Welcome to the Learning with New Media Inaugural Conference, 23 March 2012
Ibis Hotel, Glen Waverley, VIC

**Conference theme:**
Critical Perspectives of Learning with New Media

**Convenor:** Dr Nicola F. Johnson, Senior Lecturer, Monash University, Faculty of Education, Gippsland.

**Learning with New Media Research Group Members:** Dr Scott Bulfin, Dr Michael Henderson, Dr Nicola F. Johnson, Mr Ibrahim Latheef, Dr Wee Tiong Seah, Professor Ilana Snyder.

**Learning with New Media Research Group Fellows (and attendees):** Dr Glenn Auld, Dr Phillip Dawson, Associate Professor Susan Edwards, Dr Donna Gronn, Dr Michael Morgan
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Presenter biographies:

Tom Apperley, Ph.D. is a Lecturer in Digital Ethnography at Monash University. He is the editor of the peer-reviewed journal, Digital Culture and Education. His book Gaming Rhythms: Play and Counterplay from the Situated to the Global was published by The Institute of Network Cultures in September 2010. tom.apperley@monash.edu

Glenn Auld is a Senior lecturer in Language and Literacy at Deakin University. His research interests include Indigenous Australians practices with new technologies from critical perspectives. His research is based on a partnership strategy with Indigenous Australians that has resulted in numerous co-authored papers with Indigenous elders. Glenn.auld@deakin.edu.au

Sue Bennett is an Associate Professor in the University of Wollongong’s Faculty of Education. Sue's work investigates how people engage with technology in their everyday lives and in educational settings. Her aim is to develop a more holistic understanding of people's technology practices to inform research, practice and policy. sbennett@uow.edu.au

Chris Bigum is an adjunct Professor at the Griffith Institute for Educational Research and lives an unretired academic life on the Gold Coast where he can access swimming pools and surf beaches all year round (he denies any and all undinistic tendencies). He has been teaching about and researching the various interactions between computing and related technologies and formal education policy and practices since the early 1980’s. cbigum@gmail.com

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Dr Joanne Orlando, University of Western Sydney. Dr Joanne Orlando examines contemporary life through the lens of Information and Communication Technologies (ICT) to understand how ICT contributes to our actions, knowledge and, identity. In particular, her research focuses on how ICT sits alongside and against established social and cultural practices in formal and informal learning contexts. j.orlando@uws.edu.au

Neil Selwyn is a Reader at the Department of Culture, Communication and Media in the Institute of Education, University of London, UK. His research and writing focus on education, technology and society. His latest book is Education in a digital world: global perspectives on technology and education (Routledge, 2012). n.selwyn@ioe.ac.uk
Sandy Schuck is Professor of Education and Head of Research Degrees in the Faculty of Arts and Social Sciences at the University of Technology, Sydney. Her research interests concern teacher education futures, professional learning of teachers and teacher education students, and the induction and retention of early career teachers. Sandy.Schuck@uts.edu.au

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Sharpening the ‘ed-tech imagination’: improving academic research in education and technology

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Institute of Education – University of London, UK

Provocation paper presented to the ‘Learning with New Media’ conference – Monash University, Melbourne – 23rd March 2012

Abstract: This paper begins by considering some of the weaknesses recurring throughout academic research in education and technology. It then suggests key areas for improvement in what is an increasingly important area of academic inquiry. In particular, an argument is made for a broadening of the ‘ed-tech imagination’ in terms of the topics that are addressed, the questions that are posed, and the use of methods and theory. Against this background it is suggested that a new tradition of research needs to be fostered that is more realistic, relational, pessimistic, critically-minded and public-facing in its approach. It is concluded that framing education and technology in these terms would support academics to construct accounts that are more relevant to the ‘messy’ realities of everyday practice and provision.

Introduction

After decades of false starts and dashed hopes, digital technology is now a prominent feature of education provision and practice in many countries and contexts. Mobile telephony, internet use and other forms of computing are familiar, everyday tools for many people in developed and developing nations. Billions of personally owned digital devices are in frequent use, and billions of other devices are used communally in shared, public settings. Governments around the world have established policy drives and programmes seeking to encourage and support the use of digital technologies in schools, colleges, universities and domestic settings. As we progress through the 2010s, digital technology is now a topic that is undoubtedly of real significance to a global educational audience.

Yet despite this heightened importance, educational research has yet to fully get to grips with the topic of digital technology. New media and technology remain peripheral elements of the sprawling field of ‘educational studies’, despite ever-increasing amounts of research funding and the continual proliferation of specialist research centres, conferences and journals. Much of this problem stems from the fact that ‘education and technology’ is not itself a coherent field of study. Indeed, what is often referred to in broad-brush terms as ‘ed-tech’ refers more accurately to an ever-changing assortment of writers and researchers brought together only by an inadvertently shared interest in some aspect of technology use in education. As an area of academic study, education and technology is populated by a transient ragbag of individuals hailing from the learning sciences, social psychology, computer science, teacher education, media studies, sociology and beyond. As such, this is a ‘mongrel’ area of scholarship that suffers from the absence of any long-term collective obligation amongst its participants to develop their ‘(non)field’ of study into anything more than the sum of its parts.

At best, then, education and technology could be classed as an area of scholarship whose time is yet to come – an undoubtedly important area of educational provision, practice and policy that now merits serious academic attention. This, I hope, will be a starting point for today’s
conference and its subsequent activities. As should be clear from the collection of papers gathered together for the conference, Australian academics are certainly producing much good academic work in the area of education, media and technology. Yet when the dozen or so papers from today’s proceedings are set against the voluminous body of work that is produced each year through a never-ending procession of ed-tech conferences and journals, it is clear that any good work is very much an exception to the rule. In an area of scholarship dominated by lazily executed ‘investigations’ and highly questionable thinking, it is now surely time for the marshalling of a far smarter and far sharper approach towards the topic of educational media and technology. In this sense, the proceedings of today’s conference could well be the start of a significant shift.

Reconsidering the limitations of academic research in education and technology

These ambitions notwithstanding, before we get too carried away it is useful to take a closer look at the existing body of academic work in education and technology. Here, it can be observed that the writing and research produced since the 1980s has been of wildly varying quality - seemingly constrained by at least four recurring limitations in terms of the topics that tend to be chosen; the questions that tend to be asked; the limited use of theory; and the limited use of methods. These limitations will now be considered in more detail:

i. **Limitations of topic:** Firstly, questions can be asked of the scope of the existing research base in education and technology. Indeed, much of the academic interest in ‘educational technology’ over the past thirty years can be described more accurately as the study of ‘learning technology’. In other words, rather than focusing on ‘education’ in its broadest sense, writers and researchers have concentrated most often on the role of technology in facilitating, supporting and (it is assumed) enhancing the act of learning. In this sense, academic investigations of the educational use of digital technology have tended to focus either on the processes of technological development and design, or else the processes of learners using technology – therefore drawing predominantly on a range of ideas about of instruction and learning that seek to explain how and why technology-supported learning can take place.

ii. **Limitations of questioning:** Secondly, most writing and research has remained focused on what could be considered to be ‘state of the art’ questions – i.e. exploring issues of how digital technologies could and should be used in educational settings, and focussing on ‘what ifs’ and ‘best case’ examples of the learning potential of technology use. As a result it can be contended that much of the existing literature has taken a rather ‘legalistic’ approach toward the collection of ‘evidence’ – i.e. as a confirmatory means of establishing a case for the predetermined position that ‘technology works’. All told, most writing and research in education and technology has sought to look resolutely forward, rather than sideways or even backwards.

iii. **Limitations of theory:** It can also be observed that this is an area of inquiry that is notably limited in its theoretical scope. In particular, ‘ed-tech’ research has long been dominated by theoretical and philosophical accounts from what can be termed the ‘learning sciences’ – i.e. from the behaviourist theories of the first half of the twentieth century, to later cognitivist, constructivist, constructionist and socio-cultural descriptions inspired by the likes of Jean Piaget, Lev Vygotsky and their followers. Latterly, these largely psychological concerns have been augmented by theories of human computer interaction, systems development and the science of design, as the attention of writers and researchers has been drawn towards the design and production processes of what has come to be termed – in Europe at least - as ‘Technology Enhanced Learning’.
iv. *Limitations of method:* Finally, it can be argued that empirical studies of education and technology have been constrained notably by distinct methodological limitations. For example, most educational technology studies continue to take the form of small-scale evaluations of specific instances of technology use, preferring to rely upon interviewing and limited forms of observation, or else brief surveys, scales and other indirect ‘measures’. Case studies remain the research design of choice or many researchers, alongside modest forms of ‘opportunity’ sampling and descriptive analyses of data. For an area of scholarship that prides itself in addressing big issues and reaching grand conclusions, much research in education and technology is surprisingly unambitious in its methods of inquiry.

All these criticisms support an over-riding sense that education and technology is an area of academic endeavour that is largely instrumentalist in its approach. It could be argued that this is an area of academic study that has remained stuck stubbornly in its ways - in thrall to technicist notions of ‘best practice’, ‘effectiveness’ and proving ‘what works’. In particular, many writers and researchers continue to pursue a focus on the production of ‘useful’ but ‘simple’ accounts that make claims for digital technology and education regardless of the more complex realities of their actual use. Education and technology has certainly not proved to be a particularly sophisticated area of academic scholarship – concerning itself more on an ability to respond to the educational potential of newly developed technologies and offer possible solutions and ‘fixes’ to the many inconsistencies and problems of education and learning.

In this sense, it could be argued that academic research in education and technology has fallen into a set of well-worn failings that have occurred at one time or another across many areas of the social sciences. Indeed, for such a contemporary area of academic activity it is surprising how many of my concerns with recent academic work in education and technology have clear parallels with the critical observations of social science research and writing made by C. Wright Mills over fifty years ago in ‘*The Sociological Imagination*’. For instance, in the terms set out by Mills, education and technology can be said to be an area of scholarship that is dominated by an ‘abstracted empiricism’. As a result, the literature on education and technology has certainly tended to be a-historical and non-comparative in its analysis. It has also tended to concentrate on small-scale areas of inquiry and avoid more complex questions about social structure in favour of what Mills termed ‘psychologism’ – i.e. “the attempt to explain social phenomena in terms of facts and theories about the make-up of individuals” (Mills 1959, p.67). Recent writing and research in education and technology is also undoubtedly characterised by what Mills termed a ‘thinness of result’ (Mills 1959, p.71) – i.e. descriptions that tell us little about the dynamics of technology use in educational settings and their links to wider social processes, structures and relations. Thus while it is perhaps comforting to learn that education and technology is not unique in its failings, it is certainly disappointing to realise that researchers are continuing to repeat the mistakes of fifty years earlier. The key question, therefore, that now faces those of us working in this area is whether or not this situation can be addressed and rectified.

**Adopting a new approach towards education and technology?**

It is important to note at this point that none of these criticisms and objections raised so far are intended to be dismissive or pejorative of what (and who) has gone before in the area of education and technology. In many ways these are all criticisms of my own research over the past twenty years as much as they are criticisms of anyone else’s work. Indeed, it can be reasoned that scholarship in the area of education and technology has reached its present
condition for a number of wholly understandable reasons. One key influence has undoubtedly been the nature of many of the agencies who have commissioned and sponsored research in education and technology over the past thirty years – i.e. government agencies, commercial organisations and other stakeholders in the educational technology ‘community’. Funders such as these have deliberately encouraged the conduct of ‘applied’ research and what Mills refers to as academic work for ‘bureaucratic purposes’ – i.e. studies designed to assist management decisions and provide advice on matters of spending and procurement. While often useful, ‘research’ of this kind inevitably encourages academic researchers to play the part of what Mills termed ‘the cheerful idiot’ – producing ‘hopeful notes’ and ‘constructive’ conclusions regardless of the complex and contradictory nature of the actual findings. Such a mode of research practice inevitably engenders a desire amongst academic researchers to “get on with the next study” (Mills 1959, p.67) rather than taking time to reflect on the inconsistencies within the studies that have just been completed (see also Eynon 2012).

In addition, much of what has just been presented in this paper as ‘limitations’ undoubtedly reflect the good intentions of many of the people involved in the academic study of education and technology. Indeed, education and technology is an area of scholarship that is usually underpinned by a well-meaning enthusiasm (if not evangelism) towards technology. The people who choose to work in the area of education and technology tend to be personally (as well as professionally) passionate about digital technology. In this sense, the academic study of education and technology could be characterised as an essentially ‘positive project’, with most participants driven by an underlying belief that digital technologies are – in some way – capable of improving education. This mind-set is evident, for example, in the tendency throughout the 2000s to refer to ‘Technology Enhanced Learning’, or before this in the 1990s to ‘Computer Supported Collaborative Learning’, or in the 1980s to ‘Computer Assisted Learning’ - descriptions that each leave little doubt over the inherent connection between technology and the improvement of learning and teaching. As such, the de facto role of the educational technologist is often assumed to be one of finding ways to make these technology-based improvements happen and – to appropriate language often used in the field – to ‘harness’ the ‘power’ of technology.

