SHORT COMMENTARIES

A Professional Development Model For Primary Teachers Participating In A Computer Technology Program For Schools

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INTRODUCTION
We are about to embark on a project that aims to develop and evaluate a workplace-based professional development program for teachers participating in the Queensland Department of Education’s Primary Computer Program (PCP) which targets all Year 6 and 7 classes in State primary schools. Professional development of teachers has been identified as an integral part of the implementation of the PCP and is the basis of our collaboration with Queensland Department of Education Effective Learning and Teaching Unit (ELTU). The ELTU have conducted preliminary evaluations of the programme which have suggested that there is a need for more effective and systematic professional development associated with the use of technology by primary teachers. A key element of the project will be the creation of a professional development model for teachers using the new information technologies in their classrooms. This model will form the basis of a more generic model for workplace-based professional development of teachers.

BACKGROUND INFORMATION
In recent years computer technologies have permeated the classrooms of Australia in increasing numbers. This has extended opportunities for innovative and creative teaching experiences but in doing so has challenged teachers to develop new skills which have been a source of anxiety for many. This is especially true in the case of primary school teachers, who also have considerable interest in, and enthusiasm for, the use of computers to support learning in a wide range of contexts. The PCP is an indication of a growing concern in Australia to equip schools with appropriate and up-to-date, new information and communication technologies. Typically, the emphasis in many of these projects is the technology, students and their learning. Research has shown that teachers are key players in any curriculum reform (Huberman & Miles, 1984) and in the introduction of computers into classrooms. They are particularly crucial in establishing the climate or circumstances in which the technology is used (Wiske et al., 1988; Bigum et al., 1987). Despite this, since the earliest days of using computers in schools teachers’ professional development has been largely neglected or treated as if what was required were a few two day courses. This approach to professional development ignores the means by which successful computer-using teachers and other computing professionals support and sustain one another through elaborate support networks.

Lately in Queensland, as in other States of Australia, devolution of centrally-funded support for teachers and schools has been a priority of government. This has given schools greater flexibility and autonomy in deciding their priorities. In the move to develop a more efficient education system it has also meant that teachers no longer have release days, regional advisors have all but disappeared, and professional development activities which now need to be organised out of school hours pose significant problems for the predominantly female workforce who wish to attend. In this climate, workplace-based approaches clearly become fundamental in the professional development of teachers.

TEACHER NETWORKS
In a significant report from Harvard University concerned with teacher support for classroom computer use, the importance of teacher networks was highlighted:
There should be examples of collegial support and networking mechanisms for delivering support, assistance, and resources at the building and district levels.

(Wiswe et al., 1988, p. 52)

A more sophisticated notion of learning that informs the establishment of our cluster-based approach to professional development derives from the work of Lave and Wenger (1991). They argue that social practice, what practitioners do and how they talk about what they do, is the primary, generative phenomenon, and learning is one of its characteristics. They 'locate learning not in the acquisition of structure, but in the increased access of learners to participating roles in expert performance' (Lave & Wenger, 1991, p. 17).

A key part of expert performance is the ability to talk about it, to tell stories about it, not as a second-order representation of what to do but as an integral part of what it is to be an expert performer. Learning is thus a way of being in a particular social world not merely knowing about it or describing it. In our model, the transition of newcomer to old-timer entails being able to tell stories about what happens in the classroom. This subsumes knowing what to do with computers in a classroom.

As an aspect of social practice, learning involves the whole person; it implies not only a relation to specific activities, but a relation to social communities — it implies becoming a full participant, a member, a kind of person.

(Lave & Wenger, 1991, p. 53)

From this perspective, emphasis is placed upon participation in a community of practitioners, rather than merely the acquisition of a set of skills. This is the nub of our model, the creation of a community of practice for teachers participating in the PCP and its capacity to support newcomers to the Program.

The characteristics of such a community which make it particularly effective, and have been built into our model, occur when (Engestrom, 1991, p. 252):

- participants have broad access to different parts of the activity and eventually proceed to full participation in core tasks
- there is abundant horizontal interaction between participants, mediated by stories of problematic situations and their solutions
- the technologies and structures of the community are transparent for the learner's inspection.

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**PROFESSIONAL DEVELOPMENT MODEL**

The basis of our workplace-based professional development model is in facilitating the sharing of experiences of teachers and students in the Program. We aim to nurture a community of practice of teachers participating in the program by supporting the sharing of their stories and those of their students between all teachers in the cluster. Of course the stories we collect will also form a rich research archive which will support an interrogation of the aims of the Program and provide a detailed evaluative account of the Program in action. As (Witherell & Noddings, 1991) assert, stories are powerful research tools. They provide us with a picture of real people in real situations, struggling with real problems. They banish the indifference often generated by samples, treatments, and faceless subjects. They invite us to speculate on what might be changed and with what effect.

