Teachers’ orientation towards ICT professional development

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The demand for the transformation of pedagogy has precipitated a worldwide concern for teacher professional development in Information and Communications Technologies (ICT). Approaches to ICT professional development that orientate teachers towards the attainment of ICT skills have become redundant. Rather notions of pedagogical analysis and development of teacher confidence in change are expected outcomes that enable teachers to transform their beliefs and practices. This paper examines the types of ICT professional development teachers prefer to engage in. A mixed method approach was adopted. Data are draw from teacher interviews and a questionnaire. The findings suggest that teachers’ orientation to ICT professional activity remain focused on technical competency even if they are interested in pedagogical analysis. It is not until a teacher has reached a personal competency level with an ICT application that they begin to seek more constructivist orientated ICT professional development activity.

ICT professional development, ICT pedagogy, pedagogical transformation

INTRODUCTION

Transformation of teacher practice is aligned here with Fisher’s (2006) perception of the intellectual and emotional work teachers must undertake in order to use technology for improvements in student learning outcomes. ICT professional development is seen as a vehicle to enable transformative change in teachers’ practice (Russell, 1999). However, what constitutes effective models of continuing professional development is highly contested (Becher, 1999; Knight, 2002; Schulman, 1987). Long standing perceptions of ICT professional development as ICT skill workshops or training approaches, indicate a ‘re-tooling’ of teachers that tends to augment the existing curriculum by developing teachers’ competencies focused on specific types of applications. ICT skills based training is considered a valuable component of ICT professional development as teachers perceive their competency levels greatly influencing their use of ICT in the classroom. Technical competence with ICT has been found to have a major influence on teachers’ use of computers (Dwyer, Ringstaff, & Sandholtz, 1991; Veen, 1993), and significantly, Becta (2004) in a literature review on ICT in learning, places teachers’ level of confidence with ICT at the top of the list of barriers to the uptake of ICT use in the classroom.

‘Re-tooling’ teachers may be necessary. However, what needs to be considered are the transforming capacities of such ‘re-tooling’ approaches in ICT professional development. Mishra and Koehler (2006) in their research of teacher knowledge for technology integration, propose a framework for teacher knowledge that goes well beyond the development of technological knowledge (ICT skills) afforded by such ‘re-tooling’ approaches. They identify the need to develop teacher Technological Pedagogical Content Knowledge (TPCK) emphasising the integral dynamic interrelationship of these three domains for quality teaching. Mishra and Koehler suggest that because there is such complexity in what is required of teachers’ knowledge (TPCK) to integrate ICT, professional development needs to be focused on teachers’ learning by doing through sustained inquiry. In line with this move.
away from ‘re-tooling’, O’Rourke (2001, p.13) redirects ICT professional development towards helping teachers “to focus on pedagogy than on the technology itself” which is affirmed by Loveless (2003, p.324) through her premise to build teachers’ “confidence in change…rather than evidence of [ICT] competence”. Fisher, Higgins and Loveless (2006) approach ICT professional development more holistically by calling for a ‘renaissance’, a cultural change in the teaching profession. Such a redefinition of teacher practice requires a mind-shift in teachers to work in new ways, collaborate, focus on high task complexity and continuous learning (Loveless, 2000; Prestridge, 2007). If we have any hope of pedagogical transformation that is required of teachers to implement current curriculum reform, ICT professional development intentions need to move from ‘re-tooling’ with infrequent curriculum integration to a model that will enable teachers to see the ‘transforming’ possibilities of ICT.

INSTRUCTIONAL PATHWAYS IN ICT PROFESSIONAL DEVELOPMENT

Different instructional pathways may be needed in response to a teacher’s stage of learning with ICT. Jonassen (1991) explains that constructivist learning environments are most appropriate at the advanced knowledge acquisition stage. He describes three stages as introductory, advanced and expert. At the introductory stage, initial schema are built about a skill or content area. The second stage, advanced knowledge acquisition, is where learners acquire advanced knowledge in order to solve complex, domain or context dependent problems. The final stage is expertise. Consequently, teachers at an introductory stage require knowledge about a technical skill and are better supported by more objectivist approaches such as direct instruction (Jonassen, 1991) while constructivist approaches, such as inquiry based learning, are not as effective until teachers have acquired a desired amount of knowledge and competency.

