QSITE Report

Towards a Model of Effective
Professional Development
in ICT for Teachers

Commissioned and produced for QSITE

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ABSTRACT

The purpose of this study was to identify the characteristics of effective PD in ICT for teachers, 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 PD, gained through semi-structured interviews with key personnel in a cross section of education systems. In addition, data was collected through a review of the literature and environmental scan. This report will seek to provide the resulting overview of the characteristics of effective PD in ICT for teachers. It emerged that a format incorporating extended time and opportunities to "play" in a non-threatening environment is instrumental in the success of PD. There also needs to be a high level of support for the program from school administrations and a system in place to allow continued participation and support.

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LIST OF ABBREVIATIONS

AGQTP – Australian Government Quality Teacher Program

BCE – Brisbane Catholic Education

BECTA – British Educational Communications and Technology Agency

CALPRO – California Adult Literacy Professional Development Project

CLIC – Computer Literacy Inservice Course

EQ – Education Queensland (Department of Education Queensland)

F2F – Face to Face

ICT – Information and Communication Technology

LP – The Learning Place

MCREL – Mid-continent Regional Educational Laboratory

NCREL – North Central Regional Educational Laboratory

OTA – Office of Technology Assessment

OTN – Oz-Teacher Net

PD – Professional Development

PLC – Professional Learning Community

PLOT – Professional Learning Online Tool

QSITE - Queensland Society for Information Technology in Education

QTP – Quality Teacher Program

QUT – Queensland University of Technology

RIP – Reinventing Practice

RITE – Research in Information Technology Education group

SEDL – Southwest Educational Research Laboratory

TAFE – Technical and Further Education

QSITE Report

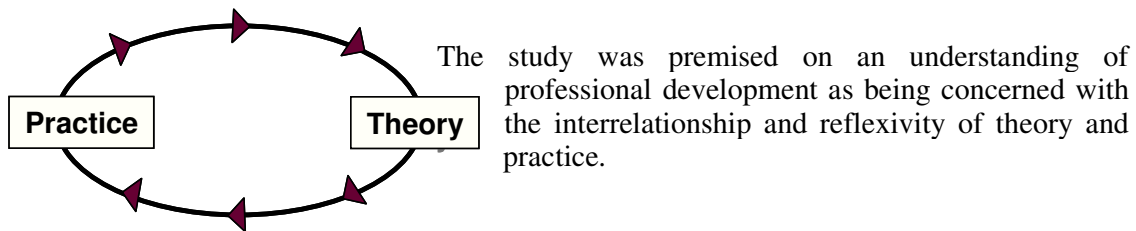# Towards a Model of Effective Professional Development in ICT for Teachers

EXECUTIVE SUMMARY

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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. The outcome of this process has been the development of a set of recommended guidelines to address when developing ICT-related professional development for teachers.

The study was premised on an understanding of professional development as being concerned with the interrelationship and reflexivity of theory and practice.

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 survey of the participants at the 2004 QSITE conference followed by semi-structured interviews with several leaders in ICT professional development in Queensland. 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 and are available from the QSITE netsite (http://www.qsite.edu.au).

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.

Organisation of the report

Part 1 provides a brief introduction to the report with detail about the process and structure.

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 a detailed annotated bibliography

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.

Methodology

The study was conducted over a period of six months (from July to December 2004).

Phase 1:
- Conduct of an environmental scan of professional development in ICT in Queensland to provide critical background.

Phase 2:
- Compilation of literature review and development of an annotated bibliography.
- Development of survey instrument and interview schedule.

Phase 3:
- Collection and analysis of the data.
  - A 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*).

Phase 4:
- Writing of report.
  - Development of a set of guidelines and drafting of position statement.
- Presentation of findings.

Key Themes and Findings

- Models of Professional Development rated in terms of their impact
- Identification of the elements of effective/ineffective Professional Development
- Mapping of the interaction between these elements

Models of Effective Professional Development

These were substantively drawn from Downes et al. (2002) and were complemented (following the environmental scan) 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 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.

Impacts of Professional Development

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 latter of these were concerned with that part of the survey which aimed to match specifically named professional development models such as professional learning communities, online projects and single events against expected outcomes such as direct or sustained impact on practice, increased skills and added knowledge.

