Key factors in the use of ICT in primary school classrooms

By

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2007
Declaration

This thesis contains no material that has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the thesis.

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Abstract

Over the past three decades governments, school systems and schools have made considerable investments in providing computer based information and communication technology (ICT) to support teaching and learning. These initiatives have been strongly endorsed by national and international organisations and authorities across the world. The major aims of this provision have been to enhance the quality of teaching and learning, and to better prepare students for participation in the emerging knowledge economy and information based society. Numerous studies have provided accounts of successful and impressive use of ICT in schools and classrooms yet there is little evidence of a sustained transformation occurring. In particular, the literature emphasises the necessity for teachers to change their pedagogies for the potential of ICT to be realised.

This study of primary school classes (N=50) in Tasmanian government and Catholic schools (N=32) used a social constructivist approach to investigate the factors that shape the successful and sustained use of ICT in classroom teaching and learning practices. The findings are elaborated using activity theory. The study was undertaken as part of the ARC Linkage project (PL0210823) Children, Online Learning and Authentic Teaching Skills (COLAT). Observations covered ICT provision and working arrangements in the classroom, and teaching and learning practices in use. These in-class observations were supplemented by interviews of key school staff members including the participating teachers, principals and other school leaders, ICT coordinators, technical support staff and others involved with the use of ICT in the school.

As an original contribution to knowledge the study identifies a set of key factors that together influence the success or otherwise of the use of ICT in teaching and learning. At the class level, there are four key factors: the purpose of the teaching and learning practices (and the rationale for using ICT to achieve the intended purpose); the availability of technology that matches the practices; the working
knowledge required to select, operate and troubleshoot the technology being used; and the cost effectiveness of doing so. Four additional factors that are largely determined outside the classroom were also found to be significant including: governance of ICT and its use across the school; ‘reliability’ of devices, arrangements and practices; professional learning that results in a transfer of learning into practices; and collaboration as a key characteristic within classes and the school as a whole.

Several of the key factors are largely outside the classroom and beyond the control of teachers. Such factors operate at the school, community and school system levels and thus it is unreasonable to hold teachers responsible for realising the potential of ICT. Nor can the use of ICT in teaching and learning be addressed as if it were an engineering problem: educative practices involving the successful use of ICT are socially co-constructed and emergent rather than designed and implemented. While in-class practices are central, the key factors require organisational learning on the part of the school as much as professional development on the part of teachers. Thus, it is appropriate for schools and school systems to be informed by local communities of practice that are addressing the key factors in order to co-construct the emergent practices and arrangements.
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My hope is that the generosity of all concerned will be ‘rewarded’ by the passing on of this knowledge. Ideally, this will help reduce the need for others to invest quite so much time and effort in uncovering what is desirable, possible and feasible in terms of new or improved in-class practices using ICT.
Glossary

**ACOT**  Apple Classrooms of Tomorrow

**ARC**  Australian Research Council

**APA(I)**  Australian Postgraduate Award (Industry)

**Becta**  British Educational Communications and Technology Agency

**COLAT**  Children Online Learning and Authentic Teaching (ARC Linkage Project)

**DEST**  Department of Education, Science and Training

**DEETYA**  Department of Employment, Education, Training and Youth Affairs

**ICT**  Information and communication technology

**Governance**  Decision making within a school in relation to the infrastructure provided, and the capabilities and purposes of those involved

**OECD**  Organisation for Economic Co-operation and Development

**Practices.**  The everyday activities and processes undertaken by teachers and students as in teaching and learning

**Reliability.**  The capacity to rely on being able to use the ICT within the ‘window of opportunity’ available

**Working knowledge.**  The knowledge required to select, operate and troubleshoot ICT