Dwyer et al. (1991) supports this advocacy for a level of knowledge and competency to be reached prior to the use of constructivist approaches within ICT professional development. Their research in the Apple Classroom of Tomorrow (ACOT) demonstrated that teachers were more interested in reflecting on, investigating and analysing pedagogical practices with ICT once they had reached a level of competence and familiarity with its curriculum application. This stage was called Appropriation. This implies that ‘re-tooling’ and pedagogical analysis require different instructional approaches within ICT professional development and are dependent on a teacher’s stage of competency in respect to ICT skills and ICT curriculum integration. Both objectivist and constructivist approaches need to be available to a teacher at any time to be responsive to individual needs.

Ertmer, Addison, Lane, Ross, and Woods (1999) believe that teachers demonstrating different uses for technology, exposing varying levels of reductionist/constructivist beliefs require different types of ICT professional development. Teachers, who used technology as a reward or as supplementary to the existing curriculum needed to be challenged by their peers and leaders in the school, given time to learn skills, play with software and observe peers integrating technology. These professional development activities involve both objectivist and constructivist approaches. Teachers who used technology to support their curriculum required opportunities to extend their repertoires of practice by observing, experimenting and discussing alternate beliefs and practices, indicating constructivist approaches to professional development.

Suggested by a review of the literature, for transformative outcomes, ICT professional development requires teachers to engage in pedagogical inquiry (Green and Bigum, 1992; O’Rourke, 2001) with ‘re-tooling’ intentions dependent upon individual needs of the teacher and their intended curriculum. To ensure this direction, constructivist approaches such as observing, experimenting and sharing activities are required (Jonassen, 1991) to support the teacher in critical inquiry for transformational outcomes. The combination of pedagogical
inquiry, constructivist approaches and the need for ‘re-tooling’ intentions suggests that a model of ICT professional development should incorporate ‘re-tooling’ through an objectivist approach embedded within a broader constructivist framework. This would provide pathways beyond ‘re-tooling’ and a direction that would combine rather than separate objectivist and constructivist approaches in a model of ICT professional development.

This approach to ICT professional development is evident in the ICT Test Bed Project (Becta, 2002-2006) in England. The foundation of the approach is based on teacher led action research projects. Teachers with the aid of researchers, focus their action research projects on integrating digital technologies into their curriculum identifying the ways in which digital technologies support and extend the student learning process. This approach enables a socio-cultural situated learning context that Prestridge (2007) believes is required for transformative change in teacher practice as professional development is focused on the social realities of teachers’ lives. It also provides what Fisher (2006) describes as a key to educational transformation, that is that neither the teacher nor the ICT tool are understood in isolation.

BACKGROUND

This paper reports on one aspect of a research project that had as its goal the development of a model of teacher ICT professional development likely to enable teachers to transform their pedagogical beliefs and practices. In Stage 1 of the project 11 interviews were held with classroom teachers and computer coordinators across eight regional schools in Queensland. A questionnaire that included both Likert scale and open-ended responses was also implemented on forty-four teachers. Questions in both interviews and questionnaire focused on identifying types of ICT professional development teachers’ preferred to engage in.

Inductive analysis was the main procedure to seek the emergence of themes in the data. Interview transcripts were imported into computer software program called NUD*IST, a qualitative data management program. The coding process was enacted through the assignment of data to ‘nodes’. The descriptive statistics from the questionnaire were calculated using Statistical Package for the Social Sciences (SPSS). The group of teachers that participated in Stage 1 were predominantly females recognized as experienced. All names used in the data reported in this paper have been replaced with pseudonyms.

DATA ANALYSIS

Teachers were asked to comment on what they considered was effective ICT professional development. Four themes emerged from the data: just in time, mentoring, structured sharing activities and training approaches. Each theme is explored for its transforming qualities.

Just in time
When teachers talk about ‘Just in time’ ICT professional development it means that they want professional support provided just at the time they require it. The timing of the support is critical to the implementation of ICT. The term ‘Just in time’ has been used widely by Jamie McKenzie (1998, p.1) when describing the “best way to win widespread use of new technologies”. The type of support can focus on both pedagogical needs as well as personal ICT competency. The emphasis of this professional development practice is on providing responses quickly and on a daily basis or when needed by the teacher. In the following interview excerpt a computer coordinator provides her idea of ‘Just in time’ support and how it relates to gaining ICT competency and a professional development leader in the school:

Emme … because they have to do a webpage in year three they have to be able to insert a picture in year one. We need to develop a school ICT continua. So we could then say to the teachers these are the skills that are required and which of these skills don’t you have and then we could get some professional development on that. And just
how that would have it would be to look for anyone else on the staff that would have it and I think that point in time is the best professional development.

Sarah: Point in time? What do you mean?

