

Theory and the practices of learning technology

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ABSTRACT

This paper examines the link between theory and practice in relation to learning technology. It will do this in the context of a move from working with early adopters to learning technologists engaging with the majority of academic staff (Browne, 2003). This move takes place at the same time that academic staff in tertiary education are being encouraged to engage formally with learning and teaching in a way that is sharply different from previous University practices. Learning technologists currently engage with a broader constituency that is in a significant process of change. The future of networked learning is related to the growth of this emergent profession and the way in which theory relates to their developing practices.

Keywords

Learning technologists, theory, practice, networked learning

INTRODUCTION

Learning technology is a young field that includes a variety of approaches including networked learning and computer supported cooperative or collaborative learning (CSCL). As a field of practice there is a growing occupational group that has the potential to develop into a distinct profession (Oliver 2003). Within this field there are national and international conferences that speak to a variety of audiences. In the UK discussions that have taken place in the Sudeley group, a group organized around a special interest group of the Association for Learning Technology (ALT), have tried to map out the field covered by learning technology with the aim of producing a book that maps the field of learning technology (Conole *et al* 2003).

“The central aspiration of the book is to articulate the relationship between the different voices which make up learning technology, through a process of dialogue and to highlight multiple perspectives.” (Conole *et al* 2003 p103)

This paper examines the place of theory in relation to the emergence of this new professional group and the way theory locates with the different voices and multiple perspectives mentioned in relation to the book. A decision was taken early on in the discussions of the Sudeley group to avoid a single authoritative voice. Not only did this reflect the wide range of views within the group it was felt that the learning technology field covered the boundaries between a range of disciplines and a variety of theoretical perspectives. Learning technologists have diverse origins and their work involves the coordination of a wide variety of feeder disciplines. Learning technologists are as a result faced with having to have an appreciation of broad theoretical questions in order to understand the diversity of approaches available in the field.

Recently the LTSN (Learning and Teaching Support Network) in the UK issued a ‘Guide for Learning Technologists’ (2003). In this guide a learning technologist is described in the following way:

“staff involved in any of the functions and activities associated with the embedding, development and support of learning technologies or e-learning in HE.” (Armitage and O’Leary 2003 p 4.)

These staff included those with a dedicated learning technology role and those who have a learning technology role within a post defined by another predominant role e.g. lecturers, librarians, technical staff support and administrator. Martin Oliver (2003) has reviewed the limited research that has taken place in relation to learning technologists in terms of community, identity and professionalisation. A question that arises from his review is whether learning

technologists can or should be treated as a single community. Oliver notes that the alternative description of learning technologists as a 'constellation of practice' (a constellation consisting of a numerous local communities of practice) might be more appropriate in this case. In these circumstances it might be unreasonable to look for a single type of relationship between learning technologists and theory and this paper will explore a variety of relationships that might be appropriate in these circumstances.

Helen Beetham (Beetham et al 2001) identified three broad groupings of learning technology practitioners from a national survey:

- 4,500 centrally located non-academic specialists working as learning technologists
- 3,500 departmentally located non-academic specialists working as learning technologists
- 8,000 departmentally-based academics who were active in this area

The study also identified 11 roles for learning technologists which were summarized under three headings:

- New specialists (approximately 2000)

These staff were often on short term contracts and closely related to educational development, though with a specific learning technology remit. This group was diverse including researchers, developers and managers as well as fully designated learning technologists.

- Academic staff and academic managers (approximately 1000)

These were largely permanent members of staff and had a distinct place in relation to the other two groups as they provided a client group for their services.

- Learning support staff (approximately 4,500)

These staff would include library and resource professionals, C&IT professionals and technical support professionals.

This diverse group could be expected to have a disparate relationship to theory but in so far as the group is either self-consciously moving towards professional status or is to come under greater managerial control it is likely to develop a more homogenous character. Oliver in discussing the potential impact of professionalisation notes that this process could involve the adoption of standards:

“The formalisation of such standards would certainly strengthen one of the required characteristics for a community of practice: mutual accountability. The adoption of standards within a professional body would also allow sanctions to be imposed...” (Oliver 2003 p268)

This process of developing standards for learning technologists would in Wenger's terms reify their practice (Wenger 1998), and this would involve learning technologists in defining a canon of knowledge that was associated with the field of learning technology. The role of theory for learning technologists is an unclear area for investigation as it involves the evolving definition and self-definition of an emergent profession.

For the purposes of a review of the place of theory in the emerging practice of learning technologists there are a number of underlying issues that need to be addressed. Learning technology is a field drawing on a number of different disciplines and the people who become learning technologists are likely to be familiar with only a sub-set of these feeder disciplines. Each discipline area is likely to have within its own domain a variety of theoretical outlooks and some of these outlooks may even be incommensurable. There is no one meta-theory linking the feeder disciplines or even unifying some of the disciplines internally. The learning technology community is itself quite diverse, both in terms of its organizational position and in terms of the job roles and descriptions that different kinds of staff have.

