QSITE Report

Towards a Model of Effective Professional Development in ICT for Teachers

PART 1
INTRODUCTION

PART 1

INTRODUCTION

The purpose of this report is to identify the characteristics of effective professional development in the area of information and communication technology (ICT) for teachers. Its findings are primarily based on a survey of QSITE members conducted at the QSITE 2004 state conference along with input from state leaders in the field of teacher professional development gained through semi-structured interviews with key personnel from a cross-section of education systems. In addition, data was collected through a review of the literature and an environmental scan of the professional development activities for teachers currently available. This component of the report will provide the background into the study, a general overview of the key phases, some of the limitations and a general explanation of the structure of the report.

Background

The Queensland Society for Information Technology in Education (QSITE) commissioned this report in order to develop an informed position statement reflecting contemporary literature and the experience of QSITE members. This was essentially in response to a perceived high level of member interest surrounding recent developments in the provision of ICT-related professional development (PD) for teachers. Current trends in the provision of PD appear to demonstrate a regression to the traditional, skills-based models, which have been found in the past to be ineffective in terms of sustained impact on ICT integration and classroom teaching practices as well as on student outcomes.

According to the recent report, *PD 2000 Australia* (DEST, 2004a):

> It is obvious that teachers are discerning about the quality of [professional development] offerings and that they are impatient with those that are of poor

quality and waste valuable time. The impact of market forces is widely evident. Even where activity is mandatory, it won't work unless it is good. (p. 164)

Overview

The research design of the report is based on a quantitative survey of the participants at the 2004 QSITE conference (*N=67*) followed by semi-structured interviews with several leaders in ICT professional development in Queensland (*N=10*). The development of this report was conducted over a period of six months (from June to November 2004). The initial phases were concerned with the conduct of an environmental scan of professional development in ICT in Queensland to provide critical background information. The second phase was the compilation of an annotated bibliography while the third and final phase was the collection and analysis of the data and the development of a set of interim recommendations. Each of these phases has been presented as individual components, either as stand alone reports or accompanying appendices.

Limitations

The initial data collection for this report was based on a limited survey sample, that is, the attendees at the 2004 QSITE state conference. However, in spite of the relatively small number of participants involved, the survey respondents were chosen because it was felt that these people had considerable experience of professional development in ICT, had subject area expertise, and were available for the report. The semi-structured interviews conducted for this report were also based on a restricted number of available personnel, but again, those chosen were deemed to be both informed subjects and representative of broader populations. What the report appears to lack in breadth is compensated by the depth brought by the experience of its subjects.

Structure of the report

Part 2 provides the background to this report including an overview of teacher professional development in ICT and discussions of adult learning theory, perceptions of effective professional development, constructivist learning theory and the characteristics of professional learning communities.

Part 3 provides the annotated bibliography while Part 4 outlines the discussion of findings into the elements of effective professional development and the eight models of effective professional development studied, along with an analysis in terms of impacts. Part 4 also includes discussion of the open-ended comments and semi-structured interviews conducted for this report.

Part 5 provides the interim recommendations resulting from this report, in terms of the value of professional development activities, the characteristics of effective professional development, including issues of context, time, community and personal growth. This component also contains a discussion of the characteristics of ineffective professional development, an analysis of the inter-relationship of elements of professional development and the recommendations and conclusion of the report.

The report closes with a reference list and relevant appendices.

QSITE Report

Towards a Model of Effective

Professional Development

in ICT for Teachers

PART 2

BACKGROUND AND ENVIRONMENTAL SCAN

PART 2

BACKGROUND AND ENVIRONMENTAL SCAN

CONTENTS

This section will provide a discussion of the background of effective professional development in ICT for teachers, including an environmental scan. The literature discussed here was selected from general searches of the Internet for recent articles on elements of effective professional development, including a search of the Education Queensland (EQ), ERIC and NCREL databases and the QSITE journal, *QUICK (1997-2004)*, because of its local relevance. The findings from the environmental scan of professional development activities available for teachers in Queensland at time of writing were used to inform and guide this section.

The interdependent areas covered by this literature review are (a) an overview of teacher professional development in ICT, (b) adult learning theory, (d) constructivist learning theory, (e) perceptions of effective professional development, and (f) professional learning communities, ending with a brief summary. All reference sources and related literature have been included in Part 3, the Annotated Bibliography

Overview of teacher professional development in ICT

Recurrent themes emerged in the literature regarding the characteristics of effective professional development for teachers and the shortcomings of traditional methods of

professional development which do not specifically address adult learning needs. Skills-based training was widely regarded as ineffective in terms of integrating ICT into the curriculum and facilitating participants' higher order thinking. For example, Kleiman and Johnson (2000) dismissed as a myth the idea that teachers are ready to integrate ICT into their classroom once they have been given training and McKenzie (1998) argued that what was needed was "less training and more learning" (p. 2).

Key concepts from the literature included; (a) the need for time to practise and reflect, (b) the importance of self direction and ownership of professional development to enable teachers to take responsibility for their own learning, (c) the need for professional development to be meaningful, relevant and in context, and (d) the pivotal role of professional learning communities in supporting and sustaining effective professional development by maintaining networks and encouraging collaboration amongst teachers.

One of the principal documents relating to professional development in ICT for teachers in the Australian context is the influential report *Making Better Connections* (Downes et al., 2002). According to the authors of this extensive report:

> Patterns of system-level resource allocation tend to favour a training model over alternative models that the literature argues or demonstrates are more effective in the long term. This is so despite ample evidence that traditional models are ineffective and wasteful. Alternative models are often messy, more difficult to account for, and longer in duration, but more effective in reform processes. Non-adoption of 'messy' models which are difficult to account for and require time to demonstrate results underlines the highly political nature of much systemic policy. (p. 18)

Downes et al. (2002) further noted that "difficulties associated with measuring outcomes in meaningful ways often lead institutions and organisations to avoid such ["messy"] activities" (p. 2). This discussion of traditional training models of professional development, which favour skills acquisition over pedagogical uses of ICT, and straightforward rather than creative or personalised approaches was echoed throughout much of the literature reviewed.

Education Queensland has developed a list of standards for the development of professional development and training that are to be used to "screen any service offered by a provider before approving it for inclusion on its professional development data base" (Education

Queensland, 1998, p. 2). Education Queensland also specified the standards for delivery of professional development and training which must be maintained if providers are to remain registered.

According to Education Queensland (1998) professional development "is most effective when it is embedded in the life and work of the school; it is done by teachers, not to them" (p. 3). The same document stated that:

> Care must be taken when employing outside providers to ensure that the professional development and training is applied to education settings and is directly related to the resources and organisation of a particular school setting. It must be emphasised that the focus of all professional development and training should remain firmly on what teachers are actually going to do in their classroom with students … It is not sufficient for teachers to attend professional development and training courses to achieve the learning technology standards… Professional growth is more than merely absorbing information, facts and theories, and acquiring skills … [it] involves critical thinking to deal with the "super-abundance" of information and the ambiguity and complexity of that information.
>
> (Education Queensland, 1998, Foreword)

McKenzie (2001) emphasised the importance of recognising "adult learning strategies" in ICT professional development which:

> … are fundamentally different from training strategies and usually more promising because they are tailored to the learning styles, preferences and needs of teachers in ways more likely to win their commitment than the approach more typical of training models. (paragraph 5)

More specifically, McKenzie (2001) noted that professional development "is not so much about powerpointing, spreadsheeting or word processing" but rather that the focus "should be on teaching and learning strategies that make a difference in daily practice" (paragraph 9). The author also commented on the "weakness of past efforts" where "schools have relied too long on training models and have put too much emphasis on the learning of software." (McKenzie, 2001, paragraph 22).

With a focus on adult learning characteristics, McKenzie (2001) went on to say that the traditional training model "usually involves a march through a series of skill lessons with little adjustment made for learning styles, developmental stages or personal preferences" (paragraph 22). He argued that the skills are often learned out of context and as a result are remote from classroom practice. He also warned against giving responsibility for teacher professional development to "software training companies that rely upon business examples and know little or nothing about education" (paragraph 24) because:

> When "Office" training becomes the norm, we should not be surprised that many teachers rebel at the intrusion of office metaphors, examples and content into programs that should, instead, focus on schools, classrooms, curriculum and students. Districts should, instead, provide "School" learning experiences and opportunities. (paragraph 25)

Another area where McKenzie (2001) found the training model lacking was the practice of "rushing the learner through dozens of skills in too short a time period with insufficient guided practice to reach a comfortable level of familiarity and skill" (paragraph 26). This can exacerbate the "anxiety, concern and latent resistance of many of the more reluctant learners" (paragraph 26). The author went on to note that:

> Even after twenty years of bringing these new technologies into schools and offering training, we are finding that a large percentage of teachers report feeling ill prepared to use them in curriculum rich ways. There is considerable risk that districts will now rush to fill the professional development void with hundreds of hours of teacher training – hours that are unlikely to covert reluctant, late adopting, sceptical teachers into true believers and frequent users (paragraphs 26-28).

In support of this approach and based on knowledge of the situation in Queensland, Kerans (2000b) offered:

> … if we are to accredit teachers without their having experienced a nurturing, supportive process which demonstrates a clear interest in them and a value of their professionalism, we are letting them down. To simply 'train' with a series of 'general' workshops which we believe will make them capable of becoming accredited is not developing and encouraging independence, and as a result we may see teachers with a good level of skills, yet with little confidence to operate effectively and independently

with the use of computers in education. They are then disillusioned and perhaps cynical about the way change is imposed upon them. (p. 19)

Discussion of traditional models of training in ICT for teachers included observations that "one-off training courses are in many regards ineffectual in terms of having an impact on teacher practice" (Downes et al., 2002, p. 51) and that "modelling new 'pedagogies' in non-specific and decontextualised ways has been demonstrated not to work" (US Department of Education, 1999a, cited in Downes et al., 2002, p. 20). This reporting of the inadequacies of traditional models of professional development was evident in other commentaries, for example, the following which noted that:

> … the most frequent form of professional development for teachers – occasional workshops conducted by outside consultants – is widely regarded as ineffective… Effective professional development is school-based, uses coaching and other follow up procedures, is collaborative, is embedded in teachers' daily lives, and focuses on student learning.
>
> (Bull, Buechler, Didley & Krehbeil, 1994, Abstract)

Prestridge and Watson (2003) noted that "a conflicting paradigm exists in that the teacher's demand for skill based ICT professional development does not equate with the constructivist ideology present within the school reform," (paragraph 1) and further contended that "a basic premise of the constructivist paradigm is that the learner comes to the task with prior knowledge and understanding" (paragraph 4). These authors noted that "skill based training in ICT may not enable the transition to a more constructivist approach to the use of ICT within the classroom" (paragraph 42) and that there is a "dissonance between the demand for skill based professional development driven from skill based curriculum goals for ICT, within a school reform based on a constructivist paradigm" (paragraph 41). They also questioned whether professional development "focused on skills based training [would] provide the impetus to support teachers' use of ICT consistent with a constructivist pedagogy or would …lead to the use of ICT as a skill/drill approach in the classroom" (paragraph 41).

Schlager, Fusco and Schank (2002) argued that "most professional development programs still take the form of traditional in-service days or workshops that do not reflect the characteristics and approaches of effective professional development suggested by research" (paragraph 4). The problem with this model is that teachers "have no time to work with or

observe other teachers; they experience occasional hit-and-run workshops that are usually unconnected to their work and immediate problems of practice" (paragraph 1). Effective professional development cannot be "adequately cultivated without the development of more substantial professional discourse and engagement in communities of practice" (Darling-Hammond & Ball, 1997, cited in Schlager et al., 2002, paragraph 1).

This model of isolating professional development from the school environment or from teacher communities has been similarly described by other researchers. According to Grant (1996):

> Many school systems have approached this challenge in the same way that they have approached other learning needs of teachers: by sending them to training sessions on the use of specific new technologies. Yet, too often the results of these sessions have fallen short of hopes: there has been little carryover into the classroom, and new technologies have remained on the periphery of school life and been used only sporadically by teachers, despite the high expectations of trainers, reformers, and the teachers themselves. (paragraph 1)

Grant (1996) found that much of the early literature focused on "methods of staff development that follow a 'training paradigm': short-term, standardised sessions designed to impart discrete skills and techniques" (paragraph 3) and questioned whether "activities planned and developed far from the school site, with insufficient relevance to ... classroom practices and inadequate follow-up … permit integration of new ideas and methods into professional activities" (paragraph 4). In order for professional development to be effective, it must "help teachers move beyond 'mechanical use' of curriculum and technology to become facilitators of inquiry" (paragraph 4).

Contrary to the characteristics of training models, effective professional development "emphasises growth and practice" and views teachers as "professionals who are productive, responsible members of a professional community and who hold a distinct knowledge base from which they act on behalf of their students." (Little, 1993, cited in Grant, 1996). Grant (1996) observed that the aspects of student learning which have been found to be important are "equally critical to understanding [and] enhancing teachers' learning" (paragraph 9).

The U.S. Office of Technology Assessment report *Teachers and Technology: Making the Connection* (OTA, 1995) reiterated this view with the observation that:

> Teachers are learners too. They take courses, workshops, and other forms of training to fulfil recertification requirements, learn new instructional methods, or keep up with changes in their specialties. However, the current approach –typically a short in-service course on a specific topic in which a large group of teachers are gathered in one place for an "injection" of training – is limited and often disliked by teachers, administrators, and parents alike. (p. 13)

The OTA report (1995) discredited the "one-size-fits-all" model of training, noting that it is not an "effective way to encourage teachers to learn new skills or teaching approaches" (p. 16). In fact, its findings suggested that skills-based training "appears to be a particularly ill-chosen method for encouraging teachers to use technology, where hands-on training with the hardware and software, curriculum specific applications, and follow up support are all necessary" (p. 16).

In an Australian study *Raising the Standards* (DEST, 2004b), findings regarding skills-based training were that:

> …the notion of competence with regard to the use of ICT in education is broader than the technical skills needed to use ICT. To take a technical view of competence is to deny the plethora of skills needed by teachers to create meaningful and productive learning contexts for students. Therefore, whilst it may be easy to take a technical view of ICT competence, this is not sufficient to equip teachers to understand, and make effective use of, ICT in the classroom. The type of ICT competence needed by teachers is a collection of knowledge, skills, understandings and attitudes that are inextricably bound up with context and pedagogy. (p. 13)

According to Rodriguez and Knuth (2000), "traditional sit-and-get training sessions or one-time-only workshops have not been effective in making teachers comfortable with using technology or adept at integrating it into their lesson plans" (paragraph 2). They offered an alternative model of professional development which is "well-planned, ongoing…[and] tied to the school's curriculum goals" (paragraph 2). The authors also noted that:

> Just knowing how to use a computer is not enough. Instead, teachers must become knowledgeable about technology and self-confident enough to integrate it effectively

in the classroom. To reach the goal of preparing teachers for effective technology use, a well-designed professional development program is essential. Professional development in a technological age requires new definitions and new resources. It cannot take the traditional forms of individual workshops or one-time training sessions. Instead, it must be viewed as an ongoing and integral part of teachers' professional lives.

(Rodriguez & Knuth, 2000, paragraph 3)

In terms of professional development models which were found to be effective, Lloyd and McRobbie's (2003) report on the Kawungan Learning and Development Centre (LDC-ICT) noted that it was "effective in its provision of professional development for teachers in ICT; has an impact on individuals, classrooms and schools; is valued by participants and school administrations; and offers a sustainable service" (p. 55). The authors proposed that "the critical question for any professional development program is to gauge its effectiveness" and in the case of the Kawungan experience "the reactions of participants in the practicum programs were overwhelmingly positive" (p. 110-111).

According to their report, effective professional development should aim to "engage teachers as learners, researchers, team members and reflective practitioners about technology as a tool for learning [and] engage teachers in meaningful conversations and collaborations on using learning technologies [ICT] through action research and situated learning experiences" (Lloyd & McRobbie, 2003, p. 117). Teachers should be able to operate as "professionals in collegiate teams which are focused on the objective of integrating ICT in the curriculum" (Lloyd & McRobbie, 2003, p. 117). McGhee (1998) echoed this finding noting that "for too long teachers have had to suffer training type workshops where the expert either made them feel inadequate or overloaded them with new information. This has most often resulted in there being no transfer to current classroom practices" (p. 13).

Lloyd and McRobbie (2003) found that these aims were met through the practice of the practicums, and were "frequently sustained into daily practice in schools" and concluded that:

The three-day practicum at the Kawungan LDC-ICT represents a valuable learning experience for teachers on personal and professional levels. It has acted as a catalyst in changing belief systems and practices of its participants and has earned the support and praise of those associated with it. There was a remarkable uniformity of positive

responses to the program irrespective of individual's age, gender, area of teaching or schooling level taught. (p. 122)

According to Finger, Charleston and Baker (2004), the LDC-ICT established at Burleigh Heads aimed to 'provide localised and sustainable professional learning opportunities for teachers through the delivery of programs that are designed to meet the needs of the teachers" (paragraph 5). This is in accordance with the learning outcomes for the teacher practicums provided by Education Queensland, which stated that 'instead of talking about computers, educators [should focus on] how the technology can support effective learning and teaching" (paragraph 6).

Finger et al. (2004) also noted that attendants at the practicum were 'encouraged to reflect on their current practice and develop a project to share their observations and experiences with their students and fellow staff members" (paragraph 6), and that after the practicum 'improvements were reported by teachers for all items related to skill development, attitudes, and experiences of students using ICTs" (paragraph 19).

Another model of professional development which was reported to be effective and valued by participants was the online program *Reinventing Practice* conducted from 1999-2001 by QSITE (Queensland Society for Information Technology in Education). The theory behind the development of the *Reinventing Practice* model was described by Lloyd (2000) as aiming to 'help teachers move from use of computers and computer-related technologies to a more critical and theory-based perspective" (p. 22). In this model, 'technology is being used in the social construction of knowledge, rather than as a hierarchical model of instruction delivery or a simple interactive drill and practice process. Technology here becomes the context in which the learning occurs" (Lloyd, 2000, p. 23).

The *Reinventing Practice* program succeeded in fostering a 'sense of community in a group of physically isolated individuals, using technology to dispel the geographic and professional isolation of some of our state' s teachers" (Lloyd, 2000, p. 22). Unlike traditional training models, this program was designed to be 'innovative because it is not technocentric, that is, it does not [direct] the issue of new information and communication technologies to the technology itself, but to a more qualitative understanding of teaching and learning itself." (Lloyd, 2000, p. 22).

Another successful model of professional development which addressed the issues involved with converting skills to practice were the two CLIC (Computer Literacy Inservice Course) programs, known as CLIC 1 and CLIC 2 which had been initially developed by Brisbane Catholic Education. These were found to have been effective because:

> The CLIC materials offer[ed] skill-based training and while many teachers believe that this is desirable, it is important to think about the form of professional support, and structures for sharing, which these teachers can tap in to once they have mastered the basics of using particular types of software and hardware. The important issue of how the use of computer technology translates into improved learning experiences for the students is the one which teachers will go on asking themselves as a result of participating in the CLIC program. And that is ongoing.
> (Sidey & Stinton, 1997, p. 16)

Sidey and Stinton (1997) also noted that 'traditional professional development activities have come under fire as to their effectiveness in impacting upon teacher's teaching behaviour" (p. 16). It had been observed that:

> Nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when teachers returned to their classrooms. Problems have arisen because of a number of factors. Firstly, the term 'professional development' has been used to cover (i) the individual's efforts to pursue lifelong learning in order to expand knowledge and skill, and (ii) the mandated training sessions imposed by employers and institutions in an attempt to achieve organisational goals.
> (Fullan, 1991, cited in Castner, 1998, p. 6)

Castner (1998) observed that 'this latter [mandated] form of 'professional development' (which makes up most of what is offered to teachers by their employers) is usually a quick general response to new organisational initiatives" (p. 6). The problem with this approach is that teachers themselves have 'little say in what is being offered" and the in-service training sessions they attend are not 'tailored to individual adult learning needs" (p. 6). Traditional models of professional development have 'focused on developing computer skills rather than the use of technology to assist student learning." (Castner, 1998, p. 6)

Williams (2000) also warned against a shortsighted view of technology training by arguing that:

> More computers in the classrooms of teachers who do not understand authentic technology practice, is foolhardy. We need to help schools justify that public expenditure of computers for teachers and computers in staffrooms is an investment in student learning and effective teaching. (p. 11)

Williams (2000) also urged caution so that "prescription of skills does not prevent professional progression and a determination to enable teachers to help their students contribute to Australia's innovative and creative future" (p. 11). She called for a "much more sophisticated description of professional practice and attitudes" because the issue is not the "volume of professional development funded for teachers, but the type of professional development" (Williams, 2000, p. 11).

In the report *How Teachers Learn Technology Best*, McKenzie (2001) argued that policy makers "need to explore different approaches – those honouring key principles of adult learning while placing both curriculum and literacy ahead of software and technology" (paragraph 4) and pointed out that:

> When it comes to teachers learning and valuing the effective use of new technologies, some schools are discovering that the kinds of training programs offered in the past may not represent the most generative method of reaching a full range of teachers and their students. The key term is "generative" – meaning that behaviours and daily practice will be changed for the better as a consequence of the professional development experience. Some schools are now identifying approaches more likely to encourage teachers to employ these technologies on a frequent and sustained basis to enhance student learning. Lead districts are finding that adult learning, curriculum development projects and informal support structures are proving powerful in promoting recurrent use aimed at deep curriculum integration. (paragraph 1)

In an attempt to analyse how teachers come to terms with new technology, Garvey (2004) listed the stages identified for teacher development from access to engagement with technology. These stages included:

    i.   access;

    ii.   interest/exploration/play/need/learn;

iii. competency development;

iv. integrate/apply;

v. sharing/discussing;

vi. experimenting/risk-taking/problem solving/practice; and,

vii. being nurtured/nurturing others to engage.

Garvey (2004) also recommended that:

> …schools be a significant provider of planned technology professional development to their staff supported by the education system. Professional development strategies should include hands-on activities, with a curriculum focus within a supportive peer environment. Teacher professional development…[is] effective when undertaken in small, supportive groups with a mentor on a needs-basis in a non-threatening, social and/or classroom environment. (paragraph 31)

According to Wilson and Stacey (2004) what is needed is "a focus on local and discipline based ideas and practices, peer support and mentoring approaches" (paragraph 20). These authors argue that an "emphasis on innovation, rather than the technology should be adopted" because:

> If an environment is created that supports opportunities for staff to trial new teaching and learning methods, and that encourages them to support each other and share knowledge and skills, it has a greater likelihood of success. Authentic contexts to situate learning activities should be used within the staff development program. Opportunities should be provided for staff to share experiences, ideas, and reflections with others as they engage as learners. (paragraph 20)

This shift to a local focus has been shown to be effective. For example, there has been positive reporting of the Murrumba District Tours to Schools (Kerans, 2000a) where teachers were taken on guided bus tours to selected schools in their district to share practical ideas and approaches. Apart from the benefit to the participants, there was benefit to the host school as the bus tours were seen to be "a truly powerful way to recognise the achievements of teachers often quietly going about their own way doing great things with students using computers (Kerans, 2000a, p. 14).

Smaller scale local initiatives have also been reported as having successful outcomes. Examples include (a) the *Three Tiers and Three Bridges* Program (Kerans, 2000b) in which schools take on an active agency in planning their own professional development programs; (b) the *SICK* (Staff In-Service Computer Klub) Program (Williams & Dundas, 1996) which was concerned with the professional development and resource management at Cooktown State School; (c) the *Ideas into Action* Program (McGhee, 1998) conducted in support of online curriculum projects; and (d) the *Technology Mentoring Plan* (Taylor, 1997) conducted at Stuartholme College. While it is acknowledged that such programs cannot usually or simply be scaled up to become as effective at state or national levels, their success corroborates the view that professional development which is consonant with local needs and is community-based is effective in achieving both short- and long-term goals.