Correlation between models of effective PD and impacts

This correlation has been displayed as a matrix of impacts (see Figure 1), which uses stars to represent a rating according to the number of responses for each model of professional development in terms of its impact. For convenience, the stars in the matrix below have also been colour coded. Table 2 shows the rating scale consisting of one to six stars corresponding to the following values:

Table 2
Rating scale

Percentage value	Star rating	Colour coding
40 – 48%	1 star	black
49 – 58%	2 stars	black
59 – 68%	3 stars	black
69 – 78%	4 stars	green
79 – 80%	5 stars	blue
89 – 100%	6 stars	red

The results shown in the matrix (Figure 1) list professional learning communities (e.g. QSITE Community, Learning Place, Reinventing Practice) as the model which has had the greatest overall impact, with six stars each for the elements of (i) direct impact on teaching practice, (ii) enabled reflection on practice, (iii) added to personal knowledge of ICT integration, and (iv) expanded professional networks. Responses resulted in five stars for (i) sustained impact on teaching practice and (ii) increased ICT skills, and four stars for (i) enhanced professional status and (ii) heightened collaboration within school.

The high rating accorded to professional learning communities is in keeping with the findings of the literature review where discussions of the benefits of learning communities featured prominently. Professional learning communities were found to be a contributing factor in sustaining the impact of professional development by supporting learners, establishing networks and encouraging collaboration and sharing of knowledge and ideas. Professional learning communities were seen as powerful and supportive environments for teachers seeking to develop their professional practice.

The value of the matrix (Figure 1) is that it shows conclusively that professional development is complex and in differing forms meets different needs. It is cautiously suggested that there can be no single solution or single professional development offering to meet all teachers' needs. The matrix also provides important information for those designing professional development to meet specific needs, for instance, should the final goal be "increased skills" for teachers then the most appropriate choice would be either to involve them in conducting or participating in online projects or taking part in a serial course (F2F mode).

	Professional Learning community	Online projects	Action learning	Serial course F2F mode	Single event	Tertiary study	School based/ focused	Serial course hybrid mode
Direct Impact	★★★★★★	★★★★★★	★★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★
Enabled reflection	★★★★★★	★★★★★★	★★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★
Sustained impact	★★★★★	★★★★★	★★★★★	★★★★	★★★★	★★★★★	★★★★	★★
Increased skills	★★★★★	★★★★★★	★★★★	★★★★★★	★★★★★	★★★★	★★★★	★★★★
Added Knowledge	★★★★★★	★★★★★	★★★★★	★★★★	★★★★★	★★★	★★★★	★★★★
Expanded Network	★★★★★★	★★★★★	★★★★	★★★	★★★★★	★★★	★★★★	★★
Enhanced Status	★★★★	★★★★	★★★★	★★★	★★★	★★★★★	★★★	★★★
Heightened Collaboration	★★★★	★★★★	★★★★	★	★★★	★	★★★★	★★★

Figure 1 - Matrix of Impacts

Identification of the elements of effective / ineffective professional development

Context
Context refers to the practice of teaching and learning and can be described in terms of *relevance* and *immediacy*.

Effective
     Relevant, meaningful
     Practical
     Has direct applicability to practice
     Addresses the different needs, levels and learning styles of participants, as well as taking account of their prior knowledge

Ineffective
     "Unrelated to practice"
     "No link to current work"
     "Not immediately useful"
     No "sustainable impact on my practice"
     Lacked the necessary highlighting of its "place in the curriculum"
     "The real school context, with all its complexities and problems, is not really considered"
     "No dialogue, no thought on how, why, when to use as a learning and teaching tool"

Time
Time was frequently noted as being critical to success it refers to:

- *time* as a measure, that is, duration and frequency, expressed as needing to be prolonged, ongoing, sustained, as well as the partition of time within professional development events, extension beyond event, and the issues related to time release;

- *time* as a variable of sequence or need, that is its timeliness or being "just-in-time."