From one perspective, then, it could be concluded that there is little fundamentally wrong with the overall nature of academic research in education and technology. The dominant positioning of work in this area as being useful, forward-looking and generally positive in nature could be seen as being entirely laudable – reflecting nothing more problematic than the desire of most of the people involved to make education (and, it follows, ‘the world’) a better place. Yet a strong counter-argument can be made that this inherent positivity limits the validity and credibility of education and technology as a site of serious academic endeavour - especially in an era when the realities of digital technology use in education so often fail to match the rhetoric. Indeed, while the past thirty years may have seen substantial increases in the physical presence of digital technology in schools, colleges, universities, workplaces and homes, the much promised technology-led ‘transformation’ of the processes and the practices of education has nevertheless failed to materialize. Although digital technologies and other personalized technologies may well have the potential to support learners, educators and institutions, it seems that this potential is being realized only on occasion.

So what then can be done to move academic research in education and technology away from this impasse between rhetoric and reality? How can researchers and writers advance from a Pollyannaish stance towards technology use in education, and instead set about the production of detailed accounts of the compromised and inconsistent realities of technology use in education. As I shall now go on to argue, the time is perhaps right to foster a body of
scholarly work that reflects more accurately the complex relationships between education and technology. A number of suggestions can be offered along these lines:

i) Moving from the ‘state-of-the-art’ to the ‘state-of-the-actual’

First and foremost is the need to re-focus academic efforts on developing better understandings of the ‘here-and-now’ realities rather than future possibilities and potentials of technology use in education – in other words to produce accounts of the ‘state-of-the-actual’ rather than the ‘state-of-the-art’. In this manner, academic studies of education and technology can seek to address questions concerning what is actually taking place when a digital technology meets an educational setting and, from an historical perspective, how this compares to what has taken place in the past. This implies an interest in producing academic accounts of digital technology that concentrate on developing ‘thick’ descriptions of the present uses of technologies in situ rather than offering weak predictions or speculative forecasts of the near future. This also implies moving away from the ‘proof of concept’ mentality that persists in much scholarship in education and technology. Instead, more attention needs to be directed towards the compromised and problematic everyday uses (and non-uses) of technology in education, seeking to explore and explain variability as well as attempting to disprove received wisdoms and find negatives.

ii) Reflecting the social milieu of education and technology

This interest in the ‘state-of-the-actual’ raises the need to develop richer understandings of the ‘social’ contexts within which education and technology are located. Of course, much of the existing literature takes great care to emphasise the immediate social processes surrounding learners’ uses of technology. However, there is far less concern with developing understandings of how this technology use ‘fits’ (or not) within the wider social contexts that make up education and society – what could be seen as the social ‘milieu’ of technology use. In educational terms these milieu can include institutions such as schools, colleges and universities, as well as settings such as museums, libraries and training centres. Similarly, learning often takes place within the context of the household, the workplace and wider community settings. Moreover, these contexts are themselves set within a range of even wider social milieu - not least commercial marketplaces, nation-states and the machinations of global economics. While not always apparent to the observer of an individual learner making use of an individual technology, it would be foolhardy to attempt to explain any aspect of contemporary education and digital technology without recourse to these wider influences.

iii) Asking better questions of education and technology

This focus on the social contexts of education and technology also implies a broadening of the questions that are asked of digital technologies in situ. These questions fall broadly into four basic forms, i.e.: What is the use of technology in educational settings actually like? Why is technology use in educational settings the way it is? What are the consequences of what happens with technologies in educational settings? How could things be otherwise? As these deceptively simple questions imply, any investigation or analysis should approach education and technology as a site of on-going negotiation and, often, intense social conflict and struggle. Addressing these questions leads almost inevitably to focusing on the ‘messy’ and problematic nature of technology use in education – requiring researchers to show a particular interest where technologies are not being used, or being used in ways that suppress and disadvantage. In this sense, forms of questioning need to be developed that are more challenging and awkward than has been the case in the education and technology literature to
date. This involves writers and researchers developing lines of inquiry that are less forward-looking, undoubtedly less ‘high tech’ but certainly no less important.

iv) Making better use of research methods

There is also a clear need to take a broad approach to research methods and methodologies. For instance, unlike other areas of social science research, education and technology is subject to far fewer studies that utilise properly ethnographic methods. There is also far less interest in visually-informed and ‘multimodal’ means of data collection and analysis. Conversely, this is an area of inquiry that would also benefit from an enhanced quantitative competence and confidence. Few studies take the form of large-scale cross sectional survey research or randomised-controlled-trials, and there is an obvious need for macro-studies and meta-analyses of education and technology – thereby moving the field away from the preference for studies that are “determinedly local, small-scale and particular” (Webster 2005, p.453). Yet whatever methods are employed, it is important that academic research in education and technology is as methodologically broad as possible. Education and technology is not exclusively a matter for macro-investigation or micro-investigation – rather a combination of both. There is clear scope for education researchers to adopt more expansive and imaginative approaches to investigating education and digital technology, utilising the methods of data collection and analysis that best fit their research questions of the moment rather than simply reflect personal convenience or habit.

v) Making better use of familiar theory

Alongside this need for enhanced methodological ambition is the need to instil writing and research with a more rigorous and expansive use of theory. From one perspective, then, this raises the need to make full and proper use of the theories that have been used most in accounts of education and technology. To date there has perhaps been a tendency for many researchers to indulge in what Stephen Ball (1997) terms the mantric process of theoretical ‘finger-pointing’ regardless of appropriateness. This is often accompanied by only a partial reading of the theoretical approaches that have been drawn upon. For example, it would be difficult to make develop a full understanding of the complexities of mid-twentieth century Russian psychological theory from only a reading of its application in the education and technology literature. Despite the dominance of post-Vygotskian ideas in studies of education and technology, there is usually little or no acknowledgement of the critical roots of these theories in Marxist notions of praxis and resistance. The radicalism of writers such as Leont’ev, Luria and Rubinshtein (not to mention Vygotsky himself) are barely discernable in the application of notions such as ‘purposefulness’ and activity theory within the education and technology literature. Similar forms of ‘dumbing-down’ are apparent within the use of other popular theories within research and writing on education and technology – not least notions such as ‘communities of practice’, ‘affordances’ and the emerging (mis)application of concepts drawn from the neurosciences. To repeat Roger Dale’s general observation of educational research, research in education and technology perhaps suffers from a tendency to apply what are originally quite complex and powerful theories in simplistic ways – thereby “drain[ing] them of their original value through promiscuous use in exercises of theoretical painting by numbers” (cited in Lankshear and McLaren 1993, pp.xvi-xvii). As such, there is a clear need for many researchers and writers in education and technology to return to their sources, and strive to make full use of the ideas and concepts that their work aspires to be based upon.

vi) Making more use of unfamiliar theory
Allied to this last point is the need to also expand the theoretical scope of the field beyond the ‘psychologism’ that currently dominates. In particular, there are many social theory approaches that have clear potential to extend understandings of technology use in education (see Matthewman 2011 for an introductory overview). One obvious advantage of the careful use of social theory is the development of accounts of education and technology that move beyond a focus on the individual, and instead consider the ‘wider picture’ of understanding the development and implementation of technological innovations as set within specific social and economic contexts. Social theory can therefore allow for analyses that ‘open up the black box of technology’ (Bijker et al. 1987) and interrogate the organisational, political, economic and cultural factors which pattern the design, development, production, marketing, implementation and ‘end use’ of a technological artefact (see Selwyn 2012). As Langdon Winner (1986) puts it, at the heart of this approach is the recognition of the politics of educational artefacts – both in terms of how technologies are designed, created and implemented to create a type of order, and/or in terms of how technologies are designed to fit with particular types of political arrangement. Gaining a full sense of how and why educational technologies are being used in educational settings in the ways that they are, therefore involves understanding how these technologies are socially constructed, shaped and negotiated by a range of actors and interests.

Towards a new spirit of academic research in education and technology?

While all of these rather prosaic suggestions provide a likely means of broadening academic interest in digital technology and education, it is important to note that these changes and adjustments are not just technical in nature. Indeed, these suggestions imply a cultural and philosophical shift away from the narrow ‘ed-tech’ mind-set that has tended to dominate research and writing in this area. So if such shifts and adjustments were to take place, what might this new tradition of writing and research look like in practice? We can use the limited space left in this paper to reflect briefly on the spirit in which academic work in education and technology might be best carried out in the future. Amongst other changes, it can be argued that this would certainly involve forms of scholarship that are more realistic, relational, pessimistic, critically-minded, politically-aware and publically-facing in nature. These likely changes in approach are now described in more detail.

Firstly, much of what has been argued for in this paper boils down to approaching education and technology in a more realistic spirit. This involves the production of accounts of education and technology that are deliberately ‘context-rich’ rather than context-free – thereby countering the often-abstracted claims that surround digital technology and education. This certainly involves going beyond the ‘safe’ high-functioning, technology-rich settings where studies of education and technology tend to be situated – i.e. the middle-class institutions and middle-class users that benefit almost as a matter of course from their privileged experiences of the digital environment. Indeed, as David Buckingham (2007) has observed, the existing literature on education and technology is awash with in-depth investigations of ‘model’ education institutions and classrooms with enthusiastic tutors and well-resourced students basking in the glow of the ‘Hawthorne effect’ of the attention of researchers. In contrast, it is surely better to examine the use of technology in educational settings from the perspectives of all of the various contexts that shape and define educational technology – from the concerns of government and industry, to the concerns of ‘bog standard’ classrooms and ‘ordinary’ home settings. If the meaning of technology use in education is seen to be inseparable from the conditions under which it is generated and experienced, then the use of digital technologies within educational settings is best
understood as being situated within all of the social interests, relationships and restrictions that are associated with the formal and informal provision of education.

Secondly, what has been proposed in this paper also involves approaching the topic of education and technology in relational terms. In this sense, the study of education and technology can be seen as involving at least three different levels of description. Of course, the micro-level of the individual learner and tutor is undeniably important and merits sustained consideration – not least in terms of the continued importance of immediate ‘local’ contexts in framing learning processes and practices. As such it would be erroneous to perceive technology-based learning as somehow “detached from the spatial condition of common locality” (Thompson 1995, p.32). Yet these micro-level concerns need to be set against what can be termed ‘the bigger picture’ of education and technology – i.e. the meso-level of the processes and procedures of educational institutions, and the macro-level of wider cultural, societal, political and economic values (see Zhao and Frank 2003). Often these levels of description are not immediately tangible and obvious. Before a technological artefact is used (or not) by a student, for example, the said technology will have been party to a complex of vested ‘other’ interests above and beyond the actions of its initial designers and producers. These other interests range from marketers and journalists to (quasi)government agencies, teacher unions and consumer interest groups – all having a significant but often subtle bearing on the shaping of educational technology, and all therefore meriting sustained scrutiny and questioning. Only by making sense of all these levels of description can academic researchers and writers hope to develop a rich and nuanced understanding of what Frank Webster (2005, p.453) calls ‘the intimate connectedness’ between ‘wider contexts and conceptualisations’ and the ‘merely particular’.

It can also be argued that writing and research in education and technology should be more pessimistic in spirit. Indeed, given all that we know about the social complexities of technology use in education, a pessimistic stance is perhaps the most sensible (and possibly the most productive) perspective to take. As such, this approach simply accepts education, technology and society as it is – for better and (more often) for worse. This is not to argue for the adoption of a dogmatic blanket negativity towards education and technology. In its purest sense, pessimism still allows for an acceptance that specific things are getting better. However, it also acknowledges the fact that life has long remained the same for most people in most circumstances, and that many social inequalities will continue to persist regardless of changes elsewhere. Thus at one level, the pessimistic researcher is simply one who adopts a mind-set that is willing to recognise - and work within - the current and historical limitations of education and technology rather than its imagined limitless potential. When seen in this light, it could be reasoned that pessimism is a rewarding and heartening position from which to approach education and technology. The pessimistic position certainly relieves the writer or researcher from the burden of having to offer grand solutions to problems that can never be solved. As Joshua Dienstag (2006, p.269) argues, the pessimistic mind-set “rejects the idea that … human existence [is] a question or a problem waiting to be solved. Human existence just is – it has no predicate”. In this sense, pessimism provides an ideal means of breaking free from the recurring cycle of ‘hype, hope and disappointment’ that has so often beset academic accounts of education and technology over the past thirty years (see Gouseti 2010).