Adult Learning Theory

One of the key concepts, which emerged from the literature reviewed, was the importance of adult learning strategies. According to Education Queensland (1998), professional development should "cater for the range of learners" with a "variety of backgrounds, learning styles and existing levels of expertise" and encourage participants "to identify their own levels of expertise" and to allow for "differing levels of need and expertise" (p. 4).

Lloyd and McRobbie (2003) noted that "there were many incidental remarks confirming that participants at the Kawungan practicums were treated as professional adult learners particularly in the latitude for individuals to select 'what was relevant' to them" (p. 55). The aim of the Kawungan practicum was to "enable teachers to establish their own learning pathways through conversations, collaborations and action research about learning technologies" (Lloyd & McRobbie, 2003, p. 111). Edmondson's (2002) findings in relation the needs of learners also suggested that:

- Knowing the ICT skill level and attitudes of your staff towards computers is crucial in designing training that is sympathetic to their needs;
- Training is most successful when it is delivered at school and focused on skills that are relevant to teachers' everyday lives;
- "Play" is the most important feature of the instructional style; and

- Training that incorporates plenty of time for sharing skills and ideas and then experimenting with them is very successful.

  (Edmonson, 2002, paragraph 5)

In his discussion of the principles of adult learning, McKenzie (2001) contemplated what is meant by "adult learning" and "how does it differ from the training models that have dominated technology related professional development for the past two decades?" He concluded that the difference between "andragogy" (adult learning) and pedagogy (instructor directed learning) is that "adult learning usually involves the learner in activities that match that person's interests, needs, style and developmental readiness" (paragraph 31).

Fundamental to this theory is allowing the learner to choose from a "varied menu of learning experiences and possibilities" for which "learners must take respo nsibility for planning, acting and growing" (paragraph 32). This means professional development can be "experienced as a personal journey of growth and discovery that engages the learner on a daily and perhaps hourly basis" which "includes an emphasis upo n self-direction" (paragraph 33). McKenzie (2001) made a comparison with traditional training models in that:

> Adult learning is primarily concerned with creating the conditions, as well as the inclination and the competencies to transfer new tools and skills into daily practice. While training usually occurs outside of context and frequently ignores issues of transfer, adult learning is all about melding practice with context. Adult learning should encourage teachers to identify and then remove obstacles… What matters is what happens back in the classroom on Monday morning. (paragraph 34).

In taking account of adult learning theory, Speck (1996) recommended that the following points be considered when professional development activities are designed for teachers:

- Adults will commit to learning when the goals and objectives are considered realistic and important to them. Application in the 'real world' is important and relevant to the adult learner' s personal and professional needs;
- Adults want to be the origin of their own learning and will resist learning activities they believe are an attack on their competence. Thus, professional development needs to give participants some control over the what, who, how, why, when, and where of their learning;

- Adult learners need to see that the professional development learning and their day-to-day activities are related and relevant;

- Adult learners need direct, concrete experiences in which they apply the learning in real work;

- Adult learning has ego involved. professional development must be structured to provide support from peers and to reduce the fear of judgment during learning;

- Small-group activities provide an opportunity to share, reflect, and generalize their learning experiences;

- Adult learners come to learning with a wide range of previous experiences, knowledge, self-direction, interests, and competencies. This diversity must be accommodated in the professional development planning; and,

- Transfer of learning for adults is not automatic and must be facilitated. Coaching and other kinds of follow-up support are needed to help adult learners transfer learning into daily practice so that it is sustained.

  (Speck, 1996, paragraph 1)

Within discussions of adult learning, the concepts of self-direction, ownership and responsibility for one's own journey of professional development were prominent. Sherman and Kutner (n.d. a) considered professional development in terms of practitioners being 'active partners in determining their own learning needs and in designing and implementing appropriate learning activities" (paragraph 1) and noted that 'the practitioner's sense of ownership in his or her own professional growth is a key element in producing long-term effects on instructional behaviour" (paragraph 1).

These concepts were reiterated by Education Queensland (1998) in its statement that professional development should allow participants 'to make decisions regarding their own personal anticipated outcomes" (p. 5).and should 'treat participants as active agents who can direct and be responsible for their own learning" (p. 6). This notion was further clarified in terms of delivery of professional development which, it was argued, should "include opportunities for participants to exercise choice in their learning – for example, through selecting mode of delivery or meaningful issues to explore" (Education Queensland, 1998, p. 8).

The DEST report *PD 2000 Australia* (DEST, 2004a) also recommended that 'teachers should be responsible for their own professional development, both in the design and choice of paths to follow' (p. 1) in order to 'sustain the motivation, commitment and enthusiasm of teachers and to enhance their self-esteem and sense of control over their professional lives by providing opportunities for teachers to reflect on, analyse and improve their own performance' (p. 2).

Perceptions of effective professional development

According to Castner (1998) effective professional development models acknowledge that 'adults learn in different ways and like to be able to choose their learning experiences' (p. 12).   She recommended that teachers be 'offered a range of learning experiences if professional development is to effect change in the way they work' (p. 12). This involves a 'change of professional development focus from use of computer applications to student learning' (p. 12). Phelps, Graham and Kerr (2004) made the point that 'rather than specific objectives or outcomes being 'imposed' on learners' effective professional deve lopment encourages participants to 'identify, articulate and pursue personally relevant goals, including those related to skills, attitudes, confidence, values and understandings' (paragraph 1).

Much of the literature reviewed, contended that if professional development is to be effective it must be meaningful and relevant to participants. Professional development should be designed with adult learners in mind, so they can 'relate to their current practice and identify and plan pathways to develop their competence' and must cater for 'different levels of competence' and have 'meaning and relevance for [the] intended audience' (DEST, 2004b, p. 31).

In terms of gauging the effectiveness of professional development, Lloyd and McRobbie (2003) also emphasised the importance of meaningfulness, and noted that the Kawungan LDC-ICT practicum 'formed a seamless and meaningful learning experience for participants irrespective of their prior knowledge or experience' after which 'reactions from the participants was overwhelmingly positive and did not appear to diminish over time' (p. 114). Castner (1998) reinforced this view stating that 'an effective professional development

activity [is one where] the users actively learned to apply information technology across the curriculum in a meaningful context" (p. 12).

Constructivist learning theory

Many of the concepts from literature about effective professional development for teachers are founded in constructivist learning theory. The concept of constructivism:

> …involves building on prior experiences, which differ from learner to learner. Consequently, each learner should have a say in what they are to learn, different learning styles must be catered for and information must be presented within a context to give learners the opportunity to relate it to prior experience. It is also generally agreed that the process of learning is an active one, so the emphasis should be on learner activity rather than teacher instruction.
>
> (Dalgarno, 1996, paragraph 11)

In the literature on effective professional development for teachers as adult learners, constructivism was repeatedly viewed as a particularly relevant approach. For example, "active collaboration among educators in developing insights about an innovation is more powerful in fostering effective professional development than simply receiving data about what someone else has done" and involves "moving from passive assimilation of information to active construction of knowledge" (Dede, 2000, cited in Downes et al., 2002, p. 117). Effective professional development would "acknowledge that 'knowledge' is not transmitted but is created by learners themselves" (Education Queensland, 1998. p. 5). Grant (1996) also noted that "learning that is constructivist in orientation… values conceptual understanding over procedural efficiency…is responsive to students' prior knowledge and experience [and] prepares for lifelong learning" (paragraph 9).

Professional learning communities

Central to much of the discussion of effective professional development, which has a sustained impact, is the role of professional learning communities in supporting learners, establishing networks and encouraging collaboration. Downes et al. (2002) noted that "in professional associations, online activities complement the networking begun at meetings,

events, conferences and workshops" (p. 52). According to the report *Making Better Connections*, professional learning communities are 'powerful and supportive envi ronments where teachers interact with each other" and achieve 'mutual improvement of their professional practices" (Downes et al., 2002. p. 52).

Similarly, Hord (1997) noted that the professional learning communities are 'seen as a powerful staff development approach and a potent strategy for school change and improvement" (paragraph 3). Carr (2003a) also commented on the advantages of belonging 'to a community of learners that share and explore emerging technologies supporting each other's practice where possible" because this environment helps to 'develop and strengthen local professional learning networks" and 'provide authentic learning experiences for teachers" (p. 1).

Stokes and Sidey (1996) also contributed to discussions of professional learning communities, going so far as to state that 'the value of networking … cannot be underestimated" and to warn against 'lost opportunities when personnel with important viewpoints or vital information have not been able to disseminate this information effectively" (p. 24). Similarly, Prestridge (1999) noted that 'being able to communicate with other teachers, share experiences, support and encourage one another breaks down the isolated environment in which teachers work everyday" (p. 12).

Schlager et al. (2002) considered the concept of professional learning communities to be a 'major theme of teacher professional development" noting that they 'can be powerful catalysts for enabling teachers to improve their practice" and 'help build professional relationships and socialise new members into the fold, thereby solidifying teachers' commitment to the community" (paragraph 3). Research conducted by BECTA (2002) identified areas in which professional learning communities are of value reporting that 'sharing problem s and success via a discussion group can give members the confidence to reflect on practice in their own institutions" and that 'having access to discussion groups from home allows teachers to make contributions when in a reflective frame of mind, away from the pressures of the teaching environment" (p. 2).

The BECTA research (2002) also found that 'informal links between teachers can be very influential" so much so that 'teachers overwhelmingly perceived informal learning such as

on-the-job discussions and collaboration with peers as more useful than formal ICT training"
(p. 3). The study observed that "collaborative relationships among teachers may develop into
a professional community which is supportive of the use of ICT" because "technology makes
collaboration easier, and collaborative activity encourages an increased interest in using ICT"
(p. 3).

Webb, Robertson and Fluck. (2004) commented on the positive outcomes achieved when
teachers were involved in professional learning communities, and concluded that:

> …there was a high level of participation, participants were engaged in developing
> and sharing a body of knowledge, they shared a sense of being a purposeful group
> [community] and they were collaborating to develop a repertoire of shared practices
> with respect to their chosen focus. Their interactions were largely based on the
> negotiation of meaning in relation to their purposes, activities, experiences, insights,
> knowledge and future possibilities.
>
> (Webb et al., 2004, Conclusion)

The benefits of professional learning communities in fostering collaboration amongst
teachers was noted by Downes et al. (2002) who found that "effective technological
development of teachers takes place in a collaborative learning environment" which in turn
can be "effec tive in transforming knowledge and skills…[into] classroom practice" (p. 21).
Education Queensland (1998) also acknowledged the important role of professional learning
communities in professional development, noting that it can help "promote collaboration with
others" and "break down isolation between participants and promote a sense of community"
by promoting the "sharing of knowledge among participants" (p. 5).

Summary

According to the reviewed literature, effective professional development should provide
teachers with a supportive learning community, relate content to the context of teaching and
learning, allow for self-direction and personal responsibility for learning, and be sustained
"over" time and be timely, taking account of the needs of the learners.

QSITE Report

Towards a Model of Effective

Professional Development

in ICT for Teachers

PART 3

ANNOTATED BIBLIOGRAPHY

PART 3

ANNOTATED BIBLIOGRAPHY

This section will provide an annotated bibliography of selected writings on effective PD in ICT for teachers. The literature discussed here was selected from general searches of the Internet for recent articles on elements of effective PD, including a search of the Education Queensland (EQ), ERIC and NCREL databases. Particular attention was given to drawing articles from the QSITE journal, QUICK (from 1997-2004) and recent QSITE conferences (from 1998) because of their local relevance. Similarly, attention has been given to the ACCE journal, *Australian Educational Computing* and to ACEC conference proceedings. Entries are presented alphabetically.

Standard abbreviations such as ICT (for information and communication technology), EQ (for Education Queensland) and PD (PD) are used within the annotations. Other abbreviations are explicated in full within the text. Note that the term ICT is used in preference to ICTs but that the latter is used where it has been specifically adopted by the author(s) of the article under review. The terms "technology," particularly in articles from U.S. sources, and "educational technology" are here deemed to be synonymous with ICT.

Abdal-Haqq, I. (1996). *Making time for teacher professional development*. ERIC (Educational Resources Information Center) Digests. Retrieved September 5, 2004, from http://SearchERIC.org/ericdb/ED400259.htm.

Introduction: Teachers, researchers, and policymakers consistently indicate that the greatest challenge to implementing effective PD is the lack of time. Teachers need time to understand new concepts, learn new skills, develop new attitudes, research, discuss, reflect, assess, try new approaches and integrate them into their practice; and time to plan their own PD. Teachers, as adult learners, need both set-aside time for learning (e.g., workshops and courses) and time to experience and digest new ideas and ways of working.

This Digest outlines what research and best practice tell us about effective PD for teachers working in restructured, learner-centered schools. It considers the implications of traditional scheduling patterns for implementing effective PD and shares some approaches that various schools and districts have taken to find time for PD. Effective PD addresses the flaws of traditional approaches, which are often criticised for being fragmented, unproductive, inefficient, unrelated to practice, and lacking in intensity and follow-up (see Bull et al., 1994).

Effective PD:

- is ongoing;

- includes training, practice, and feedback;

- includes opportunities for individual reflection and group inquiry into practice;

- includes coaching or other follow-up procedures;

- is school-based and embedded in teacher work;

- is collaborative, providing opportunities for teachers to interact with peers;

- focuses on student learning, which should, in part, guide assessment of its effectiveness; encourages and supports school-based and teacher initiatives;

- is rooted in the knowledge base for teaching;

- incorporates constructivist approaches to teaching and learning;

- recognises teachers as professionals and adult learners;

- provides adequate time and follow-up support; and is accessible and inclusive.

Anderson, N., Baskin, C., & Halbert, M. (2002). *Sustaining and supporting teacher professional development in ICT*. Retrieved September 5, 2004, from http://www.aare.edu.au/02pap/and02399.htm.

Abstract: Recent Australian policy initiatives call for stronger links between universities and state education authorities to support and enhance the effective use of ICT in schools (Downes et al., 2001). *Blackboard*® has been selected by both *James Cook University* and

Education Queensland as a preferred Learning Management System. This paper explores the use of this on-line platform in sustaining and supporting teacher PD in ICT. Another component of the project was to investigate the use of on-line learning tools by in a traditional SOSE classroom environment. In both cases the online platform provided a way of extending and supporting local networks by providing links to specifically developed, on-line resources for training and communication outside the boundaries of the school.

Learning Management Systems such as Blackboard® do not automatically guarantee improved teaching and learning outcomes, but are shown to transform the teaching and learning process. Data collected in this project illustrates the changing learning relations that occur when comprehensive web tools are used in combination with collaboration to determine shared goals and implementation strategies.

Arbuckle, M., & Murray, L. (1989). *Building systems for professional growth: An action guide.* Andover, MA: Regional Educational Laboratory for Educational improvement of the Northeast and Islands and the Maine Department of Educational and Cultural Services.

This how-to guide gives staff development leaders the tools to develop comprehensive and collaborative systems for PD in their schools, districts, and states. The guide covers all steps in building a staff development system from conception to evaluation. Each chapter includes a topic overview, group activities, notes to the trainer, presentation scripts, case studies, assessment tools, articles, handouts and transparency masters, and other resources.

BECTA (British Educational Communications and Technology Agency) (2002). *What the research says about ICT and teacher CPD.* Retrieved September 5, 2004, from http://www.becta.org.uk/page_documents/research/wtrs_cpds.pdf.

Introduction: Teacher Continuing PD (CPD) refers to the process by which teachers acquire and develop the skills and know-how to become effective in the classroom. It is ongoing and career-lasting, in response to an environment which is changing.

In the case of ICT, these changes are taking place in pedagogical, technological and policy terms. The resources below relate to both the use of ICT to deliver CPD and to the provision of effective CPD in using ICT in the classroom.

BECTA's *What the Research Says* series aims to give an initial idea of the available research evidence on aspects of using Information and Communications Technology (ICT) in schools and colleges. It is designed primarily for teachers, ICT coordinators and school managers.

' What the Research Says about ICT and teacher CPD'   covers topics including:

–   the use of computer-mediated communication to support CPD
–   electronic portfolios
–   the impact of ICT on Initial Teacher Training
–   using ICT to deliver CPD.

Related articles

BECTA (British Educational Communications and Technology Agency). (2002). ImpaCT2: The impact of information and communication technologies on pupil learning and attainment. Retrieved September 7, 2003 from http://www.becta.org.uk/research/impact2.

Biddle, A. (1998). A report on the assessment of the management of IT within primary schools in Queensland. Paper presented at QSITE98 - *Riding the Wave to 2001 - Coasting with computers* Conference, Sunshine Coast, August.

This Professional Practicum assessed the management of IT within primary schools in Qld. A framework for the analysis was constructed by classifying the existing literature into management practices that deal with the use, study and management of IT. The main constraints facing effective management of IT were :

- curriculum integration,

- continuity of learning,

- equitable access and participation,

- professional development of teachers and leadership.

To date these issues remain relatively unexamined within the school environment.

The Professional Practicum is designed to inform policy and practices to assess the extent to which schools are managing IT and ultimately devise strategies to ensure schools future IT needs are addressed. A questionnaire was devised which examined the main constraints and their effect on school management. Ten members of school committees returned a questionnaire on the management of IT within their school. The results indicate that there is cause for concern over the management of IT within the participating Primary schools in Queensland. Whilst many of the concerns could be easily addressed, others will require changes to management practices and appropriate financial support.

Buchanan, P. (1999). Connecting teachers to the future. Paper presented at *Switched on, QSITE Conference,* Brisbane, June.

The *Connecting Teachers to the Future* project operated from June 1996 to 1999 and, in that period, over 600 teachers were involved in the program. Connecting Teachers became associated with the term - the "laptop program."

In this paper the author draws attention to the most important reason for the program - the consequences of improving the quality of the teachers' professional skills the teachers. In conclusion the Connecting Teachers project has demonstrated that the most effective learning occurs when there is a convergence of effective teachers, effective educational programs, enthusiasm, innovation and reasonable levels of technical skills.

Bull, B., Buechler, M., Didley, S., & Krehbiel, L. (1994). *Professional development and teacher time: Principles, guidelines, and policy options for Indiana.* ERIC (Educational Resources Information Center) Database. Retrieved September 5, 2004, from http://SearchERIC.org/ericdb/ED384112.htm.

Abstract: The most frequent form of PD for teachers--occasional workshops conducted by outside consultants--is widely regarded as ineffective. This document presents findings of a study, conducted by the Indiana Education Policy Center School of Education Office, to examine PD and its connection to teacher time. Findings indicate that states differ in their approaches to providing time for teachers' PD.

Effective PD is:

- school-based;
- uses coaching and other follow-up procedures;
- is collaborative;
- is embedded in teachers' daily lives; and,
- focuses on student learning.

Four factors of professional-development initiatives include leadership, resource and policy support, norms of collegiality and experimentation, and adequate time.

Nine guidelines for defining the purpose, scheduling, allocation, and use of teacher time are outlined. Options for a system of teacher professional-development time and the components of an ideal system are also described. The final chapter considers several aspects of state policy, including how basic policies might create a reservoir of teacher-development time at each school, how that time might be funded, how the system might be regulated, and how supporting resources might be provided. Four tables are included. The appendix summarises state-level professional-development policies in Illinois, Kentucky, Michigan, Ohio, Florida, Georgia, and Washington. (LMI)

Carnes, C. (2004). Utilising NETS*A – A framework to lead ICT change within a primary school . Paper presented at *Reef, Beef and Bytes*, QSITE 2004 Conference, Yeppoon, September.

This presentation explored the NETS*A (National Educational Technology Standards - Administrators) framework as a tool to manage and support the development of ICT's in a Primary School. The six key strands were introduced and participants were shown how the strands can be utilised to create, implement and evaluate all ICT initiatives within a Primary school. Participants were also be shown how EQ's ICT drivers can be included within the NETS* A framework.

Carr, J. (2003a). '*Moving Online' project – Project budget report.* Online Learning and Development Team Report for *The Learning Place*. Brisbane, Australia: State of Queensland (Department of Education).

Overview: The *Moving Online* project aimed at working with EQ staff across a range of job descriptions to determine their needs and design action learning plans which would assist them to work more effectively online through the Learning Place.

A project officer experienced in online learning and collaborative projects worked during Semester 2 to ensure each participant had support and was mentored in their learning. A professional learning community was established on the *Learning Place* to share their work and successes. Each participant developed their own action learning plan and the project was undertaken in stages. Thirty-eight participants from many areas of Education Queensland were chosen via selection criteria. Staff included teachers, admin personnel, specialists, teacher librarians, project officers and Education Advisors from District Offices, Central Office and AccessEd, schools, special schools and branches.

Carr, J. (2003b). *The Learning Place mentors.* Online Learning and Development Team
	report for The Learning Place. Brisbane, Australia: State of Queensland (Department
	of Education).

In 2002, the *Learning Place* was launched as Education Queensland's gateway to online learning, communication, communities and resources. A range of professional learning models were implemented, as student learning would only be positively affected through effective use of the Learning Place by teachers and EQ staff. The most successful model was the *Moving Online Project* (see Carr, 2003a). This project was aimed at working with EQ staff across a range of job descriptions to determine their needs and design action learning plans that would assist them to work more effectively through the Learning Place.

The Learning Place Mentor model was a direct expansion of the *Moving Online Project*. District based Learning Place Mentors were established throughout the state in 2003. Their key roles were to build capacity in Education Queensland staff to:

- Effectively use online learning environments in the Learning Place to improve staff and student learning outcomes;
- Support and enhance curriculum initiatives through effective use of online communication tools to expand choice, audience and deepen discussion and dialogue.
- Develop and strengthen local professional learning networks; and
- Positively change classroom practice and embed information communication technologies in student and professional learning.

The Learning Place Mentor Program was developed on current understandings of successful professional learning models. The following criteria were the corner stones of the program and integral to the success of the program.

1. The Mentors are supported systemically through the Learning Place by a full time Senior Project Officer, semester training events, operational grants and special grants for state wide events, promotional materials and general help desk support;

2. The Mentors' districts and their schools were involved in the sel ection of the Mentors and their ongoing support and promotion. Partnerships with district Professional

Learning leaders is encouraged and nurtured e.g. LDCs (Learning Development Centres), Centres of Excellence, Learning and Development frameworks;

3. The Mentors belong to a community of learners that share and explore emerging technologies supporting each other's practice where possible;

4. Spotlight projects where each Mentor has a responsibility to implement a district or state wide online communication event. These events provide authentic learning experiences for teachers and students while modelling best practice.

5. The Mentors are highly effective teachers chosen for their ability to model best practice pedagogy and lead change. ICT skills were not a prerequisite - passion, leadership and experience in professional learning were highly valued in the selection process.

Related articles:

Carr, J. (2002, June). The Learning Place. *QUICK, 84,* pp. 5-6.

Carr, J. (2004). Online professional learning communities through the Learning Place. Paper presented at *ICTs by design*, QSITE 2003 Conference, Brisbane, June-July.

The Learning Place offers two kinds of professional learning communities for educational networks: a secure password protected Blackboard community or a dynamic Internet website community.

Related articles

Kember, D., Carr, J., & Purdie, M. (2002). Developing online courses at the Learning Place. Paper presented at *WWW.Webs.Whales.Water***,** QSITE 2002 Conference, Hervey Bay, September.

Castner, I. (1998). Curriculum embedded applications: A professional development alternative. *QUICK, 69*, pp. 6-12.

This article investigated what constitutes effective PD and training for adult learners and how some educational institutions have attempted this provision. It discussed the PD value of providing teachers with prepared work units based around a particular computer application such as a database, in an attempt to expand awareness of using information technology across the curriculum. Results of an investigation into teacher attitudes regarding the use of a curriculum-embedded database package, the *Volcano* database, were also discussed.