Effective
     Prolonged, ongoing, sustained
     Well-ordered and paced use of time within PD events
     Extension beyond event
     Adequate time release
     Timely

Ineffective
Time not made available to:
     Participate
     Reflect and link back to classroom practice
     To consolidate, to reinforce, to practise, to encompass new ideas into practice
     Implement and improve, to discuss, reflect and return for follow up sessions
     Build relationships
     Cover or adequately share new ideas
     Discuss, reflect and return for follow up sessions

Community
Community refers to collaborations during and following the professional development event and ongoing connections within local and extended communities.

Effective
> The importance of being able to share stories and experiences with others, while participating in professional development which is authentic, local and real was described as being *effective* along with a need for network groups and collaboration with colleagues, which provide an environment for ongoing support.

Ineffective
> PD is presenter-led, being "talked at" or made passive recipient.
> Lack of opportunities to network - ineffective PD does not allow enough time/does not encourage networking and collaboration
> No acknowledgement of the role of the community - ineffective PD contains "no real life experiences [or] stories from individual presenters"

Personal Growth
Personal growth refers to the cognitive challenges as well as the maintenance of "corporate" knowledge (in regard to curriculum and new administrative processes).

Effective
> Challenging
> Meets need to be informed
> Personal growth refers to cognitive challenges as well as the maintenance of "corporate" knowledge (in regard to curriculum and new administrative processes).

Ineffective
> Ineffective PD does not value "people's understandings, journeys, beliefs … [or] build understandings"
> Stated as an equation - "purpose of professional development ≠ needs of participants, [is] boring [and] doesn't challenge thinking or practice"
> The most frequently occurring criticism was of PD with an exclusive focus on skills. The second was reference to a failure to account for prior knowledge.

Mapping of the interaction between these elements

Effective professional development has to immerse an individual in his or her community, directly address the context of teaching and learning, add to personal growth, and be both "over" time and "in" time. These elements are to be viewed as being the stepping -stones between practice and theory.
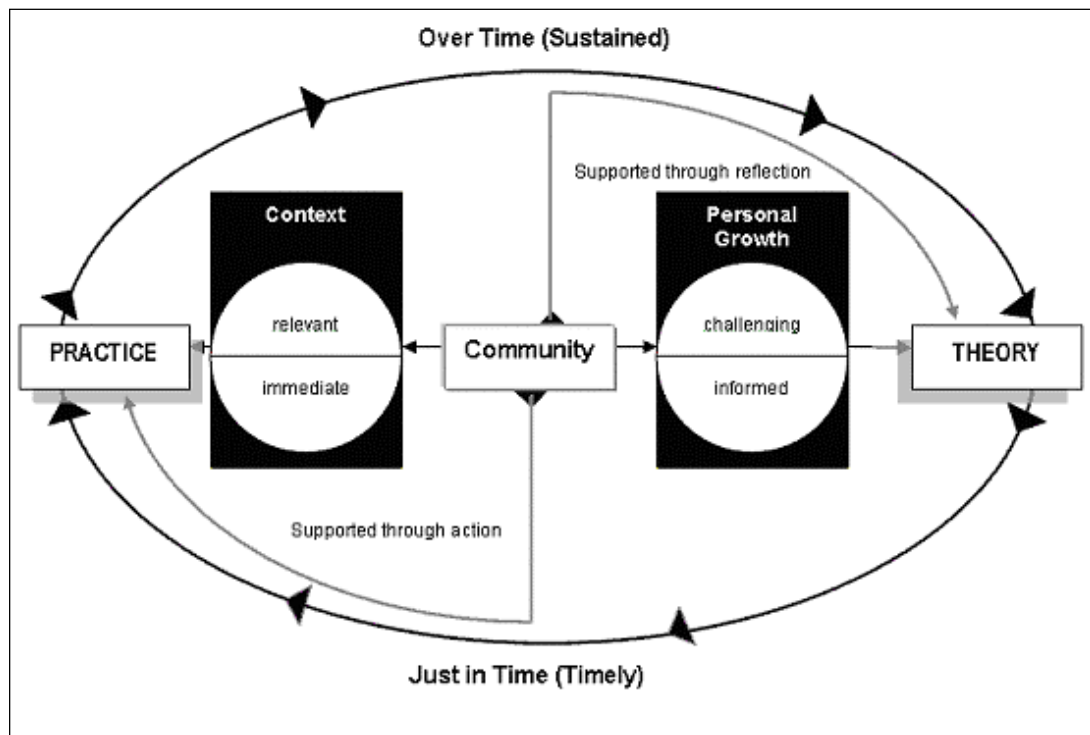
1. Professional development must support teachers' lifelong learning through reflection (practice to theory).

