers have the opportunity to take a part in a community of practice;
4. School leaders support the professional learning;
5. Theory and practice are integrated;
6. Professional learning goals and activities are clearly aligned;
7. Instruction is sequenced;
8. Opportunities are given for teachers to discuss and negotiate the meaning of concepts taught; and
9. Student perspective is maintained (p. 15).

These points support the factors and issues that need to be taken into account when implementing any professional development programme including ICT to enable teachers to make the change to embed ICT into their teaching.

With appropriate use of the technologies students are provided with the opportunity to create their own learning through collaboration which will support them as valuable participants in the 21st century. Bolstad and Gilbert (2006) have identified that "the message is clear: New Zealand is moving towards a digital future, and the government expects schools to play a major role in shaping and supporting this future" (P. 2). Therefore it is imperative for

teachers to take the opportunity to increase their skills, confidence and use of ICT in the classroom.

ICT professional development

The Ministry of Education (2006) has the vision that ICT, through its uniqueness, has the potential to enhance learning through teachers incorporating it into their programmes to enable students to learn with the technologies. Therefore, it has become imperative for teachers to make a move from a teacher-centred classroom where knowledge is imparted to students, to a student active learning environment where students are creating their own knowledge. Gipson (2003) explains this environment where effective use of technology in education "occurs when ICT is fully integrated into curriculum outcomes and lesson activities and where teachers are actively engaged in the construction of learning using the technology" (p. 13). In order for this to occur, teachers need to be part of professional development programmes that are robust and will provide the necessary learning support.

Prensky (2001) supports this when he says "Today's teachers have to learn to communicate in the language and style of their students" and also "the debate must no longer be about *whether* to use calculators and computers – they are a part of the Digital Natives' world – but rather *how* to use them to instil the things that are useful to have internalized, from key skills and concepts" (p. 4). Gipson (2003) considers that teachers will find it difficult to make these expected changes when he stated that if "teachers are placed in a vulnerable position where the key teaching and learning strategy is something that they are novices in – that is, the practical use of ICT – and many of their students experts, it makes it even more difficult" (p. 8).

As research has suggested, students are seeing the world differently and they are learning in different ways it has become important for teachers to develop innovative ways of presenting learning situations to students. Prensky (2001) argues that when students are learning in new ways, it is crucial for teachers to be learning new ways to teach. He argues that teachers often "assume that learners are the same as they have always been, and that the same methods that

worked for the teachers when they were students will work for their students now" (p. 3). If the transition to new ways of teaching is to be made then the model of professional development needs to be carefully considered. Alexander, Wilson and Hovell (2001) support this when they state: "If professional development is to be a vehicle for change, the old ways can no longer be put forward as a successful model" and for the providers of the professional development to develop "a new paradigm which draws upon best practice of past success but flexible enough to adapt to merging trends" (p. 66).

ICT can make a difference to teaching and learning although other interventions, for example small group tutoring, can make a difference as well. It is the way ICT is integrated into learning that makes a significant difference. Higgins (2003) has identified a number of key messages from his research and these include: "ICT offers a wealth of possibilities to support teaching and learning" and "effective learning also depends on the choices that a teacher makes about how to use ICT as part of their teaching" (p. 17).

Professional development not only needs to focus on developing the technical skills to use the technologies, but to also increase teachers' pedagogical knowledge of how these technologies can be successfully integrated into developing effective student learning. An effective professional development programme in the use of ICT will enable teachers not only to gain confidence when using ICT tools, but also to encourage them to plan and prepare programmes that integrate ICT into student learning. The report on the Laptops for Teachers scheme (TELA) identified that "whole school professional development" had a place, although teachers had the concept that "generic professional development was said to lack immediacy and personal relevance" whereas "collegial help was described as the preferred and most prevalent form of professional development" (Cowie, Jones, Harlow, McGee, Cooper, Forret, Miller & Gardiner, 2008, pp. 39-40). Therefore, the TELA report recommends that "provision be made for support and opportunities for in-school peer mentoring" (p. 52) which will enhance teacher learning and ICT integration.

However, teachers often find it difficult to make the time and to find the

support they need to enable the successful integration of these tools into their practice. Yet they "cannot be allowed to duck this responsibility" as Tiene and Ingram (2001) suggest (p. 255). As a result of this, it has become increasingly important for schools to provide ongoing learning opportunities for teachers to ensure that they can integrate ICT technologies to enrich teaching and learning. Walsh (2002) in his research about successful integration of ICT supports this concept when he states in his study that "all the schools in the study placed staff training at the centre of their successful integration of ICT" (p. 16). Integration of the technologies into programmes of learning is where teachers "create new learning environments based on a blended learning approach" (Ministry of Education, 2006).

Within the Guskey's model of teacher change, the context of learning ICT skills has an effect on the process. There are times when teachers and students are in the learning process together. Fairman (2004) in her research on the introduction of laptop computers into classrooms identified that "both teachers and students needed to learn certain things in order to effectively make use of the laptops, and both had valued knowledge and skills that contributed to that effort" (p. 5). The initiative she concluded "prompted positive change in the interactions between teachers and students, and in the mode of learning" (p. 29). Therefore, the regular feedback through the shared learning process to both teachers and students will assist in the change process.

In general teachers will need to learn basic use of the technologies before they are comfortable to introduce them into the classroom. Pratt, Lai and Munro (2001) explain the stages of the CEO Forum (1999) model which has identified by five stages (entry, adoption, adaptation, appropriation, invention) of teachers using the technologies, is shown in figure 2.2.

- | |
|---|
| Stage 1: Entry – students learning to use technology |
| Stage 2: Adoption – teachers use technology to support traditional instruction |
| Stage 3: Adaptation – technology used to enrich curriculum |
| Stage 4: Appropriation – technology is integrated, used for its unique capabilities |
| Stage 5: Invention – discover new used for technology |

Figure 2.2: Stages of technology adoption (CEO Forum, 1999), in Pratt et al., (2001)

This is an indication that teachers need to move through the stages and for some the journey will be quicker as they often make the journey with their students, while others will make incremental steps over a longer period of time. It is teachers' understanding of ICT and how it can be used effectively to enhance teaching and learning that will have a greater effect on their progress through the stages. However, it is the approach to the professional development and the appropriate support for the teachers during the process that will ensure that the incremental steps are taken.

The Knezek and Christensen model identified in Bolstad and Gilbert (2006) has similar stages in the learning and adoption of ICT that teachers go through to the one developed by the CEO Forum (1999). In this model the early stages have been increased to differentiate the confidence factors of the teachers who are going through the process. Bolstad and Gilbert (2006) suggest that "approaches to ICT PD begin by focusing on teachers' ability to use basic ICT tools, on the assumption that once teachers master these they will gradually become confident in using them in teaching, perhaps even coming up with new ways to use them" (p. 11). This model is presented in table 2.1.

Table 2.1 Stages of ICT use and adoption (Knezek and Christensen, 1999) identified in Bolstad and Gilbert (2006).

<p>Awareness I am aware of ICT, but have not used it. Perhaps I'm even avoiding it.</p> <p>Learning the process I am currently trying to learn the basics. I am often frustrated when using computers. I lack confidence when using computers.</p> <p>Understanding the process and its potential applications I am beginning to understand the process of using ICT and can think of specific tasks in which it might be useful.</p> <p>Familiarity and confidence I am gaining a sense of confidence in using the computer for specific tasks. I am starting to feel confident about using the computer.</p> <p>Adaptation to other contexts I think about the computer as a tool to help me and am no longer concerned about it as technology. I can use it for many purposes and as an instructional aid.</p> <p>Creative application to new contexts I can apply what I know about ICT in the classroom. I can use it as an instructional tool and integrate it into the curriculum.</p>

The model goes as far as identifying ICT being applied to learning contexts and teachers can "use it as an instructional tool and integrate it into the curriculum" (p. 11). What it does not do is to formalise those next stages to include the appropriation and innovation stages to have teachers "changing their learning environment to maximise the technology and its use in the classroom" as explained by Pratt et al., (2001, p.29).

Both of these models identify that with ICT there are different levels to professional development. The first level is having the teachers learn how to use the technologies and the second level is for the teachers to develop and use learning activities that incorporate the technologies into their programmes. Pratt et al., (2001) state that at level two "the use of technology has not changed the way teachers instruct their students, and the tasks still tend to be teacher-directed" (p. 29). They suggest that to understand the importance of how the technologies can assist in student learning, teachers need to move through to the third level of adoption and use ICT in innovative ways that will enhance learning.

By the third level Pratt et al., (2001) suggest that "teachers are changing the classroom environment to maximise the technology and its use in the classroom" (p. 29). Teachers need to recognise the pedagogy that underpins a student active learning environment. Therefore, to make the transition to use the technologies in a student active learning environment, teachers not only need to use the technologies themselves, but to also understand the way the technologies can assist in student learning when the power of learning is shifted to the students.

Gipson (2003) explains that with the introduction of ICT "the position and power of the teacher is fundamentally revised" and teachers are also "in a vulnerable position where the key teaching and learning strategy is something they are novices in – that is, the practical use of ICT – and many of their students experts, it makes it even more difficult" (p. 8). As students in schools today have grown up in an ICT-rich environment, it is important to continue to

empower teaching and learning through a collaborative approach between teachers and their students to developing meaningful classroom practice.

For teachers to make this shift to create an ICT-rich learning environment there are issues that need to be overcome. These issues include teachers' understanding of how ICT and learning interact, their understanding of changing pedagogy, professional development support, having a sense of ownership and purpose to use ICT, time management and access to ICT.

Interaction between ICT and learning

For students to become 21st century learners they need to be ICT capable and therefore their teachers will also need to understand how ICT and learning interact in an ICT rich learning environment. Kennewell et al., (2000) and the Ministry of Education (2006), agree that an important aspect when teachers are developing ICT capability will be whether they are learning *about* ICT, learning *with* ICT or developing programmes *through* ICT and how they see the impacts on their students of the interaction between learning and ICT.

When teachers use technologies in a traditional way by adding them to existing programmes, there will not be a change in the learning style. However, as Gipson (2003) suggests, teachers who have an understanding of different styles of learning will adapt their teaching style to encompass new technologies, therefore ensuring that their students are exposed to different learning experiences that are both relevant and appropriate. He writes that ICT "should not be the driver of change, but one aspect of an approach to education that provides enhanced opportunities to serve its core processes: teaching and learning" (p. 4). The technologies will then be infused into the teaching and learning with students taking on a greater role in deciding how the learning is constructed. Therefore, the teachers will be providing a learning environment where the students will be interacting with the technologies to construct their new knowledge.

However, it is teachers' understanding of how ICT can be effectively used to enhance teaching and learning that will have a greater effect on the way they

incorporate the technologies into their classrooms. Gipson (2003) discusses the issue of teachers uptake of ICT and he argues that when they "responded to the demands and limitations of their contexts to create innovative and successful programmes that seek to utilise the power of ICT to serve teaching and learning" then the "conception of the learning environment, infused with ICT" will be transformed (p. 20). The evaluation report on the laptops for teachers programme indicates that although there has been "a shift to more student-centered or student responsive teaching, overall, the uses described by teachers suggest that the laptops were being used in classrooms to enhance and supplement existing practice" (Cowie et al., 2008. p. 33).

Although teachers are needing support for professional development to increase their understanding of how the technologies can increase the value of student-centered learning it is when they reach the latter stages of adaptation and innovation that the paradigm shift to the importance of learning and creating new knowledge will be made. When this happens, technologies are more likely to be incorporated into student learning with positive effects. The research report on the schools cluster programme identified that a substantial group of teachers felt that "their teaching had become more student-focused or more relevant to students as a result of the programme" (Ham, 2008, p. 17).

Having a sense of ownership and purpose to use ICT

The 'Enabling the 21st Century Learner' strategy developed by the Ministry of Education (2006), has great potential to provide high quality learning opportunities for New Zealand students. The strategy acknowledges that there are effective learning situations occurring through clusters and the challenge is to ensure many more teachers take ownership of the plan to develop effective practices within their own classrooms. When Ham (2002) evaluated the cluster of schools professional development model, he concludes that this model was "widely seen as being effective, especially where there was a genuine and prior sense of community of interest and commitment" (p. 119). Secondary schools have an added challenge of a specific culture where teachers are more often subject orientated and there is a need to shift the culture to a student-related outcome (Pratt et al., 2002).

How teachers see the purpose of developing ICT capability will depend largely on their traditional view of subject delivery. The style of teaching and purpose to use technologies may at first be problematic. Although the department culture will have an effect, when there are innovative individuals the transition throughout the department can increase the uptake quickly. Both Gipson (2003) and Kennewell et al., (2000) recommend that when teachers work in a collaborative way to produce new learning activities for their students significant uptake will happen as they will be empowered to take on a sense of ownership of the technologies through an identified authentic purpose.

Rickards (2003) identifies an implication for the introduction of computers into classrooms is that teachers will need to teach the process of learning rather than its products. He states: "Information and communication technologies can enrich the learning environment and enhance the learning experience for students, but only if an effective teacher facilitated the experiences" (p. 125). Therefore, having a sense of purpose within the programme of learning is paramount to the process of quality learning. It is well known that people retain knowledge better when there is an authentic sense of purpose to the learning and the development of skills will more likely be transferred into different contexts.

Time management

Realistic time management to be able to fit learning skills and making effective use is seen as another barrier to teachers incorporating ICT into their programmes. When Ham (2002) reported on his evaluation of the 23 ICTPD Schools Cluster Programme between 1999-2001, he concludes that after three years "the predominant impression given by the participants was that it had been a worthwhile experience" although the participants were still concerned "about their ability to keep up to date with new developments in the area and the ever-emerging new technologies" (p. 119). When teachers are to move through three levels of development the time factor will be important mainly to be able to keep up with learning about any new ICT developments.