Traditional PD activities have come under fire as to their effectiveness in impacting upon teacher's teaching beh aviour. Fullan (1991, in Burke, 1997) stated that:

> Nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when teachers returned to their classrooms. Problems have arisen because of a number of factors. Firstly, the term ' professional development' has been used to cove (i) the individual's efforts to pursue lifelong learning in order to expand knowledge and skill, and (ii) the mandated training sessions imposed by employers and institutions in an attempt to achieve organisational goals.
>
>   Secondly, this latter form of ' professional development' (which makes up most of what is offered to teachers by their employers) is usually a quick general response to new organisational initiatives. This being so, the individual has little say in what is being offered. It could be asserted that any subsequent generic in-service training sessions, may not be tailored to individual adult learning needs. Third, professional development has traditionally focused on developing computer skills rather than the use of technology to assist student learning.

Related articles

Burke, K. (1997). *Designing professional portfolios for change.* Retrieved March 31, 1998 from http://www.business 1.com/iri_sky/DesignPP/dppfci.htm.

Clark, J. (1998). Professional development alternatives across the four dimensions of the
      learning technology standards. Paper presented at QSITE98 - *Riding the Wave to*
      2001 - Coasting with computers Conference, Sunshine Coast, August.

Professional Development Alternatives Across the Four Dimensions of the Learning
Technology Standards. (SCHOOL PLANNING) Abstract: There are huge implications for
and expectations on schools in relation to the Learning Technology Standards for Teachers.

Two issues are that (1) schools are accountable for the number of teachers who are
accredited, and (2) the expense of Professional Development. This paper explored PD Models
that schools can employ to achieve the necessary outcomes cost effectively.

Department of Education, Science and Technology (DEST) (2004a). *PD 2000 Australia -*
      National mapping of school teacher professional development. Retrieved September
      5, 2004, from
      http://www.qualityteaching.dest.gov.au/Content/SubSection_PD2000.htm.

Introduction: The ongoing in-service training and PD of school teachers has a history of
raising vexing questions, and frequently the same vexing questions. Many of these questions
arise from the nature and status of the profession and its unique placement in the larger social
and economic context.

If teaching is a profession, then it could be argued that teachers should be responsible for
their own PD, both in the design and choice of paths to follow, and in meeting its cost.
Teachers however, are not self-employed, and thus the choices they have are constrained by
the priorities of their employers, and as a current overarching theme, by the directions and
requirements of governments in their interpretations of the general wishes of the communities
that elect them. This being the case, it is argued the employer should provide and pay for
participation in PD activities.

This argument then shifts still with dollars as the focus. The cost of teacher PD is high. The
1997 ABS figures suggest that, in 1996, the total across Australia for one quarter was

$131.9m, placing Education as the eighth highest spending industry on training. This article raised the question as to whether that expenditure provided value for money.

The effect of PD is not usually immediately apparent and sometimes, never apparent. For example, while the impact of PD devoted to improving teachers' skills in the use of information and communication technologies (ICTs) is readily quantifiable, what impact does that have on classroom practice and, in turn, on the quality and outcomes of education as a whole? Then, ubiquitously – should it occur in-hours or out-of-hours? In-hours activities generate dislocation for the schools in which participants work and complaints from parents needing to make alternative arrangements for the care of their children. Teachers have comparatively long holidays, why can' t portions of these be used for continued professional education? This issue has surfaced in many quarters during negotiations over Enterprise Bargaining Agreements (EBAs) and remains highly sensitive.

And what, after all, is PD? Some teachers argue cogently that most of the things they do entail PD of one sort or another. They think constantly about their work and ways in which its effectiveness could be improved; they talk about these matters with their colleagues and trial and assess new ways of working as a matter of course. They are truly 'professional' in this regard. In addition, some modes of PD, an increasing number and volume, are systematically interwoven with conventional job performance. Thus there is some significant difficulty in distinguishing and circumscribing PD activity.

Department of Education, Science and Technology (DEST) (2004b). *Raising the standards: Proposal for the development of an information and communication technology (ICT) competency framework for teachers.* Retrieved September 5, 2004, from http://www.dest.gov.au/schools/publications/2002/raisingstandards.htm.

This report sets out details of the steps involved, and strategies required to develop an Australian national framework for describing teacher ICT competency standards that could be used to inform the work of teacher education faculties and education authorities. It

presents:

– an analysis of the key issues and challenges associated with developing the framework
– a proposed structure for the framework; and discussion of the kinds of standards that could be developed from it; and
– a proposal for ways in which this work could be supported and shared at a national level through participation in online networks and services such as EdNA Online.

Executive Summary: The impetus for this project stems from the report *Learning in an Online World: The School Education Plan for the Information Economy* (MCEETYA, 1999). The report outlines a range of objectives and associated strategies to achieve those objectives in the application of information and communication technology (ICT) in teaching and learning. One such strategy in the area of 'People' is the development of teacher ICT standards for the use of ICT in the curriculum and to incorporate those standards into human resource management within education authorities and schools.

The need to better exploit the teaching and learning potential of ICT is widely accepted and supported. However, to date, this potential has not been realised in any significant way, particularly the potential to transform how, what, where and why students learn what they do. While there are only limited examples of the transformative power in the educational sector, experience from industry and other sectors clearly demonstrates that new times need new approaches, and that the nature and application of ICT enable that transformation. This proposal, for the development of an ICT Competency Framework, is only one of a number of significant national and local initiatives related to developing and supporting effective ICT use in school education. These initiatives stem from a range of sources including *Learning in an Online World*, from MCEETYA and from various government and non-government education systems.

The development of teacher professional standards is not without controversy. The research undertaken as part of the project has revealed a number of tensions and contentious issues surrounding both non-ICT specific and ICT specific standards. A detailed discussion of these issues is contained in the Literature Review and Mapping document, which is provided as an appendix to this report. The Literature Review and Mapping document also argues a rationale for a teacher ICT Competency Framework from which ICT standards can be developed. This

document, as the final report for the project, discusses the significant issues relevant to the development of a teacher ICT Competency Framework, makes recommendations and proposes a specific structure for the framework and the nature of ICT standards that could be developed from it.

EdNA. (2000). *Learning in an online world: School education action plan for the information economy.* Adelaide, Australia: Education Network Australia.

MCEETYA (1999). *Learning in an Online World: The School Education Plan for the Information Economy.* Canberra, Australia: Commonwealth of Australia.

Williams, M., & Price, K. (2000). Teacher learning competencies. *Australian Educational Computing, 14*(2), 6-41.

Dewacht, P. (2004, May). Online collaborative mentoring: A PD model for the professional learning of teachers. *Educare News*, *147*, 8-11. Retrieved November 19, 2004, from http://search.informit.com.au/fullText;res=AEIPT;dn=136461.

Victorian teachers have been using online technology such as videoconferencing and email to work together asynchronously on projects designed to engage, challenge and build the knowledge of teachers and students as part of the Victorian Department of Education and Training Schools for Innovation and Excellence program. This article explains how the Online Collaborative Mentoring (OCM) projects are leading to the real professional learning of teachers. OCM projects are cross- curricular, cross-age and across school boundaries, with students, teachers, school leaders and the community taking active roles.

Downes, T., Fluck, A., Gibbons. P., Leonard, R., Matthews, C., Oliver, R., Vickers, M., & Williams, M. (2002). *Making better connections: Teacher professional development for the integration of information and communication technology into classroom*

practice. Canberra, Australia: Department of Education, Science and Training (DEST).

Introduction: This influential national report represents outcomes of the project "Models of Teacher Professional Development for the Integration of Information and Communication Technology (ICT) into Classroom Practice" funded by the Commonwealth Department of Education, Science and Training (DEST).

The key elements of the report are:
– metrics for measuring the effectiveness of PD and pre-service models in terms of delivery and outcomes for teachers and students;
– a map of all identified PD and pre-service models;
– a list of barriers and critical success factors for effective integration of information and communications technology in teaching and learning.

The Report provides an overview of ICT in teacher education from both an Australian and an international perspective. In its process, the Report has drawn on a number of information sources including a comprehensive review of the literature on this topic, interviews and meetings with key stakeholders in teacher education and in continuing PD, questionnaires and surveys and face-to-face forums. In the forum, experts came together to provide the researchers with advice and information to inform their data gathering, data analyses and interpretation processes.

The Report begins by considering the changing context of ICT use in the wider community, both commercially and socially, and the consequential impact on school systems. The issues of teacher development are addressed by examining a broader view of teacher development in Chapter 2 and then focusing more closely on teacher development for use of ICTs in classrooms in the subsequent sections of the Report.

From its findings on teachers as professional/lifelong learners/members of professional learning communities, effective professional development was defined as being:
– rigorous, sustained and adequate to the long-term change of practices;
– sustained, ongoing and intensive, and supported by modelling coaching and collective

problem solving around specific problems of practice;

- directed towards teachers' intellectual development and leadership;

- designed and directed by teachers, incorporates the best practices of adult learning and involves shared decisions designed to improve the school;

- experiential, engaging teachers in concrete tasks of teaching, assessment, observation, and reflection that illuminate the process of learning and development;

- Grounded in inquiry, reflection and experimentation that are participant-driven (that is, learners take responsibility for posing questions and exploring answers); and,

- collaborative and interactional, involving a sharing of knowledge among educators and a focus on teachers' communities of practice rather than individual teachers, with support from both inside and outside of setting.

Further to this, it was conjectured that:

1. PD requires adequate time for inquiry, reflections, and mentoring and is an important part of the normal working day, week, and year of all teachers. It also requires rethinking the work and working conditions of teachers, and their professional roles and responsibilities.

2. There is a positive correlation between teacher professionalism (teacher as learner, teacher as researcher) and improved learning outcomes.

Related articles

CERI. (1998). *Staying ahead: In-service training and teacher professional development.* Center for Educational Research and Innovation. Organisation for Economic Cooperation and Development.

Department of Education, Training and Youth Affairs (DETYA). (2001). *Information and communication technology for teaching and learning*. Retrieved March 4, 2003 from http://www.detya.gov.au/schools/publications/index.htm.

Darling-Hammond, I., & McLaughlin, M. (1996). Policies that support professional development in an era of reform. In M. McLaughlin & I. Oberman (Eds.), *Teacher learning: New policy, new practices.* New York: Free Press.

Groundwater-Smith, S. (1998). *On elephants and supermarkets: Images and metaphors of teacher professional development.* Paper presented at the AERA Conference, Adelaide, December.

McRae, D., Ainsworth, G., Groves, R., Rowland, M., & Zbar, V. (2000). *PD 2000 Australia:*

A national mapping of school teacher professional development. Retrieved July 20, 2001, from http://www.dest.gov.au/schools/publications/2001/pd/index.htm.

Meredyth, D., Russell, N., Blackwood, L., Thomas, J., & Wise, P. (1999). *Real time: Computers, change and schooling: National sample study of the information technology skills of Australian school students.* Australian Key Centre for Cultural and Media Policy.

Edmondson, A. (2002). *What styles of computer training enhance teachers' competence and confidence to use ICT?* Retrieved September 5, 2004, from http://www.becta.org.uk/research/reports/docs/cpd_edmondson.pdf#search='andrea%20edmondson'.

Key findings and recommendations

-   Knowing the ICT skill level and attitudes of your staff towards computers is crucial in designing training that is sympathetic to their needs; plan opportunities to discuss ideas and anxieties.
-   Training is most successful when it is delivered at school and focused on skills that are relevant to teachers' everyday lives; be involved with the planning and the design of the training, perhaps with other schools in your cluster.
-   'Play' is the most important feature of the instructional style; training that incorporates plenty of time for sharing skills and ideas and then experimenting with them is very successful.
-   Successful training needs to be well led and there needs to be a supportive learning culture amongst the staff; mutual support of the staff is not only incredibly effective but also economical.
-   The most significant element for continuing the development of teachers' ICT skills is for them to have their own laptops; these, in conjunction with the interactive whiteboards, have the greatest impact on enhancing teaching.

Education Queensland. (1998). *Standards for the development and delivery of professional development and training.* Retrieved September 5, 2004, from http://education.qld.gov.au/learning_ent/ldf/pdfs/standards/stdspub.pdf.

Foreword: Education Queensland views the ongoing PD and training of its workforce as a crucial factor in attaining its commitment to enhanced learning outcomes for all students. Excellence in teaching, to a large extent, depends upon excellence in PD and training for teachers. Yet, as this document argues:

> … in today's ever -changing world . . . professional growth is more than merely absorbing information, facts and theories, and acquiring skills, though these are important. Professional growth ' involves critical thinking to deal with the "super-abundance" of information and the ambiguity and complexity of that information.

These 1998 standards provide clear advice to schools and to providers of PD and training to guide the development and delivery of quality learning experiences to support such continued professional growth. Their use will enhance the quality of teaching and learning experiences offered to our students.

Related articles

Department of Education, Queensland. (1995a). *Guidelines for the use of computers in learning.* Brisbane, Australia: State of Queensland (Department of Education).

Department of Education, Queensland. (1995b). *Computers in learning policy.* Brisbane, Australia: State of Queensland (Department of Education).

Education Queensland. (1999). *Application of new technologies to enhance learning outcomes for students.* Retrieved December 19, 2002 from http://education.qld.gov.au/publication/production/reports/docs/1999/newtech.rtf.

Ellis, A., & Phelps, R. (2000). Staff development for online delivery: A collaborative team based action learning model. In *Australian Journal of Educational Technology, 16*(1*),* 26-44.

Abstract: For academics to successfully make the transition to online teachers or learning facilitators, they must do more than develop new technical skills. Online development and delivery requires new pedagogical approaches, challenging previous practices with regards to assessment, group interaction and student/teacher dialogue. Furthermore, it necessitates attention to issues concerning academic work practices. Online delivery challenges traditional notions of academics working in isolation and instead brings together teams of people each with unique skills, into a course design and development team.

This paper describes the early phases of a systems change approach being implemented in the School of Social and Workplace Development at Southern Cross University. An ongoing collaborative action learning model is described as a vehicle for staff development and change management. This consisted of twice weekly team meetings and training sessions. These sessions represented a balance of outside expertise and experiences being brought into the group, and reflective and 'idea sharing' sessions amongst the development team itself. Technological, pedagogical and managerial issues were covered and discussions were fully documented throughout the process.

Information on changing staff attitudes was collected via a series of semi-structured interviews recorded at various stages over the course of unit development and early delivery stages, as well as staff completing weekly 'reflection sheets' on their experiences. Enthusiasm, collaboration and a sense of ownership are identified as major factors driving the change process. Major barriers included difficulties of dividing time between varied commitments, the importance of timeliness of training components and the need to develop policy and guidelines 'on the run'. Further data collection such as time commitments from staff and skill requirements at each phase of development were used to develop guidelines and recommendations for further rounds of development and for budgetary planning.

Finger, G. (1999). Improving the professional development of teachers through reconceptualising the management of knowledge: When will the natives arrive in the teaching profession? Paper presented at *Switched on, QSITE Conference,* Brisbane, June.

The professional development of teachers remains the most critical issue in influencing the effective integration of IT in schools. This paper has argued that a reconceptualisation of the management of knowledge is required for exploring professional development programs which can address the challenges posed by the rapid changes giving rise to 'complex' knowledge which is unique and global, and the phenomenon of the 'teaching inversion'. Recent research and discussion has been presented to provide some starting points, guidelines and possible approaches to professional development. Universities and schools are confronted with the prospects of being irrelevant and marginalised by students unless we effectively respond to those challenges. Specifically, as teachers, we risk being disenfranchised if we don't take advantage of the networked world and move towards developing relationships and sharing knowledge throughout our schools, systems, universities, and professional associations

Finger, G. (2003). *Conceptualising the Information and Communication Technologies (ICTs) journeys of future teachers and practising teachers: Findings, challenges and reflections*. Paper presented at AARE 2003 Conference, Auckland, December. Retrieved September 5, 2004, from http://www.aare.edu.au/03pap/fin03384.pdf.

Abstract: All Australian States and Territories have embarked upon systemic ICT initiatives (Finger & Trinidad, 2002; MCEETYA, 2002) which represent the growing momentum in the changing expectations of schools and school systems to require teachers to successfully integrate ICTs in their classrooms, referred to here as the ICTs Journey. This paper, in providing a conceptualisation of that ICTs Journey as requiring effective pre -service teacher education and continuing PD in ICTs, draws upon recent major Australian reports *Making Better Connections* (DEST 2001) and *Raising the Standards* (DEST 2002) aimed at driving the ICTs agenda further. In addition, this paper provides a summary of key findings from the research undertaken by three Bachelor of Education (Primary) Honours students.

This research focused on illuminating and identifying challenges posed by the ICTs journey for future teachers, teachers in their first years of teaching, and for more experienced,

practising teachers. Specific investigations were conducted with teacher education students in their third year of pre-service teacher education, teachers in their establishing phase of teaching, and experienced teachers who had undertaken a formal, 3 day ICTs PD program.

Implications were identified for pre-service teacher education and continuing PD in terms of the ICTs journey. Finally, reflections are presented by the three Honours research students in terms of the tensions and personal sacrifices made in choosing to undertake research during their pre-service teacher education. As co-authors of this paper, this paper highlights the demands upon these student teachers in not only undertaking their own ICTs Journeys but also the intellectual demands and potential rewards of accompanying that ICTs journey with their intensive research journeys.

Finger, G., Charleston, D., & Baker, N. (2004). *Improving ICT curriculum integration: Informing the links between pre-service teacher education and the continuing PD of teachers.* Paper presented at the ACEC 2004 Conference, Adelaide, July.

Abstract: While there is no shortage of policy documents encouraging effective ICT integration, student teacher stories and discussions about their practicum experiences are characterised by reports of their observing little or no effective ICT integration. This tends to lead student teachers to ask questions such as:

– How competent and confident in ICT skills are pre-service teacher education students?
– What challenges face recent graduates in terms of integrating ICTs in their classroom programs?
– What can we learn from recent graduates who are considered to be effective and innovative users of ICTs in their schools?

This paper summarises the findings of a research study which investigated the ICT skills, competencies and attitudes of teacher education students in a Bachelor of Education (Primary) program. In addition, case studies were undertaken of teachers who were recent graduates, had attended the Burleigh Heads Learning and Development Centre - Information and Communication Technologies (LDC-ICT) practicum, and were identified as successfully

integrating ICTs. Consequently, elements of their pre-service teacher education program and subsequent PD that have contributed to their effectiveness are identified to inform the critically important links between the transition from pre-service teacher education to the early years of teaching.

Fluckiger, B. (1998). Computers in primary: a professional development model. Paper presented at QSITE98 - *Riding the Wave to 2001 - Coasting with computers* Conference, Sunshine Coast, August.

This is a case study of the way that one primary school assisted teachers to integrate computer technology across the curriculum. The model:
– supports the individual skill development of staff;
– promotes effective learning and teaching principles;
– provides opportunities for the modelling of 'best practice';
– assists teachers with planning and organisation; and,
– encourages a wide range of curriculum applications.

Gahala, J. (2001). *Critical issue: Promoting technology use in schools.* Retrieved September 5, 2004, from http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te200.htm.

Issue: Although there has been a strong push to get educational technology into the hands of teachers and students, many obstacles to implementation still exist. These include:
– Equipment may not be placed in easily accessible locations.
– Hardware and software often pose problems for teachers in the classroom
– Just-in-time technical support may be unavailable.
– Teachers may lack the time and the motivation to learn technology skills.
– PD activities may not provide ongoing, hands-on training for teachers or practical strategies for implementing technology into lesson plans.

- Initial technology funding may not be sustained and thus not be capable of providing upgrades, maintenance, and ongoing PD.

Overview: The push to provide technology in schools has been successful in recent years. Most schools have computer labs and many have computers in every classroom. More than 90 % of all schools are connected to the Internet, and more than 33 % of teachers have Internet access in their classrooms. Yet teachers readily admit that they are not making as much use of technology as they could. According to an *Education Week* survey, nearly 30 % of teachers said their students use computers only one hour per week; nearly 40 % said their students do not use computers in the classroom at all.

Although technology is more prevalent in the schools, several factors affect whether and how it is used. Those factors include:

- placement of computers for equitable access,
- technical support,
- effective goals for technology use,
- new roles for teachers,
- time for ongoing PD,
- appropriate coaching of teachers at different skill levels,
- teacher incentives for use,
- availability of educational software, and
- sustained funding for technology.

Gant, B. (2004). Information and Communication Technologies Continua. Paper presented at *ICTs by design*, QSITE 2003 Conference, Brisbane, June-July.

The development of the Information and Communication Technologies continua is an outcome of teachers' requests for guidance beyond the Minimum Standards and to recognise that many teachers are already operating at the various points along the continua.

Related articles

Education Queensland (1999). *Minimum standards for teachers – Learning technology.*
Retrieved September 5, 2004, from http://education.qld.gov.au/itt/learning/docs/min-standards.pdf.

Education Queensland. (2003). *Information and Communication Technologies Continua (draft).* Retrieved August 14, 2003 from
http://education.qld.gov.au/curriculum/learning/technology/cont.html

---

Garvey, L (2002). Flexible delivery of professional development in ICT. *QUICK, 86*, pp. 8-15.

This article reflects on four years of participation in a multi-modal PD program for ICT understandings and skills conducted for teachers in Brisbane Catholic Education schools by Queensland University of Technology's RITE Group. The PD program coincided with the introduction of the LinCS project that connected BCE schools. The course was made available to around 250 participants in total over two semesters each year since 1999.

As the overall goal was to assist teachers new to technology in education, the main area of focus for available places is the Introductory Program. There are only a limited number of places available for the Intermediate Program. To date, all those people who have indicated a desire to participate in the programs have been accommodated. The Online PD Course endeavoured to support teachers so that learning experiences for students can be enhanced through the appropriate inclusion of Information and Communication Technologies (ICTs) in the curriculum based upon an informed and critical perspective. The course was also structured for people who enjoy "learning -by-doing," are in dependent workers and who can take some responsibility for their own learning.

Related articles:

Lloyd, M. & Garvey, L. (1999). BCE/QUT Online Professional Development program. Paper
presented at *Switched on, QSITE Conference,* Brisbane, June.

Lloyd, M., & Garvey, L. (2000). Online guest in action: David Hutton talks to BCE teachers. *QUICK, 76,* pp. 11-13.

Garvey, L. (2004a). *A Teacher Journey from Access to Engagement with Technology.* Paper presented at the ACEC 2004 Conference, Adelaide, July.

Abstract: This study investigated the critical factors that contribute towards a successful transition from teacher access to technology towards a disposition to engage with technology. The notion that teacher access to technology resources will, by itself, facilitate educational change is considered perilously naive. The contribution to the research area involves going beyond the issue of access, to illuminate those conditions that support a progression along the path to engagement.

Engagement in this study referred to teachers who have access to and a positive disposition towards the use of technology for personal and professional purposes in social and educational contexts. The investigation drew upon research that identified stages of teacher technology adoption. A multiple case study approach was employed. Teachers, learning technology support personnel and principals across four schools as well as a system representative were surveyed and involved in semi-structured interviews to explore the significant factors in the context of the Linked Catholic Schools (LinCS) project implementation in 2000. The findings raised issues surrounding: home computer ownership; teacher support; partnerships; PD and; the need to address an interrelated set of factors simultaneously in order to facilitate the progression from access to engagement.

Related papers

Garvey, L. (2004b). A Teacher Journey from Access to Engagement with Technology. Paper presented at *Reef, Beef and Bytes*, QSITE 2004 Conference, Yeppoon, September.

Giarola, S., & Dredge, J. (1999). Integrating technology across the curriculum – Easier done than said! *QUICK, 73,* pp. 25-28

This article describes a Lighthouse project at Clinton State School. It reported that some teachers initially felt insecure about their IT skills. As the project progressed, and with the support network generated, the learning curve for most teachers was very steep. Sharing of knowledge and skills was a major contributing factor to the improvement in the staff's skills.

No amount of conventional PD could have achieved the results attained throughout the project. However, the project itself did not achieve these results. It was merely the vehicle that provided a purpose and motivation for the development of skills. The supportive and non-threatening environment promoted a collegial support network that was critical for skill development and was a springboard into the early stages of the credentialing process. Once a core group had attained Minimum Standards for Learning Technology, a flow through effect occurred whereby other staff members became less apprehensive about the process. They felt comfortable that they could complete their portfolio requirements using computer based work samples and activities undertaken in the regular operation of their class.