2. Professional development must improve teaching practice through action (theory to practice).

3. Professional development should foster active membership and collegiate relationships within professional communities.

4. Professional development should consider the need for timeliness and reflection over time for practising teachers.

Guidelines for effective professional development

The over-arching guidelines for effective professional development are:

1. **Personal Growth - It must support teachers' lifelong learning through reflection (practice to theory).** Indicators of this occurring would be that it:
   - adds to personal knowledge
   - increases personal skills
   - enhances status (within learning community)
   - takes account of teachers' prior knowledge, different levels and learning styles
   - enables reflection
   - allows personal selection
   - allows teachers to take responsibility for their own learning
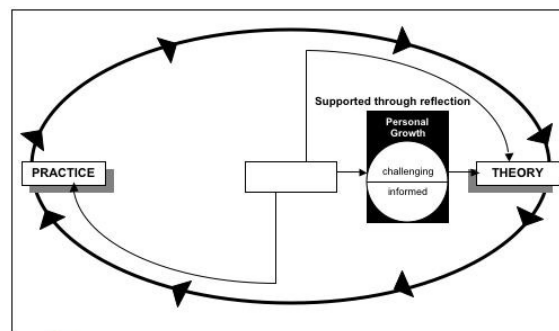
2. **Context - It must improve teaching practice through action (theory to practice).** For this to occur it must:
   - be relevant (authentic, local and real)
   - be meaningful
   - be practical
   - meet immediate needs (direct impact)
   - meet ongoing needs (sustained impact)
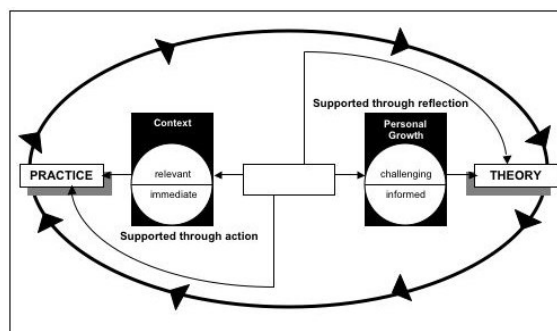
3. **Community - It should foster active membership and collegiate relationships within professional communities.** This occurs through:
   - encouraging sharing with others, hearing other stories from the field
   - providing ongoing support and heightened collaboration
   - expanding professional and personal networks
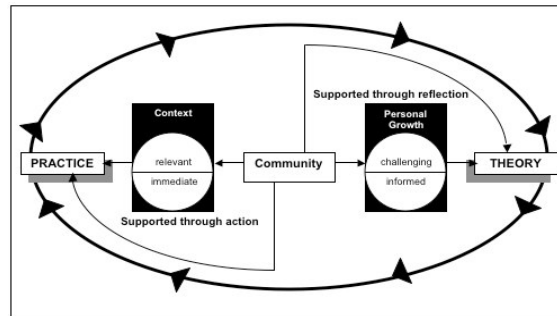
4. **Time - It should consider the need for timeliness and reflection over time for practicing teachers.** To cater for this, professional development must:
   - be timely (just-in-time)
   - be sustained (over time)
   - provide adequate time for participation, reflection and implementation
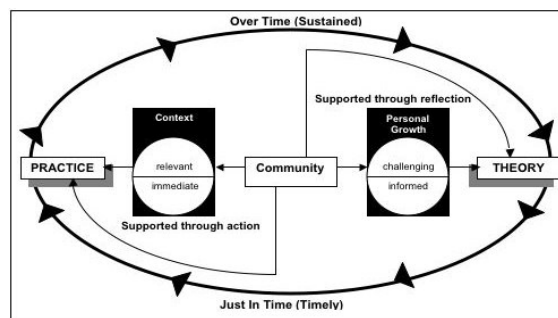
Conclusion

The QSITE study corroborated the findings in much of the literature and the collation of real experiences of practitioners in Queensland's educational contexts and clearly demonstrated that professional development is a complex issue.

