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CHAPTER 1

Introduction: The Need for a Politics of Education and Technology

Neil Selwyn and Keri Facer

Introduction

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 almost continuous use, and billions of others are used communally in shared, public settings. Governments of nearly every country in the world now have well-established policy drives and programs seeking to encourage and support the use of digital technologies in schools, colleges, and universities. Digital technology is a topic that is of significance to a global educational audience.

Yet for such a significant issue, there remains relatively limited analysis of the politics, the economics, the cultures, and the ethics of digital technology in education. Academic study of educational technology, such as that found in leading journals such as *Computers and Education*, for example, has developed into a field dominated by psychological (usually social-psychological) perspectives on learning and teaching. Many educational technology researchers proudly align themselves with the "learning sciences" rather than the social sciences. This research is therefore often concerned primarily with matters relating to individual behaviors, individual development, and classroom practice. The predominance of these concerns has led to a rather restricted view of technology use led by enthusiasms for social-constructivist and sociocultural theories of learning. This tends to offer a very localized concept of the "social" contexts in which technology use is situated. Despite regular calls for theoretical expansion and sophistication (e.g., Hlynka & Belland, 1991; Livingstone, 2012), the educational technology research field ventures rarely from these concerns. Indeed, it could be argued that even as it approaches middle-aged respectability, educational technology is an area of academic study that remains stuck stubbornly in its ways—dominated, at best, by an optimistic desire to understand how to make an immediate difference in classrooms and, at worst, in thrall to technicist concepts of "effectiveness," "best practice," and "what works."

Of course, despite the preponderance of this sort of work, it is worth noting that other traditions of research in this field draw on cultural studies, media and communication studies, and sociology of digital culture (e.g., Facer et al., 2003; Valentine & Holloway, 2003; Jenkins, 2006). These alternative analyses are often concerned with understanding and documenting the lived digital cultures and experiences of young people and are frequently used to shine a light on the failures of mainstream education, in particular in its capacity to recognize and engage with diverse learning cultures. This research should be credited, in particular, for making visible the creativity and talents of marginalized communities in ways that disrupt the confident assertions of the school or university as monopoly authority on educational value or agent for social justice. However, such research, where it operates without a broader political and sociological account of education, risks colonization as it is recontextualized in practice. For example, celebratory ideas of young people as "digital natives" can be used to obscure the economic and social differences in young people's lives and have been recruited as justification for political projects from individualized learning to the marketization of education systems. At its worst, much of the political, cultural, and economic critique implicit in this research is lost in favor of simplified calls to appropriate digital cultural tools to engage recalcitrant youth in unchanged and unchallenged educational goals. The work becomes, too often, a set of "tips for teachers" that is disconnected from its rich, disruptive, and uncomfortable connections with the realities of life beyond the school walls. While there are researchers who resist such taming (e.g., Margolis, 2010; Mahiri, 2011) many of these who seek to retain an analysis of the politics of education and technology increasingly work outside, and are therefore arguably marginalized from, the debate about mainstream education.

As a consequence, educational technology can be a frustrating area of academic scholarship for the politically inclined reader to follow. On the one hand, thousands of hours and millions of dollars are directed each year toward the optimistic exploration of how technology is capable of supporting, assisting, and even enhancing the act of learning. On the other hand, as anyone involved with the day-to-day realities of contemporary education in its different guises will attest, many of the fundamental elements of learning and teaching remain largely untouched by the potential of educational technology. As such, an obvious disparity between rhetoric and reality runs throughout much of the past 25 years of educational technology scholarship. As Diana Laurillard (2008, p. 1) observed wryly, "Education is on the brink of being transformed through learning technologies; however, it has been on that brink for some decades now."

