
Introduction: the changing face of learning technology

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Introduction

Technology has changed during the seven-year lifetime of *ALT-J*. In 1993 few would have predicted the pervasive influence of the Web, while JISC's vision of a Distributed National Electronic Resource (DNER) would have been regarded as little more than a flight of fancy. But has technology led to the development and adoption of genuinely innovative approaches to learning and teaching? Do teachers now teach differently and foster new relationships with students as a result of technological developments? Has learning technology overcome the criticism of failing to deliver on its promises? Do institutions function in a different way by using technology to respond to the needs of a more diverse student population and the calls for lifelong learning? Has learning technology made it possible to promote contemporary theories of learning? We aim in this volume to provide a historical perspective on learning technology which will allow readers to reflect on these and similar questions.

The papers have been chosen as being representative of the changes in learning technology over the last seven years (although it goes without saying that the choice has been a challenging one). The selection has been guided by four themes which emerged from our review of papers published in *ALT-J*: design and evaluation of technology-mediated learning environments, institutional change, learning technology in a networked infrastructure, and reflections on future possibilities. We have attempted to select papers that illustrate developments in each of these areas, and to cover the full range of the *ALT-J* publication period. In keeping with this historical perspective, and with the exception of the most recently published papers, we asked authors to write short updates, highlighting any development of the ideas they originally presented.

Design and evaluation of learning technology

Grabinger and Dunlap set the tone for our historical review (see also Grabinger *et al*, 1997). In their description of Rich Environments for Active Learning, they elucidate a philosophy for the design of technology-mediated learning environments, a philosophy

predicated on an acceptance of a constructivist view of knowledge. Fowler and Mayes provide a recent analysis of the relationship between design and contemporary theories of learning, stressing the social context of learning to introduce the concept of a ‘learning relationship’ which ‘attempts to bridge the psychological and anthropological views of situated learning’.

Informed evaluation of the effects of the use of learning technology is clearly crucial, and reliable research into evaluation methodology therefore essential. The point is forcefully underlined by Mitchell in his critique of current evaluation practice. In his view, ‘much published research about education and the impact of technology is pseudo-scientific; it draws unwarranted conclusions based on conceptual blunders, inadequate design, so-called measuring instruments that do not measure, and/or use of inappropriate statistical tests’. If he is right, there is an overwhelming case for the learning-technology community to put its house in order.

Gunn partly takes up the concerns expressed by Mitchell in her proposal for a conceptual approach to evaluation. She calls for the development of evaluation techniques which resonate with practice in the use of learning technology, in other words qualitative approaches which tease out the rich context-specific aspects of learning-technology usage. Other contributors to *ALTJ* have echoed this approach. For example, Draper (1997) has advocated ‘niche-based’ evaluation which is highly tuned to the specific contexts in which learning technology is used. Such papers draw attention to the decisive importance of developing appropriate evaluation methodologies, an importance which can only increase with the growing diversity of learning technology.

Institutional change

If learning technology is to realize its potential, it must be integrated into the daily practice of higher education. This implies that institutions will need to change in order to accommodate the new possibilities, an issue that has been a recurrent theme in *ALT-J* (see, for example, Harrison, 1994; Longstaffe *et al*, 1996; Conole and Oliver, 1998). We have chosen four papers to illustrate the focal significance of institutional change.

The paper by McCartan *et al* illustrates initial reactions to the prospect of institutional change. The question being asked was: ‘How can learning technology fit into existing structures?’ The question increasingly being asked now is: ‘How can institutional structures be modified to accommodate the possibilities afforded by technology?’, an approach evident in the title of the paper by Brown: ‘Reinventing the university’. Recent changes in the student population, with students coming from more diverse backgrounds, together with a greater emphasis on flexible forms of delivery, have highlighted issues of how institutional structures can be remoulded to exploit the new technologies. Brown points out that there are alternatives to the radical notion of ‘virtual universities’. And indeed, a more realistic – and effective – change may be the emergence of hybrid universities that feature both traditional and technology-mediated provision. The recent UK government’s decision to broker the formation of a national eUniversity, based on an amalgamation of existing conventional higher-education institutions, bears witness to this policy. Hart and colleagues provide an illustration of how learning technology can be integrated into curricula without simply jettisoning existing practice. Their institution adopted a flexible

delivery policy with the main objective of developing a more student-centred approach to teaching and learning, given that its students are predominately part-time, mature-age, already in employment and from diverse backgrounds.

Of course, learning technology will never be fully integrated into higher education unless academics come to believe in it. Continuing professional development has thus always been a concern, hence a number of papers published in this area in *ALT-J* (see, for example, Littlejohn and Stefani, 1999). McNaught and Kennedy go one step further than most, claiming an indisputable pivotal role for continuing professional development. They describe how staff development forms the rationale for a 'bottom-up' approach to realizing the objective of a top-down institutional learning technology strategy.

Learning technology in a networked infrastructure

The claims for using networks to support learning and teaching are many and various, and *ALT-J* has featured several papers on this topic. For example, Mozzon-McPherson (1996) describes the use of email to assist in teaching Italian, Brailsford *et al* (1997) and Dineen *et al* (1999) treat the design and use of software to reconfigure past electronic discussions as teaching material, and Nicholson (1998) discusses the provision of flexible learning using the Web and computer conferencing.

The three papers we have selected as representative of this category give an overview of the possibilities afforded by networked learning environments. Naida and colleagues discuss some comparatively early attempts to use asynchronous computer-mediated communication to deliver instructional content. The points they make are to be compared with the results of a recent study of the use of computer conferencing described in the paper by Jones. And Minasian-Batmanian and colleagues, in their description of an online problem-based learning approach to the creation of a student-centred learning environment, explain how a state-of-the-art networked infrastructure can play a major role in offering lifelong learning opportunities.

The future

Some would argue that the rapid rate of technological change makes any speculation about the future of learning technology a fruitless exercise. We nevertheless believe that such speculation can inform research and development agendas, and have therefore included papers concerned with potential future developments. The review by Gardner and Ward of BT's Real-time Interactive Social Environment (RISE) illustrates the possible shape of things to come. RISE is a coherent online environment offering students, teachers and support staff a virtual classroom, public and private information spaces, a shared diary, access to a modular set of coursework, email and text-based discussion groups, and personalized home pages. Squires even looks forward in his paper to the notion of the Peripatetic Electronic Teacher existing solely or partly as a telepresence in distributed multimedia environments.

Learning technology has changed significantly in the seven years since the first issue of *ALT-J* appeared and, on the whole, for the better. There can be little doubt that it is impinging on, even becoming an integral part of, the provision of higher education, enhancing practice and providing the means for innovation. One of the most important

emergent themes appears to be the way in which learning technology has acted as a catalyst within institutions, encouraging both managers and lecturers to reflect on all aspects of the learning and teaching provision. It will be interesting to see if this effect continues in years to come. Let us hope that readers who casually pick up this volume seven years from now will not deride the efforts of the 1990s pioneers it features, nor find the prognostications too laughable.

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