While there is no single solution, there are clear guidelines relating to **personal growth**, **context**, **community** and **time**, which can be applied to the benefit of teachers and students. The researchers believe that recognition of and adherence to the guidelines will assist in the development and delivery of effective ICT-related professional development programs for teachers.

1. Professional development must support teachers' lifelong learning through reflection (practice to theory) - **personal growth**.

2. Professional development must improve teaching practice through action (theory to practice) - **context**.

3. Professional development should foster active membership and collegiate relationships within professional communities - **community**.

4. Professional development should consider the need for timeliness and reflection over time for practising teachers - **time**.

The researchers believe that recognition of and adherence to the emergent guidelines will assist in the development and delivery of effective ICT-related professional development programs for teachers.

References

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Appendix 1 – QSITE Professional Development Survey

QSITE Professional Development Survey

Help QSITE find out more about effective professional development for teachers in ICT.
In return for completing this survey, you will be entered into a prize draw.
Your anonymity is assured even if you provide contact details.

Remember to collect your entry ticket when you submit your completed survey!

Name: (optional)	School: (optional)
Email contact: (optional)	Do you agree to be contacted for further information? Yes ❑ No ❑
Level taught: Early Childhood ❑ Primary ❑ Secondary ❑ Tertiary ❑	
If not a classroom teacher, what is your occupation/position:	

Please rate each of the elements listed below based on whether or not you think it contributes to EFFECTIVE Professional Development:

	Strongly agree	Agree	N/A	Disagree	Strongly disagree
Skills based					
Software based (particular software package/s)					
Curriculum based					
Face to face					
Online					
Locally delivered					
Specialist groupings (subject or year level)					
Similarity of training and school environment					
Relevance to subject or year level					
Certification					
Time duration (intensive)					
Time duration (extended)					
Appropriate pedagogy (principles of adult learning, constructivism)					

Additional comments:

For each of the following models of Professional Development you have been involved with, please rate its impact based on the criteria listed. Please tick the relevant column for each criterion. You may select more than one category.

CATEGORY:	Strongly agree	Agree	N/A	Disagree	Strongly disagree
1. Tertiary study (If yes, please specify)					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					
2. School-based/focussed programs (e.g. QTP) (If yes, please specify)					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					
3. Single event program (full day/half day/conferences/practicum). If yes, please specify:					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					
4. Online Curriculum Project (e.g. Oz-TeacherNet, Project Atmosphere). If yes, please specify:					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					

For each of the following models of Professional Development you have been involved with, please rate its impact based on the criteria listed. Please tick the relevant column for each criterion. You may select more than one category.

CATEGORY:	Strongly agree	Agree	N/A	Disagree	Strongly disagree
5. Serial course in hybrid mode (F2F and online) (e.g. BCE/QUT Online PD, CLIC). If yes, please specify:					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					
6. Serial course in F2F mode (e.g. TAFE community education). If yes, please specify:					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					
7. Professional learning communities (e.g. QSITE Community, Learning Place, Reinventing Practice). If yes, please specify:					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					
8. Action learning/Action research. If yes, please specify:					
This professional development experience:					
had a direct impact on my teaching practice					
has had a sustained impact on my teaching practice					
has added to personal knowledge of ICT integration					
has increased my ICT skills					
has enabled me to reflect on my practice					
has enhanced my professional status					
has expanded my professional networks					
has instigated heightened collaboration within my school					

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.

What elements made the PD listed above effective?

What do you think are the characteristics of effective PD? For example, time to participate and practise, participant involvement, collegiality and collaboration, and accessible and inclusive activities.

List Professional Development event/s you did NOT think were particularly useful or effective.

What elements made the PD listed above INeffective?

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

Thank you. *Watch for publication of our findings through QUICK and at the 2005 QSITE Conference in Brisbane.*

QSITE *netsite*

Queensland Society for Information Technology in Education

Appendix 2 – Interview Questions

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.

What elements made the PD listed above effective?

What do you think are the characteristics of effective PD? For example, time to participate and practise, participant involvement, collegiality and collaboration, and accessible and inclusive activities.

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