In order to promote the development of staff IT skills, the following should be considered –
- Encourage risk-taking
- Identify staff needs to ensure validity and direction
- Use rewards, encouragement and praise freely
- Develop a supportive, collegial atmosphere
- Promote networking
- Use staff expertise
- Allow time in staff meeting, pupil free days etc for sharing and support
- Be innovative – create a project that that staff can become enthused about
- Survey and cater to needs for staff based professional development
- Technology awareness/updates
- Administrative support

Grant, C. (1996). *Professional development in a technological age: new definitions, old challenges, new resources.* Retrieved September 5, 2004, from http://ra.terc.edu/publications/TERC_pubs/tech-infusion/prof_dev/prof_dev_frame.html.

Introduction: With schools increasingly investing in technologies for the classroom, there has been a growing realisation that these expensive resources will never be used to their fullest unless teachers are provided PD to guide their use.

Many schools systems have approached this challenge in the same way that they have approached other learning needs of teachers: by sending them to training sessions on the use of specific new technologies. Yet, too often the results of these sessions have fallen short of hopes: there has been little carryover into the classroom, and new technologies have remained on the periphery of school life and been used only sporadically by teachers, despite the high expectations of trainers, reformers, and the teachers themselves.

This paper looks broadly at the field of PD and the underlying principles that guide current approaches. It is suggested that PD for technology use creates conditions that highlight and underscore current problems in PD in general. The paper offers a definition of PD that goes beyond the term 'training' with its implications of learning sk ills, and encompasses a definition that includes formal and informal means of helping teachers not only learn new skills, but also develop new insights into pedagogy and their own practice, and explore new or advanced understandings of content and resources.

PD here includes support for teachers as they encounter the challenges that come with putting into practice their evolving understandings about the use of technology to support inquiry-based learning. The paper suggests specific issues that come with the process of supporting teachers in technology use, and concludes with a discussion of ways that current technologies offer resources to meet these challenges and provide teachers with a cluster of supports that help them continue to grow in their professional skills, understandings, and interests.

Hegarty, N. (1998). The Schooling 2001 competencies - one school's approach. Paper
    presented at QSITE98 - *Riding the Wave to 2001 - Coasting with computers*
    Conference, Sunshine Coast, August.

Toowoomba SHS is a large established secondary school with a stable staff profile. The
school generally offers a "traditional" curriculum and has made some recent innovations in
relation to vocational education offerings to Years 11 and 12 students. A common area of
concern within the school community, however, has been in relation to both the
implementation of IT-specific courses and the integration of IT into general student learning
experiences.

In addition to these local areas of concern, the school has needed to develop a response to the
EQ requirements for teachers to develop learning technology competencies as part of the
Schooling 2001 project. Involvement in the Leading Schools program has enabled the school
to complement existing IT management and support processes by relieving an additional
teacher of most timetabled class responsibilities to focus on the areas of teacher professional
development; cross-curricular integration of IT; and management of Connect-Ed and
curriculum network implementations. This paper outlines the processes being established at
this school.

.

Hord, S. (1997). *Professional learning communities: what are they and why are they
    important?* Retrieved September 15, 2004, from
    http://www.sedl.org/change/issues/issues61.html.

In education circles, the term "learning community" has become commonplace. It is being
used to mean any number of things, such as:

−   extending classroom practice into the community;
−   bringing community personnel into the school to enhance the curriculum and learning
    tasks for students;

− or engaging students, teachers, and administrators simultaneously in learning.

This paper focuses on what Astuto et al. (1993) labelled as a professional community of learners, in which the teachers in a school and its administrators continuously seek and share learning and then act on what they learn. The goal of their actions is to enhance their effectiveness as professionals so that students benefit. This arrangement has also been termed communities of continuous inquiry and improvement.

As an organisational arrangement, the professional learning community is seen as a powerful staff development approach and a potent strategy for school change and improvement. This paper represents an abbreviation of Hord's review of the literature (1997) which explored the concept and operationalisation of professional learning communities and their outcomes for staff and students.

Related articles:

Dillon, K. (2000). OZTL-NET: An online professional community for teacher librarians. *Australian Educational Computing, 15*(2), 11-14.

Ingvarson, L., Meiers, M., & Beavis, A. (2003). Evaluating the quality and impact of PD programs. In M. Meiers (Ed), *Building Teacher Quality: What does the research tell us.* Proceedings of the ACER Research 2003 Conference, Melbourne, October. Retrieved December 21, 2004, from http://www.acer.edu.au/news/documents/Confproceedings2003.pdf.

Introduction: PD for teachers is now recognised as a vital component of policies to enhance the quality of teaching and learning in our schools. Consequently, there is increased interest in research that identifies features of effective professional learning. Considerable funds are allocated to a wide variety of PD programs from a variety of sources. As investment increases, policy makers are increasingly asking for evidence about its effects not only on classroom practice, but on student learning outcomes. They are also looking for research that can guide them in designing programs that are more likely to lead to significant and sustained

improvement in student opportunities to learn.

There is a need, therefore, for more sophisticated methods of evaluating PD, with the capacity to meet these information needs. In the not too distant past, when many PD courses placed teachers in the role of an audience, questionnaires distributed at the door as teachers left sufficed. Strategies for PD have now become much more complex, long term and embedded in schools. Major funds may be allocated to training school-based staff developers and providing them with time release, developing curriculum support materials, time release, on-line learning and so on.

The kinds of questions that evaluators now need to answer are much more penetrating than questions such as "What did you learn from the workshop?" They are questions about program logic and the presumed links between professional learning strategies, and changes in teacher knowledge, classroom practices and student outcomes. These questions call for large-scale studies with the capacity to test these relationships across large numbers of different PD programs.

Jardine, R. (2000). Communications technology in education: The global staffroom? *QUICK, 76,* pp. 14-16.

This paper considers the importance of teachers' own practice in influencing their classroom practice, particularly in their use and membership of online communities. It argued that teachers can adopt computer-mediated communications to share ideas, collaborate on projects, and provide opportunities to follow up on contacts made in face-to-face meetings. It concludes that encouragement to go online is an important component of PD for teachers in ICT.

Related articles

Zhao, Y., & Rop, S. (2001). A critical review of the literature on electronic networks as reflective discourse communities for inservice teachers. *Education and Information Technologies, 6* (2), 81-94.

Kerans, S. (2000a). Murrumba District tours to schools. *QUICK, 78,* pp. 13-14.

Teachers in the Murrumba District have been given the chance to be relieved from normal duties and take bus tours to other schools for Learning and Development opportunities. The response from schools and administration teams to open the doors of their schools during ' core business' hours and to support their teachers with relief time has been remarkable! They will, as a result, see the implementation of great ideas and practice in their own schools. It is this sharing between schools which is often hard to achieve and is a model for operation which should be embraced more widely as we strive to move ahead together as public school communities to meet the demands of today's operations and the challenges of a 2010 approach. This applies most importantly to the integration of the use of computers into everyday learning experiences. The tours have been named ' MULTIPLY' Bus tours. The term is an acronym of the Murrumba District Learning Technology Network's mission: "Murrumba Learning Technology - Increasing the Possibilities in Learning for Young People". What we are seeking from the bus tours, is the "MULTIPLY -ing" effect of good ideas and outcomes for students between schools as we become closer together through our efforts. The two tour days conducted to date have been highly successful!

The main points behind the approach were that:
- Tours are designed for a specific audience, not a "general look at what schools are doing. This way the target audience gets a rich range of experiences in the area that is of interest for their own role.
- Tours are to schools that are not specially "well equipped" with information technology resources – they are everyday schools doing the best they can with what they have and achieving great things in the classroom. The planners did not want teachers at the end of the day to say "Yes, well, that school is doing very well, I might ask for a transfer", or "I could do that too if I only had access to all that equipment!" The goal we set out to achieve and the outcome we are realising is to have teachers say to themselves all day "I could do this in my school!"
- Tours are to schools in local district not to schools elsewhere. The planners wanted to avoid the perception of a subtle message that schools in the local district are doing nothing interesting and have nothing to contribute of value and can only aspire to the achievements of a small number of schools in the state. They looked for the good among

their own and values those among the local cohort to give them wings and greater confidence to grow as leaders in their own school and across school communities.

Kerans, S. (2000b). Three tiers and three bridges. *QUICK, 77,* pp. 12-19.

This paper presents an approach to 'whole school" teacher PD which has proven to be successful. It argues that a focus on training toward passing the test by reaching a basic set of standards is not a desirable course of action.   It cites Kleiman and Johnson (1998) in calling for 'new ways of thinking about professional development and new ways of dealing with the real constraints of time, money and energy that we all face" (p. 1). It also argues against skills checklists and describes as mythic the idea that teachers, once trained, are immediately capable of effectively putting computers to use in classroom settings.

The 'three tiers" refer to the grading of needs or confidence levels prior to the PD program. The tiers are low, moderate and high. The 'three bridges" apply to the learning experiences of teachers during their professional development. They mark the journey in developing higher levels of confidence in using computers for professional purposes, planning for and using computers in the classroom.

The steps of the *Three Tiers and Bridges* process are:
1. survey staff, collate and graph survey results (3 tiers)
2. identify key people, sources of additional support
3. establish peer support groupings
4. plan, allocate teacher relief time
5. familiarisation, planning workshops for teachers
6. teachers begin compiling a folder of their work
7. peer support time for teachers according to needs
8. periodic surveys, review of progress
9. systematic evaluation and accreditation of teachers

10. school celebrations at milestones.

The direction and process of this program are based on the understanding that 'effective programs in professional development are inextricably linked to building a professional culture in schools, one which supports qualities of reflection and collaboration in the context of action' (Grant, in Kleiman & Johnson, 1998, p. 3).

Related articles:

Kerans, S. (2000). Three Tiers and Three Bridges - A ' Whole School' Approach to Professional Development. Paper presented at *Warming to Information Technology, QSITE 2000 Conference, Townsville, September.*

Kessell, S., & Gaynor, I. (2002). *Creating an authentic online learning environment: Teaching ICT to teachers.* Retrieved September 15, 2004, from http://www.pa.ash.org.au/acec2002/uploads/documents/store/conferences/ conf_8_kessell_gaynor.doc

Abstract: In June 1999, a new online course designed to provide 'totally flexible learning' to teachers wishing to improve their Information and Communications Technologies (ICT) and Learning Technologies (LT) pedagogy and skills was established. The course was presented as one which:
- was self-paced, self-selected and student-directed;
- provided simultaneous acquisition and pedagogical use of ICT skills;
- was totally outcomes-based, assessed by what teachers can do (rather than what they know);
- catered for both experienced and novice ICT users; and
- met the needs of all K-12 teachers.

The program involved nearly 1,000 students enrolled in either the K-12 or Tertiary versions of the course with most completing the work as a Graduate Certificate in Learning Technologies. A significant problem faced by full-time educators attempting part-time

postgraduate study is lack of time; they have no time for obtuse theory, 'busy work" or 'just in case" ICT skills training. Therefore all course content, online discussions, activities and assessment items derive from the actual classroom use of ICT by the teachers and their colleagues. Students develop, trial and document their activities, record their reflections in personal portfolios, and share ideas and resources with other teachers from 12 countries.

This paper discusses the course content, structure and outcomes, but more importantly examines the opportunities and problems in creating and maintaining such a learning environment online.

Kleiman, G., & Johnson, K. (2000). Professional development: From reports to reality. *Leadership and the New Technologies.* Retrieved July 27, 2000 from http://www.edc.org/LNT/news/Issue5/feature.htm.

Introduction: The most powerful, up-to-date computers; the highest bandwidth networks; T1 lines to every classroom; the latest printers, scanners, digital cameras, and computer-based labs; and the best software are all of very little educational value unless teachers know how to incorporate these tools into powerful learning experiences for their students.

As schools acquire more powerful computers and associated hardware, software, and Internet connections, attention is quickly turning to the critical need for teacher PD. Teachers simply learning the basics of computer use - using the mouse and keyboard; printing, saving and retrieving files; using the basic functions of word processing, email, and Internet browsing; and so on, are essential but by no means sufficient to enable teachers to truly tap the educational potential of the technology. Just as knowing how to hammer, drill, and saw wood does not make one a skilled carpenter, knowing the basics of using a computer does not make one a skilled user of technology for teaching and learning.

Educational leaders are faced with the challenges of designing and implementing programs that will enable teachers to take full advantage of these powerful tools for teaching and learning. This calls for new ways of thinking about PD, and new ways of dealing with the real constraints of time, money, and energy that we all face. In this article, ideas and

examples are offered to help with these challenges. The information provided is drawn from recent research and reports.

Related articles

Kleiman, G., & Johnson, K. (1998). *Professional development: From reports to reality (Part 1).* Retrieved July 23, 2000, from http://www.edc.org/LNT/news/Issue5/feature.htm.

Lloyd, M. (2000). Reinventing Practice: Online professional development - the first year. *QUICK, 78,* pp. 22-25.

Reinventing Practice is an online PD program for practising teachers (http://www.pa.ash.org.au/qsitepd) developed and conducted by QSITE for the first time in 2000. It aimed to 'reinvent" the classic theories of educators such as Benjamin Bloom and Jean Piaget in terms of today's technology-rich classroom environments and to position newer theories such as Gardiner's 'multiple intelligences". The problems it addresses are (a) the relevance of a research base which was developed before the advent of the computers in the curriculum, and (b) enabling teachers to 'keep" valued aspects of teaching and learning as a link between traditional and new learning environments.

Reinventing Practice made use of synchronous and asynchronous telecommunications, print and online readings, discussion groups and online debates. Its uptake by Queensland teachers showed a growing maturity of technology implementation in our classrooms. Reinventing Practice aimed to help teachers move from use of computers and computer-related technologies to a more critical and theory-based perspective. It also acted to foster a sense of community in a group of physically isolated individuals, using technology to dispel the geographic and professional isolation of some of our state's teachers. It was deemed to be innovative because it was not technocentric, that is, it did not direct the issue of new ICT to the technology itself, but to a more qualitative understanding of teaching and learning itself. It was felt that once the pedagogy is established and the debate is about teaching and learning practice in new learning environments, the technology will become a seamless agent in the

daily practice of teaching and learning in Queensland schools.

Related articles:

Cochrane, J. (2001). Reinventing practice as learning circle? *QUICK, 80,* pp. 17-19.

Lloyd, M. (2000). Reinventing Practice - An online PD model. Paper presented at *Warming to Information Technology, QSITE 2000 Conference, Townsville, September.*

Lloyd, M. (2001, September). Reinventing practice: The second year. *QUICK*, 81, pp. 16-19.

Lloyd, M. (2002). *Reinventing Practice*: Linking Learners through Online Professional Engagement. Paper presented at *Linking Learners,* Australian Computers in Education (ACEC2002) Conference. Hobart

Lloyd, M., & McRobbie, C. (2003). *Investigation of the practicum model of professional development of teachers in ICT at Kawungan LDC-ICT.* Unpublished report. Centre for Mathematics, Science and Technology Education, QUT. Brisbane, Australia.

Executive Summary: This report describes an investigation of the Learning and Development Centre - Information and Communications Technology (LDC-ICT) at Kawungan State School. The study described in this report was funded jointly by Education Queensland and Queensland University of Technology. The investigation was initiated by the Kawungan LDC-ICT with the direct support of the Fraser-Cooloola District Office. The chief investigators in this study were Dr Margaret Lloyd and Prof Campbell McRobbie, of the Centre for Mathematics, Science and Technology Education (CMSTE), QUT. The study described in this report was conducted over four months (from February to June, 2003) aimed to provide an external and independent audit of the operations of the Centre and its effectiveness in meeting its published goals.

Data was drawn from interviews with teachers and administrators (7V=67) in various school sites (N=19) across three educational districts. The study focussed its final analysis on a general consideration of the effectiveness of the Kawungan LDC-ICT and on the three key concepts of impact, value and sustainability. The study found that the practicum model was

successful in achieving its goals and in meeting the immediate and ongoing needs of its participants.

Related articles

Baker, N., & Rarere, K. (2002). What is an LDCT? Paper presented at *WWW.Webs.Whales.Water*, QSITE 2002 Conference, Hervey Bay, September.

Burleigh Heads State School. (n.d.). *Learning development centre learning technology: Project overview*. Retrieved December 19, 2002 from http://www.burlheadss.qld.edu.au/ldc/overview.html.

Education Queensland. (2002). Learning and Development Centre Technology Resource Agreement. Brisbane, Australia: Education Queensland.

Finger, G., Baker, N., Nagel, D., & Rarare, K. (2002a, July). *Mapping ICT use by students: The Learning and Development Centre (LDCT) at Burleigh Heads State School*. Paper presented at *Linking Learners,* Australian Computers in Education (ACEC2002) Conference, Hobart, Australia.

Finger, G., Baker, N., Nagel, D., & Rarare, K. (2002b, December). Improving students' ICT use: The LDCT at Burleigh Heads State School. Paper presented at *Learning in Technology Education: Challenges for the 21st Century*, 2nd Biennial International Conference on Technology in Education.

McGhee, C. (1998). A new professional development model for teachers. *QUICK*, *69*, pp. 13-15.

Introduction: For too long teachers have had to suffer training type workshops where the expert either made them feel inadequate or overloaded them with new information. This most often resulted in there being no transfer to current classroom practices. The *Ideas Into Action* PD model is a design for learning that involves teachers constructing knowledge about teaching practice and extending their own knowledge about teaching by participation in an Internet curriculum-based project.

Internet curriculum-based projects can be found on the oz-TeacherNet (http://owl.qut.edu.au/oz-teachernet/index.html). The types of activities that are involved in these telecommunications projects are many and varied. They range from Tele-conversations to Virtual Field Trips to the Global Classroom Model (Williams, 1998). Travel Buddies and Book Raps are two of the Internet curriculum-based projects that are popular with teachers.

The Montage Showcase (http://www.bc.org.au/montage/montshow) shows examples of these and includes useful comments from teachers (Lees, 1998). The *Ideas Into Action* PD Model gives teachers some ' just in time' training and PD (McKenzie, 1998) so that they can turn these ideas into action by participating with their class in an Internet or telecommunications curriculum-based project. Teachers can take control of their own PD when they are preparing and actually participating in this project (Education Queensland, 1998).

McKenzie, J. (2001, March). How teachers learn technology best. *From Now On - Educational Technology Journal*, *10*(6). Retrieved September 15, 2004, from http://fno.org/mar01/howlearn.html.

Introduction: When it comes to teachers learning and valuing the effective use of new technologies, some schools have discovered that the kinds of training programs offered in the past may not represent the most generative method of reaching a full range of teachers and their students.

The key term is "generative" – meaning that behaviours and daily practice will be changed for the better as a consequence of the PD experience. Fortunately, some schools are now identifying approaches more likely to encourage teachers to employ these technologies on a frequent and sustained basis to enhance student learning. Lead districts are finding that adult learning, curriculum development projects and informal support structures are proving powerful in promoting recurrent use aimed at deep curriculum integration. After two decades of providing software classes to teachers, it is argued that a need exists to explore different

approaches – those honouring key principles of adult learning while placing both curriculum and literacy ahead of software and technology.

Office of Technology Assessment (OTA) (1995). *Teachers and technology: Making the connection*. Retrieved September 15, 2004, from http://www.wws.princeton.edu/%7Eota/disk1/1995/9541.html.

Conclusion: Bringing about change in the diversified U.S. school system is a formidable task. With over 2.8 million teachers in the United States and 3.3 million estimated to be needed by 2003, any attempt to 'ret ool" or provide the entire existing teacher workforce with new skills or knowledge will need to be done on a very large scale. Most teachers have many years of teaching experience (the median is 15 years) and, at a median age of 42, most attended school before computers were used in the classroom.

Teachers are an incredibly diverse group. Some already have experience with technology— computers at home, for example—while others have never even been shown how to 'boot one up." And some teachers are eager to e xperiment with new ideas even at the risk of failure, while others have little interest, energy, or time for experimentation. The great majority of teachers probably lie somewhere in between. Technology has been viewed by a few as a frill, by some as a distraction, and by others as an intriguing but peripheral component of education.

OTA has found, however, that technologies offer the ability to do many traditional things efficiently and quickly, and a way to encourage entirely new educational opportunities that may be of vital importance to the next generation of learners. If these learners are to make the most of the investments made in educational technologies, support must be given to the teachers who guide and encourage its use.

How can policymakers help to realise a vision of schools where teachers effectively and carefully identify, enlist, and use electronic and communications technology to improve

learning? OTA concluded that if the [U.S] federal government wants to maintain or enlarge its involvement in this area, the linchpin of federal policy could be a set of initiatives that develop and support technology, and help teachers in their teaching and professional activities. When technology is effectively harnessed to goals identified by teachers, schools, states, and national policymakers, it becomes a vehicle for learning that is powerfully attractive.

One of the principal policy challenges for the next decade is to lead by example and by commitment. The experience of effective technology use in classrooms needs to be widely shared, evaluated and used as building blocks. Resources are needed to develop advanced learning products (hardware, software, curriculum materials, and tools focused on educational applications); both resources and farsighted regulation will be needed to make electronic communities affordable and well designed for schools. Effective policy and well-organised private sector involvement could create technology options that assure resources are equally available across the country, for all teachers, for all students, in all schools.

Phelps, R., Graham, A., & Kerr, B. (2004). Teachers and ICT: Exploring a metacognitive approach to professional development. *Australasian Journal of Educational Technology*; *20*(1), 49-68.

PD for teachers in ICT is currently a major priority for school systems in Australia and internationally. The metacognitive and reflective approach to PD described in this paper is a response to the limitations of directive approaches to ICT learning within a context of rapid technological change.

This paper reports on a research project which investigated the applicability of such an approach to teacher PD. The approach was found to have significant outcomes in terms of computer skill development, and in influencing teachers' approaches to their own and their students' learning.

Prestridge, S. (1998). The Lighthouse project at Harrisfields Primary School. Paper presented at QSITE98 - *Riding the Wave to 2001 - Coasting with computers* Conference, Sunshine Coast, August.

A professional development project focusing on supporting teachers who are integrating IT into their maths curriculum. This presentation commenced with a SHORT explanation of how our Lighthouse Professional Development Project operates, detailing just how classroom support and computer skilling sessions were timetabled, which teachers were involved, in other words, the How, When, Where, with What and Why. The main focus of the presentation will be on HOW computers are being utilised in our maths lessons. Specific examples of learning activities and classroom organisational practices were explained and teachers' comments and thoughts shared.

Prestridge, S. (1999). *An online guest event supporting professional development. QUICK*, *71*, pp. 7-12.

Children today are growing up in a technologically rich environment. To ensure that current educational practices are relevant and effective, EQ has instituted a major reform called *Schooling 2001*. The two major directives from this initiative relate to Access and PD. Firstly, from the beginning of 1998, Queensland State Schools have been receiving fibre-optic cabling to facilitate the development of a Wide Area Network (WAN). For many schools, this has meant some type of Internet access. Secondly, EQ highlighted the need for PD of all teachers.

Conclusion: What teachers experience on the Internet and how they understand it will influence what they do with it in their classrooms. If we want to improve student learning outcomes then we must start with the PD of teachers in this area. An online guest event has been proven to provide a mutually supporting environment where learning is purposeful, well structured and requires critical thought. In a context such as this, teachers must use the technology they are learning about, to learn with computers, a philosophy that is essential. Being able to communicate with other teachers, share experiences, support and encourage one another breaks down the isolated environment in which teachers work everyday. Online

events are just one way in which teachers have the opportunity to learn. Learning communities will form a major part of teachers' every day lives and online events will become more frequent as teachers become more familiar with using the Internet.

Related articles:

Williams, M. (2000, June). A strategy to include online guests in your classroom. *QUICK, 76,* pp. 7-10.