Emme: I need it now. I need to use it now because I need to use it and I’ll use it today, tomorrow and the next day because I’ve got to and I’ll learn it.

Sarah: So there needs to be a need there, a relationship to an ICT need. And if there is no need why bother, and you’ll forget it

Emme: Especially if you don’t have a passion there.

Emme sets the context for ‘Just in time’ professional development by acknowledging teachers’ need for implementing ICT into the curriculum as “hav[ing] to do a webpage in year three and hav[ing] to be able to insert a picture in year one”. This is defining the integration of ICT based on ICT skills. Within the data collected, ‘Just in time’ professional development was associated with learning ICT skills in a particular software program or a hardware device. Teachers described reaching a critical stage when learning a new piece of software and ‘Just in time’ support provided the help needed to move forward, solve problems or simply demonstrate how to do something. ‘Just in time’ support is related to gaining personal competency with ICT and is better supported by training approaches within ICT professional development (Jonassen, 1991).

In Emme’s description of ‘Just in time’ professional development she qualifies two distinct features. Firstly, the ICT skill needed and secondly the daily “in time” support. Learning an ICT skill in this fashion enables the learner to retain the skill. Emme states that “I’ll use it today, tomorrow and the next day because I’ve got to and I’ll learn it”, meaning that ‘Just in time’ professional development enables teachers to learn at the time when the skill is being used in the classroom and that repeated use of the skill supports retention. These two key features of ‘Just in time’ professional development, that is, based on a need and in the daily work of teachers is “more personally beneficial” which was proposed by Michelle in an interview. She believes that if given ‘Just in time’ support, the ICT skill stays with you. ‘Just in time’ professional development suggests short intensive bursts of on-going skill based training.

Emme also points to a colleague or staff member as the best provider of ‘Just in time’ professional development. This acknowledges the feature of daily support. She links “passion” about ICT with such a professional leader. This passion drives the leader to become competent with ICT in their personal time and enthuses other staff to use ICT in their classrooms. Emme describes this attribute about an ICT professional development leader:

Emme: You know how you’ll get teachers who are just passionate about something. No one has displayed a passion [for ICT] but that could be because the resources aren’t in this school. We have teachers who have a passion for sport so that gets pushed along. But no one has taken on technology.

Sarah: Do you see that as one of the ways we lead our professional development in our schools is through that teacher with the passion?

Emme: Yes, if you have a teacher with the passion, they can enthuse other people and obviously then it is not a chore for them. They will
be playing at home and it is what they would do and then they could share that passion and it would be infectious. And that doesn’t exist here.

Emme sees the advance of technology as dependent upon a person with a passion for it. She links ICT professional development with such a teacher. This belief has left her school without such an interest or growth in the area of ICT. In this way the need for a passionate ICT teacher has limited both growth in ICT and ICT professional development. She acknowledges that it is “not economical to buy someone in to teach one person something” which further supports her reasoning for the need to have someone on staff with a passion providing ‘Just in time’ support so “if they are here you can come back and say I tried that and it didn’t work so you could try some other way” indicating the benefits of quick response from an onsite provider. The need for someone with a high level of competence may be due to the fact that learning a new piece of software can be very complicated and frustrating. Further in the interview, Emme adds to the attributes needed by a professional development provider, stating that “certain teachers [have] more sway about them in a peer situation” indicating that both passion and leadership is required.

Teachers who want ‘Just in time’ ICT professional development are mainly seeking the attainment of ICT skills during their daily working context. It proposes greater skill retention as teachers are using the skills repeatedly and purposefully at the time of curriculum implementation. ‘Just in time’ professional development also advances the need for an ICT professional developer to be onsite as it is more economical and is required in a timely fashion. The attributes that were expressed as important in such an ICT provider are both a passion for ICT and leadership skills.

Mentoring

The second theme, ‘mentoring’, indicates that teachers are interested in learning from their peers. ‘Mentoring’ can take place within the school setting, led by teachers who are skilled in an area of ICT and able to support their colleagues in both ICT skill acquisition and curriculum application. The following interview excerpt with a computer coordinator describes the mentoring process that is occurring in her school:

Isla: This is quite an unusual school and if you don't know how to do something you just ask and everyone does that. So there are no little ghettos where other people are doing things that others don't know about. So this is an informal mentoring thing. One to one. For example, I headed the budget towards buying video because that is an all encompassing thing where it takes a huge number of skills and it is all tied up in their culture and it helps develop the kids in a real life kind of way. But we got all this gear and I got overwhelmed about how to actually learn it because I have all of these other things that I am trying to do. So it was a simple thing to identify the person who seemed to be most interested in video and to say to Quinn this is your baby and I am not going to bother how to learn Studio MP10 and how to use the digital camera. So that will be his. And I know that the person in the next classroom wants to do it and he'll ask Quinn to teach him and when he has developed something he'll be available to help others. So we can do this because we are a small and friendly staff. And it is not just computers it is everything.