Teachers' learning time frame has to consider the development of the technical skills and time to practice the skills, and time to reflect on the learning potential, along with understanding that improving practice will reflect in better time management (Ham, 2002). Once the initial fear of the unknown has been overcome, the learning will be easier and when the teachers have moved through the first three stages, they will then need time to prepare and trial new strategies in order to embed the learning into their practice. Few teachers will make a major shift in pedagogy easily and as suggested by Pratt et al., (2003) "teachers also need sufficient professional development in how to successfully integrate ICT into their classrooms" (p. 39), which is of utmost importance for this shift to be made. Teachers need to have enough time to learn skills and acquire experience to develop programmes that maximise the potential of ICT.

Access to ICT

Access to the technologies is becoming easier with a number of governments internationally wanting to improve learning through ICT. The New Zealand many schools are now providing laptops for their teachers, as well as, internet access and software licensing through Ministry of Education schemes. Providing access to the technologies can raise the profile of ICT as well as teacher skill levels and teacher confidence. However, Rivers and Rivers (2004) point out that by providing access does not necessarily change the way teachers use the technologies as they state: "there was no fundamental change in the way teachers taught. In short, access is important – but on its own, it is not enough" (p.18). What is needed is more than access with research establishing that teachers need professional development in learning how technologies can enhance their students learning environments. This concept has been identified by a number of researchers who include Bolstad and Gilbert (2006), Gipson (2003), Lai (2001) and Pratt et al., (2001).

Successful professional development will provide a long list of features including skill development, focusing on relevant issues, learning that experimenting with new ideas needs to be purposeful along with understanding and reflecting on the way teachers think about teaching. Piggot-Irvine (2007) identifies that it is important for the school to recognise this and allow teachers

the opportunity and time to explore and experiment with new ideas and therefore encourage "the adoption of a philosophy of 'do a few things well' – a message" she gives schools which means that it has "the notion of 'deep learning" (p. 5), which will be more likely to have the desired effect. Teachers' professional development in ICT is a recent concept that for some will be easy and others will find difficult, therefore, the strategies used will need careful planning. McKenzie (1998) identifies that time, identifying a purpose and acknowledging that it is student learning that needs to drive ICT professional development for teachers. For any professional development to be successful it will focus on adult learning.

Issues and challenges

For teachers to make the transition to incorporate the technologies into their teaching and learning programmes it will be vital to create a programme that will adopt a variety of different support strategies to ensure the teacher learning is productive and authentic, to allow for a fundamental change to occur. Engaging teachers in good practice is the foremost challenge to effective professional development. Alexander et al., (2001) identify the key features in an effective professional development programme, include links between theory and practice, relevance and ownership, situated learning, beliefs about teaching and learning, time to change and support through mentoring. In their evaluation they states that professional development "needs to be monitored and evaluated in terms of the effect it has on teaching and learning and the way it enhances outcomes for students" (p. 73).

Adult learners

Extensive research has been completed over the last twenty years where researchers have identified and gathered a wide range of principles of adult learning that involve the learners prior experiences, programme content and programme flexibility. The fact is adults bring to their learning, a wide range of factors that will impact on how they learn. Fischer (2005) states, that when these life long learning factors are identified, they "must support multiple learning opportunities including exploring conceptual understanding as well as narrowing to practical application of knowledge" (p. 5).

When teachers acknowledge the fact they are learners in the situation of implementing new developments and concepts, then there needs to be a breakdown of the barriers to adopting ICT, to enable the learning to happen. Making sure that the learning is 'just in time' rather than 'just in case' creates an issue of how to prepare a professional learning programme that will be effective for the majority of teachers who are adult learners when the learning needs to be relevant.

The learner

A factor to be considered about the adult learner is that they have made the shift from childhood dependence, transitioning through adult responsibilities to aging conditions. The motivation to learn for adults has occurred because of these transitions, along with career changes and other life events such as family and community commitments. It is these transitions that have created for adults, meaningful learning opportunities where they are able to take control of their own learning. Brookfield (1995) states, that in self-directed learning "adults take control of their own learning, in particular how they set their own goals, locate appropriate resources, decide on which learning methods to use and evaluate their progress" (p. 2).

Adults bring to their learning, life's experiences that provide not only a greater quantity of experiences, but also a greater variety of experiences. Brookfield (1995), identifies the importance of adult experiences as a valuable resource for learning, whereas, Merriam, Caffarella and Baumgartner (2007) identify that "the experiences of adults have always been viewed as a critical component of learning in adulthood" (p. 184). MacDonald, Gabriel and Cousins (2000) state, that "problem-focused adult learning is enhanced when learners work on their own problems and develop their own solutions rather than working on hypothetical problems and accepting prescribed solutions" (p. 224). Therefore, when adult learners have their prior experiences recognised and linked to new learning then their learning will be enriched and their motivation to learn will be enhanced.

Another characteristic is that their learning functions in different ways. Children will be developing new knowledge and skills whereas adults will be changing their knowledge into new meanings. Adults may also have developed barriers to learning that may need to be overcome before new experiences will become effective. These barriers identified by Merriam et al., (2007) include lack of confidence, lack of time, lack of relevance and cost factors.

The context

The second aspect of the learning context also impacts on adult learning. The context can be explored in two ways. How the learner interacts with the context within their social setting and the structure of society. With multicultural societies prevalent political and economic impacts and constructed groups within a global community very common, these will have an impact on the learning environment for adults. Merriam et al., (2007) explain the context by stating "every adult learning situation differs from every other situation, whether the learning is done in a formal or nonformal setting or on one's own" (p. 430). This diverse context provides opportunities for adults to engage in learning with and through these contexts. MacDonald et al., (2000) also identify the fact that various social and cultural influences affect the learning environment and for the facilitators of the learning need to be aware of and recognise these influences.

The learning process

The learning processes provide fewer differences between children and adults in their learning. Adults tend not to connect with their learning unless it is meaningful whereas children will be developing learning experiences whether they understand the purpose or not. Younger learners will be able to understand the knowledge quicker as they are more comfortable with the process of learning than the adults. Merriam et al., (2007) also suggest that for adults "prior accumulation of knowledge is crucial to the integration of new learning" (p. 432). Although acquisition of new learning is more difficult, because of the speed of the process, adults will tend to transform knowledge and engage in learning through an identified need. These aspects are interwoven within each other as one aspect will be affected by the others and will be important when

developing a programme of learning in a new context for teachers who bring to the learning process a range of experiences.

This challenge to develop a learning programme will not only revolve around these three aspects of adult learning but as well as teachers' emotions as identified by McKenzie (1998). Teachers are in a distinctive situation and will not want to appear foolish in front of their students or colleagues. He suggests that the best adult learning programmes, give a high priority to ensuring that the adult is developing confidence, comfort and competence.

Therefore, teachers need to be given the time, authentic contexts and choice to ensure that they are comfortable with developing different skills, so that they are learning in a context that is real to their teaching programmes. With confidence, they are more likely to develop the confidence and make the transition to incorporating new teaching strategies that include technologies into their teaching and learning programmes. It has been suggested by Alexander, et al., (2001) that peer support where "short bursts of learning are perfect for busy teachers" (p. 65), with mentoring support by colleagues is an ideal strategy to use with teachers professional development with ICT.

Teachers' understanding of changing pedagogy

Increasingly, teachers are using technologies to assist in disseminating their knowledge but in this traditional model of instruction. This model of surface learning no longer provides the necessary skills needed for life-long learning, where 21st century students gain most by constructing their own knowledge. It is important for teachers to not only change the way they teach but to change the way they think about teaching if technologies are to be integrated well into student learning. Lai (2001) qualifies this by stating: "teachers need to understand the pedagogical benefits of using technologies before they will use them in their teaching" and further on says "to fully utilise the potential of ICT in the teaching and learning processes, teachers must be willing to hold a belief system that is broadly constructivist in approach" (p. 12).

The learner-centred learning environment provides students with opportunity to decide how their learning will take shape. One of the difficulties teachers have is to allow the power of learning shift from their control to be controlled by the students. This concept is identified by a number of writers including Lai (2001), Morales and Roig (2002) and Trinidad (2003). The shift to a learner-centered model still requires an effective teacher who understands the way students can learn through technologies. Morales and Roig (2002) explain that "the new paradigm, also requires that teachers adjust their learning styles to new situations" as "every person has a learning style that will affect their teaching style" (p. 68). This constructivist style of learning becomes deep and meaningful allowing students to think critically in problem solving situations and therefore empowered to be able to transfer their learning into other situations.

When teachers shift their "pedagogical approach towards a balance between the appropriate uses of direct instruction with a collaborative, inquiry-driven, knowledge-construction approach" this will allow "students to achieve far beyond expectations" (Trinidad, 2003, p. 98) The technologies then become powerful tools that assist the student in the learning process to become life-long learners. Trinidad (2003) firmly believes that teachers need to change their pedagogical beliefs in order for students to learn in more challenging ways and that "the shift from a focus on teaching to a focus on learning is not easy" (p. 99). Teachers will need to work together to create technology-rich learning environments by moving through the five stages of technology adoption developed by the CEO Forum (1999) as shown in figure 2.2 in order to infuse technologies into student learning as cited in Pratt et al., (2001, p.29).

Bolstad and Gilbert (2006) in their research have stated that rather than the stages of adoption "teachers personal views of curriculum, teaching and learning are far more likely to influence the extent to which they use ICT for teaching and learning than their basic confidence and capability" (p. 12). They have identified that inspiring teachers by providing enabling tools will improve teacher's capability and schools need to support this through innovative initiatives so that changing teachers understanding of pedagogy can occur.

Professional development support

Teachers learning through professional development issues revolve around engaging them in effective processes and good practice through support and understanding. Pratt et al., (2001) also indicate that teachers need to undergo the five stages when developing ICT capability in their classrooms as identified by the CEO Forum (1999). In the first three stages is where teachers will be using and having students use the technologies in ways that will enhance the look of their learning. This still has the teachers in control of the knowledge base in the classroom.

It is not until they reach the stages of 'appropriation' and 'invention', that teachers will start to change the way they teach by having students taking more direct control of their own learning. Pratt et al., (2001) state that: "as well as an increased access to hardware, teachers also need sufficient professional development in how to successfully integrate ICT into their classrooms" (p. 30). Models of professional development they explored include mentoring, attendance at workshops/conferences and internet-based clusters. Pratt et al., (2001) conclude with the statement that "effective professional development does not consist of well-run succinct courses on specific topics, but rather is just one part of a school-wide change to a culture of learning" (p. 34). Not all teachers will be at the same stage of uptake, therefore their professional development support needs will be different.

As teachers will be at different stages of ICT understanding and usage, the school professional development approach will need to be multi-layered in order to cater for teachers individual requirements. It will be necessary to provide appropriate professional development for each teacher in order for them to not only develop new technical skills, but also to move through the five stages so that they will in turn infuse technologies into the learning environment they provide to enhance learning for their students. Lai (2001) identifies a number of key features in effective ICT professional development. A needs analysis to identify the teachers' beliefs about teaching and learning is a must and through careful planning, support for them to enable their move

through the stages to become teachers of learner-centered environments is a crucial component of an effective professional development programme.

When there is a variety of professional development needs, both formal and informal, it is important that there is a multi-layered approach will include mentoring, modelling and collaboration in order for the learning to be effective. Piggot-Irvine (2007) considers that professional development must have an "individualised and context specific approach" that takes into consideration "variables such as the developmental stage of the learner, their learning style, the outcomes sought, and the appropriate learning context" (p. 5) for the learning to be successful.

Ham (2002) in his analysis of professional development programmes suggests that "the length of time the individual teacher was involved" was important rather than "the length of time a particular school was involved" (p. 58). Therefore, a careful approach to developing multi-layered components to the ICT professional development programme will be necessary to engage the teacher in deep and effective learning that it becomes embedded into their practice.

Cowie et al., (2008) in their study state, that teachers "identified peer mentoring and collegial support as the main mechanism for enhancing their use of the laptops for teaching and learning" (p. 39). One approach that encourages a constructivist paradigm is to develop a mentoring partnership through a reciprocal learning situation.

Reciprocal Learning

Some teachers are what Prensky (2001) describes as "digital immigrants" because much of their teaching experience pre-dates the expectations to use ICT in their classrooms. On the other hand, students born the digital age are "digital natives". They find exploring and using ICT interesting, exciting and non-threatening. As these students are learning in new ways, it has become important for the teachers to also be learning new ways to teach (Prensky, 2001). As digital immigrants, the teachers may not find the transition from a

teachers-centered focus to a different style of student-centered teaching an easy one. Fairman (2004) in her research illustrates how teachers described their role changed with a shift "away from the "keeper of knowledge" to one of "learner" within a "community of learners" in the classroom" and that this "relationship with the students as becoming more "reciprocal" since the introduction of the laptops" (p. 14).

Prensky (2001) explores the environment and learning styles of Digital Immigrants and Digital Natives and concludes that "smart adult immigrants *accept* that they don't know about their new world and take advantage of their kids to help them learn and integrate" (p. 3). This suggests that there is the potential for students to become a key component for teachers to acquire new skills in the area of ICT. Fairman (2004) also suggests that ICT training and its use can be enhanced within a reciprocal learning situation where students often know more than their teachers. In a reciprocal learning environment the student mentors will also gain knowledge and skills from the process that will enhance their learning environment. This concept is supported when she states that "teachers, regardless of their technology expertise, had to acknowledge they were learners in the area of technology, and that students could be valuable "teachers" as well as learners" (p. 14).

Prensky (2001) in his research suggests that a partnership of mentoring between teachers and students will enable both to become empowered through this professional development strategy where teachers can gain ICT skills as well as an understanding of student learning through a meaningful experience. Bolstad and Gilbert (2006) discovered in their analysis of Wellington Girls' College 'Tech Angels' project, that a student made the link that teachers and students would "pursue a project together" whereas "teachers didn't make this link between ICT and pedagogical change" (p. 24). When students are assisting in a learning partnership, then the individualised support for teachers fosters the development of a learning community with the intention of impacting on teacher beliefs.

Mentoring

It is believed that the term 'mentor' originated with Homer's story *The Odyssey* when Odysseus entrusted his son Telemachus to a guardian named Mentor. This relationship had Mentor, serve as a protector and as a teacher, providing the knowledge that educated Telemachus. Today, the role of mentor has evolved to become more of a facilitator of the learning rather than the provider of knowledge and where both mentor and mentee benefit from the relationship. Research suggests that mentoring is used for one of two purposes, that of a transitional function for assisting students to the workforce and inducting people new to an organisation or for personal and professional development.