Prestridge, S. & Watson, G. (2003). *To skill or to construct? Effective information and communication technology professional development within school reform.* Paper presented at AARE 2003, Auckland, December. Retrieved December 21, 2004, from http://www.aare.edu.au/02pap/wat02393.htm.

Abstract: Within the context of current school reform, PD in ICT is seen as a necessary ingredient for all stakeholders involved in educating the children of tomorrow. This paper reports on an initial stage of a research project concerned with models of teacher ICT PD that achieve multiliterate outcomes.

The paper explores the alignment between teachers' understandings of their need for ICT PD and the demands presented within the reform itself. Initial findings suggested that a conflicting paradigm exists in that the teacher's dem and for skill-based ICT PD does not equate with the constructivist ideology present within the school reform.

This consequently led to two key propositions which were:

1. Skill-based training in ICT may not enable the transition to a more constructivist approach to the use of ICT within the classroom; and,
2. School-based reform has created an antithetical position that is limiting the potential educational use of ICT (which can be seen as driving the form and function of PD).

Related articles

Hawley, W.D., & Valli, L. (1999). The essentials of effective professional development: A

new consensus. In I. Darling-Hammond & G.Sykes (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 127-150). San Francisco: Josey-Bass.

Rodriguez, G., & Knuth, R. (2000). *Critical issue: Providing professional development for effective technology use.* Retrieved September 5, 2004, from http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te1000.htm.

Issue: Whether technology should be used in schools is no longer the issue in education. Instead, the current emphasis is ensuring that technology is used effectively to create new opportunities for learning and to promote student achievement. Educational technology is not, and never will be, transformative on its own, however. It requires the assistance of educators who integrate technology into the curriculum, align it with student learning goals, and use it for engaged learning projects. Teacher quality is the factor that matters most for student learning (Darling-Hammond & Berry, 1998). Therefore, PD for teachers becomes the key issue in using technology to improve the quality of learning in the classroom.

Lack of PD for technology use is one of the most serious obstacles to fully integrating technology into the curriculum (Office of Technology Assessment, 1995). But traditional sit-and-get training sessions or one-time-only workshops have not been effective in making teachers comfortable with using technology or adept at integrating it into their lesson plans. Instead, a well-planned, ongoing PD program that is tied to the school's curriculum goals, designed with built-in evaluation, and sustained by adequate financial and staff support is essential if teachers are to use technology appropriately to promote learning for all students in the classroom.

Overview: The role of the classroom teacher is the crucial factor in the full development and use of technology in the schools (Office of Technology Assessment, 1995). The transformation of classroom technology from hardware, software, and connections into tools for teaching and learning depends on knowledgeable and enthusiastic teachers who are motivated and prepared to put technology to work on behalf of their students. Yet, many teachers do not have the technical knowledge or skills to recognise the potential for technology in teaching and learning. Just knowing how to use a computer is not enough.

Instead, teachers must become knowledgeable about technology and self-confident enough to integrate it effectively in the classroom. Teachers must become "fearless in their use of technology" and empowered by the many opportunities it offers. Most teachers want to learn to use educational technology effectively, but they lack the time, access, and support necessary to do so.

To reach the goal of preparing teachers for effective technology use, a well-designed PD program is essential. PD in a technological age requires new definitions and new resources. It cannot take the traditional forms of individual workshops or one-time training sessions. Instead, it must be viewed as an ongoing and integral part of teachers' professional lives. Two requirements help ensure the success of PD for effective technology use. First, the PD should be an integral part of the school technology plan or overall school-improvement plan. Second, the PD should contain all the necessary components that research has found to be important.

Related articles

Darling-Hammond, L. (1997). *Doing What Matters Most: Investing in Quality Teaching*. New York: The National Commission on Teaching and America's Future.

Darling-Hammond, L., & McLaughlin, M.W. (1995). Policies That Support Professional Development in an Era of Reform. *Phi Delta Kappan, 76*(8), pp. 597-604.

Darling-Hammond, L. (Ed.) (1994). *Professional Development Schools: Schools for Developing a Profession*. New York: Teachers College Press.

Rowe, S. (1999). The use of intranets as a professional development environment in schools. Paper presented at *Switched on, QSITE Conference,* Brisbane, June.

Professional development for teachers in learning technology is effected by a number of issues. These include:

- existing time constraints on teachers;
- costs involved in relieving teachers;
- level of expertise required to adopt learning technology as a philosophy

In order to meet these needs Woree State School has developed a school-based intranet. This learning environment enables teachers and students to immerse themselves in the technology environment . With access throughout the school, teachers and students can log on the intranet at any time and develop their skills through practice and sharing of ideas. It is expected these experiences will permeate into classroom applications, because teachers will be able to make decisions from an experiential base.

This paper will describe why Woree SS made an Intranet decision, what it does with its Intranet and describe the early results into some research that illustrates what impact the intranet has had on teachers ideas about learning technology.

Russell, G. (2004). *Virtual Schools: A Critique of Two Models.* Paper presented at the
    ACEC 2004 Conference, Adelaide, July.

Abstract: This paper discusses the emergence of two models of virtual schools. The in-school and out-of-school models of virtual schooling are examined in terms of flexibility, industrial models of schooling, socialization, student suitability for online environments, and teacher training and professional development. The paper concludes that there are advantages and disadvantages of each model, and that the suitability of the type of virtual school for students will depend on student needs

Ryan, M. (2000). **Professional Engagement Activity: Peer-based Professional Development.** Paper presented at *Warming to Information Technology, QSITE 2000 Conference, Townsville, September.*

This paper reported on the design and work-in-progress of a research project dealing with professional development for the integration of technology into the curriculum. The project attempted to provide a set of sustainable, low-cost and scalable professional engagement activities that should result in lasting change. T he model used was based on forming peer groups of teachers seeking to innovate and linking these activities to descriptions of successful innovation exemplars published locally on an intranet.

Santovec, M. (2004). Doing online professional development – online. *Distance Education Report, 8*(18), pp. 4-5.

This article discussed new research in experiential learning, specifically the success of participation in online PD in changing teaching practice. It is argued that variables in the online environment support different teaching and learning approaches. In an online environment, learning can be self-paced and mastery driven. It can draw on multimedia resources and allow for e-portfolios and other electronic assessments.

Schlager, M., Fusco, J., & Schank, P. (2002). Evolution of an on-line education community of practice. In K.A. Renninger, & W. Shumar, (Eds.), *Building virtual communities: Learning and change in cyberspace* (pp. 129-158). New York: Cambridge University Press.

Introduction: It has been noted that teachers have no time to work with or observe other teachers. They experience occasional "hit -and-run" workshops that are usually unconnected to their work and immediate problems of practice. This paper argued that effective PD cannot be adequately cultivated without the development of more substantial professional

discourse and engagement in communities of practice (Darling-Hammond & Ball, 1997). An important role for technologies is as the backbone for an invigorated, vibrant professional community among educators. This will not happen, however, without considerable effort to design the technologies and the social structure of their use with this objective made explicit.

Sherman, R., & Kutner, M. (n.d. a). *Professional development resource guide for adult educators.* Retrieved September 5, 2004, from http://www.calpro-online.org/pubs/intro.pdf.

Introduction: *PD* is a term conveying the concept that practitioners are (or should be) active partners in determining their own learning needs and in designing and implementing appropriate learning activities. After being used almost exclusively in describing continuing education requirements for advance certificates or recertification, PD is a concept slowly working its way into the education arena. A practitioner's sense of ownership in his or her own professional growth is a key element in producing long-term effects on instructional behaviour.

Sidey, S., & Stinton, M. (1997). QSITE chapters provide in-service using the CLIC materials. *QUICK*, *66*, pp. 14-17.

Background: In November 1996, two days were set aside for representatives from the Department of Education, Queensland, the Association of Independent Schools in Queensland (AISQ), QSITE and Catholic Education to attend a familiarisation course on the Computer Literacy In-service Course (CLIC) and its ensuing CLIC2. Representatives came from both Brisbane and regional areas.

In particular, the opportunity to meet and work with the joint venture partners from the same

geographical region was especially valuable. This report details the subsequent actions which have resulted in the Townsville region as a result of the CLIC initiatives.

Stokes, J., & Sidey, S. (1996). CLIC 2 – National professional development project days. *QUICK*, *62*, pp. 23-24.

Background: In 1993 Catholic Brisbane Education (BCE) devised and tested a basic computer literacy program called Computer Literacy In-service Course (CLIC). In 1994/5 the course was delivered to all schools in the system using the Key Teacher model that had been proven to be successful in the introduction of the new Queensland English syllabus. In 1994 a submission for external funding was written in compliance with the request of teachers for further PD in ICT. The submission was rejected because it did not have partnership agreements with other professional organisations.

In 1995, CLIC 2 was modified to include a partnership with the Department of Education, Queensland, Association for Independent Schools Queensland (AISQ), QSITE, BCE and Catholic Education systems in Cairns, Townsville, Rockhampton and Toowoomba. This bid was successful and in 1996 a project officer was appointed to produce new materials.

The CLIC program was deemed to be successful because of its emphasis on collaboration in achieving course outcomes.

Taylor, D. (1997). Professional development using a technology mentoring plan. . *QUICK, 64,* pp. 20-21.

This article describes a customised PD program implemented at Stuartholme College, Brisbane. Staff were invited to apply to take part in the program and were provided with a laptop (notebook) computer. Under the guidance of a mentor, participants designed and

implemented individual projects. The success of the program was attributed to its voluntary and participatory nature, and the grounding of the activity in teacher's daily work.

Taylor, L., & Carr, J. (2004). PLOT: Professional Learning Online Tool . Paper presented at *Reef, Beef and Bytes*, QSITE 2004 Conference, Yeppoon, September.

Learning and teaching is our core business. Research has consistently shown that, of all the factors a school can control, it is the quality of the pedagogy that most directly and powerfully affects the learning and achievement of students.

Related articles

Carr, J. (2001). Get with the PLOT. Paper presented at *WWW.Webs.Whales.Water*, QSITE 2002 Conference, Hervey Bay, September.

Carr. J. (2003). PLOT: Professional Learning Online Tool. Paper presented at *ICTs by design*, QSITE 2003 Conference, Brisbane, June-July.

Turner, S. (2004). Making your professional community work. Paper presented at *Reef, Beef and Bytes*, QSITE 2004 Conference, Yeppoon, September.

There are over 300 professional learning communities on the Learning Place. These dynamic websites contain a range of collaborative and presentation tools to support your communities activities.

Wadd. B. (2004). Practicum Model of Professional Development…But wait there's more!! Paper presented at *2001: A Cyber-Odyssey,* QSITE 2001 Conference, Brisbane, July.

The Teacher Development Centre, recently established in the Mt Gravatt District is based upon the ACOT model of professional development. Its outcomes are focused on changing teacher pedagogy and fostering stronger collegial networks.

The centre's establishment is based on the fact that teacher's work best in a 'time -out" model, but with the realisation that to influence change there is more dynamics to the equation. A smorgasbord of ongoing support is built into the teacher development model, where leaders of influence are empowered to make changes in their own classroom, with their colleagues, to the whole school community, and even to an education system.

This workshop highlights some of the philosophies of this model, then shares some of the 'teacher" stories, and pr oposes ways of fostering foundational change within schools through building capacity in teachers.

Related articles

Apple Computers. (2003). *Apple classrooms of tomorrow (ACOT).* Retrieved April 17, 2003
   from http://www.apple.com/uk/education/acot/acotresearch.html

Webb, I., Robertson, M. & Fluck, A. (2004, December). *ICT, Professional Learning:
   Towards Communities of Practice*. Paper presented at AARE 2004, Melbourne,
   December.

This paper reports on findings from action research pilot projects in four Tasmanian primary schools focussing on the provision of professional learning to support the use of information and communication technology (ICT) in teaching and learning. The pilot projects used an approach developed from case studies in Years 3 and 5 in Tasmanian primary school classes (n=29) relating to an Australian Research Council (ARC) Linkage grant studying the impact of ICT on pedagogies in primary schools.

In the course of the projects some participants developed and implemented solutions for a major problem of professional learning, namely, how to ensure the transfer of professional learning into in-class practices. The projects suggested that there are significant advantages (increased effectiveness and considerable cost savings) when professional learning is

undertaken as a collaborative activity and when teaching colleagues focus on specific class practices.

From the projects it has been possible to discern a possible pedagogy for in-school professional learning. Finally, the projects highlight the value and importance of being informed of the hopes, interests and abilities of the participants and supporting their engagement as a community of practice.

Williams, M. (2000). The 'what should teachers know" debate: More on learning technology competencies for teachers. *QUICK*, *77*, pp. 7-11.

Conclusion: The ISTE *National Educational Technology Standards for Teachers* document (ISTE, 2000), the ACCE *Statement on Learning Technology Competencies* (ACCE, 1999) and the *School Education Action Plan for the Information Economy* (EdNA, 2000) have complementary messages on PD in ICT for teachers. It is very clear that all three documents contain elements of a plea for teachers to be empowered to perform technology-saturated knowledge work in their professional practice.

– The ISTE document has value but does not describe the situation in Australia.

– The ACCE document indicated that the stumbling block is not the volume of PD funded for teachers but its type. Much more holistic PD programs are needed to enable teachers to practise professional knowledge work in the context of connected communication networks.

– The School Education Action Plan for the Information Economy is a welcome addition to the debate and illustrates willingness by Federal sectors to reinterpret information economy goals in the context of schooling.

In Australia, care is needed that the prescription of skills does not prevent professional progression and a determination to enable teachers to help their students contribute to

Australia's innovative and creative future. This paper argues that what is needed is a much more sophisticated description of professional practice and attitudes.

Williams, M. (2004). *AGQTP community – Case studies project.* Retrieved September 5, 2004, from http://www.learningplace.com.au/deliver/content.asp?pid=18570.

Conclusion: This project uncovered understandings about the nature of QTP program designs in Queensland. There was considerable understanding of overall PD program design in districts which was interpreted as a strength in that districts can "click people into place." Unevenness in project design was seen as more the result of varying and spasmodic accumulation of local knowledge about district priorities, local implementation experience and local specific project management and design experience. Changing responsibilities for individuals was seen as problematic when districts are seeking to achieve long term PD programs.

Williams, M., & Dundas, A. (1996). SICK: Professional development and resource management at Cooktown State School. . *QUICK, 63,* pp. 21-24.

This article reports on a customised localised solution to meeting the professional development needs of teachers at Cooktown State School in ICT.

In 1996, the ICT coordinator had identified a number of issues related to the logistics of managing resources and supporting staff on both campuses. Primarily, teachers at both campuses seemed to rely on the computer coordinator's availability to attend to all technical issues. This was not a deliberate act, but one that arose from a gradual willingness and ability of the coordinator to do things, and the busy day-by-day circumstances which put ' dealing with difficult technology' on the bottom of the priority list of the classroom teacher. Increasing levels of technology across the campuses without increased time meant that the assumptions about coordinator access could not be maintained. The resulting Staff In-service

Computer Klub (SICK) option was seen to be the solution to the 'state of health" of computing knowledge at the school.

Wilson, G., & Stacey, E. (2004). Online interaction impacts on learning: Teaching the teachers to teach online. *Australasian Journal of Educational Technology, 20*(1), 33-48.

This paper explores the importance of interaction in an online teaching environment and the important role of staff development in developing teacher presence online. Professionally developing staff to use ICT is viewed from the standpoint of diffusion of innovation, moving from early adopters to mainstream majority, and targeting staff development at this latter group. Approaches to staff development using ICT are described, and recommendations for staff development for online teaching are made.

QSITE Report

Towards a Model of Effective

Professional Development

in ICT for Teachers

PART 4

DATA COLLECTION AND ANALYSIS

PART 4

DATA COLLECTION AND ANALYSIS

CONTENTS

LIST OF TABLES

LIST OF FIGURES

The findings of this report will be presented in terms of (a) elements of effective professional development, (b) models of professional development, and (c) characteristics of effective and ineffective professional development. The first three sections are drawn from the survey instrument while the fourth is drawn from both the survey instrument and the semi-structured interviews.

Elements of effective professional development

The second item included in the survey form was concerned with the elements of effective professional development. Survey respondents were asked to rate on a 5 point Likert scale (from Strongly Agree (SA) to Strongly Disagree (SD)) a list of thirteen elements identified through the review of the literature, particularly from the inventory of characteristics of effective professional development programs identified by Arbuckle and Murray (1989) and the flaws of traditional approaches listed by Abdal-Haqq (1996)) as well as from anecdotal experience which were deemed to contribute to effective professional development.

Respondents were also provided with space to make additional comments, which have been included where relevant to the discussion in this section. Such comments have been acknowledged using the codes allocated to survey and interview subjects (see Table 3.1). The results of the rating scale (as raw scores) are presented as Table 4.1. The text following the table will incorporate the additional comments made by survey respondents. A fuller analysis of these impacts is discussed in Section 5.

Table 4.1

Elements of effective professional development (in order of agreement)

	Element	SA	A	NA	D	SD	*n*
1	Face to face	40	24	1	1	0	*66*
2	Skills based	32	30	2	2	1	*67*
3	Locally delivered	33	27	5	2	0	*67*
4	Curriculum based	30	30	4	2	0	*66*
5	Relevance to subject or year level	23	32	5	6	0	*66*
6	Software based (software package/s)	15	40	8	3	1	*67*
7	Appropriate pedagogy (adult learning, constructivism)	27	23	11	2	0	*63*
8	Time duration (intensive)	15	35	10	5	1	*66*
9	Similarity of training and school environment	20	29	14	3	0	*66*
10	Time duration (extended)	14	35	10	7	0	*66*
11	Specialist groupings (subject or year level)	20	28	13	5	0	*66*
12	Online	9	37	8	13	0	*67*
13	Certification	10	26	17	12	1	*66*

Participants rated "face to face" as the element from the given list, which most strongly contributed to effective professional development with 64 (*n*=66) agreeing or strongly agreeing and only one individual disagreeing. The second was "skills based" with "locally delivered" and "curriculum based" closely following in third and fourth position.

The top four are markedly favoured ahead of the other listed elements and together form a perception of effective professional development as being practical, focused and grounded in the local context.

According to Education Queensland (1998), professional development should "be structured so that learning activities can be contextualised locally" (p. 7). Williams (2004) agreed, suggesting that "there is considerable understanding of overall professional development program design in districts and this is a strength which means districts can 'click people into place'" (Conclusion). It has also been noted that standards, whilst developed nationally, must be able to be translated into local contexts (DEST, 2004b). Similarly, experiences with the CLIC 2 program led Stokes and Sidey (1996) to note, "teachers preferred to have in-service offered at their own location… [and] teachers preferred to be in-serviced by a knowledgeable person on their staff rather than an outside 'expert'" (p. 23).

Comments from respondents indicated cautious support for skills-based training, and included qualifying comments, drawn from this section of the survey and the final section of the survey. These included the comment that "sometimes I really need skill development [while] at other times I have other focuses" (S22) and:

> I believe in balance and that people have different needs at different times. Teachers, in the early stages of implementation, need to feel competent and are fixated with skills training. For some people, this needs to be available. However, it is essential that the next step be available and that people are moved in this direction. (S24)

Almost equally ranked (in 5th and 6th position) were "relevance" and "software based" despite their being quite disparate elements. The distinction between "software based" and "skills based" and "curriculum based" is significant (t he latter being ranked 2nd and 4th respectively) as evidenced by several comments from respondents indicating dissatisfaction with professional development focused on selling software products. This kind of professional development was categorised as ineffective by many respondents

with negative comments about 'workshops that aim to sell a product' (O8) and 'sessions that are more sales and product specific' (P1) where the 'aim is selling, not educating [or] sharing' (O8). Respondents were suspicious of "professional development targeted at software which is too expensive, not suited to needs" (S15) and 'professional development delivered by people with a barrow to push' (S15) or 'learning a piece of software without its curriculum uses' (P14).

The listing of 'appropriate pedagogy' as 7 th in the list of 13 does not diminish its importance with 75% of respondents agreeing or strongly agreeing with its contribution to the effectiveness of professional development, and only two respondents disagreeing. This importance was borne out in strong complaints about inappropriate pedagogy, for example 'being 'talked at' rather than participate - it is important to become involved and immersed' (O7) and that 'set structure, instructor -led (step by step) doesn't allow creativity, doesn't relate' (P1). Respondents recalled being 'rushed, 'spoken at' [with] no involvement [or] time to follow up' (L10/O14) and did not value professional development which required them to 'sit and listen at the end of a busy day [and] content poor' (S25).

Amongst the negative comments were recollections of (a) 'preachy style of presenter' [who made] 'constant references to pedagogy and software that is not appropriate or affordable or relevant' (S22), (b) professional development which "tends to alienate participants; it needs to be relevant and meaningful" (O7), (c) 'prescriptive sessions – all talk, little interaction; activities with little variety; events I did not relate to; sessions presented by speakers who were dull or not confident' (S23), and (d) 'poor presenters with poor pedagogy and poor curriculum design' (L7/O11). Presenters were also criticised for 'stating the obvious; reading overheads or slides; too much overused or clichéd or PC terminology' (O9) and 'lack of purpose; presenter-focused instead of participant-focused' (O12). Further comments on the characteristics of presenters (and presentations), drawn from the open-ended questions and semi-structured interviews, are presented further on.

The next highest ranked group of elements included 'time", 'similarity" and 'specialist groupings." It is interesting to note that, in the open-ended comments (see Section 4.4), the concept of time was a consistent theme when respondents were asked to describe the characteristics of effective professional development. However in this first section of the survey neither 'intensive" nor 'extensive" time duration was ranked particularly highly and, in fact, this group of elements was considered by some respondents (n=10) to be 'not applicable" to effective professional development.

When analysed further however, the concept of time in relation to professional development in the open-ended comments appeared to be more closely related to time needed to reflect, practice and follow up on things they had learned, rather than the length of time spent in the initial professional development event. Respondents' comments included many references to time, where they expressed the need 'to have time to meet, practise, organise" (S13), 'to discuss, reflect and return for follow up sessions" (S23) for 'ongoing extended time to implement, improve", and for 'time given for reflection and research" (L2/O13). Further comments indicated that respondents wanted 'time to absorb and practise and reinforce what is being studied" (P12) and 'time to participate away from a busy work schedule" (O7). This concept was also expressed in terms of 'time to play" (O4).

The theme of time was further reinforced in the semi-structured interviews with references to professional development events which 'include time to reflect and link back to classroom practice" (L3) and 'time to go away and consolidate" (L3). One interview subject noted that (when designing professional development programs for teachers) 'we have built into agendas now a lot of time for reflection and input from the learners" (L1), whilst others commented on ineffective professional development with comments such as 'definitely lack of time to participate and practice correctly" (S14) and 'fragmented, lack of time to participate and practice, unrelated to practice" (P12).

Downes et al. (2002) supported the notion that time is 'one of the greatest challenges to effective professional development" (p. 3) but noted that:

Although time is consistently identified as a crucial key to successful professional development (or, more often, lack of time identified as a barrier), the mere provision of time alone is unlikely to eventuate in significantly changed practice in the use of ICTs. (p. 75)

In the same report, the authors note that "professional development requires adequate time for inquiry, reflections, and mentoring" (Downes et al., 2002, p. 19), and go on to say that:

Teachers, researchers, and policymakers consistently indicate that the greatest challenge to implementing effective professional development is lack of time. Teachers need time to understand new concepts, learn new skills, develop new attitudes, research, discuss, reflect, access, try new approaches and integrate them into their practice; and time to plan their own professional development (Cambone 1995; Corcoran 1995; Troen and Bolles 1994; Watts and Castle 1993). Cambone (1995) points out that teachers, as adult learners, need set-aside time for learning (e.g. workshops and courses); time to experience and digest new ideas and ways of working; and, as other literature points out, time for inquiry reflection and analysis within their workplace (CERI 1998).