While similar tensions between rhetoric and reality can be found within many areas of applied academic study, a particularly resilient strain of cognitive dissonance appears to pervade the educational technology literature. Despite a long history of eagerly anticipated but largely unrealized technological transformation, many studies in the field continue to focus on the "what ifs" and "best case" examples of education and technology—often producing persuasive evidence of educational potential, but only on occasion acknowledging the individual and institutional "barriers" that are presumed to be restricting the realization of this potential in practice. As such, the academic study of educational technology could be accused of having worked itself into an analytic blind alley. This is research and writing that is well able to discuss how educational technologies *could* and *should* be used, but less competent and confident in discussing how and why educational technologies are *actually* being used. Moreover, this is research and writing that is ill equipped to support the building of an achievable political or institutional project to realize desirable change.

Such a focus on potential rather than practice also produces a number of surprising (and increasingly unforgivable) blind spots in the field. For example, while studies of the potential use of digital technologies in the teaching and learning process abound, there has been a near-universal silence on the actual use of technologies for the purpose of data collection, performance management, "learning analytics," and the like. Rather, it has taken researchers from outside the field to begin to interrogate the proliferation of data, audit, and performance management practices in which the impact of technology has arguably been spectacularly pervasive. As authors such as Jenny Ozga (2009) have noted, we are now witnessing educational systems that are based around the creation and use of data that support the organization of political relations through communication and information, with digital technologies supporting well-established systems of self-evaluation, development planning, and performance. The intentions of this data turn are deliberate—not least, the intentional move toward what Ozga (2009) terms "governing education through data" and the shift from central regulation to individual self-evaluation. In this sense, digital technologies are now an integral component of the new governance of educational institutions and those who work within them along neoliberal principles of decentralized and devolved forms of control. Educational technologists, however, have remained conspicuously silent on the role of technology in face of the "conservative modernization" of education and the emergence of a data-driven "audit culture" (Apple, 2010).

Crucially, then, educational technology remains a field of academic endeavor in which instrumentalist accounts dominate and in which the reader of much of the academic literature gains very little purchase on the social, economic, political, or cultural nature of educational technology. This matters first, because we are left with an inadequate picture of what educational technology means in and for education today. More importantly, it matters because it leaves us without the detailed and ultimately more useful accounts of educational technology that are needed to really understand and address the implications of digital technology in education for issues of social justice. Against this background, there is clearly scope to reassess and perhaps broaden the ways in which the academic study of educational technology is understood.

The question of what forms this reassessment and retuning might take is addressed throughout this book. While a number of themes are developed during the course of the book's 11 chapters, it is fairly obvious at even this early stage of our discussion that such reassessment involves moving beyond asking questions of how digital technologies "could" or "should" be used in educational settings, or speculating on the "potential" of technology to change learning. Instead, we need to take a deliberately critical approach that approaches the topic of education and technology in *relational* terms. As Michael Apple (2010) reminds us, the relational approach involves producing accounts that situate educational technology within the analysis of unequal relations of power elsewhere in society today, within the lived realities of dominance and subordination that are currently ongoing, and within the conflicts that are generated by these relations. Thus, instead of being distracted by our own (often privileged) personal experiences of digital technology, this book starts from the premise that we need to work instead toward understanding and acting on educational technology in terms of its complicated and often unjust connections to the larger society. In short, we need to develop a more politically aware and sociologically grounded narrative of change. This, then, will be the approach that shall be pursued throughout all of the proceeding chapters.

Education and Technology: The Need for a Political Perspective

This book starts from the contention that the design and use of digital technology in education is a profoundly *political* concern—inevitably raising questions of how new educational practices are being negotiated through the introduction and use of new technologies, and who benefits from such new settlements. Indeed, the use of digital technology in education introduces a complex mix of public and private actors into the education arena. These include the designers and developers of new tools, the multinational corporations that they often work for, new networks of consultants and advisors, along with new generations of ostensibly "digitally active" young people, the businesses and practices of digital youth cultures, and the families and communities within which young people lead their lives.