Isla describes the ‘mentoring’ process that occurs in her school. She sees it as an “informal” approach to ‘mentoring’ that is possible because of the professional culture established at the school. An important idea that can be taken from a ‘mentoring’ approach is the devolution of ICT skill to interested teachers so that no one would be considered the ICT expert. The theme
of ‘mentoring’ focuses ICT professional development mainly on the acquisition of ICT skills. It highlights sharing and supportive processes in an informal manner. ‘Mentoring’ can also focus on curriculum application of ICT. The idea of many ICT providers is advocated.

**Structured sharing activities**

Two activities were discussed by teachers that involved sharing as an ICT professional development activity. These were organised teacher sharing workshops and protocol sessions. Teachers said that they valued sharing activities because they were considered to be directly related to the classroom. In the following interview excerpt a teacher describes a sharing workshop focused on ICT implementation:

Isabelle: On a Saturday at Buderim in their computer lab in their library they organised teachers from different schools to come and talk about what they were doing, so we were finding out what people were doing, getting ideas.

Sarah: Did that change your teaching at all?

Isabelle: It opened up some possibilities yes, um, yes it did change, it is helping me through coping with technology a bit better. Bringing it into the classroom.

Isabelle’s positive dialogue about this type of workshop and the fact that she attended it in her own time indicates that she values this type of professional development. She makes two important points about sharing activities. Firstly, she sees them as an opportunity to gain ideas and expand possibilities in a curriculum sense. Secondly, she talks about changing her teaching as the workshop helped her “cope with technology a bit better” and relate the use of ICT to her classroom. She implies that a feeling of comfort or reassurance was achieved. These could be considered critical elements of sharing activities. Mary, another teacher at this same sharing event also said that her ideas were expanded but when asked if it had had any effect on what she did with ICT in her classroom, her response indicates that it had no transformative outcomes:

Mary: Lots of ideas and things like wow I have to learn powerpoint. Oh I didn't know year seven’s could buy shares by going through a particular program. Even though it was a year seven, that interested me. In maths by using spreadsheets and things. Just ideas.

Sarah: Did you go from saying that was a great idea to doing something about it?

Mary: Our local teacher here in-serviced us on powerpoint.

Sarah: Have you used it in your classroom?

Mary: Not yet. There are plans this year to.

Mary has good intentions on using powerpoint in her classroom and was motivated to attend a local workshop but no changes occurred in her teaching. The literature supports this lack of change from isolated workshops (Ingvarson & MacKenzie, 1988; Lankshear & Bigum, 1998). Mary’s last statement of her future use of powerpoint “there are plans this year to” indicates direction from her school curriculum rather than her own interest or curriculum development.

The other sharing activity discussed in interviews was protocol sessions. Protocols are given structures which teachers employ in groups for a particular purpose. For example teachers are
able to choose the Tuning protocol to seek feedback on a unit of work. Some teachers that were interviewed were trained in protocol implementation. However, little use of these protocols in relation to ICT in learning was currently occurring. Teachers were asked about the value of using protocols in relation to curriculum applications of ICT. This idea is supported by a teacher in the following interview excerpt:

Nathan: I think that would be a valuable experience. I would be interested to hear the answers of the other coordinators when you ask them. I think that would be worthwhile. I have been to protocols training and have used protocols here and I have taken along units of works not ICT based and we have run protocols over them and I have found that really helpful for me as a teacher. I think that until people have been through that process and have been game enough and say have a look at this and go through that process they are a little afraid of it.

Nathan sees the value in using a protocol as a professional development activity where units of work that have incorporated ICT can be analysed. He highlights that the sharing process involved in analyzing units of work with peers can be a daunting one that some would be “afraid of”. The process itself and the anxiety associated with ICT both add to this fear. However, as the literature suggests professional discourse that is critical, inquiring and reflective, is an essential process for effective professional development (Ball & Cohen, 1999; Smyth, 1987). This process can be achieved with protocols that enable teachers to share. Michelle, a teacher, supported this idea, stating that a good professional development activity is one that “makes you actually sit down and think about” how you are teaching in the classroom. Both forms of sharing sessions enable this transformative thinking as they were focused on teaching and learning practices occurring in classrooms and invited critical and analytical processes. What is missing is that teachers are not acting on these thoughts.