Fourthly, is the implication throughout all of this paper that academic accounts of education and technology need to be more critical in spirit. It is important to note that this ‘criticality’ can take different forms. In one sense, arguing for a ‘critical’ approach towards education and technology does not necessarily entail a dogmatic adherence to any particular theoretical stance, school-of-thought or ‘-ism’. Indeed, at one level a critical approach can be pursued
purely in terms of the dictionary definition of the word – i.e. in terms of being circumspect, showing careful judgement, being analytical, discerning, discriminating, judicious, perceptive and so on. It is, of course, also possible to approach education and technology from the more specific concerns of critical theory. In this sense, a spirit of criticality is rooted in a broader recognition of education and technology as a set of profoundly political processes and practices that are best described in terms of issues of power, control, conflict and resistance. Put bluntly, as the use of technology in education continues to grow in societal significance then it needs increasingly to be understood in explicit terms of societal conflict over the distribution of power. As such, much of the underlying impetus for a critical approach towards education and technology stems from a desire to foster and support issues of empowerment, equality, social justice and participatory democracy. This, then, demands writing and research that is distinguishable by its political commitments – identifying who benefits and who does not by particular social arrangements and what can be done about these inequalities. As such, many of the questions that surround education and technology are the fundamental questions of education and society – i.e. questions of what education is, and questions of what education should be.

Finally, is the contention that the academic study of education and technology should be more public in spirit. Here, it is worth referring to recent discussions within other areas of the social sciences about the use of academic work to support public participation and engagement. In particular, connections can be made with the growing interest in the development of ‘public sociology’ – i.e. academic work that moves away “from interpretation to engagement, from theory to practice, from the academy to its publics” (Burrwoy 2005, p.324). In this spirit, more thought can perhaps be given as to how writing and research in education and technology can span the boundaries between academic work and public engagement, and therefore become more publically-facing and ‘deliberative’ in character (see Evans and Kotchetkova 2009). What scope is there for academics working in the area of education and technology to engage in critical forms of public scholarship that provide “a disruptive but necessary voice in democratic debate” (Lauder et al. 2009, p.580)? How can a critical ‘public understanding of education and technology’ be stimulated and supported? What potential exists, for example, for academic work that involves the evaluation of public engagement events, citizen juries, consensus conferences, deliberative workshops, deliberative mapping and public debates? Perhaps most importantly, where are the public intellectuals speaking on behalf of educational technology and educational media in popular and political circles? Where are the charismatic activist spokespeople who can do for education and technology what high-profile figures have done for the politicisation of other areas of education? Where are the ed-tech equivalents of Jamie Oliver fighting to raise public awareness of the major educational media and technology issues of the day?

Conclusions

It is important to conclude this deliberately provocative set of observations and contentions with a sense of perspective. The criticisms raised in this paper are by no means applicable to all academics working in the area of education and technology. Certainly there are pockets of writers and researchers around the world who have long approached education and technology along the lines outlined in this paper. For instance, it is possible to trace an admirable lineage of critical work produced by North America scholars from the early studies of Stephen Kerr and Larry Cuban, through to the later work of Hank Bromley and Torin Monahan. Notable Australian counterparts range from the early work of Parlo Singh, Chris
Bigum and Bill Green, through to Colin Lankshear, Matt Allen and others. Education and technology has also occasionally captured the attention of ‘big names’ within the sociology and philosophy of education such as Michael Apple, Michael Peters, Joel Spring, Jane Kenway and others. However, to date, these writers and researchers have remained peripheral rather than mainstream voices within the conversations and debates that surround education and technology. Frustratingly few of these critical scholars have continued to focus on the topic of education and technology for more than a few years of their academic careers. Until we have established a significant and sustained body of critical work that acts as a permanent counterbalance to the otherwise anodyne mainstream educational technology literature, then the points raised in this paper are as relevant now as they have ever been.

In many ways, then, it is difficult to see how the arguments raised in this paper are in any way contentious. Much of what has been proposed in this paper relates simply to the need to be as broad and fair-minded as possible in our descriptions of education and technology. To reiterate, it has been argued that a number of ‘big questions’ need to be asked about education and technology – not least how individual ‘learning technologies’ fit into wider socio-technical systems and networks, as well as what connections and linkages exist between education and technology and macro-level concerns of politics and economy. Above all, is the need for research and writing that is able to develop socially grounded understandings of the realities of education and technology ‘as it happens’. In approaching education and technology as a site of intense social conflict, academic writers and researchers are able to move beyond asking whether or not a particular technology ‘works’ in a technical or pedagogic sense. Instead, crucial questions can be asked (and hopefully answered) of how digital technologies (re)produce social relations and in whose interests they serve.

As such, I hope that these observations are received in the manner in which they were intended – i.e. as offering an important additional dimension to the study of education and technology and providing a challenging but ultimately complementary perspective to the learning-centred studies that have dominated the field over the past thirty years or so. Moreover, despite the grand scale of all these aims and issues, I hope that any subsequent body of work is able to retain a clarity and usefulness in its overall analysis. Although one of the main aims of taking this critical approach is to problematise the universalising nature of the discourses that have come to surround technology use in education, it is important not to be overwhelmed by the scope and diversity of the issues that should now come under scrutiny. Indeed, it is important to remember that while this is a topic that is beset by conflict and contradiction, there are still clear stories that can be told about education and technology. As we shall see from the remainder of the papers being presented at this conference, these are stories that are as much as about conflict as they are about change; and that are as much as ideology as they are about innovation.

Footnote

[1] The phrase ‘bog standard’ school was popularised by the Labour government in the UK during the 2000s – used publically by spokespeople and ministers prone to pronouncements such as “the day of the bog-standard comprehensive is over”. See also Maguire et al. (2011) for a discussion of what constitutes an ‘ordinary’ school (what these authors define as ‘moderately successful’) in an education system predicated around maintaining an appearance of excellence.

References


When I grow up I want to be a cephalopod or the unbearable sameness of instrumentum cum docere

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Unlike humans, cephalopods don’t have blind spots, that is they don’t have an absence of photoreceptor cells in the retina. Humans usually don’t notice their blind spot because the other eye helps the brain fill in the missing information. We develop the notion of a blind spot in this chapter to examine some of the patterns of scholarship and research that can be found in the field broadly known as educational technology. Selwyn’s (2010) account of the field points to a persistent focus on learning and on how best to deploy computing and related technologies to improve how people learn. It is reasonable to suggest that the field is largely dominated by these interests and that it also has unsettling parallels with what Lanier (2010) describes as cybernetic totalism.

How we “see” any field of scholarly work is always tricky. The repertoire of intellectual frames and logics we individually bring to bear is, for most of us, routine and well understood. However, what we see, notice or pay attention to is, as Davidson (2011) argues, not a simple matter of choice or logic. She reviews recent research in psychology and neuroscience to make an argument for what she calls attention blindness, things we don’t see because of the attention we give to other things. For academics, attention blindness can be seen as something of a virtue in that a strong focus on a particular way of making sense of the world is encouraged and rewarded in terms of research and writing. It’s both an important strength in terms of developing a scholarly agenda but equally, it is a weakness, in that we miss or don’t see things that may be of great value to what we do.

It is from this position that we examine the current, dominant modes of scholarship and research into making use of various computing and related technologies to support educational practices. While we will map the attention selectivity of this work we are conscious that, as we remain human, we too have attention blind spots and so we take some space in this chapter to trace our sensibilities and their interplay with how we make sense of this field of research.

The long standing focus on learning that has so consistently characterised much of the scholarship of educational technologies is underpinned by a key assumption, that is that the various computing and related technologies are, in and of themselves, an educational good. From this position the key problems and challenges are about “the how”, “how” best to obtain the promised improvements that these technologies afford, “how” best to domesticate them into particular educational settings (Bigum, 2012). The ongoing and rapid development of new forms of digital technologies provides a never ending stream of products to be explored, domesticated and examined to see how best they can be deployed educationally. They are important attention attracting objects. There is always plenty to attend to as well as a backlog of unpaid product development engineering to be done (Franklin, 1999).

Though the material technologies continue to improve and new products appear with increasing frequency, the questions, protocols and logics of scholarship and research about these technologies in education remain remarkably constant. Their sameness and predictability are such that it would be a relatively simple matter to automate a good deal of
this work. The practices seem almost ritualistic. It is here, at the point of practices, that we need to declare our hand.

We draw on a set of sensibilities that is called material-semiotics (Haraway, 1992) or, perhaps more commonly, actor-network theory (ANT). As Law suggests, ANT is neither a theory nor an it and is better seen as a diaspora that overlaps with other intellectual traditions (Law, 2008). Drawing on these resources, the realities we have alluded to in the study of educational technologies are not assumed to be, as we have suggested, similar, repetitive, singular or even coherent. That they appear that way means that they are being done that way. So if we are interested in the politics of this work or its lack of sensitivity to questions of social justice then we need to attend to the practices that enact these realities.

ANT takes an anti-essentialist stance by assuming that things acquire their properties relationally, or, more generally, all the world is relational. What is of interest is how things got to be the way they are, rather than assuming that things have essences, properties or affordances. Rather than different perspectives on a single reality, ANT posits multiple realities. So things that appear coherent can be examined to see how different realities are held together and where they overlap, contradict and interfere with one another. Both humans and non-humans are important in these accounts and ANT assumes no a priori difference between the two, being only interested in how they are enacted.

This chapter draws attention to the contingencies of any assemblage in which the digital is deployed. It draws on empirical case studies to tentatively disrupt some of the taken-for-granteds and givens in the use of digital technologies in education. It resists the urge to locate the many developments and changes within big explanations and instead urges the careful exploration of the articulations of practices that work to produce effects which we are, more often than not, able to “recognise” through our McLuhanesque rear view mirrors.

References


Technology under construction: A case study of iPad use in an Australian primary classroom

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Stories of technology use are often decontextualised, with no location in place, time and the broader socio-political context (Selwyn, 2010). This paper attempts to locate technology use within both a wider and a local context, and through this to explore the multiple ways that iPads are contextualised in an early years’ literacy classroom as they interface with the aspirations of a classroom teacher, the ‘push’ of commercial content, the institutionalised practices of early years’ literacy education, and a conservative government policy environment. It tells a story of a technological artefact as it is contextualised and recontextualised within a particular educational setting. It also tells a story of a ‘first year out’ teacher’s negotiation of diverse and often conflicting pressures to implement particular pedagogies within her classroom and the implications of these for how the iPads are produced.

The paper examines the policies and practices that currently characterise a particular field of education – early years’ school literacy education – and how these manifest in a particular setting – a Preparatory (Prep) classroom in a small government-funded school located in rural Victoria, Australia. Although early years’ literacy education is historically, and continues to be, a highly contested field (Snyder, 2008), current policies in Australia (as in the USA and UK) tend to support centrally-mandated, standards-based curriculum frameworks comprised of stipulated ‘essential’ knowledge and skills, which are enforced via regimes of teacher in-service training, teacher-administered assessment, and external testing and reporting. In Victoria, this tendency has manifested in the Early Years Literacy Program (EYLP) (Ohi 2008), a program focused heavily upon traditional print-based skills. While the policy rhetoric (State Government of Victoria, 2007) urges the uptake of ‘flexible and creative learning’ and curriculum statements support a ‘focus on digital learning’ and identify ‘the creative and productive use of technology as an indicator of a successful learner’ (MCEETYA, 2008), this rhetoric is overshadowed by an assessment and accountability regime that is based on a traditional encoding and decoding view of literacy (Lankshear & Knobel, 2003). Thus the broader policy context of technology use within early years’ literacy teaching and learning is one characterised by contradictions and tensions.

The case-study that forms the basis of this paper focuses on the use of iPads to support literacy learning in the Prep classroom and explores the positioning of this technology, the teacher and the students with relation to broader contextual tensions. The stated vision of the school principal and the reported intentions of the Prep teacher are analysed and comparisons are made between these visions and intentions and observed and reported classroom practices. The case study draws on teacher and student interviews, classroom observation data and student-generated digital and print-based artefacts to tell a story of the teacher’s negotiation of a range of contextual factors that oftentimes she experiences as constraining her practice.