In this context, educational technology needs to be understood as an intense site of negotiation and struggle between these different actors. These are struggles that take place across a number of fronts—from the allocation of resources to the design of curriculum, from the maximizing of profit and political gain to attempts to mitigate patterns of exclusion. Put bluntly, as technology-based education and "e-learning" continue to grow in societal significance, it follows that the use of digital technology in education needs to be understood in distinctly political terms of societal conflict and struggle over the distribution of power. For instance, this includes acknowledging the clear linkages between educational technology use and "macro" elements of the social structure of society such as global economics, labor markets, and political and cultural institutions. Similarly, at the "micro" level of the individual, the act of technology-based learning also needs to be understood as being entwined with the "micropolitics" of social life. As such, many of the questions that surround education and digital technology are familiar from longstanding debates around education and society—in other words, questions of what education *is*, and questions of what education should *be*.

This book therefore seeks to look beyond apolitical portrayals of educational technology. Instead, it focuses on the areas of tension, contradiction, and conflict that underlie the discourses, the practices, and the technologies that constitute any instance of digital technology use in education. The forthcoming discussions therefore encompass—but are in no way restricted to—a set of interrelated issues and concerns, that is,

- the political economy of educational technology;
- the role of critical theory in the discussion of education and technology;
- educational technology, inequalities, and social justice;

- educational technology, neoliberal ideology, and emancipatory discourses;
- education technology, material resources, and resilience;
- configuring the "ideal user" of educational technologies;
- democracy, surveillance, resistance, and voice; and
- questions of who benefits from technology use in educational settings.

In exploring and examining these issues, all the chapters in this book seek to develop a set of related arguments on the theme of supporting what can be termed the *critical* study of educational technology. The role of the remainder of this introductory chapter is to provide a justification for what is to follow. As such, the chapter will now go on to outline the terms of reference for a critical approach, justifying the need for academic work that focuses on the social conflicts and politics of educational technology use at individual, institutional, and societal levels of analysis. In this sense, we seek to position the book alongside the burgeoning tradition in education scholarship for critical and democratically minded analyses of education. As Gert Biesta and others have argued, making sense of contemporary education entails focusing on a range of issues "beyond learning"—not least the political and democratic dimensions of education that are often overlooked in the relentless asking of "questions about the efficiency and effectiveness of the educational process" (Biesta, 2006, p. 22). This need to force the focus of educational technology away from the dominant discourses of "learning" and the attendant learning sciences is a fundamental task, and one that Norm Friesen and Ben Williamson undertake in the proceeding section of this book. Only by giving greater credence to critical questions of politics and democracy, it is reasoned, can academic writers and researchers then go on to develop meaningful proposals for changing educational technology provision and practice.

Steps toward the Critical Study of Educational Technology

It is important to note at this point that adopting a politically aware "critical" approach toward educational technology does not necessarily entail a dogmatic adherence to any particular theoretical stance, school-of-thought or "-ism." Rather the critical perspective is rooted in a broader recognition of technology and education as a set of profoundly political processes and practices that are usefully described in terms of issues of power, control, conflict, and resistance. As such, much of the underlying impetus for a critical approach toward educational technology stems from a desire to foster and support issues of empowerment, equality, social justice, and participatory democracy (see Gunter, 2009). These ambitions are perhaps best summarized by Amin and Thrift (2005, p. 221) in their four-point agenda for critical scholarship as follows:

> First, a powerful sense of engagement with politics and the political. Second, and following on, a consistent belief that there must be better ways of doing things than are currently found in the world. Third, a necessary orientation to a critique of power and exploitation that both blight people's current lives and stop better ways of doing things from coming into existence. Fourth, a constant and unremitting critical reflexivity towards our own practices, no one is allowed to claim that they have the one and only answer or the one and only privileged vantage point. Indeed, to make such a claim is to become a part of the problem.

As Amin and Thrift's brief manifesto suggests, a critical approach involves asking a number of questions about education and technology that seek to draw attention specifically to a critique of power and exploitation in this arena. Such a critique is not, importantly, conducted in a self-indulgent fashion for its own sake or as a detached academic exercise, but is fundamentally oriented toward opening up a better understanding of the barriers, opportunities, and resources for "a better way of doing things than are currently found in the world." To that end, we would propose the following approaches toward a critical study of educational technology.