LEARNING TECHNOLOGISTS AND THEORY

Learning technologists may develop a distinct relationship to theory in the way that other applied and technological areas have. In a study of technical work settings in the US technologists are seen as consumers rather than producers

of scientific knowledge (Barley and Orr 1997). Technologists as a job category have some type of advanced education and training but are unlikely themselves to be involved with the production of new knowledge. Barley and Orr suggest that these professional and technical grades are the fastest growing segment of a modern labour force and that the change in the workforce is closely related to changes in the use of scientific knowledge. It might seem at first glance that this discussion based on areas of the workforce that in general apply hard sciences such as chemistry and physics in areas of industry such as aerospace, pharmaceuticals, petrochemicals and electronics, is a long way from learning technology. However this would ignore some of the key mechanisms they identify as underlying this change. Firstly the growth in demand for basic and applied scientific knowledge leads to a proliferation of new fields and disciplines. As these technical disciplines grow it becomes increasingly difficult for any individual to master the breadth of knowledge required to remain a generalist.

“Few specialists can execute alone tasks that require both breadth and depth of experience.” (Barley and Orr 1997 p 7)

This pressure is recognizable from the previous discussion of the place of learning technologists in education, and it is likely to grow as the pressure develops to re-combine a number of specialist technical functions that were once integrated in the person of the lecturer.

“Collaborative development is crucial for learning technology because of the range of skills needed.” (Laurillard 2002 p227)

A networked learning course using digital resources and applying multimedia technology available over a network on a variety of devices will increasingly require a course team linking the library, pedagogical and technical support. Few single individuals will have the skills and experience to combine all the necessary components required for developing and sustaining a networked learning course or programme.

Barley and Orr (1997) also note that as tasks proliferate there is a trend towards de-skilling, the allocation of routine duties to less well trained individuals. This takes place alongside an increased demand for fully trained professionals. In tertiary education increasing student numbers and the massification of education are taking place alongside the introduction of new technologies and this has led to an increased demand for teaching staff and technical specialists. This combination of factors also leads to pressure in institutions to use graduate students to provide teaching and for teaching staff to take on a more supervisory and management role in the delivery of a course. Administrative staff frequently take on many of the face-to-face and contact point functions previously undertaken by the lecturer and for our purposes most importantly the technical functions are often devolved to technical support staff who may have no pedagogic skills. The demand for learning technologists comes in part out of this increasing technical division of labour that is a consequence of the application of new technologies to teaching and learning.

Barley and Orr try to define the central characteristics of the technical workforce.

“Technical work sits at the intersection of craft and science, combining attributes of each that are normally thought to be incompatible. It is a cultural anomaly in which mental and manual skills coexist inseparably, if not always comfortably.” (Barley and Orr 1997 p 12)

They go on to suggest that technicians can be thought of as standing between society and technology in a structural and a cultural sense. The technician in one sense acts as a buffer and in the other sense as a broker standing between the complex technologies and user groups. Buffering involves enabling users to get on with their work without having to know too much about the technology whereas brokers act as a link between the groups producing and maintaining the system and those who use it. Brokering is also a term that is used by Wenger (1998) in his discussion of the job of translating, coordinating and aligning between different perspectives. Nardi and O’Day (1999) examining Information Ecologies provide a number of case studies of the types of relationships developed by staff in technical support roles. In particular they examine the roles of librarians as a “keystone species” and in “Cultivating Gardeners”, the role of informal homegrown expertise in facilitating use of technological artifacts. The important feature of their discussion is that the relationship to theory can be quite indirect and informal. Gardeners in Nardi and O’Day’s work are a group who have no formal position but broker skills and information between practitioners and technologists.

NETWORKED LEARNING AND THEORY

Attempts have been made to make theoretical approaches to learning available to learning technologists in a useful form (Goodyear 2001). However in some research a gap has been found between theory and the 'rules of thumb' that can be used in day-to-day practice (Jones *et al* 2000, Jones and Asensio 2002). In research that examined the approaches taken by academic practitioners of networked learning the authors reported that the practitioners held a common educational philosophy. This philosophy was a high level theory, or nested group of theories, that set out expectations and design principles for the design of networked learning courses. The authors noted that this high level theory did not seem to provide practitioners with "rules of thumb", simple guides for action in practical circumstances and specific settings, rather this level of theory provided a general framework or paradigm that closely aligned with the new paradigm for research in CSCL identified by Koschmann (1996).