Within this story, the iPad devices are seen to be constructed and produced in numerous ways as an educational technology. They variously appear as a game station and medium for surreptitious play, a surface for practicing print-based skills in writing and reading, a vehicle for interactive books, a pallet for the creation of personalised, culturally meaningful products, and a channel through which products can be shared and communities can be formed. The
paper presents an analysis of usage based on the relatively open or closed form that the technology takes, where relatively open iPad applications support any number of learning activities that involve students’ production and communication of knowledge. Such applications position the learner as a producer, an active community member and, at times, a teacher. They support the strategic movement between applications, driven by the needs of the production process. In contrast, relatively closed applications direct the learner through a pre-specified, self-contained content, positioning the learner as a consumer. We argue that the use of open applications, and the movement between applications at the service of a user-driven production process, is similar to what is seen outside of school, in students’ homes and communities, where users move seamlessly between applications, modes and channels (Davidson, 2009; O’Mara & Laidlaw, 2011). This particular manifestation of the iPad is consistent with contemporary understandings of new literacies and 21st Century learning, but is a poor fit with current early years’ literacy programs that focus on the development of more traditional print-based literacies and which position teachers as receivers of curriculum and students as consumers of content or even as products themselves who manifest various levels of performance against centrally-determined standards.

In the context of this case-study, the paper explores wider questions about the nature of educational technology in use, and how our perspectives on technology as it pertains to education contain assumptions about the roles and relationships found in classrooms. The paper draws on concepts that one of the authors (Lynch, 2002; Lynch, 2003) has previously argued provide useful lenses for understanding how new technologies behave within educational settings, and that provide generative teacher- and student-centred explanations of their use in context.

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In this paper, the author advances what may seem a counterintuitive, controversial thesis: that understanding the places and potentials of technologies in education requires a critical de-centering of educational technologies themselves, whose definitions and boundaries can be so blurred and misconstrued as to also be practically incomprehensible. This is not merely a rejection of technological-determinist views, nor a simple reinforcement of increasing support in the field for socioculturally informed, contextually grounded (Selwyn, 2010) research on the roles of technology in education. Rather, the author proposes that critical questions as to the appropriate, efficacious integration of technologies within processes and practices of teaching and learning beg principally non-technological answers, to wit, multidimensional understandings of semiotic mediation itself. On this view, for reasons introduced to follow, the question of which discrete pedagogical effects may be attributable to the use of which technologies is fundamentally unanswerable, and so also irrelevant. What remain to be examined, then, are the knowledges, processes, and practices of “contextualization” (Harris, 2009) by which meanings are made and in which ‘education-involved’ technologies – e.g. IWBs, mobile phones, books, chairs, written language, electric lights, paper airplanes, medications – afford and constrain semiotic work in inherently situated, combinative, contingent, and dynamically changeable ways.

In the Journal of Computer Assisted Learning’s recent special issue on the state of the art, Selwyn (2010), among others, takes the pulse of CAL as a field of research. He identifies the dominant paradigm of the last few decades as one in which “academic investigations of digital technology use in education have tended to focus either on the process of technological development and design, or else on the process of learners using technology – therefore drawing predominantly on a range of theories of instruction and learning that seek to explain how and why technology-enhanced learning can take place” (p. 67). As a complement, if not also a corrective to this “learning technology” orientation, Selwyn argues persuasively for a contextually rich and multi-layered, practically grounded, actively critical approach, whereby “increased awareness of the critical aspects of technology-based education” are expected to “go some way towards lessening the disparity between the ‘rhetoric’ of educational technology scholarship and the ‘reality’ of educational technology practice” (p. 72). His point about the vital need, heretofore underappreciated, to elucidate the “‘here-and-now’ realities rather than future possibilities and potentials of educational technology” (p. 69) is generally well taken; yet, the author argues here that it is perhaps not taken far enough.

A semiotic perspective on educational technology, as is proposed in this paper, shares Selwyn’s interest in nuanced critical examination of educational technologies in actual contexts and instances of use (or not). The problem of attributing inherent characteristics and effects to particular technologies is another common concern. However, the key distinguishing feature of the perspective outlined here is its critical interpretation of natures and roles of technologies themselves. Just as radical diachronic change in educational technologies is taken for granted, so is the synchronic stability and ontological integrity of the technologies per se. For example, in a recently published ‘Strategic Plan’ the Association for Educational Communications and Technology (July, 2010) briefly define their professional
purview thus: “educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (p. 1). Obvious though it may seem, the assumption that “technological processes and resources” can be created, used and managed is predicated, the author here contends, on uncritical acceptance of the belief that technologies are what they are at any given time; a belief that the author would suggest is problematic for at least three reasons.

First, a particular technology only exists if its potentials as such are recognized, acknowledged, and actualized; a computer in a classroom can just as well be a paperweight or a coatrack as a powerful learning tool, as Cuban’s (2001) well known US-based analysis might imply. Second, this same fundamentally indeterminate (Harris, 2009) meaning potential of virtually any object, device, or system of representation likewise affords the possibility of any number of technologies – even the paperweight and the coatrack, conceivably – to serve a signifying, educational function. Third, this radical indeterminacy is compounded with and confounded by situational contingency, i.e. semiotic and functional interactions among myriad technologies that are implicated in institutional processes of learning. To take one vastly simplified, provocative example, understandings of what iPods, the World Wide Web, and Ritilin are offer only limited purchase on the meaning making work of an ADHD-diagnosed child listening to his iPod while surfing the web. Recalling La Tour’s (1994, 1999) notions of ‘technical mediation’ and ‘translation’, such multiplex mediations may be seen to link and transform elements and agents in complex, perhaps irreducible ways. Again, it is argued that the solution to such problems of research may lie in focusing Selwyn’s (2010) helpful analytic lens on ‘rich contexts’ for meaning making itself, rather than technology use.

This author situates and develops the foregoing arguments within the conceptual and analytic frameworks of social semiotics (Halliday, 1978; Hodge & Kress, 1988; Kress, 2010; van Leeuwen, 2005) and integrational linguistics (Harris, 1998, 2001, 2009). Supporting data and analysis from qualitative studies of communication within a purpose-built international youth social network and the 3-D museum design processes of Singaporean secondary school students are presented and explained.

References:


Can Norman’s notion of *affordance* provide a socially grounded rather than techno-centric lens for understanding educational technology adoption?

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**Introduction**

Selwyn (2010) criticises research which views technology adoption solely from the perspective of the capability and learning potential of the technology, arguing instead for critical approaches that take into account the social conflicts and politics that impact upon the adoption of technology in educational settings. I will argue in my presentation that Norman’s (as distinct from Gibson’s) notion of *affordances* provides a lens through which the capability and learning potential of technology can be studied alongside the social and cultural elements of an educator’s conceptual model of technology and learning along with the cultural constraints and conventions impacting upon adoption. Consequently, rather than rejecting an affordance driven research agenda, I argue for affordance driven research drawing on Norman’s richer model of affordances, in order to address the techno-centricity implied by Gibson’s traditional notion.

**Selwyn’s Arguments**

Selwyn (2010) argues (and I concur) that research which views technology adoption solely from the perspective of the capability and learning potential of the technology is highly unsatisfactory in understanding the full range of social and political issues that impact on learning technology adoption. Selwyn argues that educational technology scholarship has traditionally focussed on the learning potential rather than actual use of technology and as a consequence has ignored the way that technology use can be socially contested, constrained and negotiated. He argues that critical ‘context-rich’ analyses are needed that look ‘beyond learning’ and take into account the social conflicts and politics that impact upon the adoption of technology in educational settings.

**Affordance**

The notion of *affordance*, which originates in the work of Gibson (1977), is frequently used to provide a lens or a language to frame an analysis of the capability and learning potential of educational technologies (see, for example Conole & Dyke, 2004; Bower, 2008). Selwyn’s argument can be seen as an implied criticism of the use of the notion of affordance in this way. Although I acknowledge that focussing on technology affordances can potentially lead to a somewhat narrow techno-centric perspective, I contend that this depends on the definition and model of affordances chosen. Specifically, I am arguing for an adoption of Norman’s notion of affordance (which was part of a broader model of interaction design) rather than Gibson’s original notion (which focussed primarily on the physical tasks afforded to animals by objects in their environment). I contend that Norman’s notion of affordances can allow a more comprehensive analysis of educational technology adoption that takes into account the social and cultural factors that impact on an educator’s conceptual models about a technology and their perceptions of its affordances, along with the cultural constraints and conventions that come into play.
James J. Gibson’s (1977) notion of affordances is captured by the following quotations:

*The affordance of anything is a specific combination of the properties of its substances and its surfaces taken with reference to an animal (p. 67).*

*Although an affordance consists of physical properties taken with reference to a certain animal it does not depend on that animal...an affordance is not what is called a subjective quality of a thing... (p. 69)*

Donald Norman’s (1988) definition of the term is similar, however by introducing the idea that the perceived as well as actual properties of an object affect its potential use, the notion is changed in subtle and important ways:

*... the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used...(p. 9).*

In his later writing (see, for example, Norman, 1999) he emphasises the importance of perception of affordance in a more definitive way:

*When I get around to revising [The Psychology of Everyday Things], I will make a global change, replacing all instances of the word “affordance” with the phrase “perceived affordance.” The designer cares more about what actions the user perceives to be possible than what is true.*

Most importantly, Norman discusses the notion of affordance as part of a broader model of interaction design, incorporating affordances (perceived and actual), conceptual models, and constraints (physical, logical and cultural).

When applied in an educational context, Gibson’s notion encourages a focus solely on what is possible using the technology irrespective of the prior experience of the educator or students and irrespective of the conventions within the educational setting. Norman’s model, on the other hand, has the ability to explain decisions by educators or students not to adopt an educational technology even in situations where the technology apparently has a clear affordance. According to Norman’s model, cultural constraints or conventions may make it difficult for the educator to change their practice in the ways necessary to incorporate the technology into their teaching, or alternatively, the educator’s conceptual model about the learning process may prevent them perceiving an affordance of the educational technology at all.

**Additional Ideas to be Explored**

I have argued here that an affordance model for looking at a particular learning technology, when read with Norman’s rather than Gibson’s notion of affordance in mind, may in fact be defensible against Selwyn’s criticisms. In my presentation I will expand on this idea and give examples of ways in which the notion of affordance has been used in educational technology research, along with some key criticisms (for example, Oliver, 2005). I will then, using the adoption of virtual worlds by higher educators as a specific case in point, discuss the issues around technology adoption by higher educators and the degree to which these competing notions of affordance provide explanatory assistance. In this discussion I will draw on the affordance model for 3D virtual environments developed in earlier work (see Dalgarno & Lee, 2010) along with data from a national scoping study of the use of virtual worlds in higher education (see Dalgarno et al., 2011).
References


The (mis)use of community

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Selwyn argues that educational technology research is “unhelpfully Pollyannaish”, and that we need to move from rhetoric to reality by producing “accounts of the compromised and inconsistent realities of technology use in education” (Selwyn, 2012, LNM Provocation Paper). In doing so, Selwyn calls for several actions, including the need to more accurately reflect the complex social milieu of education and technology, and resist dumbing-down of theories which, while presumably driven by a desire to increase accessibility nevertheless compromises their value in more fully explaining the complexity of the phenomena. One such theory is that of ‘community of practice’ which is both valuable in its potential to help interrogations of the social milieu, particularly that of power relations in the educational workplace and professional learning, but also so broadly and uncritically adopted in educational technology literature that it has become almost meaningless apart from the lingua franca understanding of its constituent words.

In educational technology literature Community of Practice (CoP) is often used in an offhand way, as a phrase to describe learners (professional or student) sharing how to do things, usually with implications of harmonious collaboration working towards externally defined goals. For instance, CoP is frequently claimed as the process by which institutional goals, such as the adoption of technologies or implementations of policy, can be achieved. However, the process of how CoP is achieved and the process of how CoP achieves transformative change are equally under-examined. CoP has become a buzz word that means something quite different from its origins.

The misuse of Community of Practice is largely related to three issues. First, CoP is confused with, or used as a synonym for, ‘community’. Second, the fragmented and contested theoretical landscape of CoP has resulted in at least two theories with the same name, which researchers erroneously use interchangeably. Third, the complex, and arguably embryonic, concepts within CoP are sometimes ambiguous and resist ‘operationalisation’ resulting in oversimplified conceptualisations in research.

‘Community’

While there is a general consensus in the research literature that there is a positive connection between community, new media and education, including workplace and professional learning, there is no uniformity in the way in which community is described nor any clear explanation of its role or the process by which it is apparently instrumental in the positive outcomes (for instance, APEC Education Forum, 1999; Dede, Breit, Ketekhut, McCloskey, & Whitehouse, 2005; Downes et al., 2001; Johnson, 2001; Rovai, 2002; Wallace, 2003). The term “community” has been popularised and often applied to any identifiable group, especially those on the internet, such as “learning community”, “online community” and “gaming community”. A decade ago Grossman, Wineburg and Woolworth (2001) questioned the value of the term, claiming “it is clear that community has become an obligatory appendage to every educational innovation” (p. 942). Similarly, Brown pointed out: “community is quite possibly the most over-used word in the Net industry... The term has been diluted and debased to describe even the most tenuous connections, the most minimal interactivity” (Brown, 1999, p. 3). Samaras et al., (2008) explain the popularity of the term by suggesting that “the notion of community is a conceptually appealing one because it suggests
a comfortable, socially supportive context” (p. xvi). However, this appeal is not usually made explicit but instead community is used without critical consideration of the values such a choice implies, let alone the implications such as how that choice influences success criteria of the educational initiative. As Westheimer (2000) pointed out “virtually everyone is in favour of community, and in this head-nodding agreement lies the obfuscation of consequences that come from ideological choices” (p. 102). The prolific and generally uncritical use of the term continues today (for discussion see: Samaras, et al., 2008; Stuckey, 2007; Westheimer, 2008) and has resulted in a body of educational technology literature, and a tradition of research, that ignores or treats as periphery the complex reality of social interactions and the socio-cultural context in learning.