When teachers talk about ‘structured sharing activities’, the focus of ICT professional development seems to be on pedagogy rather than on the attainment of ICT skills. ‘Structured sharing activities’ evoke in teachers feelings associated with ICT. Teachers talked about comfort or reassurance when involved in sharing workshops and fear and a sense of being confronted when taking part in protocol sessions. These emotions enabled teachers to think about what they were doing with or how they were thinking about ICT in learning. Sharing sessions appear to be effective in enabling teachers to think critically about their classroom practices with ICT. Therefore, sharing processes need to be considered within ICT professional development activities. The final type of ICT professional development teachers talked about is training approaches.

**Training approaches**

Teachers requested ‘training approaches’ as ICT professional development activity to develop their ICT skills in specific software or hardware. Examples of ICT skills include how to email or use a digital camera. Training sessions for teachers were currently occurring in formal workshops where teachers are instructed on a particular software program or in more informal environments such as in small groups or one-on-one. The following interchange with a computer coordinator depicts his role as developing teachers ICT competencies:

Sarah: Have you mainly done skill based professional development sessions?

Nathan: At the school level I also do ‘have you seen this I will demonstrate that’ and ‘this is what you can do’.

Sarah: So come and discuss your planning?
Nathan: Not planning normally. Just what we can do with this piece of software. ‘Have you seen this’ kind of thing.

Nathan has taken on the role of an ICT professional development provider who uses a ‘training approach’ to teach basic ICT skills to teachers. Later in the interview, Nathan provided reason why he believes this approach is important, stating that “a lot of teachers still don’t feel comfortable that they don’t have the skills. They want someone there to hold their hand, show them”. This suggest that teachers need to attain a certain level of competency with ICT before they look at pedagogical issues around the use of ICT in learning.

The form of ‘training approach’ is important. Having the option of one on one tuition or small groupings with a trusted instructor is preferred. Teachers consider their skill level to be low, they feel that learning new software is complicated and they want to feel comfortable with the instructor. An excerpt from an interview with Mary highlights the need for such ‘training approaches’:

Mary: There was one where they showed us how to do an email, no sorry, a webpage using powerpoint using hyperlinks, um. The only criticism that I had of that was that they had too many in the class. It was an hour and it sort of went (hand over head sign) so we are asking for it again…[in] small groups. We have Nathan who is on staff here. He has worked with us and the admin here have been great. He can do after school sessions with us.

Sarah: Is that better?

Mary: I think that's better because we know him. We felt comfortable to ask him things and um it was a set time so we knew every second Wednesday afternoon was computer time after school and he had a program set down so if you wanted to do publisher that was what was on.

Mary found a training workshop on powerpoint to create web pages unproductive. She states that she needs to learn ICT skills in smaller groups with someone she feels comfortable with. These requirements for ‘training approaches’ are considered to be more responsive to teachers needs and more beneficial to gaining ICT skills. There is a preference for a ‘training approach’ to take the form of small group sessions with an instructor that has gained a teacher’s trust.

With regard to the themes presented here, some interesting relationships emerge. The themes show a preference for ICT professional development to focus on ICT skill attainment whether it be ‘Just in time’, through ‘mentoring’ practices or in ‘training approaches’. ‘Just in time’ and ‘mentoring’ could also focus on curriculum integration of ICT. However, these have not been implemented for this purpose. ‘Structured sharing activities’ which provide potential for pedagogical analysis are considered activities to share how teachers integrate ICT. There is evidence of emotional responses by teachers to discussion of ICT professional development, from frustration to fear, the near for comfort and reassurance.

In the questionnaire given to teachers, there were thirteen options for types of ICT professional development. Teachers were asked to rate each type using a Likert scale of 1 being highly preferred to 5 not desirable. Teachers rated each of these separately. Data are displayed in Table 1.
Table 1 Percentages of responses to options for types of ICT professional development