(Downes et al., 2002, p. 75)

The OTA report *Teachers and Technology: Making the Connection* (1995) echoes this finding, stating that "probably the greatest barrier to technology use, however, is simply lack of teacher time – time to attend training or workshops, to experiment with machines and explore software, to talk to others teachers about what works and what doesn't, and to plan lessons using new materials or methods" (p. 25).

Ellis and Phelps (2000) agreed, stating, "the most difficult aspect of staff development processes is in managing the timeliness of learning opportunities. There is a fine balance between exposing staff to technological possibilities and overwhelming them with technology which they do not immediately use" (paragraph 56).   In the report *Providing Professional Development for Effective Technology Use* (2000) Rodriguez and Knuth

pointed out that 'for any professional development activity, teachers need time to plan, practise skills, try out new ideas, collaborate, and reflect on ideas" (paragraph 22).

The lowest ranked elements, namely online delivery and certification, also drew the highest number of individuals disagreeing or who felt these elements were not relevant to effective professional development. A comment relating to this element was that:

> Certification is sometimes required, for example, for ITS [Information Technology Systems), professional development needs to fill a need for the user, not learning for the sake of it. Professional development is needed for all levels of users. It is very easy to forget how basic some needs are. (S11)

Similarly, one respondent noted, 'certification [is needed] only if required to qualify for VET or industry. Not skills-based but skill development is a necessary element or lack of it will become a barrier" (O5). A general dissatisfaction with online professional development delivery was expressed with this low ranking (particularly the heightened levels of disagreement), and reinforced with comments included in the survey.

Respondents were apparently unimpressed with "online self paced training or course, poorly organised online course" (O5) and "one -off demonstrations on how to use online tools [with] ineffective networking, online collaboration [and] support" (P2). Amongst characteristics of ineffective professional development, respondents defined "online" professional development through comments as being "online, workbooks, self paced material" (S32) and "CD ROM training, online learning" (P22). Garvey (2002) noted, "a key learning has been that the majority of teachers have been reluctant to adopt the online mode of learning on its own" (p. 15).

Models of effective professional development

In the third section of the survey eight models of professional development were listed. These were substantively drawn from Downes et al. (2002) and were complemented by the addition of a more recent model viz. action learning/ action research.   These were:

       i.   Tertiary Study

      ii.   School-based/focused Programs

    iii.   Single Event Programs

    iv.   Online Curriculum Projects

      v.   Serial Course in Hybrid Mode

     vi.   Serial Course in F2F Mode

   vii.   Professional Learning Communities

  viii.   Action learning/Action research

The professional development experience of the sample group was widespread with most (*n*=55) having participated in three or more different models of professional development in the past. This indicates a group well positioned to comment on the effectiveness of different models of professional development not only due to a breadth of experience but also because they were able to compare and contrast different professional development events. Four respondents had experienced all eight proffered models.

The average number of different models of professional development in which respondents had participated was 3.95 and the median number was 4. Table 4.2 presents the tally of models experienced by the survey participants.

Table 4.2

Number of survey respondents who had participated in aggregate numbers of professional development models of the 8 listed (n=67)

Aggregate number of models	Number of survey responses
0 models	0
1 model	5
2 models	7
3 models	17
4 models	18
5 models	8
6 models	5
7 models	3
8 models	4

Respondents were asked to rate each of the models they were familiar with in terms of a series of impacts synthesised from the literature (see, for example, Abdal-Haqq, 1996; Arbuckle & Murray, 1989). These impacts were:

i. Direct impact on teaching practice

ii. Sustained impact on teaching practice

iii. Added to personal knowledge of ICT integration

iv. Increased ICT skills

v. Enabled participant to reflect on practice

vi. Enhanced professional status

vii. Expanded professional networks

viii. Instigated heightened collaboration within school

The impacts were rated on a 5 point Likert scale (from Strongly Agree (SA) to Strongly Disagree (SD)). The results of the rating scales presented in this section are presented in percentage values while a fuller analysis of these impacts is discussed further on.

Tertiary study

More than 80% (*n*=54) of survey respondents commented that tertiary study (as professional development) had a direct (85.19%) and sustained (79.63%) impact on their teaching practice. There was also strong agreement that tertiary study enabled respondents to reflect on their practice (85.19%) and enhanced their professional status (79.63%), and to a slightly lesser degree increased their ICT skills (72.22%). A lower rating was given when asked if it added to their personal knowledge of ICT integration (64.82%) or and expanded their professional networks (68.52%). In terms of heightened collaboration, more than half of the respondents (59.26%) either disagreed or felt it was not applicable.

The average number of respondents who agreed that tertiary study was an effective mode of professional development was 71.99% and the average number of respondents who disagreed was 13.43%. The median number of respondents who agreed that tertiary study was an effective mode of professional development was 75.93% and the median number of respondents who disagreed was 12.04%. The survey responses relating to tertiary study are presented as Table 4.3 and Figure 4.1.

Table 4.3

Response to effectiveness of tertiary study (%) in order of agreement (n =54)

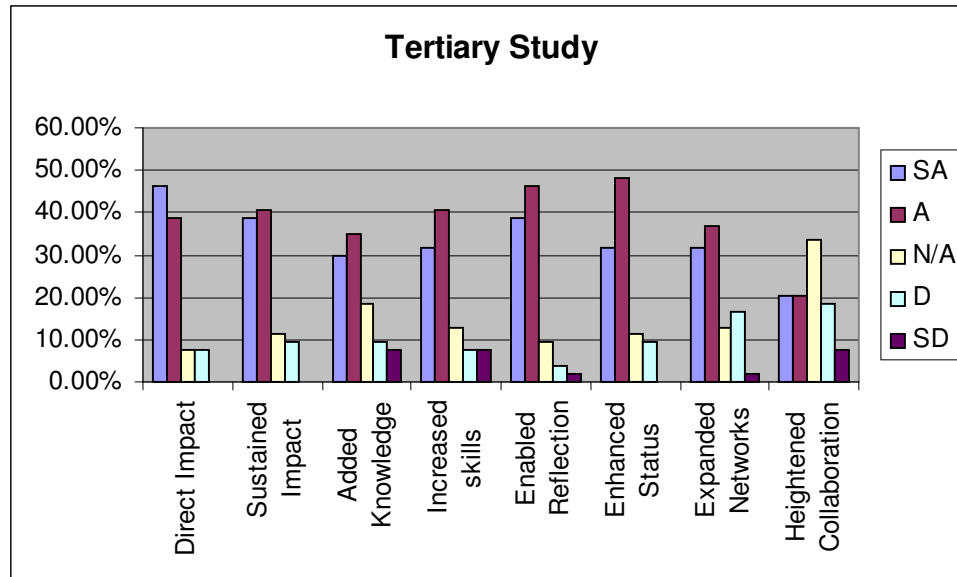| Tertiary Study	SA	A	N/A	D	SD
Direct Impact	46.30	38.89	7.41	7.41	0.00
Enabled Reflection	38.89	46.30	9.26	3.70	1.85
Sustained Impact	38.89	40.74	11.11	9.26	0.00
Enhanced Status	31.48	48.15	11.11	9.26	0.00
Increased Skills	31.48	40.74	12.96	7.41	7.41
Expanded Networks	31.48	37.04	12.96	16.67	1.85
Added Knowledge	29.63	35.19	18.52	9.26	7.41
Heightened Collaboration	20.37	20.37	33.33	18.52	7.41

Tertiary Study

Figure 4.1   Response to effectiveness of tertiary study

School-based/focused programs

School-based/focused programs include initiatives such as (a) the Australian Government Quality Teacher Programme (AGQTP) which is intended to update and improve teachers' skills and understanding and enhance the status of teaching, and (b) learning circles, which can be defined as more informal arrangements in which groups of teachers meet to share and discuss issues related to their learning areas usually with a facilitator to guide the process.

Survey respondents reported that school-based programs primarily had enabled them to reflect on their practice (84.38%) and also had a direct (81.25%) and sustained (78.13%) impact on their teaching practice. There was also strong agreement that school-based programs had increased their ICT skills and added to their personal knowledge of ICT integration (both 78.13%). Less agreement was shown when asked if school-based programs expanded their professional networks, heightened collaboration (both 71.88%) or enhanced their professional status (62.51%). Almost half of all survey respondents (*n=32*) had participated in this model of professional development. The average number of respondents who agreed that school-based programs were an effective mode of professional development was 75.78% and the average number of respondents who

disagreed was 9.77%. The median number of respondents who agreed that school-based programs were an effective mode of professional development was 78.13% and the median number of respondents who disagreed was 9.38%. The survey responses relating to school-based programs are presented as Table 4.4 and Figure 4.2.

Table 4.4

Response to effectiveness of school-based/focused programs (%) in order of agreement (n=32)

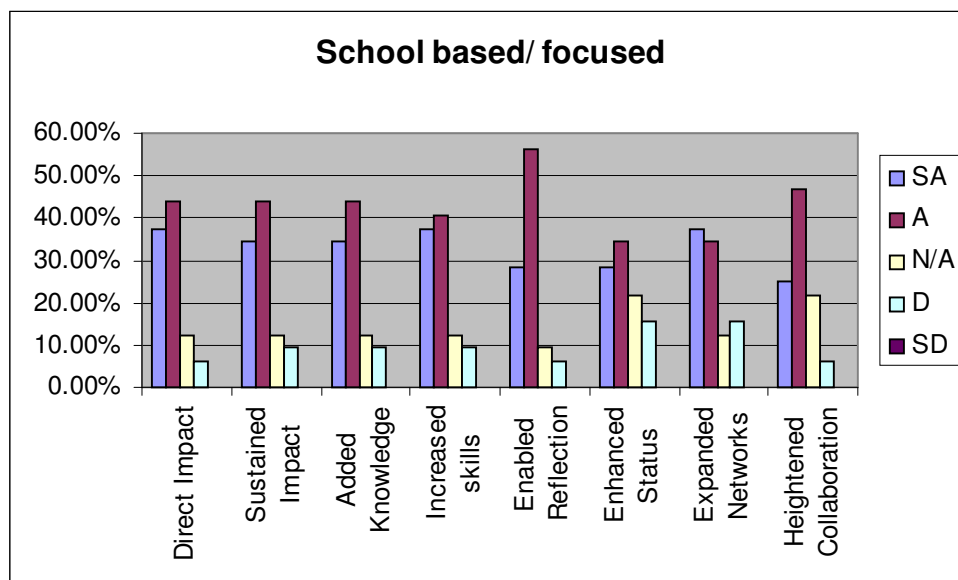| School-based/Focused	SA	A	N/A	D	SD
Enabled Reflection	28.13	56.25	9.38	6.25	0.00
Direct Impact	37.50	43.75	12.50	6.25	0.00
Sustained Impact	34.38	43.75	12.50	9.38	0.00
Added Knowledge	34.38	43.75	12.50	9.38	0.00
Increased Skills	37.50	40.63	12.50	9.38	0.00
Expanded Networks	37.50	34.38	12.50	15.63	0.00
Heightened Collaboration	25.00	46.88	21.88	6.25	0.00
Enhanced Status	28.13	34.38	21.88	15.63	0.00

Figure 4.2   Response to effectiveness of school-based/focused programs

Single event programs

Single event programs were described in the survey as full day and/or half day conferences or practicums. Almost all survey respondents (*n*=64) had participated in this model of professional development and reported that single event programs had a direct impact on their teaching practice (85.94%), increased their ICT skills (87.50%) and added to their personal knowledge of ICT integration (87.51%).

There was also strong agreement that the single event programs described in the survey enabled participants to reflect on their practice (84.37%) and expanded their professional networks (85.94%). Less agreement was shown when asked if single event programs had a sustained impact (70.32%), heightened collaboration (64.06%) or enhanced their professional status, with 20.31% of respondents disagreeing with the latter.

The average number of respondents who agreed that single event programs were an effective mode of professional development was 78.71% and the average number of respondents who disagreed was 10.94%. The median number of respondents who agreed that single event programs were an effective mode of professional development was 85.16% and the median number of respondents who disagreed was 8.59%. The survey responses relating to single event programs are presented as Table 4.5 and Figure 4.3.

Table 4.5

Response to effectiveness of single event programs (%) (n=64)

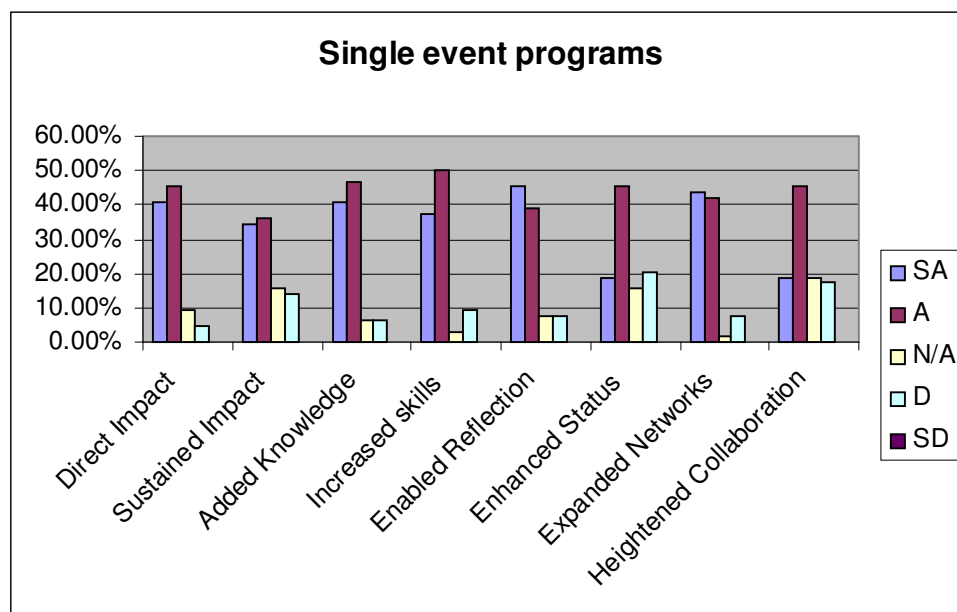| Single Event Program	SA	A	N/A	D	SD
Added Knowledge	40.63	46.88	6.25	6.25	0.00
Increased Skills	37.50	50.00	3.13	9.38	0.00
Direct Impact	40.63	45.31	9.38	4.69	0.00
Expanded Networks	43.75	42.19	1.56	7.81	0.00
Enabled Reflection	45.31	39.06	7.81	7.81	0.00
Sustained Impact	34.38	35.94	15.63	14.06	0.00
Enhanced Status	18.75	45.31	15.63	20.31	0.00
Heightened Collaboration	18.75	45.31	18.75	17.19	0.00

Figure 4.3   Response to effectiveness of single event programs

[Online curriculum projects](#)

Online curriculum projects include initiatives such as *Oz-TeacherNet* and *Project Atmosphere*. The Oz-TeacherNet (OTN) was developed to assist teachers in using the Internet to support professional development and curriculum design. The OTN projects

and communities are managed and developed by the RITE (Research in Information Technology Education) Group based at QUT. Project Atmosphere, hosted by OTN and managed by Sel Kerans, is run by teachers as an online project for school communities in Australia and overseas. It is operated using a collaborative web site and email discussion lists to enhance communication between teachers and meteorologists.

The overall response to this model of professional development was very positive, with survey respondents reporting that online curriculum projects had a direct impact on their teaching practice (90.47%), increased their ICT skills (90.48%) and enabled them to reflect on their practice (90.48%). There was also strong agreement that online curriculum projects added to their personal knowledge of ICT integration (85.72%), had a sustained impact on their teaching practice (80.95%) and expanded their professional networks (80.96%). However, in terms of enhanced professional status and heightened collaboration, 28.57% of respondents in both cases either disagreed or felt these criteria were not applicable.

Approximately one third of the total number of survey respondents (*n*=22) had participated in this model of professional development.   The average number of respondents who agreed that online curriculum projects were an effective mode of professional development was 83.93% and the average number of respondents who disagreed was 12.50%. The median number of respondents who agreed that online curriculum projects were an effective mode of professional development was 83.33% and the median number of respondents who disagreed was 11.90%.

This result is seemingly at odds with the results of the section of the survey concerned with the elements of effective professional development (Section 4.1) in which respondents rated being "online" poorly. In that instance, "online" was given a meaning of social interaction or delivery by being placed in the same phrases as "face to face." This apparently inconsistent result suggests that there are different "online" experiences with some being more passive and less effective than others. The survey responses relating to online curriculum projects are presented as Table 4.6 and Figure 4.4.

Table 4.6

Response to effectiveness of online curriculum projects (%) (n=22)

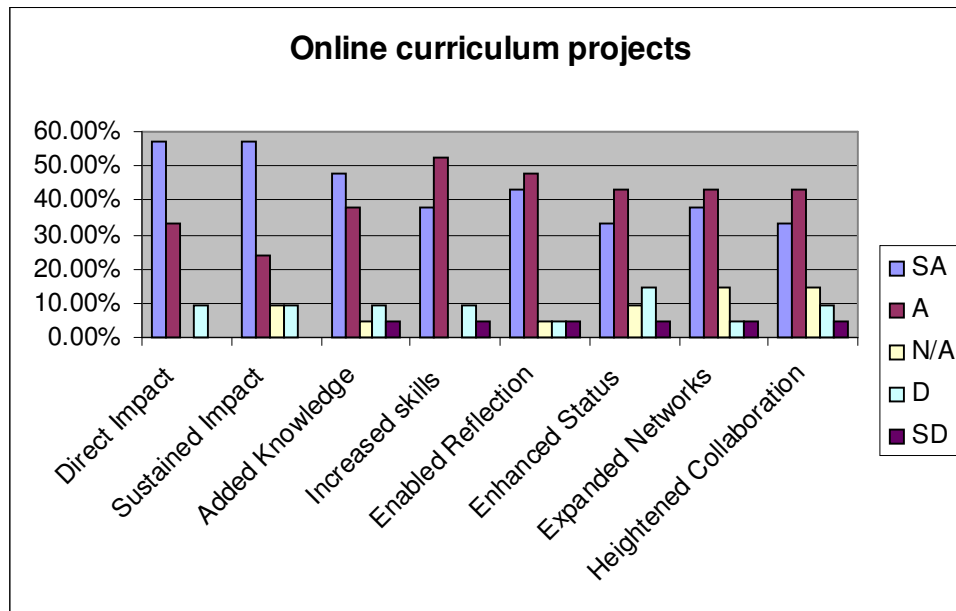| Online Curriculum Project	SA	A	N/A	D	SD
Increased Skills	38.10	52.38	0.00	9.52	4.76
Enabled Reflection	42.86	47.62	4.76	4.76	4.76
Direct Impact	57.14	33.33	0.00	9.52	0.00
Added Knowledge	47.62	38.10	4.76	9.52	4.76
Expanded Networks	38.10	42.86	14.29	4.76	4.76
Sustained Impact	57.14	23.81	9.52	9.52	0.00
Enhanced Status	33.33	42.86	9.52	14.29	4.76
Heightened Collaboration	33.33	42.86	14.29	9.52	4.76

Figure 4.4   Response to effectiveness of online curriculum projects

[Serial Courses in Hybrid Mode (F2F and online)](#)

Serial courses in hybrid mode can include both F2F and online components. Examples of these are BCE (Brisbane Catholic Education) / QUT Online professional development

and the Computer Literacy In-service Course (CLIC) program developed by BCE. The small group of survey respondents (*n*=11) who had participated in this model of professional development reported that serial courses in hybrid mode did increase their ICT skills, add to their personal knowledge of ICT integration and enable them to reflect on their practice (72.73% in each case), however compared to the previous models of professional development discussed here, the ratings for the other criteria were all markedly lower.

A total of 63.63% of respondents believed that this model had a direct impact on their teaching practice, enhanced their professional status or heightened collaboration, and many disagreed that it had a sustained impact or expanded their professional networks, with these criteria receiving the lowest rankings (54.54%). The average number of respondents who agreed that serial courses in hybrid mode were an effective mode of professional development was 64.77% and the average number of respondents who disagreed was 18.18%. The median number of respondents who agreed that serial courses in hybrid mode were an effective mode of professional development was 63.64% and the median number of respondents who disagreed was 18.18%. The survey responses relating to serial courses in hybrid mode are presented as Table 4.7 and Figure 4.5.

Table 4.7

Response to effectiveness of serial courses in hybrid mode (%) (n=11)

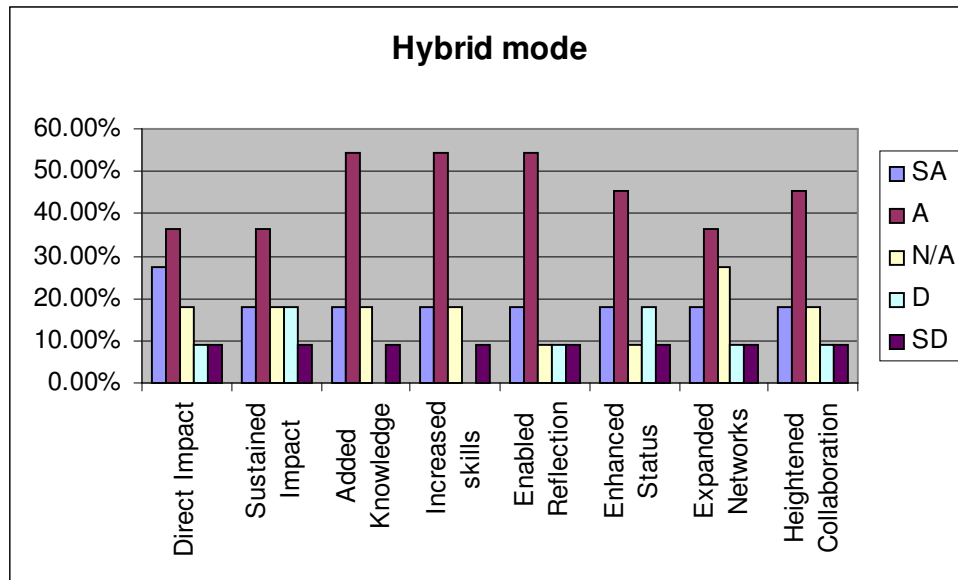| Hybrid Mode	SA	A	N/A	D	SD
Added Knowledge	18.18	54.55	18.18	0.00	9.09
Increased Skills	18.18	54.55	18.18	0.00	9.09
Enabled Reflection	18.18	54.55	9.09	9.09	9.09
Direct Impact	27.27	36.36	18.18	9.09	9.09
Enhanced Status	18.18	45.45	9.09	18.18	9.09
Heightened Collaboration	18.18	45.45	18.18	9.09	9.09
Sustained Impact	18.18	36.36	18.18	18.18	9.09
Expanded Networks	18.18	36.36	27.27	9.09	9.09

Figure 4.5   Response to effectiveness of serial courses in hybrid mode

Serial courses in F2F mode

Serial courses include those run by institutions such as TAFE community education where students are required to attend lectures and tutorials as opposed to TAFE Online which offers courses externally. Survey respondents reported that serial courses in F2F mode had direct (88.24%) and sustained (76.47%) impact on their teaching practice and increased their ICT skills (94.12%).

There was less agreement as to whether it enabled them to reflect on their practice or added to their knowledge of ICT integration (both 70.59%) or enhanced their professional status (64.70%), while 29.41% disagreed that it expanded their professional networks. In terms of heightened collaboration more than half (52.94%) either disagreed or felt that it was not applicable. Less than one third of all survey respondents (*n*=17) had participated in this model of professional development.

The average number of respondents who agreed that serial courses in F2F mode were an effective mode of professional development was 72.06% and the average number of

respondents who disagreed was 18.38%. The median number of respondents who agreed that serial courses in F2F mode were an effective mode of professional development was 70.59% and the median number of respondents who disagreed was 20.59%. The survey responses relating to serial courses in F2F mode are presented as Table 4.8 and Figure 4.6.