One of the sources of CoP misuse in research is a confusion with the term community. Like the oversimplified and generally under-theorised use of community, CoP is often implied to be characterised by harmony or homogeneity. However, a community’s practices can be aggressive, competitive, and emotionally detached and yet they can still find a way to be cohesive (Wenger, 1998). A similar confusion is that CoP implies a state of regeneration, innovation, purpose and reflexivity. In reality the 1998 theory is as much about describing the power of status quo as it is about evolution of practice. A large problem in the use of CoP in the literature is that it is applied uncritically to refer to people working together, and even more worrying as an instrumentalist strategy to achieve institutional goals, rather than to critically consider issues such as power relations in learning.

**Fragmented theoretical landscape of CoP**

The term CoP is widely used in educational technology research, professional publications, and policy, but at the same time it is applied in a wide variety of ways. CoP as a theoretical framework has been diluted by the multiplicity of definitions, either stated or implied (eg. used as a synonym for community or even simply a group of people). The application of CoP has been extended to encompass new meanings that were not part of Lave and Wenger’s (1991) original ideas (Mittendorff, Geijsel, Hoeve, de Laat, & Nieuwenhuis, 2006). Indeed, the majority of research appears to be illustrating the existence of a CoP, or naively attributing outcomes to an assumed CoP, rather than rigorously investigating its process. Despite the growing body of research literature on CoP the lack of agreement about the term “community of practice” has resulted in an increasing fragmented theoretical landscape.

The most obvious and problematic example of this is Wenger’s own participation in the reframing of CoP as a structural model for leveraging organisational knowledge (see Wenger, McDermott, & Snyder, 2002). This has caused many researchers to confuse the later work as simply a further refinement of Wenger’s 1998 framework (for example, Andrew, Tolson, & Ferguson, 2008; Cremers & Valkenburg, 2008; Klein & Connell, 2008; Kopcha, 2010; LiaBraaten, Rustin, & Sullivan, 2004). However, other researchers (for example: Berntsen, Munkvold, & Østerlie, 2004; Contu & Willmott, 2003; Cox, 2005; Fernando, 2008; Thorpe, 2003), including myself (Henderson, 2006, 2007, 2008; Henderson & Bradey, 2008) contend that these variations should be carefully considered as separate frameworks or theories of social activity. Nevertheless, despite the apparent difference between the two main conceptions of CoP, there continues to be confusion within the research literature with a bleeding of ideas between the two.

**CoP (Wenger, 1998) resisting ‘operationalisation’**
CoP (Wenger, 1998) offers a potentially valuable lens by which to understand the complexity of situated learning within the larger social milieu. However, as a wide reaching social theory of learning its complex socio-cultural foundations both aids in the rich description of the role of educational technology in situated learning, but at the same time defies operationalisation (Herrington & Oliver, 2000). From a CoP (Wenger, 1998) perspective knowledge is not a transferable symbolic representation of reality but, instead is “provisional, mediated and socially-constructed” (Handley, Sturdy, Fincham, & Clark, 2006, p. 642). Consequently, unlike some learning theories, CoP describes a situation where learning, knowing, meaning and the social world cannot be separated (Wenger, 1998). Mittendorff, Geijsel, Hoeve, de Laat, and Nieuwenhuis (2006) point out that CoP involves a process of informal or implicit learning and consequently “results in tacit knowledge, which is context specific, personal and difficult to communicate” (p. 299). Although this makes CoP difficult to operationalise, it is also one of its strengths, in that it explains why tacit knowledge resists being codified and transferred (Handley, et al., 2006; Mittendorff, et al., 2006; Roberts, 2006).

CoP is as much about learning by doing as it is about learning by becoming, and consequently practice and identity are inextricably linked. If adopting a CoP (1998) perspective, researchers need to recognise that practice and identity cannot be externally defined. That is, while a set of procedures can be imposed by the institution, the practices surrounding those procedures are a result of negotiated meaning by the community members. In other words, practice is not a result of design but a response to design (Wenger, 1998). An implication is that we cannot create a Community of Practice for specific professional learning goals, and consequently is in conflict with the way CoP is frequently described as an intentional product in the educational technology literature. By assuming that a CoP can be created and that it will pursue the externally driven goals, researchers and practitioners necessarily ignore critical issues of negotiated meaning, personal histories and trajectories. The richness of the learning environment is lost, and so too is the ability to more robustly explain the process under enquiry.

Concluding comments

These critiques of CoP should be used to guide future research. It is clear that the breadth of the theory is both a strength and weakness. While it can help us to understand the complexity of situated learning in relation to educational technology it also resists being operationalised. Consequently, any design that tries to cultivate a CoP needs to be considered critically, with explicit elaboration of how the research conceptualises the link between CoP and social activity. Furthermore, the design and analysis of the data must adhere rigorously to a single framework of CoP. This also means that findings should only be qualified by research literature founded on the same theoretical basis (unless of course the intent is to show differing explanations).

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Critical studies of technologies and play-based learning in early childhood education

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Theoretically early childhood education has valued play as the vehicle for young children’s learning. Historically valued theories and philosophies have emphasised the natural play-based activity of young children as important to curriculum and the provision of learning experiences. In some early childhood settings, this valuing of play can be at odds with how digital technologies and their role in early childhood education are perceived (Mawson, 2011). Technological determinism is sometimes used as an argument for including digital technologies in the early years. However, a problem with this approach is that it can increase the commitment to play-based learning by suggesting that technologies are ‘unnatural’ and therefore not strongly aligned with historically valued ideas about play in early childhood education. This problem is aggravated by research which suggests technologies would find a greater uptake in the early years if teachers could be appropriately supported (or taught) how to use them in ‘appropriate’ ways with very young children.

In this paper, I argue that the problem may not be with the technologies, but with the theoretical framing of play in early childhood education which is traditionally orientated towards supporting learning through play. Three key ideas are drawn on to provide an alternative way of thinking about the relationship between digital technologies and play, including 1) the cultural historical argument that development and play are representative of the historical era in which they occur (Davydov, 1982); 2) the framing of childhood as a site for the consumption of digital media and technologies through practices derived from marketing research (Buckingham, 2009; Cook, 2009); and 3) the sociological positioning of children as immediate participants in digital and consumerist orientated economies (Drotner, 2009). These three ideas give rise to what I have called in previous work the ‘digital-consumerist’ context (Edwards, 2011).

The notion of the digital-consumerist context will be explored as a way of thinking about children’s contemporary play experiences and how these can be understood as processes that involve children in negotiating, using and applying digital technologies in the creation of personally realised ‘play-acts’. The digital-consumerist context aligns with two key ideas associated with Selwyn’s (2010) call for a critical study of educational technology, including that educational technology research should:

1) ‘shift from studying the ‘state-of-the art’ to the ‘state-of-the actual’ (p. 69); and
2) ‘seek to develop analyses that are context rich rather than context free’ (p. 70)

The idea of studying the ‘state-of-the-actual’ connects strongly with the social influences on children’s digital technology experiences and how these in turn impact and re-define contemporary play experiences in new ways. This is illustrated in research suggesting that children’s play is increasingly seen as occurring across a non-digital to digital continuum challenging traditional ideas about what constitutes ‘physical’ or ‘fine motor’ or ‘social dramatic play’ (Edwards, 2011; Marsh, 2010; Zevenbergen, 2007). The ‘state-of-the-actual’ for young children represents the social, cultural and family patterns of technology use that require greater research and understanding so that these patterns of use may inform thinking about what and how young children play with digital technologies as a basis for curriculum
provision in early childhood settings. Selwyn’s (2010) suggestion that it is also increasingly important to focus on context-rich rather than context-free descriptions of technology appropriation is also useful for reframing thinking about technologies in the early years. This is because a ‘context-rich’ analysis enables thinking about children’s experiences in the digital-consumerist context in a way which emphasises the development of technologized play-skills as being ‘situated within all of the social interests, relationships and restrictions that are associated with the formal and informal provision of education’ (Selwyn, 2010, p. 70). In early childhood settings, this re-focussing of ‘context’ is necessary so that play can be re-theorised in ways that encompass children’s technological experiences, and therefore inform curriculum provision in socially meaningful ways. This paper will therefore argue that a critical study of technologies and play is necessary for furthering research into the use of digital technologies in the early years so that new understandings of technologized play can inform curriculum decision making.

References:


Gaming platforms along with other more general purpose digital and networked devices have become common domestic and personal technologies, while games themselves have become increasingly sophisticated and diverse. Unsurprisingly, this ubiquity—and popularity—has led to a strong interest among educators in the potential of digital games as educational technologies. This paper, while acknowledging that digital games can be usefully incorporated into educational activities, also questions the ability for games (and advocates of gaming) to successfully shift contexts from unofficial to official learning, without impacting on their pedagogical potential.

This argument requires some elaboration, which will rely on experiences from past projects involving youths and digital games in Australian and Venezuela. First, using examples from situated ethnographies of gaming in cybercafés in Melbourne and Caracas this paper will demonstrate the problems that arise when digital games are uncritically inserted into a didactic frame. Second, drawing on practitioner-based action research in with Australian high school English teachers using digital games in the classroom this paper will elaborate on the notion of ‘gaming capital’, outlining how the concept can be usefully deployed to understand how informal learning through digital gameplay may be usefully incorporated into the classroom. Finally, the paper uses gaming capital to illustrate a model of teacher professional development that focuses on understanding how gaming capital can be ‘reconverted’ into other forms of capital.

Claims made regarding the educative potential of digital games range from the general—e.g. they teach problem solving (Greenfield, 1984)—to the specific—e.g. they increase average reading age (Steinkuehler et al., 2009). Rather than questioning or evaluating such claims, this paper examines the issue of how educational outcomes that rely largely on informal learning may be effectively imported into official, institutional curriculum and pedagogy without understanding how this change in context may impact on the desired effect. In this respect, Selwyn’s (2010) directive that critical studies of educational technology examine how technologies are actually used in real-world educational settings is particularly important in the case of digital games. Many well-regarded studies that highlight the educational potential of digital games either: focus on informal learning that takes place outside of the classroom, e.g. Carr (2005) and Pelletier’s (2006) ethnographies with after school clubs; or are based on research, observations and experience with adult play of digital games, which is then extrapolated to children and adolescents (e.g. Gee & Hayes, 2010). While motivated by the desire to incorporate the exciting and empowering elements of the otherwise informal learning experience of playing digital games—particularly in order to appeal more to ‘at-risk’ students (see Steinkuehler, 2010)—in this paper I will argue that bringing digital game play into the classroom in a manner that effectively transposes the elements considered desirable by many studies is tremendously difficult. The overlooked presumption is that the educational value of digital games will survive this shift in context intact. Returning to Selwyn’s (2010) call for a critical approach to educational technology; at the heart of many discussions of digital games in the classroom is what he (Selwyn, 2010, p. 70) calls the ‘spontaneous appropriation’ of digital game play by learning, facilitated by the learner
instinctively recognizing the knowledge and literacy practices required by their everyday activities and connecting these to a suite of classroom-based educational outcomes by their own volition.

Based on my previous research working with game players and practitioners using digital games in the classroom I will argue that understanding the accumulation, exchange and reconversion of ‘gaming capital’ is crucial for conceptualizing how learning takes place through digital game play, and usefully highlights the complex factors in play when shifting digital game play into a formal educational context. The term ‘gaming capital’ was introduced by Consalvo (2007) as a tool to understand how the competitive culture of gaming engendered a wide sociality. Derived by the work of Bourdieu (1979/1984), Consalvo conceptualized experience playing digital games as a form of social capital. This paper develops Consalvo’s work, to examine how the social capital of gaming (gaming capital) is exchanged—or ‘reconverted’ (Bourdieu, 1979/1984, p. 132)—into other forms of capital, particularly cultural capital (educational and intellectual assets). Gaming capital provides scope for understanding how the educational benefits of digital games might be shifted from informal to formal contexts and how those benefits are contested and shaped by contradictory social factors.

