0612

Researching ICT and student engagement: past evidence and implications for future research

Margaret Cox
King's College, University of London, London, United Kingdom

Background

Researching ICT in education started in the 1960s when ICT was used by a very limited number of students as an optional activity. Educational research then focussed on what direct impact ICT might have on learners' understanding. However, as ICT has diversified and expanded over the last 50 years, the balance between teachers' and learners' roles and engagement have changed and research methods have expanded to include measuring the organisation of the school, teachers' beliefs, uptake and uses of ICT, the attitude and motivation of teachers and pupils, immersion in the technology and the differences between different nation's uses of ICT. In order to understand how these new multi-dimensional learning environments and experiences affect student engagement researchers need to develop new ways and combinations of methods for their investigations. This paper draws on substantial evidence from the 'Researching IT in Education' section (Cox, 2008) of a large international literature review published as the International Handbook for IT in Primary and Secondary Education (Voogt and Knezek, 2008) and other publications to consolidate past evidence and propose strategies to achieve reliable research methods

Research Questions

Many previous studies have provided useful evidence of ICT and student engagement but apart from the current ESRC/EPSRC Technology Enhanced Learning Programme (see http://www.tlrp.org/tel/) relatively little comprehensive work has been done on identifying common themes and issues which can be combined through analyzing the strengths and weaknesses of the research methods applied.

Three important research questions based on 40 years previous research findings, which challenge many of our assumptions about previous and current studies, are therefore:

- what makes effective research into student engagement in ICT?
- what factors influence student engagement with ICT?
- how do research methods need to change to take account of the relentless development and application of ICT technologies in society and education?

Methods

During the last four years a team of over 70 international researchers have conducted extensive research into ICT in primary and secondary education resulting in the International Handbook for IT in Primary and Secondary Education (Voogt and Knezek, 2008). This study has shown that researching how students engage with ICT includes measuring the changing learning context (Norris and Soloway, 2008); collaborative learning (Lai, 2008); and many other influences consequently resulting in a diversification in the research methods used and controversies about what is actually being researched and the reliability of the results (Cox & Marshall, 2007; 2008). Furthermore, the explosion of IT tools and resources has spawned new literacies and knowledge representations which are changing the emphasis and the balance in terms of the production, content and meaning of ICT and therefore a change in the methods needed to measure its impact on learning.

In spite of many commonalities in research findings published in the handbook, a recent study of ICT and the policies and practices in education across 37 countries (Plomp, Anderson, Law and Quale, 2009) shows that substantial differences still exist between and within the school systems of different countries regarding access to ICT and between the actual types of ICT available to teachers and therefore the opportunities for student engagement.

Through an analysis of the range of the research literature the paper will identify the range of important factors which can influence student engagement and how various theories and methods relate to relevant and consistent research evidence of student engagement with ICT.

Frame

The approach used to analyse the literature and address the research questions has involved mapping types of ICT use, learning contexts, local and global factors against reported research evidence about student engagement. A systematic approach to include different types of studies (qualitative and quantitative), different contexts, variables and methods provides a matrix of evidence linked to accepted techniques such as repetition of evidence from different studies, meta-studies and reliable underpinning by educational and subject theories

Research findings

The analysis of the evidence from the Handbook and other more recent studies has confirmed that;

- student engagement with ICT is still limited to a small range of ICT technologies:
- the focus of ICT use in education has changed from purposely designed educational ICT resources to commercially focused resources such as the Internet and the World Wide Web;
- there is still a significant difference across the student population in many countries in terms of their ICT access and use in education;
- although policy makers recognise the importance of ICT in education, there are widespread misconception about its potential to enhance student learning;
- many research approaches need to change to take account of new forms of knowledge representation and the variation in students' digital literacy skills.

Further results will be presented at the conference

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