Table 4.8

Response to effectiveness of serial courses in F2F mode (%) (n=17)

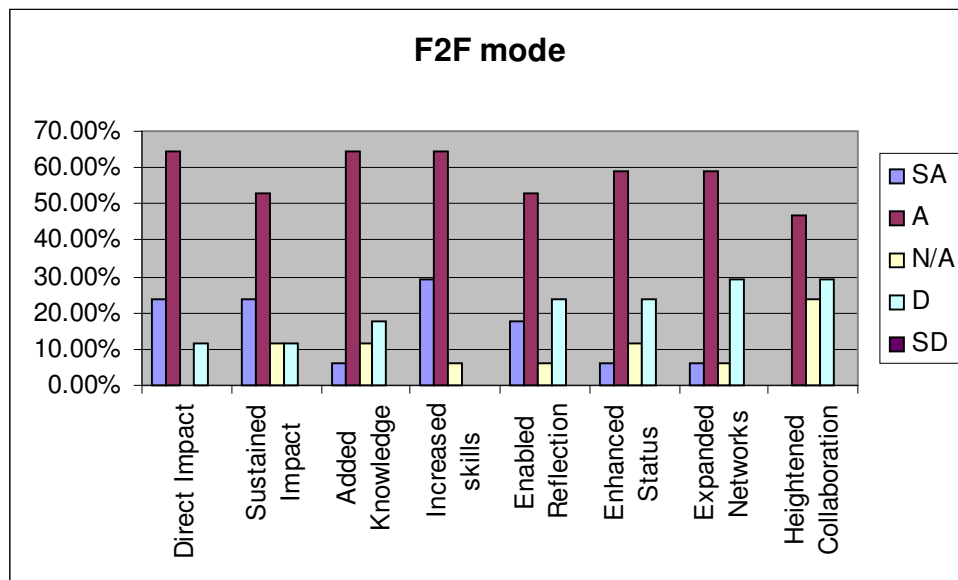| F2F Mode	SA	A	N/A	D	SD
Increased Skills	29.41	64.71	5.88	0.00	0.00
Direct Impact	23.53	64.71	0.00	11.76	0.00
Sustained Impact	23.53	52.94	11.76	11.76	0.00
Added Knowledge	5.88	64.71	11.76	17.65	0.00
Enabled Reflection	17.65	52.94	5.88	23.53	0.00
Enhanced Status	5.88	58.82	11.76	23.53	0.00
Expanded Networks	5.88	58.82	5.88	29.41	0.00
Heightened Collaboration	0.00	47.06	23.53	29.41	0.00

Figure 4.6   Response to effectiveness of serial courses in F2F mode
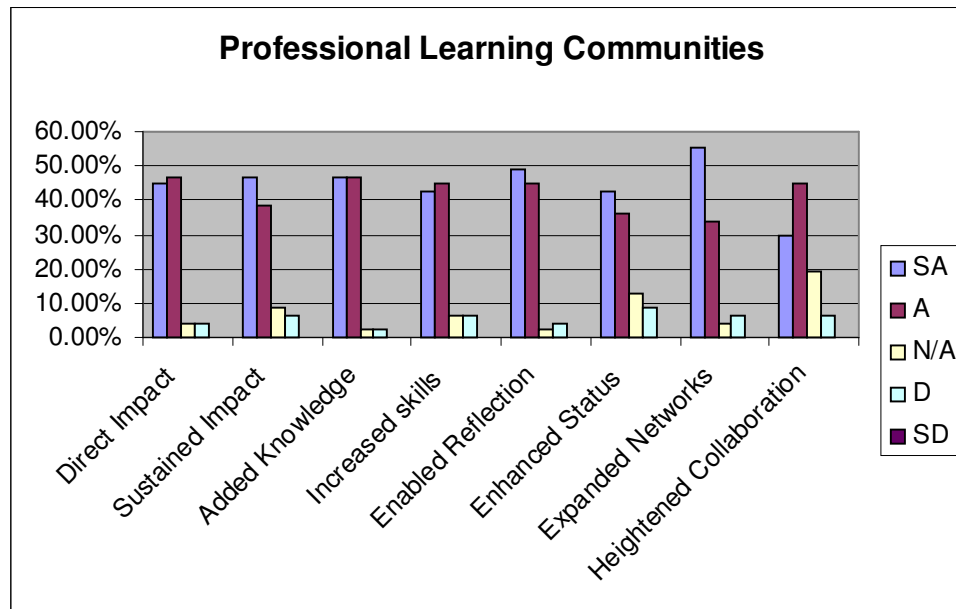
Professional Learning Communities

Professional learning communities include groups and programs such as QSITE, a voluntary professional association for teachers to encourage sharing of ideas and resources in order to promote best practice in curriculum development, *Reinventing Practice*, a program developed by QSITE to enable teachers to revisit basic concepts of teaching and learning in order to facilitate the use of ICT in schools, and the Learning Place, Education Queensland' s online learning resource for teachers.

Almost three quarters of the survey respondents (*n*=47) had participated in professional learning communities, with the overall response to this model of professional development being very positive. Respondents reported that it had a direct impact on their teaching practice (91.49%), enabled them to reflect on their practice (93.62%) and added to their personal knowledge of ICT integration (93.62%). There was also strong agreement that this model of professional development expanded their professional networks (89.36%), increased their ICT skills (87.23%) and had a sustained impact on their teaching practice (85.11%). A slightly lower, but still favourable, ranking was given in terms of enhanced status (78.72%) and heightened collaboration (74.47%).

The average number of respondents who agreed that professional learning communities were an effective mode of professional development was 86.70% and the average number of respondents who disagreed was 5.59%. The median number of respondents who agreed that professional learning communities were an effective mode of professional development was 88.30% and the median number of respondents who disagreed was 6.38%. The survey responses relating to professional learning communities are presented as Table 4.9 and Figure 4.7.

Table 4.9

Response to effectiveness of professional learning communities (%) (n=47)

Prof Learning Communities	SA	A	N/A	D	SD
Added Knowledge	46.81	46.81	2.13	2.13	0.00
Enabled Reflection	48.94	44.68	2.13	4.26	0.00
Direct Impact	44.68	46.81	4.26	4.26	0.00
Expanded Networks	55.32	34.04	4.26	6.38	0.00
Increased Skills	42.55	44.68	6.38	6.38	0.00
Sustained Impact	46.81	38.30	8.51	6.38	0.00
Enhanced Status	42.55	36.17	12.77	8.51	0.00
Heightened Collaboration	29.79	44.68	19.15	6.38	0.00

Figure 4.7   Response to effectiveness of professional learning communities

[Action learning/Action research](#)

Action learning is a process involving a group of people who meet regularly to share their learning experiences whereas action research is more cyclical and includes phases of critical reflection. Survey respondents (n=17) reported that action learning/action

research had a direct (94.11%) and sustained (82.35%) impact on their teaching practice, enabled them to reflect on their practice (88.23%) and added to their personal knowledge of ICT integration (82.35%). A slightly lower ranking was given in terms of expanded professional networks (76.47%), while 70.58% of respondents thought action learning had increased their ICT skills, enhanced their professional status and heightened collaboration within their school.

Approximately one quarter of all survey respondents (*n*=67) had participated in this model of professional development. The average number of respondents who agreed that action learning was an effective mode of professional development was 79.41% and the average number of respondents who disagreed was just 1.47%. The median number of respondents who agreed that action learning was an effective mode of professional development was 79.41% and the median number of respondents who disagreed was 0. The survey responses relating to action learning projects are presented as Table 4.10 and Figure 4.8.

Table 4.10

Response to effectiveness of Action learning/Action research (%) (n=17)

| Action Learning/Research	SA	A		N/A	D	SD
Direct Impact	35.29	58.82	94.11	5.88	0.00	0.00
Enabled Reflection	35.29	52.94	88.23	11.76	0.00	0.00
Sustained Impact	35.29	47.06	82.35	17.65	0.00	0.00
Added Knowledge	29.41	52.94	82.35	17.65	0.00	0.00
Expanded Networks	17.65	58.82	76.47	23.53	0.00	0.00
Enhanced Status	23.53	47.06	70.59	23.53	5.88	0.00
Increased Skills	11.76	58.82	70.58	23.53	5.88	0.00
Heightened Collaboration	11.76	58.82	70.58	29.41	0.00	0.00
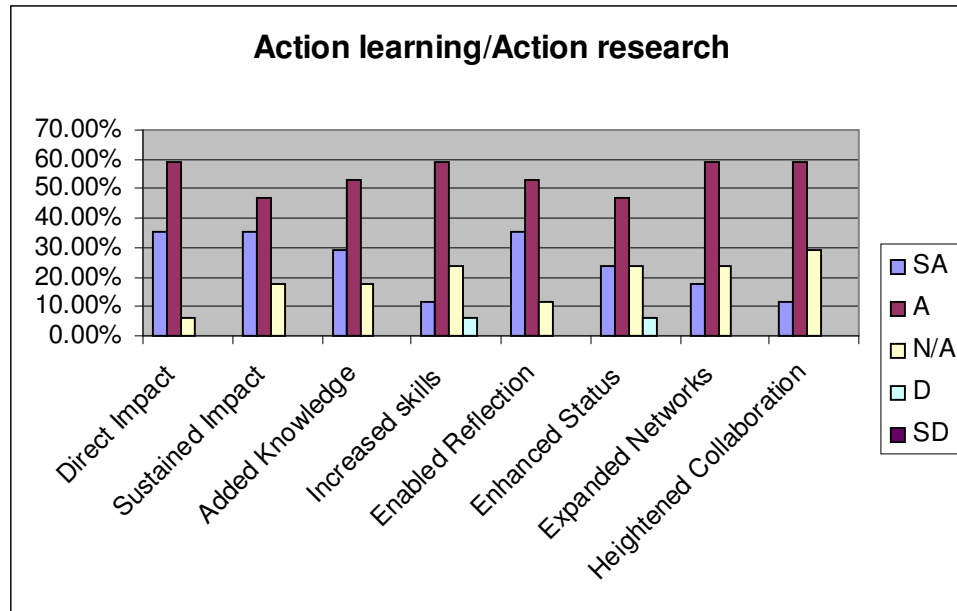
Figure 4.8   Response to effectiveness of Action learning/Action research

Analysis in terms of impacts

This analysis revisits the data presented in the previous section and reinterprets its findings in terms of impacts rather than through the categories represented by the eight models of professional development. This approach was considered to be important in matching a model of professional development to an expected outcome. These impacts (repeated here for convenience) were:

      i.   direct impact on teaching practice

      ii.   sustained impact on teaching practice

      iii.   added to personal knowledge of ICT integration

      iv.   increased ICT skills

      v.   enabled participant to reflect on practice

      vi.   enhanced professional status

      vii.   expanded professional networks

      viii. instigated heightened collaboration within school

For each of the models survey respondents had experienced, they were asked to rate the impacts on a 5 point Likert scale (from Strongly Agree (SA) to Strongly Disagree (SD)). The results of the rating scales presented in this section list the outcome when each impact was cross referenced against the eight models of professional development proffered, and is presented in percentage values.

Direct Impact

Survey respondents reported that of the eight models of professional development listed, action learning had the greatest direct impact (94.11%). Professional learning communities and online curriculum projects were also rated strongly, with 91.49% and 90.47% respectively, with online curriculum projects had a notably high "strongly agree" rating (57.14%).

The only model, which ranked poorly in terms of direct impact, was serial courses in hybrid mode, with 36.36% of respondents either disagreeing or stating it was not applicable. The survey responses relating to direct impact are presented as Table 4.11 and Figure 4.9.

Table 4.11

Direct Impact

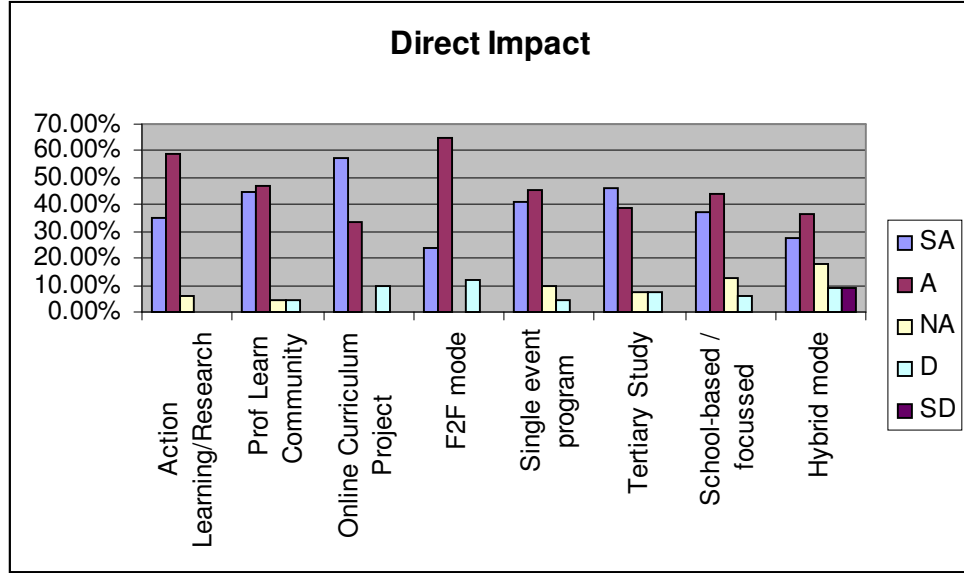| Direct Impact	SA	A	NA	D	SD
Action Learning/Research	35.29	58.82	5.88	0.00	0.00
Prof Learn Communities	44.68	46.81	4.26	4.26	0.00
Online Curriculum Projects	57.14	33.33	0.00	9.52	0.00
F2F Mode	23.53	64.71	0.00	11.76	0.00
Single Event Programs	40.63	45.31	9.38	4.69	0.00
Tertiary Study	46.30	38.89	7.41	7.41	0.00
School-based/Focused	37.50	43.75	12.50	6.25	0.00
Hybrid Mode	27.27	36.36	18.18	9.09	9.09

Direct Impact

Figure 4.9   Direct Impact

Sustained Impact

Survey respondents reported that professional learning communities (85.11%) and action learning (82.35%) had the greatest sustained impact. It is of interest that online curriculum projects had a very high "strongly agree" rating (57.14%). Single event programs were ranked second last in terms of sustained impact (70.32%), with serial courses in hybrid mode again ranked far lower than all other criteria, with only 54.54% of respondents agreeing and 27.27% disagreeing. The three lowest ranked models, viz. serial courses in F2F or hybrid mode and single event programs, received a relatively high number of "not applicable" and "disagree" responses. The survey responses r elating to sustained impact are presented as Table 4.12 and Figure 4.10.

Table 4.12

Sustained Impact

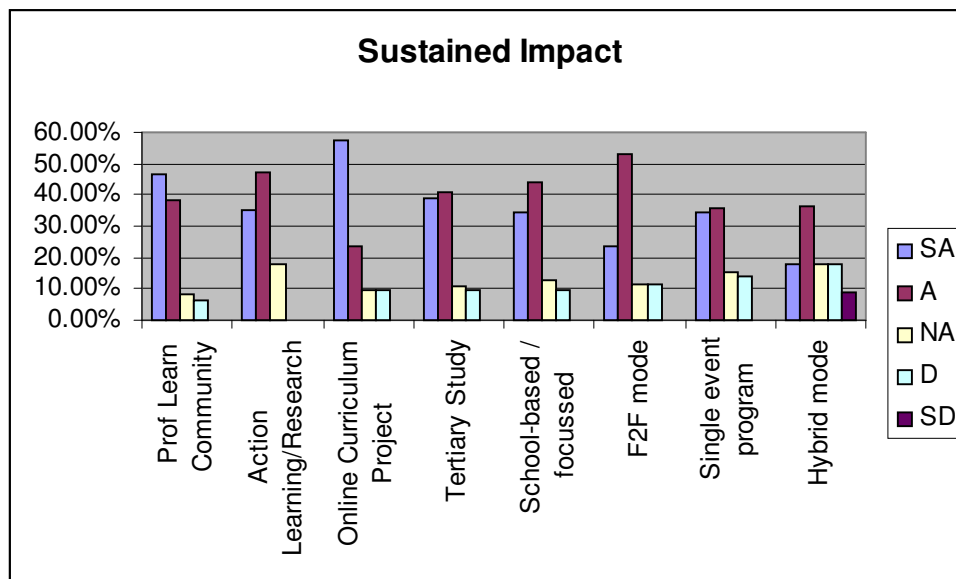| Sustained Impact	SA	A	NA	D	SD
Prof Learn Communities	46.81	38.30	8.51	6.38	0.00
Action Learning/Research	35.29	47.06	17.65	0.00	0.00
Online Curriculum Projects	57.14	23.81	9.52	9.52	0.00
Tertiary Study	38.89	40.74	11.11	9.26	0.00
School-based/Focused	34.38	43.75	12.50	9.38	0.00
F2F Mode	23.53	52.94	11.76	11.76	0.00
Single Event Programs	34.38	35.94	15.63	14.06	0.00
Hybrid Mode	18.18	36.36	18.18	18.18	9.09

Figure 4.10   Sustained Impact

Added Knowledge

Survey respondents reported that professional learning communities added to their
personal knowledge of ICT integration to a much greater extent than any of the other
seven models of professional development listed, with 93.62% agreeing. Single event
programs (87.51%) and online curriculum projects (85.72%) also rated well, however
serial courses in either hybrid mode or F2F mode were both ranked much lower, at just

29

over 70%. In the case of tertiary study, more than 35% of respondents either disagreed or felt that it was not applicable. The survey responses relating to added knowledge are presented as Table 4.13 and Figure 4.11.

Table 4.13

Added Knowledge

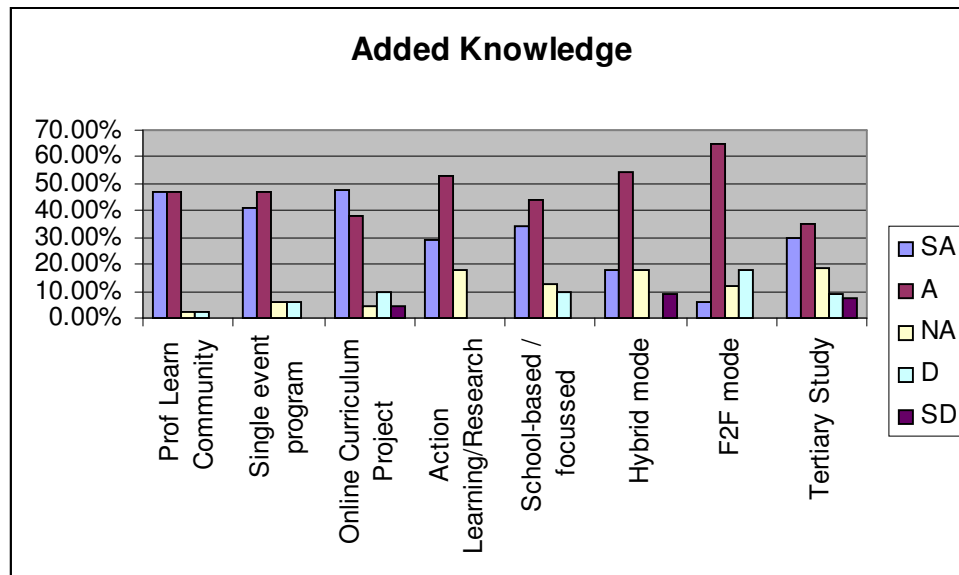| Added Knowledge	SA	A	NA	D	SD
Prof Learn Communities	46.81	46.81	2.13	2.13	0.00
Single Event Programs	40.63	46.88	6.25	6.25	0.00
Online Curriculum Projects	47.62	38.10	4.76	9.52	4.76
Action Learning/Research	29.41	52.94	17.65	0.00	0.00
School-based/Focused	34.38	43.75	12.50	9.38	0.00
Hybrid Mode	18.18	54.55	18.18	0.00	9.09
F2F Mode	5.88	64.71	11.76	17.65	0.00
Tertiary Study	29.63	35.19	18.52	9.26	7.41

Figure 4.11   Added Knowledge

Increased Skills

In contrast to the results for adding to personal knowledge, survey respondents reported that serial courses in F2F mode had by far the greatest impact in terms of increasing their ICT skills, with 94.12% agreeing. Online curriculum projects were ranked second highest, but tertiary study was once again considered to have relatively little impact, with 14.81% of respondents disagreeing.

Action learning was ranked lowest in this instance with almost one quarter of respondents not thinking it was applicable perhaps because it is not seen as having a skills focus. The survey responses relating to increased skills are presented as Table 4.14 and Figure 4.12.

Table 4.14

Increased Skills

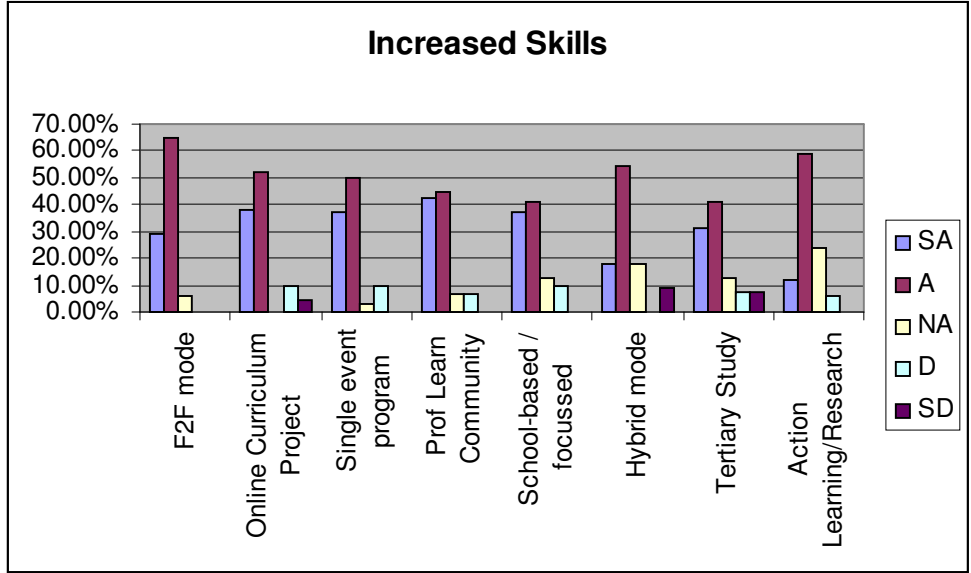| Increased Skills	SA	A	NA	D	SD
F2F Mode	29.41	64.71	5.88	0.00	0.00
Online Curriculum Projects	38.10	52.38	0.00	9.52	4.76
Single Event Programs	37.50	50.00	3.13	9.38	0.00
Prof Learn Communities	42.55	44.68	6.38	6.38	0.00
School-based/Focused	37.50	40.63	12.50	9.38	0.00
Hybrid Mode	18.18	54.55	18.18	0.00	9.09
Tertiary Study	31.48	40.74	12.96	7.41	7.41
Action Learning/Research	11.76	58.82	23.53	5.88	0.00

Increased Skills

Figure 4.12   Increased Skills

Enabled Reflection

Of the eight models of professional development listed, survey respondents reported that professional learning communities gave them the greatest opportunity to reflect on their practice with 93.62% agreeing. As with the results presented in Section 4.3.4, online curriculum projects were again ranked second highest.

Also reflecting a recurring trend in the data, serial courses in either hybrid mode or F2F mode were both ranked much lower, with 23.53% of respondents disagreeing that the latter had had an impact here. The survey responses relating to enabling reflection are presented as Table 4.15 and Figure 4.13.