The education practitioner is the key figure that establishes the effectiveness (or lack thereof) of incorporating digital games into classroom activities. However, as I have argued elsewhere (Walsh & Apperley, 2008; Walsh & Apperley, 2009), this effectiveness is underwritten by the practitioners ability to acknowledge the existence of gaming capital and provide useful segues for reconversion. Professional development models for teaching practitioners needs to illustrate how they can effectively use gaming capital to understand both the process of digital game play, and how gaming connects to wider learning goal. This means that models must provide a consistent metalanguage for speaking to students about digital game play and wider engagements with digital gaming cultures, rather than an ad hoc approach to matching game play with particular predetermined teaching outcomes.

References


A Critical Approach to the Use of Mobile Phones in a Remote Indigenous Australian Community.

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Indigenous Australians have access to mobile phones more than any other digital technology (Brady & Dyson, 2009). A recent study of mobile phone use found that although 56% of the participants owned a phone, 93% of those who did not have a phone regularly borrowed one from family and friends (Auld, Snyder and Henderson forthcoming). Such ubiquitous access to technology by people with limited incomes provides an interesting context for a critical study of technology, particularly in relation to learning taking place around these phones in the community. While this paper will not explore the contexts of education and technology in a school environment, a critical analysis of mobile phone use in a remote Indigenous community can provide some insights into the relationship between education and technology within school. This paper will use Selwyn’s four steps towards a critical study of educational technology to explore the use of mobile phones in a remote Indigenous community.

The first step is to move beyond a ‘means-end’ way of thinking. An important aspect of this step is to consider how the participants, the context and the broader discourses that operate in these contexts socially shape the use of technology. While mobile phones have been designed for individual use, Indigenous participants in the study by Auld, Snyder and Henderson (forthcoming) have constructed mobile phones as a shared resource. Just as Indigenous people have shared artefacts for thousands of years to strengthen relationships, they use mobile phones in the same way to reinforce relationships in the community, through sharing of the phones and communicating with each other over the phones. An aspect of mobile phone use is that the Indigenous people are controlling where the phones ‘fit’ in their lives. Blommaert’s (2010) notion of placed resources are useful to consider here. ‘People's resources reveal their place in the world, their resources are ’placed' so to speak, in that they betray the locality from where they are drawn in which they fit’ (Blommaert, 2010, p. 101). In the context of Auld, Snyder and Henderson’s study (forthcoming) Indigenous people had control over the betraying the social designs of mobile phone use and re-create a way of using phones to match their social agendas.

There are several implications for a critical study of educational technology regarding the above ideas. The first being who has economic control over the purchase of the technological artefacts? One might wonder what kinds of practices would be privileged in schools if students had the economic control over the purchases of the technological artefacts as Indigenous people do with mobile phones. The second point concerns the core ‘business’ of the community. In the mobile phone study phones were used to strengthen relationships. One point missing in Selwyn’s means and ends construct of a critical approach to technology is a clear idea of the core business of schooling. I would suggest that this has something to do with mediating the abstract ideas of the curriculum in a engaging and sustained way for the students. Students and teachers need to have a clear idea of the purpose of school and opportunities to control the kinds of technology and practices made available in this learning context to support the purpose of schooling. One way to reduce the risk of a deterministic approach to technology might be for the users to control the purchase of the artefacts to fit a social agenda. Indigenous participants enacted a social approach to technology in their use of mobile phones.
The second element of Selwyn’s (2010) critical approach to educational technology concerns asking state of the actual questions in the here and now rather than exploring future possibilities. The approach I am taking in this paper is that the actual practices around technology in out of school contexts could provide answers for how to approach the use of technology in schools. In this way the answers to how technology can be used more effectively in schools already exists in the out of school lives of the students. Street’s (1984) idea of literacy practices are useful here, where the values, attitudes and beliefs people bring to literacy learning is highly contextually dependent. Answers to educational technology could be found in a study of social space rather than speculating on future classroom practices.

The third element of Selwyn’s (2010) approach is to develop context-rich analysis. Selwyn suggests that there needs to be a focus on the macro as well as the micro to give a more complete picture of the contextual variables that frame the use of technology. In a survey conducted on mobile phones out of 53 owners of mobile phones in the community, only 1 owner purchased the phone for work (Auld Snyder and Henderson Forthcoming). Rogers (2001) has articulated literacy learning is framed by paradigms of community development and there may be alternative paradigms of community development. Where educational technology is used in school contexts that do not respect the paradigms of community development, the use of artefacts and technological practices might have little relevance to the everyday lives of the students. Understandably this raises the tension about inclusivity of community practices and pathways to the broader discourses of power and this tension needs to be considered when designing learning contexts.

The fourth element is developing understanding and action. Selwyn (2010) suggests that a critical approach to educational technology attempts to ‘redress the imbalances of power that reside within most educational uses of technology’ (page 7). At the micro level this happened between family and friends sharing their practices around phones to enable communication between people and downloading of content from the internet over the phone (Auld Snyder and Henderson Forthcoming). In this study there were numerous examples of what Baguley, Pullen and Short (2009) describe as reverse mentoring, where children teach adults the practices of communicating and downloading content with the phone with the phone. The study also had a partnership strategy incorporated in the methodology where Indigenous and non-Indigenous people worked together to design and collect the research. Such partnership strategies between teachers and students would be critical to enact a democratised use of technology in an educational context.

Conclusion

This paper has analysed the use of mobile phones by Indigenous Australian’s in a remote community using Selwyn’s critical approaches to educational technology. While the four approaches can be used to explore a critical perspective of technology in an out of school context, the paper raises some points that add to Selwyn’s framework. One of these points is that the purpose of education should underpin the purchase, design, access and use of technology and the related practices in an educational context. Secondly the learners should have more control over the purchase of educational technology to support their short and long term learning objectives. Thirdly, we need to consider the partnership strategies between teachers and learners that can enact democratic learning for the social good. By exploring how people use technology in out of school contexts we can gain some important insights into how to enact a critical approach to technology in educational contexts.
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Developments in a plethora of educational technologies such as IWBs, handheld devices, digital media and Web 2.0 technologies, present opportunities and challenges for schools. IWBs are a relatively new phenomenon widely adopted by many Australian classrooms and research evidence suggests that they can have positive effects on teaching and learning (Kearney & Schuck, 2008). Portable, handheld (mobile learning) devices have increasingly powerful multimedia, social networking, communication and GPS capabilities and consequently offer new possibilities in education.

There is a prima facie case for viewing this evolving technological landscape as potentially revolutionary, stimulating emancipatory notions of schooling. However, such radical possibilities are contested in their realisation (Selwyn, 2009). Despite the ubiquity and flexibility of these new technologies, and despite two decades of research and development in technology-mediated learning, ICT is having a limited impact on school curricula and learning (Dunn & Rakes, 2010). Indeed, developments have tended to be more about the design of tools (e.g., interactive whiteboards, tablet computers) than of the ensuing learning. This lack of progress in schools is partly due to the rapid rate of digital technology development—often inherited from the business world—but also due to a range of other micro, meso and macro-level factors (Selwyn, 2009). These factors demand scrutiny and discussion to inform future directions in schooling.

At a micro level, teachers are at the interface of these educational challenges and rarely have they been faced with so many challenging, rewarding, perilous, and costly technological and pedagogical decisions. How teachers use educational technologies and integrate them into their teaching has been the subject of numerous studies over the last decade. Some authors have extolled the virtues of ICT for transforming teaching and learning (Bonk & Graham, 2006), yet many suggest that ICTs have been largely used to replicate dominant paradigms of teaching (Hedberg, 2006), albeit with more efficient distribution to learners.

At a meso level, schools are operating in an increasingly challenging national and international environment. There are high expectations that schools underpin the development of a knowledge economy; ensure the production of a technically savvy society; and exploit radical opportunities for 21st century learning. However, they are by nature conservative institutions bounded by accreditation requirements, league tables and societal expectations of past and aging generations.

At a macro level, powerful bodies external to schools influence what technologies are chosen and how they are used. For example, the Australian Government is embarking on a Digital Education Revolution, including the roll out of lap tops to school students. It has invested heavily in technology-led innovation in school education, which is being exhorted to build a creative, well-informed, digitally capable society for an unpredictable 21st century Australia. In addition, in 2011, the NSW Government provided a Connected Classroom for every school and spent $23 million on 4,300 IWBs for classrooms. This parallels initiatives in the UK, where IWBs were selected and supported because of their fit with government views of how teaching should be done (Kennewell, 2006).
Technology is changing the way we live, learn and work. Decisions being made today by teachers, school and system level leaders and governments will shape the nature and practices of education for years to come and profoundly influence the nature of future schooling. Educational leaders and technological innovators are making critical decisions about what technologies are made available; and what pedagogies should be promoted. Mindful of this complex landscape, we explore the following two questions in this paper:

- To what extent do the affordances of contemporary learning technologies determine their destiny in education?
- To what extent are their destinies determined by the socio-cultural environment of education (the macro, meso and micro factors)?

We put forward the proposition that interactions between technology and society have the power to change the knowledge and skills necessary to participate in one's local and global communities; impact upon the future development of society; change the ways in which people learn; and disrupt school education. This proposition is underpinned by a socio-cultural standpoint, recognizing the two-way relationship between tools and their users: a tool or technology may be modified according to the ways it is used, and in turn, its design will influence how people may use it (Salomon & Perkins, 1998). Socio-cultural theories emphasize the historical, cultural and societal experience, the tools available for use and impact of these tools on society. To argue this case, we will draw upon data from our recent studies of mobile learning, Web 2, digital media and iWB use in schools.

The take-up and efficacy of educational technologies in schools depends on a number of critical factors: these centre round visions concerning the purpose of schooling and the fit, at macro, meso and micro levels, between environments and technologies. We argue that tools that support schools as regulated learning environments, and conform to notions of authority, hierarchy and traditional teaching models will be widespread in schools, whereas technologies that support democratic, emancipatory and flexible learning and disruptive pedagogies will struggle to find a foothold in these environments.

References

This paper is an exploration of the shifting horizons in regards to educational technology in the contemporary Australian education system. On the one hand, education in Australia has undergone a ‘digital turn’ (Buchanan, 2011). That is to say, digital technologies are no longer simply something that students learn about, but are now something that they learn with and are to be embedded in all areas of teaching across all years of education. Not only are information communications technologies to be incorporated into all the subjects of the incoming national curriculum, but the federal government’s Digital Education Revolution [DER] policy is aimed at providing laptops for all students in years 9-12. In this way digital technology is fast becoming a ubiquitous feature of the educational landscape. On the other hand, the nature of research into educational technology is also undergoing a shift and an expansion in focus. Selwyn highlights the need for researchers in this area to be ‘looking beyond learning’ (2010, p. 65). He calls for a critical research approach, one which incorporates a richer account of the contexts in which educational technologies are employed; one that examines wider political, social and cultural contexts of the use of digital technologies and one that queries the implications for social justice and democracy.

To this end, this paper seeks to illuminate these shifting horizons by examining the increasing penetration of digital technology into education in Australia, and to simultaneously provide a critical account of this increase, with reference to the DER and two large contemporary research projects with which we are involved. Our analysis will contribute to a deeper understanding of the ways in which research into educational technology can provide an account that goes beyond a focus upon implementation and efficiency of use. By analysing aspects of the DER, the Innovative Teaching and Learning [ITL] project, and the Teaching Teachers for the Future [TTF] project we aim to provide a cohesive exploration of the similarities and differences between the selected educational interventions.

Selwyn (2007) describes the public, private and political interests that are invested in education in which adding digital technology to the classroom represents a ‘highly symbolic’ gesture that demonstrates the strong economic imperative to increase the nation’s competitiveness; A notion reiterated by Baskin and Williams who note that ‘like Western governments worldwide, in Australia computing technologies are considered a motherhood solution to the needs of a highly skilled and technologically capable workforce’ (2006, p. 455). The DER can be understood as the culmination of the increasing push for the use of digital technologies in Australian schools. Although computers have long been a feature of the Australian schooling system, the DER policy presents us with a salient example of a political initiative which aims to ensure equity in the distribution of educational technology across the schooling system. Moyle (2005/2006) discusses the wider social, financial and educational consequences of the current push to transform schools through technological intervention. The changes envisioned by the government require broad structural changes to the school environment; including teaching and learning, the physical infrastructure of schools and universities, policies and administration and organisational changes within the education system to accommodate the envisioned transformation. The DER is further
reshaping education in Australia by way of the increased control and leadership that the federal government is exercising over the state based systems.