Traditionally mentoring relationships have had a hierarchical nature and were often career related. Perry (2000) argues that in recent times mentoring partnerships have become more of a collaborative partnership where there is a sharing of knowledge and skills and each participant has their needs and interests provided for by the other participant. Bush and Middlewood (2005) suggest, that the term 'mentoring' permeates education as a means of providing support for teachers when they state: "It is regarded as an important dimension in the preparation and ongoing development of teachers and leaders" (p. 157).

Garvey and Alred (2000), McKenna (2005) and Zachary (2000) have all identified that the practice of mentoring has three main features, those of a relationship, a process and a context. When these features are acknowledged, they will facilitate in developing an effective structure for a mentoring programme that will assist in teachers' professional development to become ICT capable.

Consequently, understanding how mentoring relationships evolve and how the learning process develops will form a foundation in implementing effective mentoring programmes in schools. Change in practice occurs through building a relationship between mentors and mentees that develops when the process is understood. Zachary (2000) asserts that "without building and maintaining a relationship, effective mentoring is impossible" (p. 123). Zachary (2000) goes

on to identify the components of "respect, trust, and effective communication" (p. 123) as being necessary to maintain the relationship.

The mentoring relationship

The first feature of mentoring, the relationship, identifies the responsibility of the mentor and mentee to engage collaboratively in a successful relationship so that the process can become a powerful learning experience for both participants. The literature identifies a 'mentor' as not only facilitating the growth and development of the mentee, but also providing them with rich learning experiences. Zachary (2000) suggests, that "mentor support is a critical force in creating a learning environment that facilitates mentee growth and development" (p. 120). Often the relationship provides enrichment for the mentor as well as the mentee when as co-learners they reflect on the relationship and the process.

Although the traditional relationship is commonly described in the literature as being that of an older experienced person, supporting and challenging a younger less experienced person to reach their goals, Zachary (2000) articulates the philosophy that "mentoring can be a powerful growth experience for both the mentor and the mentee" (p. xviii). In recent times mentoring partnerships have become more collaborative with the literature stating that there is a sharing of knowledge and skills and "as the learning partnership evolves, the mentoring partners share the accountability and responsibility for achieving a mentee's learning goals" (Zachary 2000, p. 3).

The use of mentoring where a younger experienced person supports and challenges an older less experienced person is rarely mentioned in the literature although this aspect of mentoring relationships has occurred through literature on ICT projects. The Generation Y programme in the United States (Harper, 2003) and the Tech Angels at Wellington Girls' College (Bolstad & Gilbert, 2006), are two process-orientated models found in literature where students are mentoring their teachers. This is where the student mentor is the more experienced younger participant for teachers' professional development in ICT.

The circumstances and background of each participant in the mentoring relationship also has to be considered. These personal contexts deserve the same attention as the mentoring interactions as they affect the learning dynamics and how the interactions of the relationship occur. Zachary (2000) recognises the importance of this factor when she identifies that "mentors who are able to reflect critically on their own experiences and learn from them are best able to model critical reflection in their mentoring interaction" (p. 16). The learning partnership needs to take into account the learning styles of the participants, their confidence, motivation and expertise.

It has been argued that comprehensive training for the mentors and those being mentored within a framework is crucial to the success of a mentoring relationship. McKenna (2005) believes that "mentor training should never be a one-shot in-service. It should be an ongoing process of instruction, interaction, sharing, support and reflection" (p. 6). It is also suggested that the student participants in a mentoring training programme "need considerable support, guidance and, time to progress in developing their own role in mentoring" (Wai-Ling Packard 2003, p. 343). The question remains as to whether the mentoring model will be useful when training students to develop a successful relationship when they are in the position of mentoring their teachers. It is anticipated that the students will be valuable participants in the relationship and also active co-learners who enrich the process of change.

It is anticipated that the research could identify the key benefits and issues of a student-mentoring of teachers' partnership that will broaden effective learning environments through the teachers' use of ICT in classroom programmes. The characteristics of these learning partnerships in the process-orientated models of mentoring will provide the knowledge to underpin a mentoring programme.

The mentoring process

The second feature identified in the literature, that of the process, has moved away from the authoritarian arrangement to work in a process-orientated environment which best suits adult learning. Garvey and Alred (2000) describe the process that helps "the participants to develop deep and lasting

understanding of mentoring by engaging in the mentoring process itself" (p. 124). Zachary (2000) explains that the mentoring process "does not need to be a cumbersome process, but it should be regular" (p. 125). When adult learners, as mentees, establish their own goals and direct the learning, the outcome is more effective as they become empowered by the process. Mentoring is also seen as a professional development tool for teachers as the process suits the collaborative nature of developing knowledge and the sharing of skills with each of the partners needs fulfilled (Perry 2000).

Zachary (2000) promotes a four phase model. The four phases of the process include time to prepare for the process by identifying the task and identifying the areas for learning. This discussion often happens in the initial meeting when the relationship is in the early stages. The second phase sets out the purpose, expectations, goals and content of the process. This stage develops the framework for learning through a shared understanding of the expectations of the partnership and the process. The enabling phase is the time when the learning process develops through to meeting the goals. This is when learning occurs within the identified context and is the longest phase. It can be complex and often hindered by unexpected barriers to meeting the goals. Reflection occurs not only at the closure of the process but more essentially during each stage. Zachary (2000) sums this up when she described that "regular reflection throughout the duration of the mentoring relationship empowers the mentor's learning, which in turn informs, and potentially strengthens, the facilitation process" (p. 49). This ensures both partners that the concept of the learning is valuable, productive and that it will enrich the experience.

The context for mentoring

Context is a complex issue relating to the situation and circumstances that contribute to the way the mentoring partnership develops. How each partner reacts to the process and situation will depend on a number of factors that are governed by their beliefs and values along with their expectations and their social situation. There will be times when choosing appropriate behaviour needs careful consideration when the participants interact with each other

(Zachary, 2000). Mentoring relationships will cover many different contexts including one of cross-generation.

Cross-generational contexts often have involved older mentors with younger mentees developing career prospects. Traditionally with experienced mentors and inexperienced mentees the age gap is somewhat noticeable. However, Harper (2003) identifies that the age gap does not need to be wide as the communication between generations works better when the aim of the partnership is to produce "a technology-enriched curriculum project, which the partner teacher and the Generation Y student produce together" (p. 309). Harper goes on to say that the process is "an effective professional development strategy for teachers, as well as, an effective approach to increase student engagement, student learning and student leadership" (p. 310).

With the situation of a younger mentor and an older mentee the cross-generation context the issues will be complex. In the 'Generation Y project' Harper (2003) focuses on how students are used as support for teachers' professional development and "promoting the effective use of technologies in schools" (p. 307). It also touches on the intergenerational differences and expectations for the younger generation "as an effective approach to increasing student engagement, student learning and student leadership" (p. 314).

What is pointed out is that it is even more important in the 21st century is for teachers and students to work together to develop an understanding of how each generation functions in the learning community and to foster the differences. When links are made between the learning context and the needs of both the teachers and students, the learning becomes meaningful and embedded into classroom practice. Collaborative contexts will give meaning and a sense of purpose to further learning.

Conclusion

The aim of this review was to identify what the literature says about professional development for teachers in ICT to identify the enablers and barriers that will effect how ICT is integrated into teaching and learning. Having sufficient access to the technologies does not necessarily ensure that the technologies will be utilised in new ways. Teachers will be more likely to find the time and to make the effort to learn new skills and new ways of using the technologies when they have a sense of purpose for the learning before it will be transferred into classroom programmes (Alexander, et al., 2001; Kennewell et al., 2000; Rickards 2003).

When teachers are expected to make a shift in their style of teaching to create a learner-centred classroom, then professional development support is essential. Teachers in schools are at different stages of developing ICT understanding and a generic professional development programme will not fit the needs of many teachers. Therefore, a programme where individual needs are taken into consideration is fundamental if teachers are to make the transition to new ways of teaching (Lai, 2001; McKenzie, 1998). Links were made to mentoring programmes as one model of individualised professional development and how teaching practice with ICT can benefit from this model.

As this research focuses on the mentoring aspect of professional development, individual needs are taken into consideration to facilitate the teachers understanding of how ICT can benefit the learning process of the 21st century student. It is anticipated that the professional development will empower both the student mentor and the teacher mentee to engage in the process.

CHAPTER THREE

EVALUATION RESEARCH METHODOLOGY

In this chapter an overview of evaluation research is presented. An outline of what evaluation in education represents will be provided and how the factors and influences impact on the evaluation process. A brief history of the developments of educational evaluation will show how important the act of evaluation, has become as it has developed into a specialised field and is now recognised as playing an important part in an evolving education system.

The nature of the evaluation process will be explored through the three accepted types of evaluation identified as planning, formative and summative evaluation. These three types of evaluation have a variety of steps or stages that have been identified by a many evaluators that are incorporated into the process. They are placed on a continuum and the range of components in the process whether there are four steps or seven steps will be identified.

Different models of evaluation from goal-orientated models, decision-making models and judgement models will be described to show how the models endeavour to encapsulate the linear process that links the defined stages in each of the evaluation models. Links will then be made to show the relevance of programme evaluation to this project.

Defining evaluation in education

Evaluation in education is the activity that is essential to determine the effectiveness of educational programmes that will provide worthwhile and quality teaching and learning practices. Guskey (2000) argues that meaningful evaluation is through a process that is focused and having a clear intent. The formal evaluation process he is interested in, he describes as providing "sound, reliable, and meaningful information that can be used to make thoughtful and responsible decisions" (p. 43). Evaluation in addition to being part of the

decision making process, also has a part in the rejuvenation of educational activities.

This concept of evaluation as a meaningful process, is supported by Razik and Swanson (2001) when they state: "educational evaluation can be thought of as a deliberate and desirable monitoring and adjustment process that educators engage in for the sake of assuring or improving educational quality" (p. 222). These authors have identified that effective evaluation is a process that can vary. Therefore, it has different forms and functions that will depend on the purpose of the evaluation, the context that it will take place in, the participants who are involved in the process and how these factors interact.

Nevo (1995) explains these dimensions as: "questions that should be addressed when trying to clarify the meaning of evaluation or the way it is perceived in a specific context" (p. 9). He goes on to define educational evaluation as "the act of collecting systematic information regarding the nature and quality of educational objects" (p. 27). This supports the general agreement of leading evaluators such as Stake (1967) and Stufflebeam (1991) that evaluation is a process to gather information for decision-making regarding the value and worth of educational objects whether it is the programme, curriculum or the personnel involved in education.

Evaluation is more than reflecting how the programme under consideration meets the goals that were put in place as the original intent of the programme. Weiss (1991) identifies that there are many political influences, such as the beliefs, values and interests of those concerned, in programme evaluation. She has recognised that evaluation researchers have embraced the practice of qualitative methods that can produce "richer and more relevant information" (p. 225). For this project, qualitative methods of data collection will enable the researcher to analyse the links between what was expected to happen, what actually happens during the programme and the value of the outcome. Weiss (1991) explains the influences on the process and that:

Evaluators have learned that a major part of their craft is to understand the process of the program, how it takes shape over time, what kinds of activities it provides, to whom, under what

conditions with what witting or unwitting biases and emphases (p. 225).

Brief history

The beginnings of evaluation in education have been found throughout different cultures and through centuries of recorded history. As Razik and Swanson (2001) argue that the concept of evaluation was originally used for educational purposes to test knowledge and skill. They say:

Teachers in ancient Greece, such as Socrates, engaged in verbally mediated evaluations as part of the dialogic learning process, and emperors in China, as early as 200B.C., made use of regular exams and proficiency tests to evaluate candidates for government service positions (p. 223).

However, it was because of the industrial revolution that modern concepts of educational evaluation started to develop to a greater extent. Razik and Swanson (2001) expand on the six development periods of educational evaluation that were identified by Madaus, Scriven and Shufflebeam. The reform period up until the early 1900s was distinguished by evaluations that were mainly for testing the proficiency of students, although this began to expand to during the period of efficiency in the early part of the 20th century to other areas of education with both programme and teacher evaluation occurring. Standardised testing became an important factor in subjects and placement of students in programmes.

The Tylerian period over the 15 years between 1930 and 1945 is associated with Ralph Tyler who is referred to as the father of the curriculum development era. His model included setting educational objectives, selecting and organising learning experiences, and evaluating learning to determine the effectiveness of the objectives. His work had a significant effect on the development of teaching and learning over the next 12 years with the increase of evaluation in school programmes.

The fifth period noted by Razik and Swanson (2001) was the expansion age they identify as being "most notable for an increased emphasis on personnel evaluation and the development of improved, multifactor evaluation models"

(p. 224). As researchers and educators were expected to assess new programmes Tyler's model was expanded and refined with a number of different models and methods being developed. This led to the sixth period from 1973, of widespread reforms that led to the increased role of evaluation in the planning of programmes. Educational evaluation has therefore, become a specialised field and is now recognised as playing an important part in an evolving education system.

Evaluation research process

Evaluation, identified by Guskey (2000) takes place at different stages in the process. He has added *planning* evaluation to the two more familiar evaluation forms of *formative* evaluation and *summative* evaluation, first introduced by Scriven in 1972. Guskey (2000) states, that planning evaluation "is designed to give those involved in program development and implementation a precise understanding of what is to be accomplished, what procedures will be used, and how success will be determined" (p. 56).

Formative evaluation occurs during the process, to ensure that goals are being met and problems identified, allows for adjustments for improvement to be made. Summative evaluation occurs at the end of a programme and Guskey states that, "its purpose is to provide program developers and decision makers with judgements about the program's overall merit or worth" (p. 58).