Moving beyond a "Means-End" Way of Thinking

First and foremost, the critical study of technology and education is underpinned by a rejection of any commonsense understanding of the imperatives and potentials of educational technology or, in fact, education in general. As Boody (2001, p. 7) points out, many of the discussions of the benefits of digital technology in education take the form of "means-end thinking"—that is, thinking that starts from a given end and then strives to find the means of accomplishment. Consider, for example, the way in which the introduction of digital technologies into education has been seamlessly incorporated into narratives of educational modernization and, in more economically constrained times, to discourses of efficiency. Consider how research and policy problems have been identified as technical challenges of "harnessing" technology to existing educational goals, a formulation that has often led to a search for technologies that can be easily turned to more efficient learning "delivery." At other times, this has led to a search for tools that are, in turn, able to tame young people to achieve better compliance to existing educational imperatives. This sort of means-end thinking brings with it the elusive search for research evidence that proves the "added value" or the demonstrable cost-benefit analysis of digital technologies as compared with textbooks or teachers.

Such means-end thinking, however, fails to consider fully the nature and value of the educational end goal to which the technology is to be harnessed, and often overlooks the by-products or unintended consequences of its implementation or the connections between this given end and other important ends. Take the search for tools to enhance learner engagement, for example. A research program organized around this priority, which simply seeks to develop more entertaining or efficient ways for students to acquire predetermined knowledge, risks overlooking the multiple reasons that might cause and provoke disengagement in the first place. Resisting means-end thinking, instead, would require a critical reflection upon the assumptions underpinning an analysis of disengagement, a reflection upon alternative potential causes (such as curriculum design, staff-student relationships, and/or learning cultures) and only then begin to explore the role of digital technologies in playing a role in addressing these questions. In other words, a critical study of educational technology necessarily begins with a critical reflection upon the definition of the educational "problem" at hand.

Opening up the Black Boxes of Educational Technology

The second key feature of a critical approach is its commitment to disrupting the deterministic assumption that technologies possess inherent qualities and are therefore capable of having particular predetermined and predictable "impacts" or "effects" on learners, teachers, and wider society. There are two aspects to this commitment: first, it entails a critique of the logic of inevitable sociotechnical change, and second, it entails a surfacing of the politics, contradictions, and negotiations realized in technologies and technological practices.

Of course, we are not the first (or last) authors to decry the persistence of the technological determinist mind-set in educational technology studies (see Bromley, 1997; Oliver, 2011). The technologically determinist perspective that "social progress is driven by technological innovation, which in turn follows an 'inevitable' course" (Smith, 1994, p. 38) has a long lineage in popular and academic understandings of the effects of technology on society. It produces an understanding that individuals and institutions should simply "adapt to" technological change and make best use of the technologies that they are presented with. This commonplace logic—evident in much thinking about educational technology—is illustrated in Clay Shirky's (2008, p. 307) observation that

> our control over [digital] tools is much more like steering a kayak. We are being pushed rapidly down a route largely determined by the technological environment. We have a small degree of control over the spread of these tools, but that control does not extend to being able to reverse, or even radically alter, the direction we're moving in.

Such determinist thinking underpins a range of different positions in educational technology. On the one hand, for some, it underpins popular claims that video games *cause* violent behavior or that social media use *leads* to antisocial behavior. These claims lead to calls to ban all computer games and prevent young people from accessing the internet. On the other hand, such determinist thinking can also be found in popular claims that new technologies are changing the world and that, in turn, educational institutions have no choice but to adopt digital technologies, designed elsewhere, for other purposes, for fear of being "left behind."