The TTF project is related to the DER and is a government funded project aimed at improving teachers’ abilities to teach with digital technologies (DEEWR, 2011). This initiative is to be achieved through the improvement of the proficiency of graduate teachers through development of the ICT capacity of teacher educators across all 39 Australian teacher education institutions. The TTF project is an apt demonstration of Moyle’s (2005/2006) observation that the increased emphasis on ICT in education is changing not only schools but universities as well. The TTF project recognises the central position of the teacher in the enactment of effective educational reform and by extension, the key role of teacher educators as agents for sustainable change. The complexity of this multi-layered project highlights the ambitious nature of government DER policy and provides a lens through which to examine effective mechanisms for large scale reform.

The ITL project (Shear, et al, 2010) with its data collection taking place in Finland, Indonesia, Russia, Senegal, Australia, Mexico, and the United Kingdom demonstrates the global nature of educational technologies. The ITL project takes an ecosystem approach to the integration of ICT, taking account of national and school level factors that shape teaching practices, in addition to taking a ‘snapshot’ of the work which is occurring in the classroom. While the ITL project is being undertaken with partnership from Microsoft, the location of its data collection sites demonstrate the concern with social justice and equity that underpins the project. As Apple (2010) notes, access to ICT, especially in poorer nations and suburbs, can lead to social justice projects which further the goals of progressive educators. The ITL project takes a broad view of innovative teaching and learning where technology use is only one part of the implementation framework, along with knowledge building, student self-regulation, collaboration and real-world problem solving. Such an approach allows for a nuanced analysis of the conditions necessary for effective ICT use for learning.

With the juxtaposition of these three analyses we intend to highlight the ways in which educational technologies are having an impact socially and politically. This critical examination focuses not only upon the learner but upon the wider sphere that surrounds and impacts on the classroom. The DER is a federal policy aimed at reshaping the provision of education across the nation. The TTF project illuminates the way in which the increased emphasis on teaching with digital technologies is not only affecting classroom teaching practice but is impacting the higher education sector, and changing the nature of pre-service teacher education. The ITL project highlights the use of educational technology in multiple sites around the world and provides an insight into the globalisation of education in the twenty first century. Through analysis of these three projects we aim to explore not only the social and political aspects of these, but also to tease out some of the implications for social justice and equity in the shifting horizons generated by the increasing deployment (or non-deployment as the case may be) of educational technology.

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Teachers’ changing practices with Information and Communication Technologies (ICT): An up-close, longitudinal analysis

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Information and Communication Technologies (ICT) have been regarded by educational and governmental stakeholders as the holy grail for revolutionising teaching and learning. As with all major school initiatives, teachers’ practices are central to teaching and learning outcomes. While the physical presence of ICT in schools continues to increase at an extraordinary rate, there remains limited understanding of teachers’ practices with ICT and how they may be developed to their pedagogical potential.

Teaching practice is conceptualised as an intricate interplay between knowledge, context and practice. Teaching takes place within a particular and dynamic space and time which teachers constantly and iteratively interpret to construct and reconstruct understandings about their practice (Kemmis, 2010). Despite scholarship on the complexity of teaching practice, teaching with ICT is predominantly theorised as three discrete behaviours. This over-simplification is framed as: 1) teachers’ frequent use of ICT (Levin & Wadmany, 2005); 2) teachers using ICT to teach curriculum content rather than ICT skills (Watson, 2006) and; c) teachers using a constructivist style of teaching when using ICT (Drent & Meelissen, 2008). Most teachers are not changing this combination of behaviours (Chen, 2008). A small body of literature identifies individual aspects of teachers’ knowledge and/or contexts that influence their practice with ICT (Windschitl & Sahl, 2002), however, the ambiguous and diverse context in which this practice takes place, prompts asking more holistic question of how teachers choose between competing demands in decisions they make about what they do and when.

It is argued that the field of educational technology has, as yet, failed to take account of the ‘messy’ realities of this practice from the user’s experience. Literature on teachers’ pedagogy and professional identity indicates that teachers are individualistic, and therefore no one model is going to adequately describe the circumstances of all teachers’ changing practice with ICT (Newhouse, Trinidad, & Clarkson, 2002). In order to examine other changes that may be occurring, less pre-emptive restrictions on the type of change and paths of change that are examined, are needed. A necessary contribution to this field of research is to examine questions of change and teaching with ICT as broadly as possible, with minimal limitation of analysis with pre-determined expectations (Selwyn, 2011).

This paper addresses the need for holistic and subjective understandings of teachers’ practices with ICT, and reports on a study which spanned five years of gathering detailed, qualitative data of the ICT practices of five teachers in primary and secondary schools in New South Wales, Australia. The aim was to examine what influenced the changes (or lack of change) in their practices with ICT, and how the teachers interpreted the changes. Grounded theory (Charmaz, 2006) made it possible to work with the data without aligning to a particular pre-selected theory or set of behaviours (Ulle, 2005). A focus on five teachers over a long period of time made it possible to research their distinct practices across a wide range of dimensions, in considerable depth, over time. The teachers varied in their enthusiasm for technology, ages and approaches to teaching with ICT.
The research design was iterative and included multiple acts comparison, dialogue, reflexive critique and interpretation which helped to understand and explain the teachers’ ICT practice, rather than to evaluate their actions against firm criteria. Extensive qualitative data was collected of the teachers’ practices with ICT as well as the context in which their practices took place. 3 week-long data collection periods occurred each year which included: classrooms observations, interviews and discussion. Further data was also extracted about the teachers’ context and included student focus groups, interviews with key school ICT personnel and close teaching colleagues as well as analysis of the teachers’ and schools’ planning documentation. Each teachers’ data was consistently coded over the course of the study and documented into a longitudinal format. After five years of data gathering and analysis the teachers’ retrospectively reflected on the data collected of their ICT practice over five years. An overall impression of the data was then developed and matched against the Research Questions to identify gaps in the analysis and theories to facilitate further analysis. Aspects of professional practice theory (see Kemmis, 2005, 2009; Green, 2009) and sociocultural theory (see Lave & Wenger, 1991; Vygotsky, 1978; Wells, 1999) were selected for this purpose.

An important finding was that over five years, each teacher initiated changes to various well-established practices and continued with these changes in their use of ICT. Four categories of change were developed from the thematic, qualitative analysis: a) pedagogical changes were new teaching strategies, curriculum content, classroom organisation, and/or use of resources the teachers introduced into their practices with ICT; b) professional organisational changes were new processes the teachers introduced to support their professional learning; c) Cognitive change were shifts in the teachers’ knowledge of ICT as a learning resource and; d) changes in core approaches to teaching was an increased valuing of children as capable and independent learners. A change in one category could be traced symbiotically to a change in another category.

Changes in teachers’ practice can be traced to a critical situation, associated with a change in their context, which manifested as an acute identity crisis for the teacher. One critical situation was evident for each teacher during the study and it stimulated a process of reflection and action in which the teacher developed their knowledge in ways they identified as inadequate. This led to a slow unfolding of changed practice over time. Particular individualised (knowledge, values and motivations developed from past experiences) factors and, contextual factors contributed to the situation being critical, as well as how the teacher reflected on and resolved it (Wells, 2007). Consequently, each teacher experienced a different critical situation and demonstrated distinct changes in their ICT practice.

The identification of contextual and individualised resources for teaching with ICT asserts the understanding that this practice is more than actions a teacher performs and quickly improves on. Teachers draw on an interrelated mesh of resources at the same time to inform their practice (Kemmis, 2009; Green, 2009). It was also evident that the participants mediated the contextual resources they drew on via their individualised factors. Of particular importance to the participants was how well their context resonated with their individual conceptualisation of their role as a teacher. In this light, instead of conceptualising teachers as ignoring ICT or resisting change, one might consider that the changes in their context, such as policy change, are not congruent with their individualised resources.

The findings from this study show that a meaningful approach to professional development would be one that acknowledges the centrality of contextual and individualised factors important to teachers in their ICT practices.
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Curriculum, Literacy, Technology: Learning (with) New Media?

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How best to conceptualise the relationship between curriculum and literacy now, in the first decades of the 21st century? This period has been described elsewhere as the ‘Post-Age’ (Green, 2000), and a case has been made in this regard that it is increasingly appropriate to explore notions of ‘post-curriculum’ and ‘post-literacy’, to signify in part that we may well be moving beyond curriculum and literacy alike, at least as traditionally understood. That is due, again in part, to a new emphasis on and visibility of technology – more particularly, digital technology, as this has increasingly entered into calculation since the latter part of the 20th century. Technology would indeed appear to be a major driver in changing both curriculum and literacy, as well as the relationship between them. Arguably we are entering into a new educational phase or space – a quantum leap in what education means, and how it is done. Much debate is underway, for instance (Lister et al, 2009), about the educational and cultural significance of so-called ‘new media’. For me, this is extremely interesting, even dazzling, but, all the same, it often sounds rather familiar. Indeed, we are almost at the point, it seems, at which learning (with) new media has become effectively naturalised. But what does it mean to talk about the ‘new’ in this context, and in this way? What about existing media, let alone the ‘old’ media? Is the future opening up before us as rich in possibility as the latest wave of digital rhetoric would have it? And if so, what is that comes after curriculum and literacy? Or renews them? In rushing into the future, what might we be losing? What is it that (still) matters in the past, in history? How do we understand change now, in the present? Are we already in the era of techno-nature? What are we becoming?

Among other things in the course of this paper, I shall reflect here on a recent SF novel – David Wingrove’s Daylight on Iron Mountain (Corvus, 2011). The book itself is part of a much larger imagined world: a set of 10 novels depicting a time when China rules everything, literally. Earth has become transformed into a single monolithic, multi-leveled City. Something of a curate’s egg and admittedly with mixed feeling about technology, the series is nonetheless a remarkable feat of the imagination. What I want to focus on, here, is the way that history is thematised, is realised, and changed – erased, and rewritten, felt. The novel – a prequel, in fact – concludes rather poignantly with a man and a woman, now old, surrounded by grandchildren and their parents, musing on what’s happened over the course of their lives, to them, and to their world, their England, as darkness sets in. What interests me is what I think is appropriately described as its structure of feeling, after Raymond Williams: a sharp sense of the inevitability of forgetting, of loss, and the inexorability of change. There’s something here, I suspect, that’s extremely relevant to my theme, and takes me back to Lyotard, among others. At the same time, I certainly don’t want to come across as a techno-phobe, or be accused of nostalgia, of somehow still invested in a pre-technological sense of things, or a world in which technology is simply a supplement to being truly human. I do however want to think, and think again, about technology as a catalyst for dreaming, an engine of complicity...

Writing in the 1990s, I proposed that technology needed to be seen as both a ‘context’ and a ‘resource’ for educational practice and change (eg Bigum & Green, 1995). This was prompted by the observation that, as in other areas, a sharp division seemed to exist between those focusing on working with technology in schools, as well as other educational settings.
and situations (the ‘practitioners’), and those who were perhaps more sceptical or critical of what has been put forward in this regard or indeed being done (the ‘critics’). I would like to revisit that argument here, in the light of what some see as the current state of the field (eg Selwyn, 2010) – a depiction that is, in fact, curiously familiar. I will relate the overall discussion specifically to what has been, for me, a particular area of interest: changing forms of curriculum and literacy (Green, 1993), and the importance of historical imagination in this regard. My argument will support the notion of ‘informed scepticism’ and the need for an ongoing critical perspective.

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Critical Implementation of Technologies for Literacy Learning: An Actual Case Study of Teachers and Students

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The interface between the academic studies of language and literacy education and educational technologies is a complex place replete with responses including stand offs, accommodations, synergies and transformations in various combinations. At one end of this range, proponents of language and literacy education, and more often that not the popular media, position technologies as a powerful distraction from or competition to one of the main games of schooling – that of learning literacy (construed as learning to read, write and to a lesser degree to speak and listen). In this highly politised view of literacy, demonstrated by the high stakes testing of reading and writing, literacy education is seen as a fortress to be protected from technological invasion.

Another construction of the education technologies/literacy education interface presents technology as a powerful means of supporting students’ literacy learning, an entitlement enabling student access to information, a tool which makes learning to read and write more motivating, an assistant to literacy learning. In this view, literacy education is positioned as a staid act and technology is the ‘eye candy’ or means of securing student engagement. Literacy learning is the broccoli and technology the colorful sprinkles on top.

Yet another ‘take’ on the interface is one in which literacy is viewed as a series of social practices (Street, 1995); practices which in the second decade of the twenty-first century are undergoing constant transformation as technologies become smaller, more powerful, more ubiquitous, more affordable, more integrated, more socially desirable. The multimodality of texts, a result of digitisation, underpins this transformation. The reduction of letters, images and sounds to a common platform revolutionized the way printed letters could combine with meaning-making modes such as still and moving images, music and sound effects (Kalantzis, Cope & Cloonan, 2010). Developments in communication networks, navigational and storage capacities allow new literacy practices with increased agency – instantaneous, mobilised, multimodal communication and sophisticated text creation on a globalised scale – with relative affordability and accessibility. A far dramatic change from earlier technological Specialisation which prohibited accessibility and agency. This take on the literacy/technology interface positions technology as a transformer of both literacy and of the social world. Literacy can be viewed as dynamic, plural and social and contemporary students as working with agency and flexibility blending traditional and new literacies in differing contexts for differing purposes.