Scriven (1991) elaborates on his early definitions and explains that the functions of formative and summative evaluation can change when the context changes. The example he provides is when: "the first reviews of the first edition of a text, are summative with respect to that edition but they can *function* as formative with respect to the second edition" (p. 22). He argues that the two types of evaluation change depending on the reason for the evaluation, the needs of the client and the constraints of the context. The programme that is the focus of this research has similarities to Scriven's editions of a book. As each group of students who take part in the programme are senior students and they are involved for only one year, the evaluation of the programme for that

year will be summative. Yet it will function as formative evaluation with respect to a new group of students starting the programme the next year.

Harris (1986) defines evaluation "as a set of processes rather than a single act or even a simple set of isolated acts" (p. 190). The nature of the evaluation process is that the steps or stages are on a continuum whether there are four steps or seven steps. As many of the steps frequently overlap it is important to be specific and focused when deciding on the task of the evaluation. Harris (1986) recognised seven stages in the process of evaluation. From specifying the criteria identified from the problem and the purpose of the evaluation through to planning, collecting, interpreting and judging the data before any decision is made about the future outcome of the programme.

Nevo (1995) identified five components of an evaluation activity that can be used for evaluating a programme. These five components are similar to the processes identified by Harris with Nevo suggesting that making recommendations about the future of the programme is inherent in reporting the findings. His components of the process include:

1. Understanding the evaluation problem
2. Planning the evaluation
3. Data collection
4. Data analysis
5. Reporting evaluation findings

He explains that these steps are often completed by "school evaluation teams composed mainly of teachers who evaluate programs as part of their professional work" (p. 120). Although these evaluators are more experienced at evaluating students, they are often novices with basic training in evaluating programmes.

The first component clarifies the intentions on the evaluation process to ensure that the objectives set, are what the evaluation process is expected to do. The planning component also has a number of activities, which include planning for the collecting and analysis of the data. When reporting the findings, Nevo (1995) suggests that the report must be written with the specific audience in

mind to have any relevance. He states that the: "major focus is on findings and recommendations useful for improving the program that has been evaluated, and refer directly to those interested in its improvement" (p. 134).

Cardno (2003) in her work on the evaluation stage during Action Research has indicated that there are four essential steps to take when evaluating an intervention. The first step is to formulate questions that form the basis of the aim of the evaluation. The second step is to gather the information through a variety of appropriate means. The third step draws up conclusions that reflect on the effectiveness of the intervention based on the original standards. This follows on to the fourth step where recommendations are made that will inform any decisions regarding the changes that are needed. She has developed a grid that identifies these four steps that can occur during each type of evaluation that comprise the planning stage before the programme starts, formative evaluation during the programme and summative evaluation after the programme occurs. As decision-making is a planned process Cardno (2003) sums up the concept with the following statement: "evaluation is the task at the heart of effective decision-making" (p. 34).

Evaluation research allows for participants to have an active part in the research, to share in evaluating the process, to provide opportunities for an understanding of the benefits of the learning. Harris (1986) states, that the evaluation of programmes "must be specific, limited, important, and feasible" (p. 191). Whereas Piggot-Irvine (2007) argues that there is the "need for development to be deep, that is, long term, embedded in practice and context, professionally informed, and sustained" (p. 6). When the participants reflect and evaluate on their practice, emerging theory is generated and their practice becomes emancipatory. For this to happen, the participants would have developed an understanding of the constraints that impact on their move to develop new practice. They will be empowered to make conscious changes to the way they involve their learning into their teaching practice.

Evaluation research dimensions

Nevo (1995) distinguishes ten dimensions that are central to the complex nature of educational evaluation. In his précis of the dimensions he says:

evaluation may be multifaceted with respect to how it is defined, what its functions are, the objects being evaluated, what information is used to evaluate, which criteria are used to judge the information, who the clients and the audiences of the evaluation are, what the evaluation process entails, which inquiry methods are employed, who evaluates, and by what standards the evaluation is evaluated (p. 26).

He clarifies this when he summarises the meanings by stating: "the basic function of evaluation is to help get a better understanding of the nature of the evaluation object and its quality" (p. 28). This project identifies with a number of the dimensions described by Nevo (1995). The first three dimensions look at the qualitative function of evaluating the professional development programme for teachers in an ICT context. The information required, to get a good understanding of how the project meets the objectives, "must also examine needs, goals, strategies, actual processes of implementation as well as the socio-political milieu of the object," (p. 27), and this suggests the evaluation method.

How the professional development relates to student learning is a focus Guskey (2000) expands on as he believes strongly that a direct influence on the "quality of professional development" is based on three major factors of content of the professional development, the process that takes place and the context that the professional development take place in. They concern "the new knowledge, skills, and understanding that are the foundation of any professional development effort" (p. 73). Also "the type and forms of professional development activity" along with the involvement of the "organisation, system, or culture" and where the learning will be implemented (p. 74). High quality professional development is an important component to improving student learning and evaluation of the professional development will assess the effects of the professional development on student learning.

Evaluation research models

Educational evaluation comprises a wide range of theoretical viewpoints from the goal-orientated approach developed by Tyler to a goal-free model promoted by Scriven. Razik and Swanson (2001) suggest that there are a wide range of approaches to educational evaluation and how important it is for practitioners to know, and understand the different approaches and methods so that they make the appropriate choice of evaluation approach for their evaluations to be effective.

Evaluation models have been categorised by Popham into five basic categories that determine the main function of the model. These categories are featured in Razik and Swanson (2001) where they explain that: "practitioners need to be aware of the different theoretical bases reflected in various evaluation models" (p. 230). This will enable the choice of model that will be used to be realistic and logical. The first two categories include goal attainment models that determine the degree to which the objective is reached and judgemental models where the evaluator judges the value of the process. The third category is where decision-facilitation models concentrate on obtaining information specifically for decisions to be made, the naturalistic models in the fourth category are where constraints are kept to a minimum and the fifth category include self-evaluation models where the participant evaluate themselves. Nevo (1995) identifies that "evaluation is an activity combining elements of description and judgement" (p. 14) where quality evaluation statements need to be based on the specific context and function of the object being evaluated.

Tyler's evaluation model

Ralph Tyler developed one of the earliest models of evaluation from his work during the 1930s and 1940s. He developed a simple model that consisted of a number of steps that when followed was able to produce the information needed to make informed judgements about the worth of the programme being evaluated. What was important to Tyler was to identify the purpose of the evaluation, to ensure that the goals were well defined and that educators re-evaluate their goals continually to allow for modification to occur. Tyler (1991) highlighted this by stating: "a comprehensive evaluation of the outcomes of an

educational program requires clear definitions of the desired patterns of behaviour and of other possible outcomes both positive and negative" (p. 14).

Tyler emphasised the importance of ensuring that there are strong links between the programme objectives and student learning when evaluating the programme outcomes to identify whether the outcomes achieved what was expected. This model focuses on the results of the programme through the quality of the participants' achievements. This model is simplistic as it compares the results to the goals. Tyler did not consider the influence of the individuals involved or the method of programme delivery and these are important factors in this project.

The Provus model

The model developed by Provus (Fig. 3.1) is also a decision-making model through a five-step process that is useful for examining innovative programmes during planning, formative and summative evaluation stages where the gathering of relevant information is central to this model. It has the intention of providing a complete picture of the programme context and implementation. This model is useful for evaluating throughout the process of developing a specific project.

Stage	Content		
	Input	Process	Output
Design	Design Adequacy		
Installation	Installation Fidelity		
Process	Process Adjustments		
Product	Product Assessments		
Program Comparison	Cost-Benefit Analysis		

Figure3.1: Provus Model

Nevo (1995) suggest that these goal-orientated approaches can be problematic, as they focus on the outcome description and ignore important influences in the judgemental aspects "such as process, strategy and quality of its goals" (p. 14), that may affect the evaluation outcome and that "ignoring the judgemental element of evaluation is another way to avoid the issue of evaluation criteria" (p. 15). Developing the criteria for evaluators to collect relevant information to allow for sound judgements to be made can be complex, as there are two elements that need to be considered – that of description and judgement.

Hammond's evaluation model

Hammond developed a model that extended Tyler's steps. His three-dimensional model identifies different factors that impact on the accomplishment of the goals. His model (Fig. 3.3) shows the three dimensions that focus on the characteristics of the people involved in the programme, the method of instruction and the characteristics of the expected behaviour. This model offers an effective structure to develop questions that will address identified issues through the 90 different cells from which the evaluation can focus on.

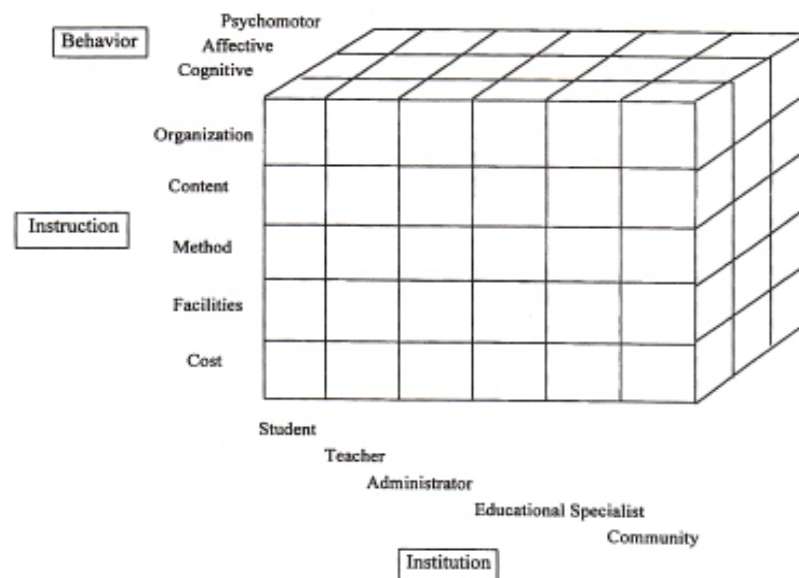


Figure 3.3: Hammond's Structure for Evaluation (Guskey 2000, p. 51)

The instruction dimension identifies the features of the programme or activity being evaluated. The institution dimension identifies the characteristics of the individuals or groups involved in the programme or activity and the behaviour dimension identifies the objectives of the programme being evaluated. Hammond believed that determining why goals were reached or not reached, was important, therefore his model is useful to establish evaluation questions that will focus on the connections between the three dimensions. This model is valuable for this project as it is able to clarify the dynamics of the two different participant groups, the method of instruction and the cognitive behaviour of the expected outcome.

Stake's Model

The aim of Stake's *congruence-contingency model* (Fig. 3.4) is to provide an understanding of what is intended to happen in the programme and what actually happens, with the gap between the two becoming the centre for action. He indicates that the evaluator is likely to gather data from a variety of sources and by a variety of methods with a range of data relating to the antecedent prior condition, the dynamic transaction data of what actually happens during the event and the outcome data relating to the achievement resulting from the event and the impact it has on the participants. Stake also requires that the rationale of the programme is examined to ensure that the aims are valuable.

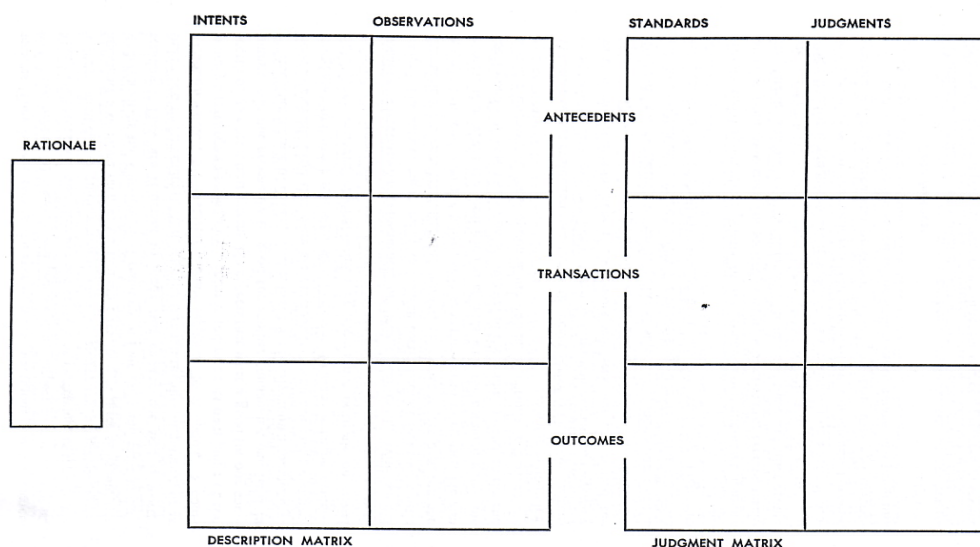


Figure 3.4: Stake Model

Stake (1967) presented his model as a means to "develop an evaluation plan" (p. 524) that will classify data and should be included in the programme to ensure a continuous flow of information. He also distinguishes the differences between description and judgement statements in evaluation, as he considers it is essential to include both.

None of evaluation models used in educational settings according to Nevo (1995) "reaches a sufficient degree of complexity or completeness to justify the term" (p. 8) and therefore suggests that they are more likely to be evaluation approaches that have many similarities and differences. The human element adds to the complex nature of the problems existing in an educational setting and therefore, the approach to the research needs to take into consideration this aspect. The models therefore, can be depicted as simplistic or complex representations of the evaluation process. These models endeavour to encapsulate the linear process that links the defined stages in each of the evaluation models.

Relevance to this project

Donovan High School was in the process of reviewing their technological needs as the school was growing and teachers were demanding better access to ICT. Innovations were becoming prevalent and occurring in other schools and the technical support situation was also about to change. Time was taken to assess how the use of computer software and other information and communication technologies had progressed and to see where and how professional development for teachers in the use of ICT was needed.

Two in-school professional development strategies were put into place. One was a series of after school sessions that focused on different techniques from basic skills to more advanced skills. The other strategy was to begin a programme similar to the one at Wellington Girls' College where senior students were given the opportunity to gain extra training in ICT and in return, provide assistance to teachers who were requiring extra support with their use of ICT tools with the focus of the programme encouraging the use of ICT into teaching methods. The first strategy had a short life as teachers found difficulty

in remembering that the sessions were being held or finding the time to attend. This 'just in case' situation was not popular as the skills were not identified as important at the specific time the tutoring was being held. The second strategy has continued with variations each year depending on the perceived needs of both students and teachers.