Any history of the development and appropriation of digital (or indeed any) technologies, however, makes such a determinist position untenable. Whether thinking about the development of electricity or the bicycle, the record player or the computer, there is now over 30 years of research making clear that the course of technological development is neither inevitable nor predictable and that the complex processes of using and appropriating emerging tools will lead to unexpected and divergent future trajectories (Woolgar, 2002). It is crucial to acknowledge from the outset, therefore, that there is neither an inevitable "technological future" to which schools need to adapt, nor a set of universal technological impacts from which young people need to be protected (Facer, 2011).

As such, the critical study of educational technology starts from the premise that "devices and machines are not things 'out there' that invade life" (Nye, 2007, p. ix). More emphasis is placed on understanding the development and implementation of technological innovations as set within specific social and economic contexts, instead of new technologies somehow having inevitable internal logics of development regardless of circumstance (see Williams, 1974). Following this line of argument, the critical study of educational technology accepts that there can be no predetermined outcomes to the development and implementation of educational technologies. Instead, any technological artifact is seen as being subjected continually to a series of complex interactions and negotiations with the social, economic, political, and cultural contexts that it emerges into. Before a technological artifact is used (or not) by a learner, 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. Understanding technology as being "socially shaped" therefore allows for analyses that "open up the black box of technology" (Bijker, Hughes & Pinch, 1987), which consider the organizational, political, economic, and cultural factors that pattern the design, development, production, marketing, implementation, *and* "end use" of a technological artifact (see Selwyn, 2012).

As Langdon Winner (1986) puts it, at the heart of this approach is the recognition of the politics of educational artifacts. From this perspective, tools cannot be understood as "neutral." Indeed, as Bijker and Law (1992, p. 3) assert, most people would agree that "the idea of a 'pure' technology is nonsense." Instead, educational technologies are best understood as socially constructed, shaped, and negotiated by a range of actors and interests both in their construction and procurement and in their realization and use in practice. Technological artifacts can be understood as political because they are, in material form and in practice, the outcome of competing agendas. Put simply, technological artifacts have an "internal politics." Yet, it is also important to acknowledge that these technologies also have "external politics"—that is, "they are designed to do things, to allow some behaviors and uses, and to prevent others" (Matthewman, 2011, p. 5). All technologies are designed, created, and implemented to create a type of order or settle a dispute. They are often designed to fit with a particular type of political arrangement. In a context of radical economic, political, and educational inequality, technology is usually arranged around certain values, power is centralized, hierarchies are embedded, allocation is uneven, and there are structural constraints between social classes. All of these issues constitute what Smits (2001) described as "a shadow constitution" of hidden political power that pervades any technological form.

Crucially, as we progress through the second decade of the twenty-first century it is important to recognize that the "political technologies" of today are not the obvious technologies of class struggle throughout the twentieth century—what Virilio (2003) calls the "big machines" of the industrial era, for example, the mills, the factories, the military machinery. Instead, they are the small devices of the postindustrial "technosphere"—that is, the digital devices and gadgets that now permeate our everyday lives. The politics of these technologies are often difficult to identify and scrutinize—as Steve Matthewman (2011, p. 72) argues, "Because these beliefs are embedded in the very fabric of our technologies we often fail to interrogate them seriously. Yet question them we must." A critical study of educational technology, then, is a study that treats the "tools" themselves not as black boxes with inevitable social and educational impacts, but as contingent, provisional settlements between social actors in which the wider political conditions of the period are realized and may be resisted. As Wiebe Bijker (1995) reasons, only by exploring and exposing the social roots of such technology can academics hope to make the technology amenable to democratic interpretation and intervention.

Asking "State-of-the-Actual" Questions

As implied at the beginning of this chapter, the academic study of educational technology is often drawn inexorably toward a forward-looking, "leading-edge" perspective. Digital technologies are often used as a proxy signifier for "the future" and for education's capacity to adapt to and prepare for the future. As such, many educational technology commentators, writers, and researchers tend to show most interest in what could be termed "state-of-the-art" issues—addressing questions of what might happen once the latest technologies, sufficient economic resources, and expert practitioners are placed into educational settings.