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<th>Online Courses</th>
<th>Discussion Lists</th>
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<tr>
<td>Highly desirable</td>
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<td>16.3</td>
<td>8.2</td>
<td>26.5</td>
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<td>2</td>
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<td>4</td>
<td>6.1</td>
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<td>18.4</td>
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<tr>
<td>Not desirable</td>
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<td>16.3</td>
<td>14.3</td>
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<tr>
<th>Staff sharing sessions</th>
<th>Groups of teachers(other schools) sharing</th>
<th>Short Workshops before/after school</th>
<th>Extended Workshops holidays/weekends</th>
<th>Tertiary Courses</th>
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<tr>
<td>12.2</td>
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<tr>
<th>Outside expert skills training</th>
<th>Practicum at LDC</th>
<th>Planning session with Computer Coordinator</th>
<th>Class visit by Computer Coordinator</th>
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<td>30.6</td>
<td>18.4</td>
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When combining first and second preferences, the most desirable types of ICT professional development were Outside expert skills training (59.2%), Short workshops before/after schools (44.9%) and Planning sessions with computer coordinator (44.9%). The least desired types, indicated by a high ‘not desirable’ response was extended workshops holidays/weekends (24.5%).

With regard to the themes presented in this section, some interesting relationships emerge. The themes show a preference for ICT professional development activities to focus on ICT skill attainment whether it be ‘just in time’, through mentoring practices or in training approaches. This is supported in the questionnaire results as teachers’ gave greater preference to outside expert skills training and before/after school short workshops. Planning sessions with computer coordinator which was also highly preferred has a loose relationship with the theme of structured sharing activities as both focus on curriculum applications of ICT. Sharing sessions that involve teachers from different schools (34.7%) rated higher than sharing among staff (24.4%) in the questionnaire. This was also found within the theme of structured sharing activities as sessions where various teachers presented their use of ICT was well received and such in school practices of sharing such as protocol has not yet been applied to ICT.

CONCLUSION

This paper has examined what teachers constitute as effective ICT professional development that results in transformation of their pedagogy. Data clearly show that these teachers are concerned with gaining ICT competency which they feel will increase the use of ICT in their classrooms. However, data suggests that little change is occurring in teachers’ pedagogy and ICT are being added to already established pedagogical practices. As discussed in the beginning of this paper, ‘re-tooling’ approaches do not support transformation of pedagogy.
However, gains in competence with ICT leads to teachers seeking alternative ICT professional development (Dwyer et al., 1991) that focus more on analysis of pedagogical issues. Pedagogically oriented types of ICT professional development, such as sharing sessions, provided elements that were considered by teachers as having transformative qualities. Those mentioned were expanding ideas, providing comfort and reassurance, making teachers think critically and being confronted. This conclusion is supported by a model (Figure 1) derived from structural equational modelling (SEM) of questionnaire data.

![Figure 1 Teacher orientation for ICT professional development](image)

The model in Figure 1 is called teacher orientation for ICT professional development as it depicts the orientation teachers in this research context had for ICT professional development. There are two factors on the left hand side of the model: Factor 1-literacies and confidence with ICT in classroom and Factor 2-planning with ICT and using ICT in a variety of ways. These were found to be distinctive factors that were driving the need for ICT professional development in this research context. Interestingly, these two factors were driven by distinctly different cohorts of teachers.

On the one hand, there were teachers concerned with skills such as those associated with literacies and ICT (Factor one). On the other hand, there were teachers concerned with curriculum issues such as planning and integrating ICT (Factor two). Both of these factors were found to firstly look towards training or workshop approaches that developed ICT competency as the preferable type of ICT professional development to meet needs (indicated in Figure 1 by arrows leading towards training and workshop approaches). Simply, the orientation for both teacher cohorts is to seek ICT competency through training or workshop approaches. After this need has been met and a certain level of competency gained, constructivist approaches are then considered desirable. The factor analysis of the types of ICT professional development expressed training or workshop approaches as focused on ICT skills and constructivist approaches, such as sharing sessions, as focused on pedagogical issue. In this research context teachers are firstly seeking ICT competency through workshops or training approaches before they are able or interested in constructivist approaches, such as sharing sessions, in ICT professional development.

In conclusion, gaining ICT competency is still a significant need of teachers that directs their preference for ‘re-tooling’ oriented ICT professional development. It is not until this need has been satisfied that a teacher can be oriented towards critical inquiry of their practice as suggested in the literature review by Fisher (2006) and Prestridge (2007). However, as argued throughout this paper, isolating ICT skills from pedagogical inquiry does little for the capacity of ICT professional development to enable teacher to transform their pedagogy. It is suggested here that combining both teachers’ needs for competency and pedagogical anlayis is required for transformative outcomes of professional development. ICT professional
development must align ICT skill attainment with pedagogical inquiry that informs teachers’ discourse and analysis, so that teachers develop a more critical approach to the integration of ICT in learning.

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REFERENCES