Prebble and Stewart (1985) state that it is important to: "ensure that all the major programmes operating in the school are subject to regular evaluation. This applies particularly to new programmes which are normally intended to improve the level of school effectiveness" (p. 78). Although Donovan High School has a curriculum review cycle, consideration for a review of other programmes has not been formalised and the teachers in charge of these other programmes have not had an evaluation model to follow. Therefore, Prebble and Stewart (1985) argue that if this programme of teacher professional development in ICT is important enough to be part of the school programme then it is important enough to be part of an evaluation cycle.

Methods of data collection

Mills (2003) discusses three different classifications for data collection. These are experiencing through observation, enquiring through asking questions and examining items such as documents and tapes. They are used at different stages through the process to provide a multiple mix for triangulation that will complement and authenticate the data. Tolich and Davidson (2003) state: "qualitative research allows you to investigate small areas in a great deal of depth" which gives "more texture than quantitative research" (p. 123). With this research project, gaining an insight into the experiences of being a participant in a reciprocal learning situation is worthy of the richness that quantitative research can provide. The data collected for this research focused on qualitative data collection techniques such as questioning, focus group discussions and reflective diaries.

Interviews

There are various types of interviews from the structured to the unstructured and the usefulness of the data depends on the quality of the interview. Conducting an interview is a useful tool as they tend to have a higher response rate, although they can have limitations and do take more time and effort to complete. Interviews are usually conducted with individuals and therefore, are most likely to gain information in greater depth as the interviewer is able to build on answers given by probing further, while the interviewee is able to clarify the questions on the spot.

Some of these pitfalls of conducting interviews are identified by Wragg (2002) when he describes the most common "opportunities for inaccuracy or distortion" (p. 143). Three of the limitations he considers may affect this particular project are interviewer bias, sample bias and the status between the interviewer and the respondents. The interviewer is the teacher in charge of the programme that is the focus of this research. Therefore, the questions need to be carefully worded to gather unbiased information. Seeing that this is a small project, the small number of respondents will have an effect on the overall conclusions drawn from the data. The other consideration is the relationship between the researcher and the students who are participants in the research. This leads on to one of the most important elements in conducting interviews identified by Wragg (2002) and that is the element of confidentiality.

As this research features teachers and students, it sets out to gain a deeper understanding of how students are able to be worthwhile participants in a teachers' professional development programme. Therefore, the element of confidentiality is of utmost importance so that the participants are able to be candid with their comments. The researcher decided to conduct a qualitative, semi-structured key participant interview with one Deputy Principal and qualitative semi-structured focus group discussions with the students and the teachers that were held separately to ensure confidentiality.

Semi-structured key participant interview

The semi-structured form of interview has more flexibility than structured interviews. They allow for an initial question that is usually followed by more in-depth exploration of the response to the question. Wragg (2002) suggests that semi-structured interviews: "allows respondents to express themselves at length, but offers enough shape to prevent aimless rambling" (p. 149).

Tolich and Davidson (2003) identify key participants as "the 'opinion leaders' and 'stakeholders' for particular communities of interest" and they are interviewed "in order to gain insight into the structure of the cultures and groups under study" (p. 131). The Deputy Principal interviewed, was selected because she is member of the committee who have responsibility for the professional development programme in the school and therefore plays a major part in the school professional development programme. The committee has been together for three years and they keep detailed records of who goes to what professional development and how much time each teacher is away from classes. The interview schedule (Appendix A) contained key questions that related to the relevant research themes so that an overview of the considerations when the professional development programme in the school was planned. The respondent was able to give detailed responses to the questions as this topic is considered to be an important component of her role in the school.

Focus group discussions

Focus groups have become a common feature of research and Tolich and Davidson (2003) suggest that they "provide a powerful technique for gaining an insight into the opinions, beliefs, and values of a particular segment of the population" (p. 130). Cohen, Manion and Morrison (2000) clarify a focus group is where: "the participants interact with each other rather than with the interviewer, such that the views of the participants can emerge – the participants' rather than the interviewer's agenda can predominate. It is from the *interaction* of the group that the data can emerge" (p. 288) as participants are able to contribute ideas and opinions and these ideas be explored for further meaning.

The focus group discussion sessions do have issues that need to be addressed. Cohen et al., (2000) suggest that these issues include deciding on the number of discussion sessions and the size of the group as being important to ensure that they will be representative and function successfully. The facilitator of the discussion sessions needs to ensure the selection of the participants will allow all members of the group have a chance to voice their thoughts and opinions. This aspect could be limited by the relative inexperience of the researcher to encourage wide discussion and the fact that the groups were volunteers.

The focus group discussion was used as it had the potential to obtain a range of opinions and observations from two distinct groups of participants, those of the participating, Year 12 Students and the Teachers. The focus group discussed the significant issues from their different perspectives. This allowed the data gained from the discussions to be compared and contrasted in order to gain an insight into value of the professional development process that was the focus of this research project.

Interview Guides

A set of questions was used for the interview and this served as a framework to the semi-structured interview with the Deputy Principal. The questions were derived from the research questions and as Tolich and Davidson (2003) elaborates, "*what we ask determines what we get*. As a result we need to think carefully about what we want to ask and how we are going to ask it" (p. 138). The information gathered from these questions was to set the scene for the professional development programme in the school. The five themes considered in the construction of the interview questions were based around: the key considerations when planning the programme, professional development providers, professional development formats, expectations of teachers and evaluations of professional development. One or two questions were derived from each theme.

However, the focus group questions (Appendix B) were derived around the concept of mentoring and considered: the participants understanding of mentoring, the possible issues and challenges and professional development

that are needed for teachers to develop confidence to be able to use ICT tools successfully. The questions that followed at the end of the programme (Appendix C) asked the participants to reflect on the issues and challenges and to evaluate what they gained by being a participant in the programme.

Themes

Themes identified for the focus group discussions: the understanding of mentoring and mentoring, the roles for mentors and mentees, the challenges for mentors and mentees, the issues that affect a learning situation where students mentor the teachers and the ICT professional development that is important. Tolich and Davidson (2003) explain that having a list of themes allows the researcher to "encourage the informant to expand on any theme that you think has been insufficiently covered" (p. 151). The questions developed were open-ended which allows the participants to respond in a way that will identify their knowledge, interests and attitudes to the identified themes.

Protocols

The participants were reminded about the nature of the research at the beginning of the interview or focus group discussion sessions. This was to remind the participants of the voluntary nature of the process, to allow for any questions, and to gain permission to record the session. Consent forms (Appendices D & E) had been signed when the participants first volunteered for the student-mentoring teachers programme. Consent forms (Appendix F), were also signed by the caregivers of the students. An electronic recorder was used to record the interview and discussion sessions. This unobtrusive reliable form of recording the data was used and notes were taken during the process. Cohen et al., (2000) state that: there is a trade-off between the needing to catch as much data as possible and yet to avoid having as having so threatening an environment that it impedes the potential of the interview situation" (p. 281). An outside agent transcribed the recording verbatim and the transcription was checked for accuracy.

Reflective diaries

A diary serves as a vehicle for reflective comments by the participants. The use of diaries does include strengths and weaknesses. Morrison (2002) discusses a number of fundamental assumptions that need to be considered when this form of data collection is used. These include the idea that diaries can "make available 'inside' information that might not otherwise be available or visible to the researcher" (p. 218). They also have the potential to provide large quantities of data that may or may not be useful and data that can provide a "wider and/or deeper picture of what educational experiences means to groups, as well as individuals" (p. 219). The researcher considered a number of possibilities and strategies when this form of data collection was presented to the participants. These included: suggested materials for reflection, a writing approach, starter statements and some tips on keeping a reflective diary.

Data Analysis

Evaluation research supports qualitative data as being a more appropriate form of data. Casswell (2003) states that in evaluation research: "the focus of the analysis was on looking for signs of change by analysing what was mentioned or not mentioned by key respondents in the different interviews" (p. 236). The challenge was to create the categories that identified the changes that occurred between the initial focus group discussions and the evaluation focus group discussions. A coding system to generate meaning, classify, categorise and interpret the data to identify patterns, themes, relationships and variables was used. Analysis of these discussions focused on comparing and contrasting the data to look for signs of change that occurred during the mentoring programme. The data provided by the two groups of participants also provided a focus to compare and contrast the value each group got from being part of the mentoring process. Casswell (2003) sums this up when she states that: "looking for change in relation to the objectives of the programme and insights into why things had happened as they had" (p. 237), provided the researcher with an analysis into the value of the mentoring programme.

The interview was analysed with the questions forming the basis of the findings. The focus was to interpret the data to identify processes, relationships

and variables that links, the overall professional development programme in the school to the mentoring programme that was the focus of the research. The data from the focus group discussions was analysed through iterative read-throughs of the transcripts to develop themes, generate hypotheses for the mentoring process evaluation. The reflective journals and the second focus group discussions provided data to identify the key benefits and issues of a student-mentoring of teachers programme and to recognise the change that occurred.

Validity

Bush (2002) states: "the concept of validity is used to judge whether the research accurately describes the phenomenon which it is intended to describe" (p. 65). This is where the design of the research process and the methodology validate the conclusions drawn from the research. Validity as described by Cohen et al., (2000) has numerous kinds including internal and external validity, which are important to this research project. Internal validity demonstrates the importance of the particular event and how the data will substantiate the interpretation and accuracy of the findings. The external validity "refers to the degree to which the results can be generalized to the wider population, cases or situations"(p. 109). Cohen et al., (2000) also suggest that: "researchers should provide sufficiently rich data for the readers and users of research to determine whether transferability is possible" (p. 109). The main source of invalidity comes in the form of bias. This is difficult to eliminate as the researcher's values impact on all aspects of the research.

Ethical considerations

Snook (2003) argues that "researchers are obliged to deal with their participants and their research community in an **honest and truthful way**" (p. 75). To ensure this happened, all participants involved with this mentoring programme were kept informed of the purpose, procedures, benefits and conditions of the programme including the research aspect before they agreed to take part.

The idea that ethical issues can relate to different phases of the research was important throughout this project as students were involved in the process. Cohen, et al., (2000) identified four accepted ethical principles that needed to be addressed. The first two important principles of ensuring the participants were *informed* of the procedures before they *volunteered* to take part occurred before the learning situations were set in place. Informed consent as Cohen, et al., (2000) elaborates, is where the “participant freely choose to take part (or not) in the research and guarantees that exposure to risks is undertaken knowingly and voluntarily” (p. 51).

The other two principles, that there is *no harm* for the participants and *confidentiality*, need to be maintained with the publishing of the data. The mentoring phase for this project included selecting an appropriate time and place for the professional development sessions, the nature of the student-mentoring situation and the possibility of participants changing during the project. The focus groups were conducted separately to ensure both groups were able to have their say with confidence about their training needs and the mentoring process. Attention was paid to the questions that directed the focus group discussions. Confidentiality was of utmost importance as students and their teachers are involved and information revealed during focus group sessions was of a general nature. The reflective journals, to ensure anonymity were identified by the participant only, as they were asked to create their own alias. Participants were given the opportunity to check the transcripts for accuracy.

I am the Subject Leader of ICT and also have the responsibility of developing the programme. When students were invited to take part and the staff members volunteered, they were informed that research is a component of the student-mentoring of teachers programme for that particular year. The senior students were invited as part of the community service programme and were most likely able to understand the importance of taking part in the programme. They were given opportunities to take ownership of the process and ask questions to clarify meanings and expectations.

All participants, including the management of the school and parents of the students, were asked to give their consent before data was collected. There were also obligations to provide for participants the opportunity to access the collected data during the process as well as access to the final report.

It is very difficult to achieve a fully ethical qualitative research project. Cohen et al (2000) suggest that researchers need "to approach their own more temperate projects with a greater awareness and fuller understanding of the ethical dilemmas and moral issues lurking in the interstices of the research process" (p. 71). The researcher made decisions to ensure that this research was conducted as ethically as possible.

Conclusion

An overview of evaluation research was presented. An outline of what evaluation in education represents was provided and how the factors and influences impact on the evaluation process. Evaluation in education is an activity that is essential to determine the effectiveness of educational programmes that provide worthwhile and quality teaching and learning practices through a process that is focused and having clear intent. Evaluation research allows for participants to have an active part in the research to share in evaluating the process, to provide opportunities for an understanding of the benefits of the learning.

High quality professional development is an important component to improving student learning. Evaluation of the professional development is affected by a variety of factors that include, the content, the process that takes place and the context that the professional development takes place in. As this research focuses on the mentoring aspect of professional development within an ICT context, individual needs were taken into consideration to facilitate the evaluation of the teacher's professional development. It was anticipated that the evaluation process of the professional development, provided opportunity for teachers to understand how they can benefit from the learning process of the 21st century student.

CHAPTER FOUR

FINDINGS AND ANALYSIS

Introduction

This chapter details the findings of a key participant interview with the Deputy Principal who oversees the professional development programme in the school, focus group discussions and reflective diaries kept by the programme participants. The focus groups for the students and the teachers were conducted separately to ensure both groups were able to have their say with confidence about the programme. Due to the situation where each teacher-student partnership developed their own professional development plan it was important to ensure that the findings related directly to the research questions. These were:

- What professional development do teachers need to enhance the use of ICT?
- What judgements can be made about the effectiveness of the programme?

The process of the data collection started with an interview with a Deputy Principal who is on the professional development committee and two focus group discussions with the programme participants, at the beginning of the programme, one with the teachers and the other with the students. During the programme the participants were asked to keep a reflective diary and three observations were held. The data collection concluded with another two focus group discussions at the end of the programme and the analysis of the reflective diaries.

The broad categories of professional development, learning with ICT and mentoring, drawn from the literature provided the structure for the organisation of the data.

Key Participants

The first key participant was the Deputy Principal who is responsible for overseeing the professional development programme in the school. She is one of three members in the professional development committee who have been together for three years. They keep detailed records of who goes to what professional development and how much time each teacher is away from classes. The Deputy Principal was interviewed and the interview schedule is Appendix A.