As David Buckingham (2007) and others have observed, the educational technology literature therefore abounds 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. Such research tends to cast the educational technology researcher as futurist, providing insights into worlds to come, or as designer and creator of new realities. Yet the practical significance of such avowedly state-of-the-art perspectives on new technology and education are often limited. This work offers little useful purchase on contemporary problems or insight into how present arrangements may be improved or ameliorated—usually resulting in little more than a tentative "proof of concept" that is woefully decontextualized and unrealistic.

In contrast, the critical study of educational technology retains a firm "commitment to the here and now." It reframes the problem of the future by arguing, with Miller (2011, p. 1), that "the challenge is not that we must find ways to 'know' the future, rather we need to find ways to live and act with not-knowing the future." Such an approach, as Brian Massumi observes, locates possibility and potential not in the attainment of some future utopia, but in the messy realities of the present.

> In every situation there are any number of levels of organization and tendencies in play, in cooperation with each other or at cross-purposes. The way all the elements interrelate is so complex that it isn't necessarily comprehensible in one go. There's always a sort of vagueness surrounding the situation, an uncertainty about where you might be able to go and what you might be able to do once you exit that particular context. This uncertainty can actually be empowering—once you realize that it gives you a margin of maneuverability and you focus on that, rather than on projecting success or failure. It gives you the feeling that there is always an opening to experiment, to try and see. This brings a sense of potential to the situation. The present's "boundary condition," to borrow a phrase from science, is never a closed door. It is an open threshold—a threshold of potential. (Massumi, cited in Zournazi 2002, p.211)

This temporal orientation for critical study of educational technology therefore has a number of methodological implications. In particular, it implies a need for accounts of digital technology that concentrate on developing "thick" descriptions of the present uses of technologies in situ rather than speculative predictions and forecasts of the near future. These can be seen as state-of-the-actual questions—that is, questions concerning "just what is going on" when a digital technology meets an educational setting and what institutions, histories, agents, tools, and concepts are and have been in play in this process. This approach therefore draws on traditions of detailed qualitative research and invokes theoretical perspectives that encourage attention to the rich sociomaterial practices in play and to the negotiations, conflicts, and struggles between social actors in those settings (Fenwick & Edwards, 2010). Such a perspective resists the often-abstracted approach to studying educational technology in which, as Charles Crook (2008) observes, the "spontaneous appropriation" of digital technologies by students, teachers, and others is often assumed. Instead, it encourages attention to the microlevel interactions between educators and "learners" and to the ways the local contexts frame learning processes and practices. It recognizes that technology-based learning enters existing histories and cannot be "detached from the spatial condition of common locality" (Thompson, 1995, p. 32). In this manner, the critical approach seeks to foreground attention to the way in which educational and emancipatory possibilities are realized and closed off, not in a future world, but through the choices and practices of educators, students, policy makers, and commercial companies in the messy realities of educational institutions today.

Asking Who Benefits?

The attention of the critical researcher toward the messy realities of actual practice is not oriented simply toward description or toward educational settings disconnected from wider society. Instead, it is focused on the analysis of how this reality is implicated in reproducing or unsettling wider patterns of educational, social, and economic inequality. In other words, the critical researcher is concerned with understanding "who benefits" from the introduction of educational technology. This concern therefore directs our attention toward a number of broader issues that articulate with the practices and policies of educational institutions; inter alia, it encourages attention to the way in which scarce resources are allocated in the education arena, to the way in which existing institutions of power and wealth are connected to educational practices, and to the functioning of marketplaces and the role of commerce and commercial actors in the educational technology field. It also focuses attention on the relationship between the "education industry" and the institutions of advanced capitalism, in particular, the function of education institutions in shaping and providing workforces for the labor market.