These three views are abstractions, and easily described as such. But in actuality they take hold in overlapping and fluid ways, rather than being mutually exclusive. Parents, the media, curriculum writers, politicians, students and educators all profess the importance of literacy education and of educational technologies. Working at the dynamic intersection of literacy education and educational technologies, what pedagogical choices might teachers make given the very different contexts they find themselves in? What blends of new and traditional literacy learning might they design? Where might schools put their varying resources? How
might researchers identify and explore the important issues in this pressure cooker of change? And what of professional learning for teachers in this constantly changing environment?

To understand the ‘messy realities of educational technology as it happens’ (Selwyn 2010, p.72), we need to understand the messy realities of the teaching situations of the educators using the technologies. One response gaining in momentum is practitioner research in which, teachers themselves, exploring their own classrooms and teaching can provide deep insights [into the actuality] and strong leads as to how future research might be formulated (Leu, 2000; Locke & Andrews, 2004; Unsworth, 2006).

A case study approach (Yin, 2003) offers insights into these realities. The selected case study concerns a team of five teachers from St Anne’s Primary School in outer Melbourne who are part of a statewide professional learning program focused on contemporary literacy learning and funded by the Catholic Education Office Melbourne. The program is underpinned by three ‘big ideas’ known to support teacher learning: active collaboration in communities of practice and learning (Darling-Hammond & Richardson, 2009); the structures and characteristics of distributed leadership (Harris, 2008); and processes of teacher inquiry using participatory action research (Kemmis & McTaggart, 1988, 2005; Nisbet, 2005). The project engages teaching teams in identifying an issue to address related to student achievement, designing inquiry questions, and planning, implementing and documenting research through processes of reflection. The professional learning project involves teachers in face to face off site workshops, social networking, school visits by critical friends, intra- and inter-school collaboration and embedded academic studies. I am a consultant to this project and am also undertaking research into its impact on teacher and student learning.

The qualitative and quantitative methodologies employed to undertake the research integrate with characteristics that underpin the professional learning project in an attempt to ensure that the research was conducted with teachers rather than on teachers; and in so doing add to teacher capacity. Evidence of impact of the project is being gained through administration of online surveys and case studies into the learning of teachers from participating school teams including St Anne’s.

The team from St Anne’s are engaged in participatory action research focused on improving students’ analytical and critical reading comprehension. Their current inquiry question is, ‘How can we use digital technology to further develop our students’ comprehension?’ The story of the case study is a story of the messiness of the consultations, discussions, contestations, collaborations and compromises amongst teachers, students, parents and leadership as the team sought to improve students’ reading comprehension through a focus on technology.

The limitations of this two-page overview prevent a thorough discussion – a brief overview will have to suffice. The team has made considerable changes that have addressed both teacher and student learning. A range of assessment data is now systematically used to inform teacher and student learning. Teachers and students all commit to personalised reflective learning journals. Teachers have developed expertise in comprehension teaching strategies (e.g. guided reading, reciprocal reading, literature circles, Socratic circles) and use of digital tools which support text analysis (e.g. Interactive Whiteboards, ipods, ipads, cameras and audio books) and social networking tools that support collaboration, analysis and reflection (e.g. wikis, blogs, micro-blogging). None of this was easy; it required commitment, negotiation, communication, reflection, money, intellectual work, discipline, leadership, patience, perseverance and creativity.
Teacher familiarity has allowed students’ to access a broader range of texts both online and offline (e.g. and digital stories, e-books, ibooks, films and multimedia) and led to creation and use of class intranet pages, individual student blogs and student films. They have developed a common language around reading comprehension and digital literacies and now regularly undertake collaborative professional reading. They link literacy education (specifically reading comprehension) to e-learning and class inquiry questions. Student comprehension as measured on standardised tests and according to teacher judgement has shown a considerable improvement. Student engagement levels and knowledge of digital tools has substantially increased.

For teachers working at the interface between literacy education and educational technologies, change is fraught and the local context in which they work is critical. Parents, students, colleagues, leaders, employers and politicians respond to change informed by multiple and overlapping agendas. The introduction of a seemingly straightforward use of technology can result in contest. Teachers need time, space, pressure and support to consider the personal, pedagogical and political implications of change. For the teachers in the case study presented, a significant improvement in reading comprehension scores has attracted considerable interest in the changes made by the team. This has provided reassurance. The penetration of the fortress of literacy education by technology appears to have improved rather than corrupted students’ reading capacities. Technology appears to have been a very able assistant, providing much more than ‘eye candy’. And perhaps most importantly, teachers have developed agency, identifying shortcomings in their state curriculum documents, forthcoming national curriculum documents, and student assessment regimes which overlook much of the transformative impact that technologies have had on literacy.

Conclusion

Selwyn (2010) argues that there is much to be gained from ‘applying a critical social scientific approach to the study of educational technology’ (p.71). Engagement in such work requires consideration of what is actually happening now in the social lives of teachers and students in classrooms rather than the potentials offered by new technologies. Case studies can show contextualised stories of change replete with the hurdles and challenges encountered, breakthroughs in teacher and student learning as well as the specific outcomes for teachers and students. They can serve as exemplars, not to be replicated but as a stimulus for what might and so can build a bridge between the actual and the potential implementations of educational technologies.

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Rethinking educational technology research

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Research in educational technology has traditionally focused on investigating how new technologies can be applied to improve learning. Over the decades researchers have shifted their attention from one technology to another as they have endeavoured to find the most effective strategies for supporting learners. The literature is dominated by studies of specific applications of technologies to particular learning contexts, with the aim being to understand how a technology can be best designed to engender a desire outcome. Designs are based on claims about how technology can and should be used to enhance learning, though many of these claims remain untested even by studies purporting to do so. Like others, we contend that this approach to educational technology research limits the scope of what can be imagined and therefore researched. In this presentation we will consider what it might mean in practice to expand the research agenda to include more sociologically oriented studies and what we might gain from doing so. Specifically, this presentation reflects on two recent research studies that reflect these goals.

The first is an in-depth study of classroom practices intended to promote multi-literacies in secondary school through the use of audio-visual technologies. The research included multiple classrooms across different schools and focused on ‘real life’ practice, seeking to explore students’ and teachers’ views. The researchers took a stance that sought to understand the contingencies of implementing a pre-designed curriculum in classrooms. While the focus was on understanding student learning, the researchers considered the problematic nature of technology implementation as critical, rather than seeing difficulties encountered as aberrant departures from an ideal outcome. This work illustrates how it is possible to design and test an implementation while not be invested in its success, thus providing an opportunity to critique a design by reflecting on both its operationalization and the theory that informs it.

The second example is research into young people’s experiences with technology inside and outside formal education by exploring the multiple social worlds in which young people engage. The purpose of the study is to examine differences between everyday and academic contexts with an emphasis on understanding each rather than trying to make one more similar the other. Our contention is that by understanding the logics that underpin practices in different contexts we can better understand what understandings of technology young people bring to education. In turn this could inform debate about what roles educational institutions might play in addressing young people’s different opportunities to develop technical skills and knowledge.

We argue that these types of studies offer a promising way forward for educational technology to expand the current approaches to research beyond studies focused narrowly on learning. This move need not supplant more popular forms of research but should, where possible, engage with it. This is important to ensure that researchers working on similar problems, albeit from different perspectives, can build a coherent and integrated research agenda. This will complement rather than supplant more psychologically oriented research, which though important cannot address the full breadth of research questions we have about educational technology.
Specifically, such research would allow us to move beyond the classroom, and beyond isolated instances of practice to consider a more holistic picture that includes students, teachers and parents as part of education as a system within broader society. It would simultaneously enable us to move beyond a focus on instructional/learning design, and would also improve research into design by improving our understanding of the contexts into which designs are implemented. This could result in more realistic claims about what technology can achieve in education, and better targeted support where it is needed.

Changing the focus of educational technology research to investigate ‘what is’ occurring rather than on ‘what could or should be’ requires major rethinking the stance we take when conceptualising and conducting studies. Primarily it requires focusing on the context and participants as they are, and avoiding both idealising both learners and technologies. This means trying to understand something before trying to change it, however imperfect that understanding might be. Too many educational technology studies are based on misconceptions about ‘traditional’ education that must be reformed through contemporary methods and the latest technologies. Too few researchers attempt to engage with the complexities of actual practice. Such an agenda also means testing ideas and designs to the point of failure, rather that looking for evidence of success. This means focusing on differences and variations rather than looking for homogeneity and resorting to simplistic labels. We must also avoid privileging any group over another, such that all perspectives are sought. Finally, this shift requires a precision of communication about goals, conceptions and results of research in ways that can draw educational technology research together to create a cumulative knowledge base.
The work and place of theory in learning and new media research

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The place and value of ‘theory’ in different fields and disciplines has long been debated. In so-called ‘applied’ fields such as education, for example, theory is often set up against ‘practice’ as if the two were somehow separate and discrete. In addition, ‘practitioners’ are said to regard theory with suspicion, seeing it as out of touch and aloof, not grasping the pressing realities of messy practice. But this is not the only problem with and for theory. In the academy itself, a place supposedly stocked with luxuriating theorists, we also find resistance to theory and its uses.

In this paper we explore the work that theory might do in research related to education and technology (as distinct from ‘educational technology’). We use Selwyn’s provocations about how theory is currently and commonly used in ‘edtech’ research—its use, misuse and non-use—to explore how theory might be more usefully employed in educational technology research. In particular, Selwyn argues that the edtech research field ‘has grown to be dominated by an (often abstracted) interest in the process of how people can learn with digital technology’ (2010, p. 66). Selwyn argues that this focus on how new technologies enable ‘enhanced’ and ‘deeper’ learning are underpinned by a limited range of theoretical ideas mostly derived, since the field’s early days, by philosophical allegiances to the ‘learning sciences’. This critique points to the role particular varieties of theory have played in shaping the wider landscape of research in and around education and technology.

In this paper we carefully review these claims made by Selwyn (looking for ways they might be taken forward) and pose (and respond to) a series of questions which seem to us to require additional thinking:

- How is theory understood in educational technology research? What work does it do or is it used to do?
- What theories (or kinds of theories) are privileged and why? What kinds of theories are absent?
- How have theoretical choices shaped the kind of work that gets done?
- Why have particular theoretical choices remained at the periphery?

In doing so we also review and respond to recent work about the role of theory in social science research and in particular educational research (Anyon, 2009; Ball, 2006; Thomas, 2007; Wright, 2008). We compare literary studies with educational technology research and ask, why there seems to be resistance to taking up some theorists’ ideas within educational technology research. While we are not proposing a binary of theoretical work versus non- or a-theoretical work, we explore different understandings of theory and uses of theory (cf Culler, 1997; Dimitriadis & Kamberelis, 2006).

However, we acknowledge that the usefulness of ‘ed-tech’ research might stem from a desire to ‘make a difference’; possibly in response to certain investors and stakeholders who want results. This presentation acknowledges the positive aspects of interventions, action research and the need to make a difference that many educational technologists espouse, however, it highlights how commercialism and marketing have a strong voice when it comes to presenting the usefulness of such technologies and their impact on learning and, indeed the
way that making a difference is often framed as a short-term, surface proposition. What concerns us is the continued prevalence of focusing on improving practice with digital technologies, a perspective aptly described as ‘boosters’ (Bigum & Kenway, 2005). This ideology continues to assume the increase of technologies within educational settings will lead to improved practice, rather than considering the historical constructs that have led to the presumption – seemingly a pertinent place for the use of theory.

This paper emphasizes that there seems to be a preoccupation with providing ‘straight-forward’ answers in many outputs resulting from the exploration of learning and new media technologies. We also discuss the dominance of the pragmatic paradigm, and explore how this has limited the field. In effect we ask, how does a field of inquiry end up like it is and whose interests are being served in this particular instance?

Finally, we discuss some recent examples of research which uses varieties of critical social theory in its analysis and which takes a social practice approach to the objects of study. We ask of this research, what work does theory do? What is the work of theory? One example draws from an ethnographic study of 15-16 year old adolescents and their ‘actual’ use of with digital technologies, both school-sanctioned and non-sanctioned. This study is situated within literacy studies and employs critical social theory from Erving Goffman and Michel de Certeau. The second study explored the development of expertise among teenage technological experts and employed, again, critical social theory from Pierre Bourdieu.

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