The other key participants were seven Year 12 students and seven classroom teachers who all volunteered for the programme. This was an option in the Community Service programme that the Year 12 students undertake each year. The students have one period each week in their timetable for this service. The students were matched with the seven classroom teachers to enable the ICT professional development for the teachers, through mentoring, to occur. These seven students and seven teachers were the focus group participants.

The students had been given prior information about the programme of mentoring teachers with ICT skills before they volunteered to be part of the programme. At the initial meeting they were asked to identify the skills they could offer and any software or ICT tools they thought would be possible areas that teachers would need help with and they as students would need to understand. Prior to being matched with a teacher the students were provided with learning opportunities to revise their skills and to become familiar with the other identified areas of need. Six of the students had been taught in an ICT class by the researcher or were in the researcher's class for the year.

The teachers, who also volunteered to be part of the programme, had identified a need for further professional development in the area of ICT. They taught a variety of levels with one teacher teaching only junior classes from Year 7 to Year 9 and two other teachers teaching mainly senior classes. One teacher worked part time.

Professional Development Interview

The purpose of this interview was to identify how the school organised teacher professional development and what were the considerations when the programme for each year was planned. The key questions for the semi-structured interview originated from the key themes identified in the literature review.

The first interview question was asked to identify what the Deputy Principal understood about adult learning and what motivates adults to learn.

I would say it is the same as any other learning because learning is a lifelong activity. It is important when we are planning our PD both school wide and individually because change is our only constant in education and therefore that has to be what drives the priority of the PD for the school and as a teacher it is an ongoing process in order to meet the needs of the students who are changing all the time.

What was identified with this question was that learning is an ongoing process and the school's priority for professional development programmes. What motivates adults with their learning, as learning is a lifelong activity, is the fact that change is expected so therefore the continuation of learning is also expected. The identification of learning as an ongoing process does link back to the fact that adults bring to their learning a wide range of factors that will impact on how they learn. These relate to what Merriam, Cafferella and Baumgartner (2007) have identified as a wide range of principles of adult learning that involve, the learner's prior experiences, programme content, programme flexibility and a connection with their learning when it is meaningful.

The next part of the interview was to identify what the main considerations are when the professional development programme is planned. The school professional development programme having the two main components of both school-wide and individual goals was identified as one consideration. The other consideration identified was who would be the providers for the professional development. Selecting the providers has been through experience and word of mouth.

The professional development programme is driven primarily by the school-wide programme and is also driven by the school goals and the contracts we are on.

Individual PD while we have one budget it is quite separate, the individual we prioritise on their personal goal or if it meets the school wide goal or if they happen to be in a department that has undergone massive restructuring. Once these are taken into consideration there is not very much flexibility.

It gives you a really strong view of our professional developers.

The professional development programme in the school has been influenced by these two considerations and this has also been helped by the fact that the committee has been together for three years.

The third aspect of the interview focused on the expectations of the teachers and the effectiveness after the professional development had taken place. The individual professional development was touched on here with teachers expected to evaluate the professional development undertaken through various formats. The committee does receive an evaluation of the professional development from teachers and the feedback varies in the quality of the comments.

We have an expectation that most of the PD that is gained is passed on either through departmental meetings, presentations or sometimes through a presentation back to the whole staff and because their appraisers had to approve the PD we expect there is some follow up on that as well. Having said that, a lot of the PD is quite personal in nature and it is not always appropriate so you know, it really depends on the nature of it.

The interview went on to discuss the effectiveness of different formats and the time frame factor. The formats identified by the Deputy Principal are: school-wide appraisal, interactive professional development, ongoing sessions, a one-day course, mentoring, tertiary papers and the attendance at subject conferences.

The research shows that the full school school-wide appraisal is the most effective and cost effective, I am not sure it is necessarily professionally the most effective but it is certainly

the most cost effective and it is a way of allowing people to fulfil their professional standard because otherwise some would do absolutely nothing. The research indicates that the most effective PD is the interactive PD.

I think personally some of the most effective PD is like what you have done where it is a an ongoing thing, like once a week once a month as opposed to a six hour course and then that is it, highly motivated, terribly enthusiastic and then by half past ten the next morning you have to catch up with what you missed the day before and 90% of it is gone out the window.

I think mentoring is going to be long term one of the most effective forms of PD and that is what I would like to see the appraisal become, become a mentoring process so that you have got that ongoing PD relationship rather than a tick box exercise.

She went on to explain that the appraiser who works with the Senior Management Team is moving them towards a mentoring relationship. The process they have at the moment is where the appraiser visits each term and they have developed an ongoing relationship by working together on the goals that are identified for the year. Researchers have identified that any professional development programme, both formal and informal, will include mentoring, modelling and collaboration. Ham (2002), Lai (2003) and Piggot-Irvine (2007) suggest that a careful approach that is specific to the teacher has multi-layered components, will be necessary to engage the teacher in deep and effective learning that it will become embedded into their practice. The Deputy Principal suggested that the school realises that a multi-layered professional development programme is the most effective as teachers will be able to make selections that suit what is needed at the time.

Along with the format the other factor discussed was the time frame of the professional development. Changes to the timing of professional development provided have occurred and teachers in general are considering how to gain the most from any professional development that they undertake.

What we have started to see lately that is encouraging is that some of the providers are now starting to do things that say might start at two o'clock and so you are prepared give them one class off and they are going into a little bit of their own time.

Subject conferences are where you can get a lot of networking and they usually occur every other year and almost all subjects are in holiday time.

We don't often say no, so people tend to select their PD fairly carefully.

The next question asked about the effectiveness of the professional development and whether it has made a difference to student learning.

I think my answer to that is that those teachers who are the good teachers use the content. There are other teachers who their PD is a day out of school and it is a tick box that I've met that professional standard.

The last question asked was whether any major evaluations of professional development had occurred. The deputy principal did suggest that:

We probably don't do as much evaluation as we should.

She went on to explain that the last professional development that was evaluated occurred in 2007, it was school-wide and run by an outside provider that lasted the year. The outside provider was to evaluate the effectiveness of the programme.

The feedback came back as a summary: that this is where you are now, and that how much they have shifted disintegrated a little bit.

It was explained that the disintegration occurred because the provider got caught up on some dates that she couldn't meet and this meant that:

Staff got their backs up a bit about it and she had her back against the wall for the rest of all for the rest of the year.

The key findings from this interview show that a variety of professional development formats identified such as: school-wide professional development, teacher appraisal, interactive professional development, ongoing sessions, a one-day course, mentoring, tertiary papers and the attendance at subject conferences are all important components to a successful professional development programme. Individual teachers will find the method that suits them best with some teachers completing what they are expected to do while others carefully choose professional development that will enhance their teaching. This project will provide information regarding how students can be

included in the professional development of teachers, by taking part in a mentoring situation. Table 4.1 summarises the perceptions about teachers' professional development as described by the Deputy Principal during the interview.

Table 4.1: Interview perceptions of teacher professional development

Considerations when planning a professional development programme	<ul style="list-style-type: none"> • School-wide goals • Individual goals • Careful selection the providers
Evaluation expectations of the teachers	<ul style="list-style-type: none"> • Presentations at departmental meetings • Presentations at staff meetings • Follow up with appraisers
Effectiveness of the professional development	<ul style="list-style-type: none"> • Good teachers use the content • Day out of school
Professional development formats	<ul style="list-style-type: none"> • School-wide professional development • Teacher appraisal • Interactive PD • Ongoing sessions • One-day course • Mentoring • Tertiary papers • Subject conferences
Professional development evaluations	<ul style="list-style-type: none"> • Not as many as the school should • Outside provider evaluation not effective

Focus Group Discussions

The participant focus group discussions were conducted separately to ensure both the students and the teachers were able to have their say with confidence about the programme. For each group, two discussions were held. Focus groups discussions were conducted at the beginning of the programme as an introduction to gather baseline information as to what the participants were expecting to gain from the programme. These focus group discussions have been identified as the "Initial focus group discussions".

Focus group discussions were also held after the student-teacher mentoring sessions had taken place to evaluate what the participants gained from being

part of the programme. These focus group discussions have been identified as the "Evaluation focus group discussions".

Initial focus group discussions – Students:

The students were reserved in their initial discussion with three students not contributing to the discussion. One student was a member of another programme where senior students were mentoring junior students, so she had some understanding of what was involved and spoke freely. The initial discussion focused around the students understanding of mentoring and what they saw their role as being.

Give advice to people about things, help them with their problems, guide them in some ways and give counsel. (S#1)

Give advice to your mentees on stuff they don't know about and we specialise in. (S#1)

To give your opinions not just what they want to know. (S#3)

To help them and to share our knowledge with them, something that maybe our group of people are more advanced in. (S#1)

The students have identified that mentoring has connections to professional development and that it will assist in the learning process through sharing knowledge with links to the relationship feature of mentoring.

The second aspect of the discussion focused on the issues that might arise from being part of the programme. The students identified the following as issues that might be of concern and a potential challenge they would need to deal with.

Personality clashes or an aggressive teacher like being too proud and don't want to learn from someone below them or younger. (S#2)

Teachers are so used to be sort of having the role of helping others maybe a bit uncomfortable with the situation that they need to have help from someone other than another teacher. (S#1)

The teacher might think that you are telling them what to do instead of helping them. (S#4)

The older teachers not into technology might be a bit hesitant. (S#1)

Teachers trusting your advice because they so used to being teachers. (S#3)

How they treat you in the future. (S#4)

Having a one to one conversation and the language that we use. (S#1)

Something might happen with the computers and you don't know what to do so that could be a problem. (S#2)

Right now I am thinking which teacher I am going to get, some teachers I have been working with since year 9 and I know them all and I will be comfortable with them. (S#3)

Like good communication skills and good relationship without that we won't have a good relationship. (S#1)

The next part of the discussion focused on the professional development component of the partnership. The students were unsure as to what this meant. They identified only two aspects to this question. These being: the use of language in a one to one conversation and what to do when they are asked something that they don't know.

The common themes from the student focus group responses identify their role as being helpful and to share their knowledge. They also identified, possible personality clashes, role reversal power, trust, comfort and the use of language as issues that might be of concern and potentially a challenge they would need to deal with. As they also had a concern of what to do when asked something that they did not know or when something might happen with the computers. The researcher discussed with the students how to deal with this concern, suggesting that it is acceptable for them to take the time to find out before they next met with their teacher.

Initial focus group discussions –Teachers:

The same starter questions were put to the teachers as a prompt for their discussion. The initial discussion focused around the teachers understanding of mentoring and what they saw their role as being.

Generally the teachers spoke very candidly about their perceptions of the mentoring process. They showed concern for both themselves and the students.

I think for us as mentees in this particular situation we have to be aware that the students might be a bit nervous, as we are also in a way nervous because we are exposing our vulnerability to them. (T#6)

It should be done on a one to one basis and that the relationship is one that should be, linked to being a guide, that there is a need identified and that it can be a two way thing as well. (T#1)

It is building confidence and looking at a persons confidence and not just absorbing facts so that is why I think the relationship is very important because if it doesn't build confidence there is not a lot of point to it. (T#6)

What is the right way to tap into that person's potential and you can only do that if there is that clear sense of respect in the relationship and understanding and tolerance. (T#1)

I suppose there is going to be a little bit of role reversal because as mentees we are actually going to be mentoring our mentors in letting them mentor us if you know what I mean. (T#3)

The most important ideas that came from this part of the discussion were that their role was to build relationships, trust and respect through a personalised role reversal, learning situation. The students thought of these as being possible issues where as the teachers understood that it was their role to place the students in a comfortable situation and to alleviate any potential relationship problems for learning to occur.

The second aspect of the discussion focused on the challenges that might arise from being part of the programme. The teachers identified the following as challenges and observations that might be of concern that they would need to deal with.

Well I think the challenge is to not mind looking stupid. (T#2)

Clarity of communication, particularly from the mentee to the mentor, so that they clarify and communicate accurately their needs so that the mentor knows best how to help or where they can slot in and help. (T#5)

Someone who is very experienced with computers does it very quickly or becomes impatient because I am very slow so if they take over I don't learn. (T#1)

Time in this situation is always an issue just look at our school life for them and for us it, I know for me that is a huge issue - I want to learn but, finding the time! (T#6)

We are older and more mature and need to create an atmosphere where they feel at ease and comfortable and that we are prepared to give a little and let it happen for them and even subtly to encourage them in their role. (T#5)

It's being open to feedback and being able to take on that feedback and respond to the feedback and when they see that, their confidence will build. (T#1)

Hopefully it will be a change from how they might see me in the classroom. (T#1)

Our response can be quite powerful. (T#2)

The challenges discussed were feeling comfortable without looking stupid, clarity of communication, patience in dealing with the situation, the time issue, being able to create that atmosphere that will be conducive to good learning and how they had an important part to play in developing a worthwhile relationship with the student. Other issues that were also identified by the students identified included trust and confidentiality.

There is going to be a special relationship if you are teaching that student as well, you have to be very careful in the classroom to keep that balance. (T#1)

Also the other way around, that the student has enough confidentiality to not go back to class and say ha ha ha guess what Mrs D did today. (T#3)

Something that could be clarified in the initial meeting with the student is trust and confidentiality. (T#5)

The next part of the discussion focused on the professional development component of the mentoring process.

The opportunity has to be there for them to say if we want to know something that they haven't touched on then it is okay to go back and get help with that themselves, and come back to us. We say to the kids we don't know everything well, neither do they and they need to be comfortable to say that. (T#6)

It would be really good to actually say this is what I hope to achieve and I have got some product to say I did it, it was like when we had some PD on PowerPoint sounded really good, made it much easier but I still haven't gone and done it. (T#1)

I haven't got time either, but just a couple of minutes here and there and you just pick it up again and slowly add to it and get better and better. (T#2)

We try to undertake to do some practice. (T#1)

I think we need them to understand that the pace we move it is not up there where it is happening for them, we're really deliberately making an effort but their minds move four or five times quicker than ours and actually can create a block where you just... turn off... (T#2)

The pace of the delivery is crucial so I think PD could help hugely by helping the mentors develop a little bit of teaching strategy, but to help them understand even though we are adults we still require a gauge of where we are at rather than just delivery it, they need to have an awareness perhaps through PD that everybody's pace is different and need to tune into that pace I think. (T#2)

Yes we learn through writing and note taking, I think they learn through doing. (T#1)

The same situation don't prompt us all the time, let us make mistakes and then we will tell you and never, never, never, never, never reach over and push the button s for me. (T#1)

Part of their PD would be that they understand the generation gap, the learning generation gap. (T#6)

And that if we don't understand what they are saying, they are not a failure it's not their teaching it is just that we haven't quite arrived at the right words. (T#1)

The research key findings show that the students and teachers understood what was involved in each of their roles. The teachers in particular understood the importance of their role in a role-reversal situation and how their actions will

affect the confidence of the students. There were a number of similar issues identified by the two groups. Table 4.2 summarises the findings from the introductory focus group discussions and compares the comments of the students and the teachers.