Table 4.15

Enabled Reflection

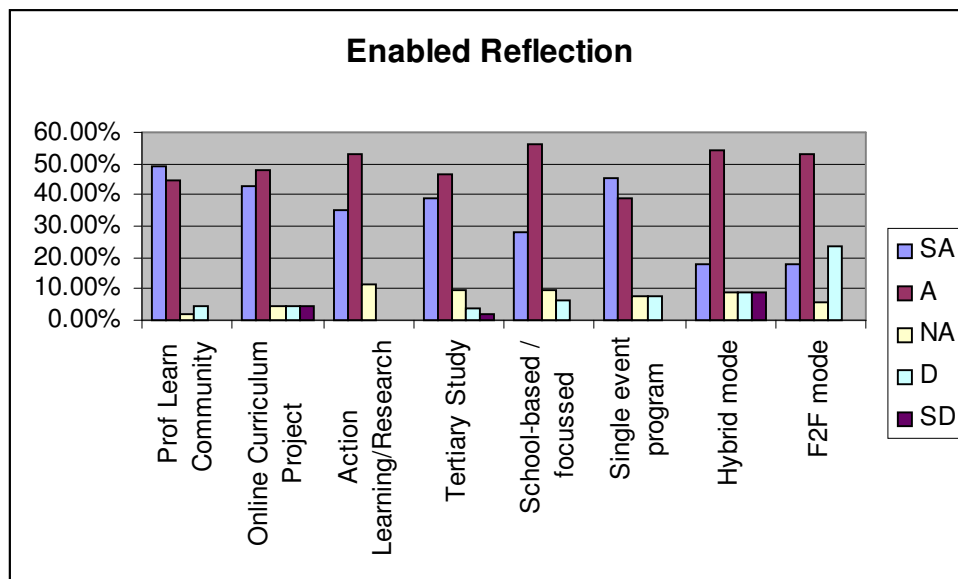| Enabled Reflection	SA	A	NA	D	SD
Prof Learn Communities	48.94	44.68	2.13	4.26	0.00
Online Curriculum Projects	42.86	47.62	4.76	4.76	4.76
Action Learning/Research	35.29	52.94	11.76	0.00	0.00
Tertiary Study	38.89	46.30	9.26	3.70	1.85
School-based/Focused	28.13	56.25	9.38	6.25	0.00
Single Event Programs	45.31	39.06	7.81	7.81	0.00
Hybrid Mode	18.18	54.55	9.09	9.09	9.09
F2F Mode	17.65	52.94	5.88	23.53	0.00

Figure 4.13   Enabled Reflection

[Enhanced Status](#)

Survey responses were fairly consistent when it came to ranking the eight models of professional development listed in terms of enhancing participants' professional status. Tertiary study (79.63%) and professional learning communities (78.72%) were rated highest, followed closely by online curriculum projects (76.19%). Serial courses in either hybrid mode or F2F mode were both ranked slightly lower, with approximately one

quarter of respondents disagreeing that either had enhanced their professional status, while school-based programs were ranked last (62.51%). The survey responses relating to enhanced status are presented as Table 4.16 and Figure 4.14.

Table 4.16

Enhanced Status

| Enhanced Status	SA	A	NA	D	SD
Tertiary Study	31.48	48.15	11.11	9.26	0.00
Prof Learn Communities	42.55	36.17	12.77	8.51	0.00
Online Curriculum Projects	33.33	42.86	9.52	14.29	4.76
Action Learning/Research	23.53	47.06	23.53	5.88	0.00
F2F Mode	5.88	58.82	11.76	23.53	0.00
Single Event Programs	18.75	45.31	15.63	20.31	0.00
Hybrid Mode	18.18	45.45	9.09	18.18	9.09
School-based/Focused	28.13	34.38	21.88	15.63	0.00
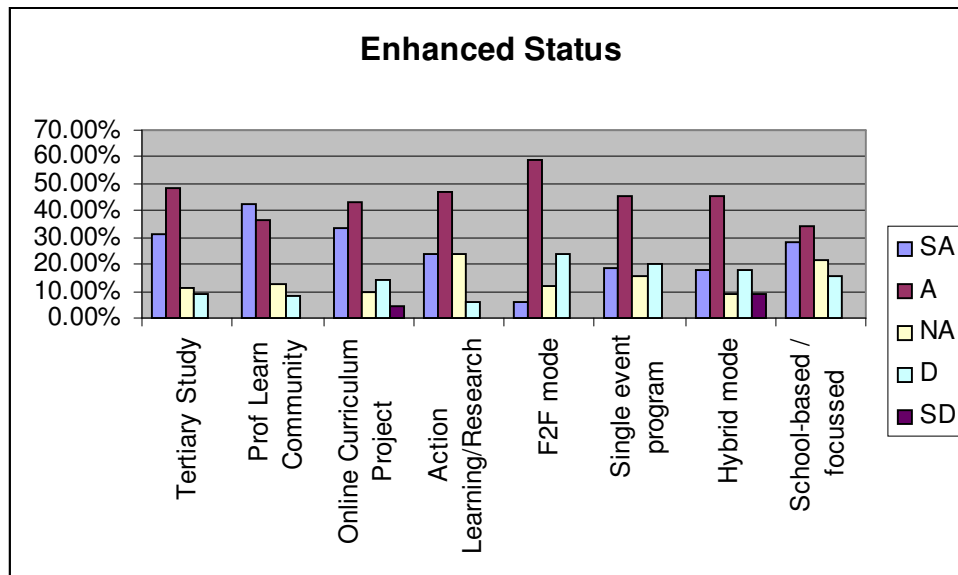
Figure 4.14   Enhanced Status

Expanded Networks

Survey respondents reported that participation in professional learning communities (89.36%) and single event programs (85.94%) gave them the greatest opportunity to expand their professional networks. Notably, professional learning communities received a very high "strongly agree" rating (55.32%).

Reflecting a continuing trend in the data, serial courses in either hybrid or F2F mode were both ranked much lower, with almost 30% of respondents disagreeing that the latter had had an impact here. The responses relating to expanded networks are presented as Table 4.17 and Figure 4.15.

Table 4.17

Expanded Networks

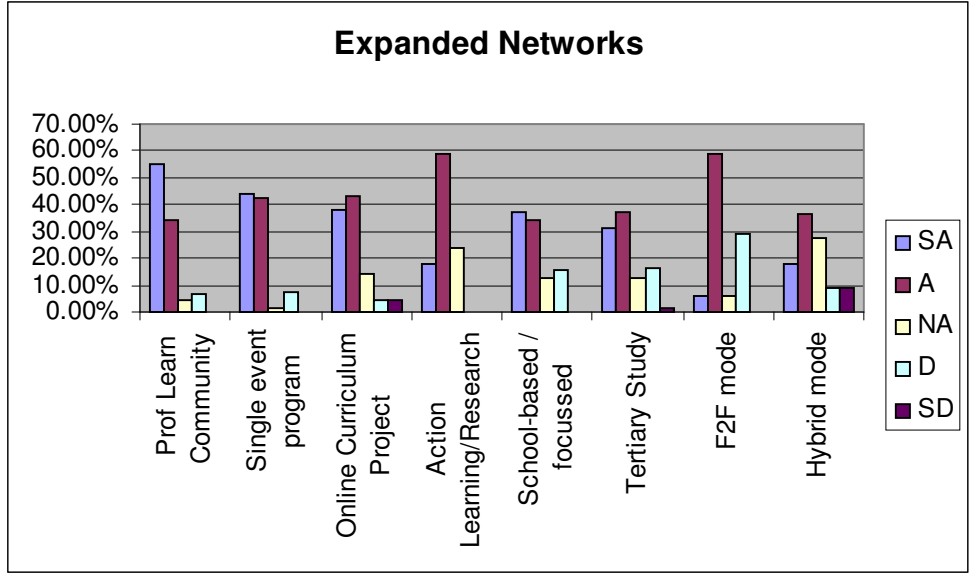| Expanded Networks	SA	A	NA	D	SD
Prof Learn Communities	55.32	34.04	4.26	6.38	0.00
Single Event Programs	43.75	42.19	1.56	7.81	0.00
Online Curriculum Projects	38.10	42.86	14.29	4.76	4.76
Action Learning/Research	17.65	58.82	23.53	0.00	0.00
School-based/Focused	37.50	34.38	12.50	15.63	0.00
Tertiary Study	31.48	37.04	12.96	16.67	1.85
F2F Mode	5.88	58.82	5.88	29.41	0.00
Hybrid Mode	18.18	36.36	27.27	9.09	9.09

Figure 4.15   Expanded Networks

<u>*Heightened Collaboration*</u>

In terms of which models of professional development encouraged heightened collaboration within the school, survey respondents reported that online curriculum projects (76.19%) and professional learning communities (74.47%) had the greatest impact. Serial courses in either hybrid mode or F2F mode were both ranked much lower, with fewer than half of respondents agreeing that the latter had had an impact in this area. Tertiary study was rated lowest, with more than 25% of respondents disagreeing that it had heightened collaboration in their experience. The survey responses relating to heightened collaboration are presented as Table 4.18 and Figure 4.16.

Table 4.18

Heightened Collaboration

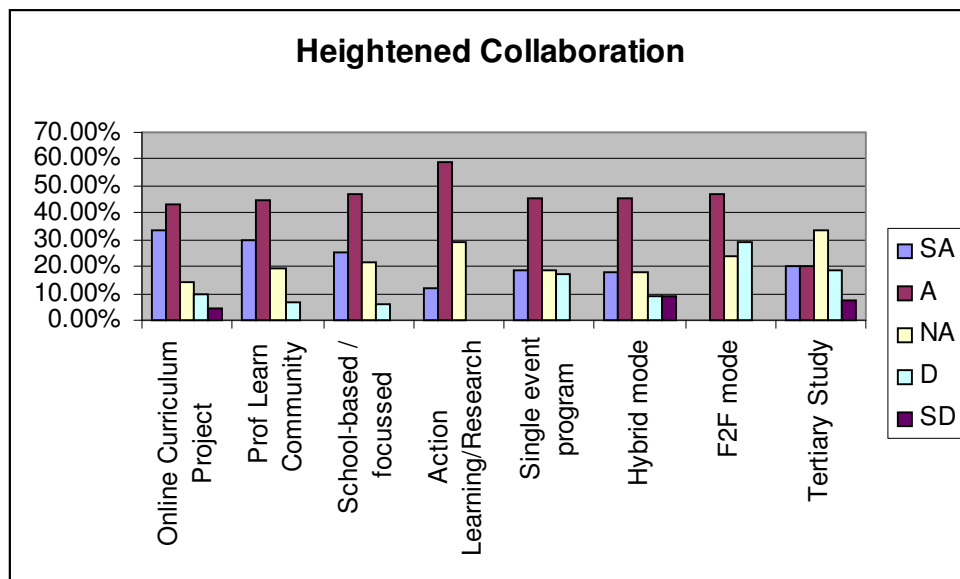| Heightened Collaboration	SA	A	NA	D	SD
Online Curriculum Projects	33.33	42.86	14.29	9.52	4.76
Prof Learn Communities	29.79	44.68	19.15	6.38	0.00
School-based/Focused	25.00	46.88	21.88	6.25	0.00
Action Learning/Research	11.76	58.82	29.41	0.00	0.00
Single Event Programs	18.75	45.31	18.75	17.19	0.00
Hybrid Mode	18.18	45.45	18.18	9.09	9.09
F2F Mode	0.00	47.06	23.53	29.41	0.00
Tertiary Study	20.37	20.37	33.33	18.52	7.41

Figure 4.16   Heightened Collaboration

Open-ended comments and semi-structured interviews

Survey respondents were asked to provide comments based on a list of six questions, which were intended to allow open-ended responses, giving them an opportunity to provide additional information, which may not have been covered in the earlier sections of the survey. The aim of this section of the survey was to elicit anecdotal evidence

about which actual professional development events respondents felt had been successful or unsuccessful, and which characteristics of professional development (in their opinion) contributed to effective professional development.

Further data was collected from semi-structured interviews conducted with leaders in teacher professional development in Queensland *(N=10)*. People who had been identified as leaders in professional development in ICT in Queensland were interviewed individually in semi-structured interviews of approximately 15-20 minutes duration. These interview subjects were chosen to represent a cross-section of educational districts, systems and roles (including lecturer, Deputy Principal and ICT Curriculum Officers) within Queensland. Together they formed a representative sample of all educational systems (state, Catholic and independent) and professional associations, including executive members of the QSITE (Queensland Society for Information Technology in Education) Board. The interviews were based on the same six open-ended questions posed in the survey.

This section will present a summary of the findings of the survey and interviews by identifying key themes, which emerged through analysis of the responses. A fuller analysis of these comments is discussed in Part 5, Interim Recommendations. Where comments are cited in this section, these comments will be acknowledged using the codes allocated to survey and interview subjects (see Table 3.1). The questions posed in both the survey and the semi-structured interviews were:

1. List professional development event/s you thought were particularly useful or effective - you might include such events as "lighthouse" school visits, learning circles, train the trainer, provision of equipment for teacher use, expert in residence programs, or PLOT.
2. What elements made the professional development listed above effective?
3. What do you think are the characteristics of effective professional development? For example, time to participate and practice, participant involvement, collegiality and collaboration, and accessible and inclusive activities.

4. List professional development event/s you did NOT think were particularly useful or effective.

5. What elements made the professional development listed above INeffective?

6. What do you think are the characteristics of INeffective professional development? For example, exclusive focus on skills, lack of time to participate and practice, failure to account for prior knowledge, fragmented, unrelated to practice, lacking in intensity or follow up.

In response to the question (Question 1), which asked participants to list specific examples of professional development events which had been particularly useful or effective, the named events included QSITE Reinventing Practice, LDC-ICT Practicums, Learning Circles, Mentoring, QSITE Conferences, professional learning communities and network groups. In particular, learning communities and network groups were singled out, being mentioned 38 times in total, which is meaningful in a population of 67 respondents, and this will be discussed in more detail below.

Effective modes of professional development were deemed to be sustained, with "small doses" over long periods of time, as well as being sustained in terms of ongoing community. They were also described as practical, contextualised, relevant and meaningful. Respondents emphasised the importance of professional development being in context and taking account of the prior knowledge, individual needs and the different learning styles of participants.

Various respondents described the LDC-ICT practicums in detail as an illustration of professional development, which has worked extremely well, with comments such as 'what is really effective is 2 to 3 day teacher practicums, the kind run in LDC -ICT. Teachers are so brimming with confidence and enthusiasm by the end of it, and ready to use it in the classroom" (L10/O14) and:

> From the point of view of observing things that work, like the LDC practicums,
> there is a structure but there is a great deal of freedom within that, which is why

they start to work, because they have got discernable outcomes, pre-stated aims and goals, but there is a fair bit of space and movement within that, and that is not easy to achieve. I think it is impossible to achieve when you get to large systemic projects, but I think it's a critical part. (L6)

The ineffective modes were described as "one shot skill training with no follow up" (O5), "one shot then over" (P8), "sit and listen" (S25), in "large groups [which create a] very impersonal situation" (P14), cover content "just in case" (S24) and involve prescriptive sessions with "all talk, little interaction" (S23). In terms of context, professional development which was not "related to actual practice" (P7) and which did not incorporate "opportunity for reflectio n" (L3) was felt to be ineffective and a waste of "teachers' valuable spare time" (L10/O14).

Rodriguez and Knuth (2000) described "high-quality professional development… as an ongoing process, not a one-shot approach" (paragraph 21). According to Kessel l and Gaynor (2002):

> A significant problem faced by full-time educators attempting part-time postgraduate study is lack of time; they have no time for obtuse theory, "busy work" or "just in case" ICT skills training. Therefore all course content, all onli ne discussions, all activities and all assessment derive from the actual classroom use of ICT by the teachers and their colleagues. (Abstract)

In describing ineffective professional development events, one respondent stated that "Intel master training was the worst thing I have ever been to. There was no professional growth, no interrogation of practice, we didn't learn anything new, no recognition of prior knowledge, of where people were at or where they wanted to go, and the equipment didn't always work " (L3).

Where teachers are the participants in professional development, they are critically aware of the teaching practice of presenters, mentors and leaders. Throughout the survey,

observations of the pedagogy in terms of presenter characteristics, group formation, content sequencing and activity planning were made.

The "presenter" was rarely mentioned in descriptions of effective professional development but was one of the main themes, which emerged when participants listed characteristics of ineffective professional development they had experienced. An effective presenter is "knowledgeable" (S28), "authoritative" (L6) and "moved thinking by challenging my understandings" (L2/O13). Respondents described the need to have presenters who can "encourage people" (L5), "judge your level" (P14) and "understands how adults learn" (L9).

Education Queensland (1998, p. 9) has identified a number of attributes which should be considered when selecting presenters for teacher professional development, including:

- Presenters must be suitably qualified for the activity and mode of delivery.
- The presenter should have credibility with the audience – that is, demonstrated knowledge of, and expertise in, curriculum, people, the school and the system – and be competent in adult education principles.
- Presenters should customise the topic for the context and acknowledge the reality of classrooms and schools.
- Presenters should be skilled learning facilitators, energetic, organised and able to motivate participants through a variety of approaches.
- Presenters should involve participants through positive interactions, treat participants with respect, and build opportunities for participants to identify their own needs and make decisions about their own learning.
- Real-life case studies, including videotaped and/or peer-critiqued role-playing, should be used where appropriate and feedback given to the participants.

It is perhaps not surprising then, that ineffective presenters were described by respondents as lacking in many of these qualities, notably:

- unprepared or poorly prepared
- rushed

- not interesting; not inspiring

- not comfortable with adult audiences

- not considering audience needs or background

- having no passion for learning or knowledge of the context of schooling

- alienating participants

- being a 'preacher' or 'lecturer'

- wanting to sell you something (rather than educate or share)

- being a poor communicator – 'talks at or reads to participants (from overheads or slides' (O9)

- using 'esoteric' language, jargon, overused or cliché d

- talking too much and allows insufficient time for 'hands on'

- not allowing play, experimentation or creativity

- providing no feedback or sustained support

The complex nature of the characteristics of effective professional development was acknowledged, with respondents citing a 'blended model' incorporating a 'patchwork of approaches' as part of a 'holistic program' being the best approach (L5). Professional development which caters for a 'variety of learning styles' (P1) and 'input from the learners' (L 1), and which provided a 'real reason for learning' (P7) with 'relevance to current needs' (S15) was described in both the survey responses and interviews as being the most effective.

References from literature about professional development support these views, acknowledging, 'professional development models are complex' and 'need to have an adequate mix of strategies based on known principals of effective professional development' (Downes et al., 2002, p. 3). What is required is a range of strategies which 'include combining courses or workshops with in -school support, having school-based components, and creating on-going networks for participants' (Downes et al., 2002, p. 3).

According to Education Queensland (1998), 'growth occurs through a variet y of activities, such as action research, participating in study groups or small-group problem

solving, observing peers, planning lessons with colleagues and journal writing. Even staff meetings can become sites for substantive conversations" (p. 3). Effective professional development should be designed to "cater for different learning styles of participants, for example, by using a variety of approaches and activities" (p. 8).

Williams (2000) noted, "much more holistic professional development programs are needed to enable teachers to practise professional knowledge work in the context of connected communication networks" (p. 11). Sherman and Kutner (n.d. b) also suggested "it is preferable for multiple approaches to be integrated with one another and address the complex and dynamic characteristics of specific program contents and learner needs. Success rests on finding the optimal combination of approaches for different situations" (p. 2-1).

The purpose of professional development is to "challenge thinking" (L2/O13) and according to many of the respondents, an "exclusive focus on skills" was not able to provide an environment for this. Comments in this regard included criticism of "skills professional development without the focus on pedagogy" (P7) which didn't "relate well to the classroom" (P1) and which was "without suggestion for application" (S16). Respondents stated that "learning a piece of software without its curriculum uses" (P14) was not useful, nor was professional development which was "skills based, not linked to classroom practice" (L3) and with "no opportunity for reflection on how it fits in with what you do" (L3).

Conversely, professional development events which have "high impact usually are in context [and] they are directly related to practice" (L2/O13) and make "the activity as authentic as possible, catering for the wide variety of needs of participants" (L1). Effective professional development was deemed to provide a "real reason for learning" (P7) and according to one respondent "moved thinking by challenging my understandings" (L2/O13).

In order to "stimulate reflective practice that is grounded in the teaching context", Grant (1996) maintained that "professional development approaches that can introduce and support collegial, ongoing, and informal contexts for teacher learning overall and engagement with technology in particular" are needed (paragraph 7), and that "the most promising forms of professional development engage teachers in the pursuit of genuine questions, problems, and curiosities, over time, in ways that leave a mark on perspectives, policy, and practice" (Little, 1993, p. 133 in Grant 1996). This observation is also made by Rodriguez and Knuth (2000) who stated that a "good professional development program is job embedded and tied to learning goals; it provides activities in the context of practice" (paragraph 16).

Education Queensland (1998) suggested that professional development developers should ask themselves "are all materials used of a high quality, relevant, recent and appropriate? (p. 8) Does it use participants' voices, narratives and stories where appropriate? Does the service engage participants in concrete practical tasks related to their work? Are participants engaged in observation and reflection that illuminate the processes of learning and development and are directly related to their work?" (p. 5)

Amongst survey responses there was also strong support for professional communities (which do not have a presenter or designated mentor) and action learning. This was expressed in terms of learning communities and network groups, as well as incorporating notions of sharing and collaboration. Respondents felt that 'the teachers' stories from the classroom are more powerful" (L10/O14), and professional development which encouraged "collaboration and peer support has been enormously successful" (L1). Teachers enjoyed "meeting other teachers [and] swapping ideas" (P11) and "share best practices" (P14), and through this "shared expertise" it was felt there should be a community for "supporting them to change their practice" (L2/O13) and "supporting them to integrate online technologies" (L1). In other words, the "creation of an ongoing professional community" (L1) enabled professional development to be "backed up with ongoing support from colleagues" (S9).

Education Queensland (2004d) has observed that 'teachers learn most effectively in professional learning communities'' (paragraph 2), whilst Hord (1997) agreed that professional learning communities contribute to 'powerful learning that defines good teaching and classroom practice and that creates new knowledge and beliefs about teaching and learners'' (paragraph 32).

What respondents did not want was professional development in which they were 'forced to participate'' (P22) or that was 'compulsory irrespective of background of participants'' (S24) and which was ''one size fits all' without any variations'' (S24). Effective professional development occurs when participants 'wanted to be there'' because 'self initiated professional development is much more fulfilling'' (L9). Respondents talked about 'taking responsibility for learning'' (O11) and the notions of 'personal selection'' and 'self direction'' (L6) being powerful motivators.

According to Education Queensland (1998), effective professional development should 'assist learners to set their own goals and monitor their own progress towards these; take place over time; and include opportunities for participants to share experiences and reflections with others'' (p. 7). McGhee (1998) also noted that when 'teachers can take control of their own professional development'' in effective models of professional development (p. 13), she observed that they are able to 'go through stages of survival, mastery, impact and innovation in their adoption and use of technology in their teaching activities'' (p. 15).

The four dimensions of productive pedagogies identified by Education Queensland (2004b) are 'intellectual quality, connectedness, supportive classroom environment a nd recognition of difference'' (paragraph 2). The Productive Pedagogies report also notes 'an emphasis on basic skills … may in fact have counterproductive effects'' (paragraph 5). Therefore, professional development designed for adult learners should also 'consider and understand the backgrounds and preferred learning styles of their students'' (Education Queensland, 2004c, paragraph 3) and take into account the 'value and

importance of being informed of the hopes, interests and abilities of the participants" (Webb et al., 2004, paragraph 1).

Professional development should also "acknowledge different levels of expertise of participants by including recognition of prior experience and current competency, and incorporating multiple entry and exit points" (Education Queensland, 1998, p. 7). Professional development presenters need to take into account the "highly diverse ICT background knowledge, skills and experience of the teachers" in order to develop professional development which is capable of "productively meeting a diversity of teachers' needs, and enabling everyone to learn at a level and point of readiness appropriate for them" (Phelps et al., 2004, paragraph 52).

Summary

This section has described the findings of the report. A profile of effective professional development is emerging but it is clear that differing models have different impacts and each has some measure of effectiveness in meeting particular needs. Similarly, and perhaps more emphatically, a profile of ineffective professional development is emerging with particular emphasis on the behaviour and approach of the presenter. Part 5, will present the conclusions of the report in terms of recommendations for effective professional development in ICT for teachers.