Academic practitioners as one of the learning technology groups identified above show a particular relationship between theory and practice. As academics they are working with recent theoretical approaches in educational research and applying that in their practice. In their conclusions Jones *et al* (2000) wondered if a wider group of practitioners, less versed in educational research would share the same theoretical outlook. This of course is rapidly becoming a practical question as use of learning technology becomes more of a mainstream activity in education. Theory of the type identified in this research can be thought of as a lens, bringing some elements of an environment into focus whilst other elements recede. There are however alternative views of theory that position it rather differently in relation to practice. In some instances theory is counter posed to practice, theory in this view is mental work, practice the act of doing rather than thinking. This replication of the traditional division of work roles between white collar and blue collar work, places theory both in a privileged and slightly impractical position. This view is not unknown amongst learning technologists and often presents itself as a pressure to have quick answers to pressing practical questions and a reluctance to listen to hesitations and concerns about theoretical issues that are considered abstract. Some reviews of theory have concluded that the problem lies with an excessively broad use of the term theory.

The cavalier way in which 'theory' is employed results in the word becoming impotent. And this is often merely in the attempt to add epistemic weight and gloss to what is otherwise mundane. (Thomas 2002 p 420)

This approach sees theory as overblown and pretentious, a gloss on plain thinking and would emphasise untheorised practice as a corrective to excessive theoretical concern. Just as the role and position of learning technologist presents a complex picture so to does the place of theory in the social sciences.

The background to the role of theory for learning technologists is a general uncertainty affecting all the social sciences. Theory has been placed into a very general role by the interpretivist or cultural turn in the social sciences.

And so it has gone for the last 30 and more years as educational researchers have attempted to come to terms with the implications of this idea of no theory-free knowledge for our understanding of the nature, purposes, and possibilities of educational research. (Smith and Hodkinson 2002 p292).

This view of theory suggests that there are no facts that can be uncovered only descriptions that are constituted in activity that can be contested. If all our ways of knowing depend crucially on our position in the world then a reasonable question for learning technologists might be "what chance is there of achieving a secure set of theoretical propositions that can be applied generally?". Situated and contingent views of knowledge have struggled with how to typify the relationship between those elements of a setting such as plans, designs and general policies that can provide some standardization and predictability in practice and those elements that are purely local and contingent. One answer to this problem is to see plans, designs and policies as resources called upon in the activity in any particular setting. Theory in this view is in a similar relationship as it is a resource we call upon to allow us to act systematically in the world.

Closer to home the role of theory in networked learning has been linked to paradigm changes in the type of research conducted (Koschmann 1996). In a clear link to the cultural turn in social sciences Koschmann defines his research

area in terms of a new paradigm. Koschmann notes that one of the problems with this account is that the paradigm shifts in studies of technology assisted learning take place as sharp turns with little dialogue between succeeding and prior paradigms. A current example of this might be the lack of dialogue between cognitivist views of learning and the study of learning as social practice. These two alternative views of learning represent two distinct theoretical outlooks and yet they are often found fused together within the accounts of practice provided by researchers and practitioners. Koschmann's answer to this question is to concentrate on providing an adequate description of learning as a process of meaning-making rather than a focus on learning outcomes (Koschmann 2001).

CONCLUSIONS

The relationship between learning technologists and theory is complex. As an emergent profession the current practice of learning technologists varies according to position within a rapidly changing context. The types of people involved and their current job roles are varied. The disciplinary backgrounds and theoretical traditions of learning technologists are diverse and it cannot be expected that any one learning technologist can have a grasp of all the available theories in use. This practical question is compounded by the process of professionalisation that is taking place. There are active attempts to draw together the various strands of learning technology and the different groups of learning technologists into a single recognizable profession. This will involve some standardization and the setting out of a common canon of theory, even if there are different voices and a variety of positions that can be taken within that canon.

Theory can have a variety of relationships to practice. The general case argued by Barley and Orr (1997) suggests that technologists draw upon the knowledge production done elsewhere. Current practice in learning technology is not so clear. Educational researchers are still active as practitioners and as active participants in learning technology. Practitioners in some of the feeder strands in learning technology are both practitioners and concerned with the conduct of research and the development of theoretical accounts intended to inform practice. It is not yet clear if this blurring of boundaries between technical work and knowledge production is simply a feature of an emergent profession or a more permanent feature of learning technology. The role of theory outlined in this paper suggests that theory provides resources for action. This is not intended to mean that theory can be trivialized or contrasted to practice. Theory in this view should be involved as a component part of practice, in a dialogic process in which theory is one aspect of practical activity.

It may well be that this entails a relationship in which learning technologists want to 'drip feed' relevant, but principled, advice and guidance to a wider community using learning technology. This would accord with the broker role of technologists more generally. Learning technologists themselves may not want to engage in detail with theory or its production. However learning technologists may need to be 'savvy' to the theoretical distinctions that lie behind particular approaches to learning and research. Learning technologists will in this way need to engage in a continuous professional development, both of themselves and in relation to their clients (Beetham 2001). This will involve the development of a dynamic relationship to theoretical issues.

The implications of this view are that learning technologists might need to resist being divided into different camps. Those who are interested in conducting research may need to retain a strong connection and involvement with day-to-day practice. On the other hand the growing number of learning technologists involved less in research and more closely in the implementation and deployment of learning technology may need to keep an interest in the production of knowledge and not simply be interested in translating the research findings of others into practical activity.

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