Table 4.2: Initial perceptions of the mentoring programme

	Students	Teachers
Their role in the programme	<ul style="list-style-type: none"> • Being helpful • To share their knowledge 	<ul style="list-style-type: none"> • To build relationships, trust, respect through a personalised role-reversal learning situation.
Issues and challenges that might arise	<ul style="list-style-type: none"> • Possible personality clashes • Role reversal power • Comfort • Trust • The use of language 	<ul style="list-style-type: none"> • Power to create an atmosphere that will be conducive to good learning • Feeling comfortable without looking stupid • Trust and confidentiality • Clarity of communication • Being open to feedback • Time issue – patience with instruction and time to practice
Professional development	<ul style="list-style-type: none"> • The use of language in a one to one conversation • What to do when they are asked something that they don't know. 	<ul style="list-style-type: none"> • For both groups to have the opportunity to find out something they don't know • Time to learn and to have time to practice the learning • Pace of delivery • Learn through doing • Understanding that the learning strategies are different

Both groups had realised that there would be challenges and that the relationship, trust and respect would be important factors in developing a successful outcome. These factors have been identified in the literature. Bush and Middlewood (2005) along with Zachary (2000) identify that building a relationship between mentors and mentees is an important component of the process. Perry (2000) has suggested that mentoring has become more of a collaborative partnership stating that there is a sharing of knowledge and skills where each participant has their needs and interests provided for by the other

participant. Only the teachers considered the time factor both in the pace of delivery and being able to make the meeting times regular.

Each discussion finished with the researcher providing information about the matching of students to teachers. The students were told that the selection of their teacher would be carefully considered and the most important consideration was the fact that the students had to feel comfortable. The selection of teacher was initiated with the students.

As the teachers identified earlier in the discussion, they had the ability to make the students feel comfortable, therefore the teachers were happy to be matched to any of the students. One teacher did suggest that the student who was in her class might find the partnership helpful as she had identified that particular subject as the focus for her professional development.

Evaluation focus group discussions – Students:

The students were more open in their discussion during the final focus group discussion with all students contributing to the discussion. The first question asked the students to reflect on what they had gained from being part of the programme.

I have actually learnt a little bit more about the subject that my teacher teaches me like when we were scanning and uploading things she would show me new artists in new subjects so I have actually learnt more about my subject and in class the next day I can go oh yeah I know what that is. (S#1)

The joy of helping others. (S#4)

You know how to teach and stuff, learning skills and teaching skills. (S#6)

I have learnt how to explain things a bit easier for people to follow instead of complicating it too much. (S#5)

Maybe just a little bit closer to my teacher. (S#1)

From there the discussion focused on the highlights of working with teachers in a one on one situation. One student worked with a teacher who is her teacher for one of her subjects and they worked on developing resources for

that particular subject. Both the student and her teacher thought this was a bonus situation.

Maybe just a little bit of personal satisfaction, when Miss learns something new for me it was a little bit automatic that I just know these things but for my teacher it was “wow” “awesome” yeah. (S#1)

And it's good knowing that you have taught them something and now they do know. (S#5)

*The satisfaction of having your teacher like learn stuff in front of you
Seeing it happening in class, so when you are sitting in class that you actually seeing the results of what you have been doing. (S#1)*

My teacher was very happy with what she learnt and that she can do new things that will help with her class, she was very glad about that. (S#3)

The next aspect of the discussion focused on what the challenges and difficulties were when the students were working with a teacher. These included:

Yeah, sometimes I have had to tell myself to slow down a couple of times, well my teacher told me that, told me to just do one thing at once, it was a little bit different at the start just getting used to working with a teacher in the first place. (S#1)

Being able to be with your teacher because of their busy schedule. (S#2)

They are not used to being taught by a younger person so they tend to try and take control; they try and teach you what they mean. (S#4)

Sometimes you are not sure how to explain something to them; you don't want to be told off or something. (S#1)

Um a challenge I thought was not doing everything like letting her find out for herself as well not just going ahead and doing it for her, otherwise she wouldn't learn anything, yeah letting her do it, stopping myself for doing it for her. (S#1)

It's hard to explain, sometimes you have to do something with lots of steps and you are scared they won't remember it all ~ But you don't know how to make it simple without writing it down. (S#4)

The next question reflected on was about the programme itself. The students were asked to comment on the areas that worked well and what might be helpful for the continuation and success of the programme.

Learning along with the teacher as well, it was good. You may know a bit more but you don't know everything, learning at the same time. (S#1)

Maybe at the beginning when the student meets the teachers they could start out with making goals or something or a list of what is to be done in the year, cause time ran out really fast I realised before it was and then it was over. (S#1)

Meeting with them once a week, on a regular basis. (S#3)

The students felt that the relationships worked well. Although at the beginning they were unsure that they could assist teachers to learn new skills, they soon settled into the task. Learning how to explain things a bit easier for people to follow instead of complicating it too much will be a valuable skill these students have developed. They also understand how setting goals is important along with the feeling of satisfaction when they are assisting in the learning process.

Evaluation focus group discussions – Teachers:

The teacher's focus group discussions occurred as two discussion sessions because two teachers were unable to make the planned discussion time. This did not pose any problems, as the teachers were forthcoming in their discussion. The questions put to each group were the same. The first question asked them to reflect on what they had gained from being part of the programme. Four teachers identified an increase in confidence, to have the courage to have a go and to find using the computer more interesting and useful.

The same experience, it's much more interesting and much more useful. Confidence thing is great. Showing each other tricks running between classrooms. (T#7)

The two teachers who had the discussion separately found that they developed a friendship with the student. This occurred because they took the time at the beginning to get to know each other. What helped was that the students, when

they first joined the group, were asked to create a PowerPoint about their skills. They used this as a basis for an initial discussion with their teacher.

We took time at the beginning in getting to know each other, we had a long conversation about what she liked, I asked her about her background, what her experiences were and she was very relaxed and very forthcoming and we built on that. (T#2)

I didn't do this sort of thing about the questions, getting to know her that well before because I sort of felt since I had been teaching her before I you know, felt that I knew her but it was really nice to get along side her and see that side of her. (T#5)

Something that you would love to do with a lot more with students, here was an opportunity to do it for me it was a huge learning curve. (T#2)

She was very creative so I learnt from that, I really benefited from her creative approach. (T#2)

My student would come and speak to me weeks later and ask me how I was going, just interested in how I was progressing and wanted to know if there was anything I wanted to ask her. (T#2)

Another highlight was the role reversal situation where the students were seeing them as learners too. This aspect was mentioned by both groups of teachers.

Keeps us on equal footing and they can see how eager I am to learn and how accepting I am when I don't get it first time, creates interest in dynamics, important they saw I wanted to learn. (T#1)

I guess for me one of the highlights was the novelty of the situation the role was reversed and you were getting a chance to see that person in a totally different light so for me yes, that was one of the highlights. (T#5)

She would sit and wait quite patiently and I never felt the pressure to hurry up and to get this just right it was just a genuine feeling. (T#2)

The next discussion point focused on the challenges the teachers discovered while working with students. One group of teachers focused on the challenge of accepting the role reversal situation and being prepared to ask for help, although it was in general a positive experience. Both groups of teachers

focused their discussion around the time factor and the huge impact this had on the programme.

I don't think so because it is one to one basis, the student has bit of empowerment and loses any kind of fear about the teacher. (T#7)

Time constraints were huge obstacles to get over. (T#2)

We were able to find a time reasonably easy because I had a non- contact at the time the girls had ICT so we were able quite easily to find the time that wasn't so bad, but it was just making sure no other interruptions came across and things like that. (T#5)

My only problem was not the programme, but the times when I had marking or something urgent to do that had to be done and I had to do it that day and that meant I missed a lesson. (T#3)

The next question reflected on was about the programme itself. The teachers were asked to comment on the areas that worked well and what might be helpful for the continuation and success of the programme.

I think just having the chance, the practical chance rather than just being told you do this and you do that in passing. I think having the time to just sit there and actually physically do the task was quite effective. (T#5)

That was because you had selected a topic or a task in particular to do rather than like on PD – here is a lesson on how to do PowerPoint whether you want to do PowerPoint or not. (T#2)

The focus you get is good, meeting a specific need, I benefited from that. (T#2)

Perhaps meeting a little more often, little meetings more often to connect us up as a group again as we went through bring the students in too and let's hear each other's responses. (T#3)
More of the same, quite a big gap and would love to go back and do same thing a few more times, get the hang of it, just more. (T#6)

It's been good having someone that you saw regularly anyway, if I taught them it was easier anyway if using computer in classroom they were in immediately went well. (T#1)

The teachers also felt that the relationship worked well. The student-teacher relationships that particularly worked well, focused on an identified task where the teacher wanted resources for her class or the teacher had a clear goal as part of her appraisal. This meant that they were more likely to make the effort to meet regularly with their student mentor. Other teachers who tended to focus on discovery level tuition, for example, file management and what the function of the little icons within a programme such as Word and PowerPoint was, did not work as well. These partnerships did find that making the time to meet became a major issue, as the learning wasn't so important.

Gipson (2003) and Kennewell et al., (2000) suggest, that significant uptake will happen when teachers are empowered to take on an ownership of the technologies through an identified authentic purpose. Evidence from this project has shown that the authentic purpose of the task played a substantial part in the success of the partnership. Table 4.3 summarises and compares the evaluations of the students and teachers as described during the focus group discussions.

Table 4.3: Evaluation perceptions of the mentoring programme

	Students	Teachers
What as gained from being part of the programme	<ul style="list-style-type: none"> • Learnt a little bit more about the subject • Satisfaction of having your teacher learn • Seeing the results of what you have been doing • The joy of helping others. • Communicate differently • You know how to teach and stuff, learning skills and teaching skills. • I have learnt how to explain things a bit easier • Maybe just a little bit closer to my teacher 	<ul style="list-style-type: none"> • Increase in confidence • Find using the computer more interesting and useful • Gain courage to have a go • They saw I wanted to learn • Developed a friendship with the student • Really benefited from a creative approach • A huge learning curve • A chance to see that person in a totally different light • I never felt the pressure to hurry up

Issues and challenges that did arise	<ul style="list-style-type: none"> • Having to slow down • Stopping from doing it for the teacher • Teachers try and teach you what they mean • Knowing how to make it simple without writing it down • Sometimes not being sure how to explain something 	<ul style="list-style-type: none"> • Time constraints were huge obstacles to get over • Making sure no other interruptions came across
Programme reflection	<ul style="list-style-type: none"> • Learning along with the teacher • Need to start out by making goals list of what is to be done • Meeting with them once a week, on a regular basis 	<ul style="list-style-type: none"> • The practical chance • Having the time to actually physically do the task • Meeting a specific need • Meetings more often to connect us up as a group • More of the same • Easier with someone who was in class

The Keeping of a Reflective Diary

Although an exercise book with some strategies for successful reflection, was given to each participant, this task was not accomplished well. The diaries were often lost or forgotten and any entries were sketchy, with only basic tasks being recorded.

However, one teacher did record reasonably detailed information about each session she had with her student. She did explain that being part of this programme was directly related to her personal appraisal goal, therefore justifying the reflections and effort she had made to keep the diary as the task had an authentic need. This also meant that her contributions to the focus group discussions were reflective and focused, as she had maintained her diary. Her diary notes were very similar to her comments during the focus group discussions.

I feel quite comfortable in her company. I have found that I am a lot more bold and I feel a lot more comfortable "browsing" and trying things out. This was A's advice in the beginning.

We enjoyed completing this project together, technically and personally. She was patient and thoughtful. She was a cautious teacher, very careful about her instruction and very tolerant.

I learned a great deal. I still need a great deal more time to peruse and to practice everything we tried.

Key Findings Summary

The findings indicate the positive aspects of the student-mentoring programme for the purpose of ICT professional development for the teachers, with these positive aspects identified by the students and by the teachers. They identified the evolution of a relationship, gaining confidence and being able to accomplish an identified task, were the most important aspects of the programme.

The findings also highlighted the main difficulty of the time factor that can arise from being part of this type of programme. The main issue was to do with the pressures of finding time and not allowing other influences to effect the planned sessions. However, finding the time was influenced by the importance of the task where those with a specific task did manage to make the time. The findings show that teachers were more likely to find the time and to make the effort to learn new skills when they have a sense of purpose for the learning as stated by Alexander et al., (2001), Kennewell et al., (2000) and Rickards (2003) from their observations.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

The framework for the conclusions and recommendations of the project was based on the research aims, the research questions and the data that emerged from the findings.

Research aims and questions

The broad aim was:

To examine the effectiveness of a programme where students mentored teachers as a form of professional development for the teachers and whether both participants in the programme gained from their involvement in the programme.

More specifically:

- To critically evaluate a teachers professional development programme involving student-mentoring in the context of ICT.

The research questions were:

- What professional development do teachers need to enhance the use of ICT?
- What judgements can be made about the effectiveness of the programme?

The researcher set out to identify the key components of an effective professional development programme for teachers in ICT that will assist them to make transitions in their teaching practices and incorporate the use of ICT technologies into their classrooms. The research examines the importance of ICT in New Zealand Schools and provides the researcher with an understanding of professional development practices for teachers and how the

two inter-relate. This presented a foundation from which the researcher could examine a programme of students mentoring teachers within an ICT context and to evaluate the effectiveness of the programme. When the issues that hinder teachers and the positive aspects that assist teachers with the uptake of ICT are identified, recommendations could then be made that will improve the quality of the programme.