(Witherell & Noddings, 1991, p. 280)

The stories we collect will provide the kinds of insights into teachers' practice that (Miller & Olson, 1994) argued is essential in understanding how teachers in the PCP use computer technology in their teaching.

...it is important to understand teachers' practice in detail because it is that practice and its history that allows us to understand how teachers use technology — how they incorporate new tools and new symbols into their teaching culture.

(Miller & Olson, 1994, p. 123)

Clearly the stories will serve a number of purposes. Apart from sustaining a shared sense of participation in a cluster of schools and providing local support for solving particular technical and educational problems, the stories will form the basis of an evaluation of our professional development model. In addition the stories will be collated and shared with other teachers participating in the Project and provide the ETLU with a unique account of the progress of the Project.

The most important use of the stories we collect and distribute will be their role in encouraging the growth among the participating teachers of a shared sense of having a lot in common and that sharing their stories is a potent way of learning. Our experience with this approach in other instances of teacher professional development strongly suggests that the sharing of stories by learners is a key means of establishing a sense of community among the participants. It supports more effective learning and encourages teachers in the
construction of personal support networks for computer use³. As Genishi stipulated:

"stories allow us to generalise to our own experiences, to see ourselves in new scenes or scenes similar to those we know, such as other's classrooms. We can make comparisons between their theories, decisions, and behaviours and our own, and we can imagine changes, new directions in plots, different scenes or endings in our classroom stories...and furthermore she argued

that stories by women and men about life in classrooms be made more prominent — and powerful - in the public discourse about education and its improvement..."

( Genishi, 1992 p. 201) Story telling as teaching is of course not a new idea in education (Egan, 1988). Indeed the idea has been used in the field of Artificial Intelligence to develop software that supports 'Aesopic' teaching (Ferguson et al., 1992). What is new about this proposal is the explicit articulation of story telling and sharing with professional development. In particular, it recognises the significance of a community of practitioners as the basis of what is important to know, do and talk about in using computers in classrooms. This approach anticipates a maturation in such a community and we will monitor through the shared stories, the growth of cross-school support as it develops and matures between teachers. We further anticipate that as the horizontal communication within a cluster grows that the need for facilitation of story sharing will diminish and we intend to support and encourage more direct sharing of stories within the cluster through telephone, fax and electronic mail. We will also facilitate meetings of participating teachers on a regular basis.

It is now commonplace for national and state curriculum policy documents to highlight the importance of incorporating computer technology into classroom teaching. Indeed, it is widely accepted that skills and proficiency in using computer technology are of critical importance in preparing today's students for the emerging 'information economy' (Drucker, 1993). Australia currently has among the highest per capita ownership of computers and participation in global computer networks⁴. In contrast, Australia's schools are poorly served in both respects. This cannot augur well for the nation's continuing participation in a global economy in which information and knowledge are the dominant items of trade. Without appropriate support, Australia's teachers will not be in a position to support student computer use in the classroom for this or subsequent generations of students.

At a systemic level there is much concern to ensure that the money that has been allocated to school funding for computer technology is having the intended effects. The proposed research project will provide rich and extensive data that will inform future policy decisions concerned with the incorporation of the new information and communication technologies in schools.

**CONCLUSION**

Apart from the direct applicability of this project to classroom practice, the research will inform theorising in a new area of educational interest that is growing in importance as the responsibility for teacher professional development is devolved to schools and individual teachers. In addition the research will add to the literature concerned with using computers to support teaching and learning in the classroom. This will become increasingly important as we look to new ways of creating curricula that will shape the future for the next generation of Australians (Wiltshire, 1994).

**Endnotes**

1 In Victoria all government schools have been equipped with satellite dish receivers to allow interactive television in teaching and professional development. N.S.W. has recently funded a computers in schools program for remote schools. In Tasmania and the ACT all schools are being connected to AARNet (The Australian Academic Research Network).

2 We plan to work with small groups of schools which are geographically close to one another.

3 For ten years this has been a key component in the off-campus professional development units offered at Deakin University in educational computing (Bigum 1990). It has also been at the heart of the professional development of academic staff in the use of computers within the Education Faculty at Deakin.

4 Second only to Finland.

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**References**


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