Limitations of this research

The conclusions and recommendations from this research were based on one component of a professional development programme within one school. Therefore, there are limitations in this research.

The interview with the Deputy Principal set the scene for the professional development programme within the school. This provided information that gave an indication of the practices that were happening in the school and how the professional development programme was planned. Although the school supported a number of different professional development formats, there was little data that could confirm which of the formats was the most effective. In recent years only one particular situation of the professional development programme had been evaluated.

The research was based on a group of teachers and students in a mentoring programme. These key participants were seven Year 12 students and seven classroom teachers who all volunteered for the programme. The significant limitation of this research is the fact that it was a small group of students and teachers and they were all volunteers in the programme. The effectiveness of this form of professional development cannot be generalised to all teachers as the relationship that developed between the teachers and the students played a significant part in the process. However, this research does provide a valuable insight into one component of a professional development programme that can assist teachers to develop ICT skills that will enhance their classroom practices.

Conclusions

Implementation of ICT through professional development

The researcher found that the teachers who volunteered for the programme were at the early stages of the model identified by the CEO Forum (1999). The five stages (entry, adoption, adaptation, appropriation, invention) of teachers using the technologies are shown in figure 5.1. There was an indication that teachers did move through to the next stage because of the professional development programme that was part of this research. Some of the teachers moved from only having their students use the technologies to using the technologies themselves to support their traditional instruction. Other teachers moved from the adoption stage where they use the technologies to support instruction to the adaptation stage of using the technologies to enrich their lessons.

Stage 1: Entry – students learning to use technology
Stage 2: Adoption – teachers use technology to support traditional instruction
Stage 3: Adaptation – technology used to enrich curriculum
Stage 4: Appropriation – technology is integrated, used for its unique capabilities
Stage 5: Invention – discover new uses for technology

Figure 5.1: Stages of technology adoption (CEO Forum 1999), in Pratt et al., (2001, p.29)

To move from adaptation to the next stage of appropriation is a major transition. Bolstead and Gilbert (2006) in their research have stated that: "teachers personal views of curriculum, teaching and learning are far more likely to influence the extent to which they use ICT for teaching and learning than their basic confidence and capability" (p. 12). However, teachers who have personal views that the constructivist style of learning is important still need to adopt the technologies as identified in the early stages in order to be able make the transition to the latter two stages. The move from stage three to stage four is where teachers will be making a shift in pedagogy to changing the way they teach. One teacher did touch upon this shift with the following comment:

You see that goes right the way back how we used to learn languages wasn't it, we learnt them from books and now it is all

audio, you know the whole teaching methodology has moved on and we are still trying to read and write. (T#1)

When the shift has been made, teachers will be using the technologies for its unique capabilities and assisting their students to be self-directed in their learning through developing constructivist style learning tasks that become deep and meaningful.

Individualised professional development support

The programme, that was the focus of this research, was set up to with the purpose of giving the teachers individualised support to their ICT professional development. The literature identified that professional development, in particular with ICT, must be specific to the teacher in an approach that takes into consideration their development stage, learning style and the context of the learning to be successful. Ham 2002, Lai 2003 and Piggot-Irvine 2007 all support the importance of individualised professional development.

Each teacher-student partnership developed their own goals for the professional development that they were focusing on, making the programme individualised to each teacher's need. Because of this there were differences in the success of the situation. Partnerships that had a particular task, for example, creating resources for a subject, were the most successful. The partnerships that did not succeed as well, focused on learning skills, rather than focusing on a task that had a purpose. The key to the success of the professional development was the purpose of an authentic need.

The literature described three major barriers to teachers making the shift through these stages and having individualised professional development support is fundamental to overcome the barriers. The barriers to adoption identified are, having a sense of ownership and purpose, time management and access to ICT. Teachers understanding of a constructivist style of learning can also influence their uptake of ICT and this was discussed in the literature review. This research found that all of these components had a significant impact on the teachers transitioning through the stages of adoption as identified in the model.

Barriers to adoption

The first barrier of having a sense of ownership and purpose had the most significant impact on the teachers in this programme. The teacher who had a definite purpose of using the unique capability of ICT to develop resources was the teacher who made the greatest shift from stage one of entry level to stage three of adaptation. She was a teacher who was previously reserved in her use of technologies, but could see the great benefit that it could have, if she had the confidence to take the next step and learn and skills to make the transition. This shift is supported by the following comments she made one in each of the focus group discussions.

Well I think the challenge is to not mind looking stupid, as I want to learn but finding the time! (T#1)

I have now got confidence to go exploring. Virtual tours of art galleries in Paris walk around and see and get commentaries of virtual tours from their list. (T#1)

Another teacher had decided that being part of this programme was to be her personal appraisal goal. The partnership she developed with her student worked well as they identified the goal of developing a resource for one of her classes, was an important task they could achieve. They met regularly and saw the process through to successful completion. For these teachers, having a sense of purpose ensured that the learning was significant and they were able to overcome a major barrier as they developed confidence to explore further what the technologies could do to enhance their teaching.

Those teachers who had the sense of purpose made sure that they found the time to meet with their student. This identifies with the second barrier to adoption of time management. One teacher even commented that as she taught the student it made it easier for them to plan their sessions as they meet in class four times during the week. Another partnership was able to meet during class time, as the teacher did not have a class at that time the students were meeting with the researcher during the allocated period for community service. Both the teachers and the students acknowledged that they found the time to make the professional development happen when there was an identified authentic

purpose, as this ensured that they were more committed to meeting because of this specific task.

Teachers who did not have the same sense of purpose found it difficult to make the time to work with their student. As both the teachers and the senior students had periods of time that were affected by teaching and learning requirements, such as assessments, it became easy to let the commitment to the ICT professional development slide. The researcher believes that if the teacher had to go outside of school and there was a cost factor for these sessions, they may have been more committed to the task.

Having access to ICT was the third barrier identified in the literature. This barrier did not have a great impact on the programme, as all full time teachers in the school where the research took place; have access to a laptop computer and the internet, along with data projectors that are installed in many classrooms. Other technologies such as cameras and scanners are available for use by teachers and students in varying degrees. However, one teacher who is part-time was only recently able to have access to a laptop computer for school use. She did comment that access had previously been a barrier and being part of this professional development programme was important for her, to develop the skills she had previously not bothered to learn.

Mentoring in professional development

The literature review suggests that mentoring is used for one of two purposes, that of a transitional function for assisting students and adults into new chapters in their lives or for personal and professional development. It was this second purpose that was the important aspect of this research project. The Deputy Principal believed that mentoring will become an important component of a teacher's professional development plan. The mentoring concept is supported when she said:

I think mentoring is going to be long term one of the most effective forms of PD and that is what I would like to see the appraisal become, become a mentoring process so that you have got that ongoing PD relationship rather than a tick box exercise. (DP)

Although the relationship she was referring to, was between the teacher and their appraiser, theoretically, when the mentoring concept is understood and practiced by teachers it is expected that they would engage in the process to a greater depth.

As Zachary (2000) identified in the literature review, the role of mentor has evolved to become more of a facilitator of the learning rather than the provider of knowledge and where both mentor and mentee would benefit from the relationship. The literature recognised that building the relationship through the facilitation of learning was a main feature of the practice of mentoring. The concept of shared learning was identified by the teachers when they considered that they had an important role to play in developing the learning situation. Students did state that they gained personal satisfaction from being part of the programme. However, one student did comment in her evaluation of the process that she gained a great deal more from the relationship. This was because she was in the teacher's class that they were developing the resource for, and her teacher took time during the process to explain in-depth, some aspects of the resource they were developing, that were beyond the focus of the content. Along with the relationship the other two other important features were that of mentoring being a process and having a context.

Both the students and the teachers identified in the initial focus group discussion that mentoring was learning process through the sharing of knowledge and they also made links to the development of a relationship. Some students were at first a bit hesitant about the potential challenge of developing a different relationship with a teacher. The students did reflect on the possibility of the traditional hierarchical nature as being important aspect of the relationship, although as they discovered the satisfaction of seeing their teacher learn, it ended up not being an issue. The researcher did have the students prepare a PowerPoint presentation about themselves and their skills to give the students a starting point for when they first met with their teacher. This proved to be a worthwhile exercise as one teacher commented on how this gave them focus to start building the relationship.

Zachary, (2000) identified that the context is a complex issue relating to the situation and circumstances that contribute to the way the mentoring partnership develops. How each partner reacts to the process and situation depends on a number of factors that are governed by their beliefs and values along with their expectations and their situation. Mentoring relationships cover many different contexts including a cross-generational aspect that was a feature of this project. With this situation of a younger mentor and an older mentee the cross-generation context the issues had the potential to be complex. What reduced this potential issue was the fact that teachers had identified that they had an important part to play alleviating any potential problems and the selection of teacher mentee was initiated with the students. The relationships that did prosper were ones where there was an authentic learning context for the professional development as this was the focus of the mentoring. The importance of this has been discussed earlier as it played a major part in the success of the programme.

The Deputy Principal believes that the most effective individual professional development for teachers was where they take part in an ongoing programme with the format of the programme as a mentoring relationship. It has been clearly identified in this small project that when teachers who are in the early stages of ICT adoption and need professional development that is cost effective, then setting up a programme where they have a student mentor who has both knowledge and skills with ICT, is a valuable component of a professional development programme.

Recommendations

1. A Student Mentoring of Teachers Programme has a place in professional development arrangements for teachers. The students are quite able to assist in helping teachers' progress through the early stages of the technology adoption model. It is recommended that students are part of the professional development programme where they can support teachers through specific projects to create resources that incorporate ICT into classroom learning activities.
2. This aspect of professional development is made available for teachers to link into their appraisal goals. Having this activity in the school highlights the possibility that staff members are able to achieve their ICT goals in an effective method of professional development, when students are able to assist them to gain appropriate knowledge and skills.
3. This programme needs to be supervised by a support teacher. This teacher, who will be identified by the professional development team, will ensure that the student-teacher partnership will develop goals that are focused, obtainable, have a specific purpose and to ensure the process is completed.
4. This programme needs to be part of the community service programme for Year 12 Students where they are given time and assistance to be able to work with the support teacher. The students are assisted by the support teacher to identify the ICT skills needed, as well as developing skills to promote effective learning for the teacher who becomes their mentee. The students will need to know a range of ICT skills so that they are comfortable when being asked to identify the best methods of creating the teaching and learning resources.

Given the limitations of this research, it has been identified that students mentoring of teachers through an ICT context is a valuable component of the school's professional development programme and in particular, for teachers' appraisal goals. It would be advisable to ensure that the participants remain as volunteers as teachers will gain the most when they take ownership of the process. When those teachers who are in need of ICT support see and hear about the benefits of being part of the programme, they will then be encouraged to take up the challenge and participate in the programme.

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APPENDIX A

Interview with the Deputy Principal

1. What is your understand of adult learning?
2. What are the main considerations you think about when planning the staff development programme?
3. The expectations of teachers after they have attended PD. How do you know whether the PD is effective or not?
4. The format for PD you consider to be the most effective?
5. To what degree and how well are teachers using the content of their PD to achieve their goals or to improve student learning?
6. Have we had major evaluations of PD completed?
7. And that will have affect on other programmes?

APPENDIX B

Initial Focus Group Questions

1. What understanding do you have about mentoring and mentoring programmes?
2. What do you consider to be the roles for mentors and mentees?
3. What do you consider to be the challenges for mentors and mentees?
4. What other issues do you consider affect a learning situation where students mentor the teachers?
5. What professional development in ICT do you consider would be important for the mentors and the mentees?

APPENDIX C

Evaluation Focus Group Questions

1. What have you gained from being part of the programme?
2. What were the highlights from this learning situation with students/teachers working with you?
3. What have you discovered to be challenges to having students mentor teachers?
4. What parts of the mentoring programme have worked really well for you?
5. What have you found to be the challenges or difficulties by being a participant in the programme?
6. What changes do you think might be helpful for the group next year?

APPENDIX D



21st March 2007

56A Alton Avenue
Northcote
North Shore

Dear Participant

I am currently enrolled in the Master of Educational Management degree in the School of Education at Unitec New Zealand and seek your help in meeting the requirements of research for a Thesis course which forms a substantial part of this degree.

The aim of my project is: To critically evaluate a programme of student-mentoring of teachers in the context of ICT.

I request your participation in the following way by agreeing to become a mentee in the programme.

Neither you nor your organisation will be identified in the Thesis. The results of the research activity will not be seen by any other person in your organisation without the prior agreement of everyone involved. You are free to ask me not to use any of the information you have given, and you can, if you wish, withdraw from the programme before the end of August 2007. You can also ask to see the Thesis before it is submitted for examination.

I hope that you will agree to take part and that you will find your involvement interesting. If you have any queries about the research, you may contact my principal supervisor who is Alison Smith at Unitec New Zealand, Phone 09 815 4321 ext 8369, email asmith@unitec.ac.nz

Yours sincerely

Sue Ingham

UREC REGISTRATION NUMBER: 576

This study has been approved by the Unitec Research Ethics Committee for 2005/2006. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the Secretary (Ph: 09 815-4321 ext 8041). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

APPENDIX E



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APPENDIX F



CONSENT FORM (Student Parents/Caregivers)

School of Education

CONSENT FORM

TO: Sue Ingham

FROM:

DATE:

RE: Turning the tables: Students mentoring teachers in ICT

I have been given and have understood an explanation of this research project for Master of Educational Management. I have had an opportunity to ask questions and have had them answered. I understand that neither my daughter's name nor the name of her organisation will be used in any public reports. I also understand that some conversations during the data collection phase will be recorded and that I may withdraw her or any information she has provided for this project within a month of giving the information without penalty of any sort.

I agree for her to take part in this project

Signed:

Name:

(please print clearly)

UREC REGISTRATION NUMBER: 576

This study has been approved by the Unitec Research Ethics Committee for 2005/2006. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the Secretary (Ph: 09 815-4321 ext 8041). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.