Such interests can be understood as constituting a political economy of the educational technology field. As Vincent Mosco (2009, p. 4) puts it, "The political economist asks, how are power and wealth related and how are these in turn connected to cultural and social life?" Of course, it is important not be seduced into a total state of "economism" where issues of economics and economy are allowed to overshadow all other issues. As Bernard Stiegler (2009, p. 7) reminds us, for the political economist "the question is as political as it is economic." Therefore, the best political economy accounts aim to unpack what Stiegler terms "the totality of social relations" between economic, political, social, and cultural areas of life.

One of the benefits of taking this approach is to make explicit issues of power within an area of society such as educational technology. Political-economy analysts will often concern themselves with developing accounts of emerging and established hierarchies of power and providing explanations for their legitimation. In terms of education and technology, then, the political-economy approach encourages an interest in the ways in which structures and processes of power are embedded within digital technology products and practices, as well as how the lives of individuals are then mediated by educational technologies. Important here are questions of domination, subordination, and how the use of digital technologies in education contribute to the perpetuation of existing—and often deeply rooted—inequalities. As Robin Mansell (2004, p. 98) reasons, "If resources are scarce, and if power is unequally distributed in society, then the key issue is how these scarce resources are allocated and controlled, and with what consequences for human action."

One of the key insights to be gained from political economy approach is the linkage between educational technology and the interests of capital and capitalism. Indeed, political economy commentators are traditionally interested in questions of production, consumption, work, labor, industry, marketing, and commerce (Stiegler, 2009). At one level, then, the political economy approach focuses attention on the workings of the education industry—raising questions of how the "business" of education operates and the ways that particular forms of innovation (such as digital technology) are "recruited, put to work and traded upon" (Apple, 2010, p. 30). The critical researcher, then, would use the political economy approach to raise concerns over the commercialization of technology-based education and the state-approved (and even state-sponsored) liberalization of educational technology markets to widespread global competition. It would also encourage questions about the associated internationalization of authority as national educational authorities cede control and power over educational technology arrangements to regional alliances and authorities. In particular, then, the critical study of educational technology raises questions of how digital technology is implicated in educational circuits of production, distribution, and consumption. Through all of these analyses, the critical researcher draws on political economy analyses to understand who benefits from these changes, to make visible how, where, and whether the existing relations of inequality are being reproduced and unsettled through these disruptions to educational institutions and practices.

Identifying Opportunities for More Equitable Futures

As much of the previous discussion has implied, the impetus for taking a critical approach toward the study of educational technology is rooted in the high-minded but well-intentioned aim of making education *fairer* as well as merely better or more "effective." Critical analyses therefore seek to address the fact that the use of digital technology in educational settings is often not a wholly inclusive, dialogic, or equitable process in which all actors have equal power in participating, and where all actors can determine what educational technology is or how it is used. The critical take on educational technology is therefore often driven by a desire to redress the imbalances of power that reside within most educational uses of technology. Thus, instead of indulging in what C. Wright Mills (1959) derided as "abstracted empiricism," a core concern of the critical approach is to identify, highlight, and overcome the many contradictions and conflicts that surround the use of technology in educational settings. The critical study of educational technology is therefore pursued with an overarching intention of developing culturally plausible suggestions as to how current inequalities and hegemonies may be countered, and how digital technology use in educational settings may be reshaped along fairer and more equitable lines.

This suggests a tradition of educational technology scholarship that builds upon Ann Oakley's (2000) notion of social science research that is democratic, interventionist, and emancipatory. In this spirit, the critical study of educational technology can be used to work with educators, students, and communities to identify spaces where opportunities exist to resist, disrupt, and alter the technology-based reproduction of the "power differential that runs through capitalist society" (Kirkpatrick, 2004, p. 10). Rather than locating its hope in an abstract future to be realized once all necessary economic and technological conditions are met, critical scholarship in this area instead draws attention to the creativity of the present as a resource for optimism.

Indeed, it is important to remember throughout the course of the book that these analyses are not meant to be defeatist in their outcomes. Ultimately, we have approached the writing and reading of the book in the hope of it being a constructive rather than destructive exercise. Throughout this book, we must remain mindful of the need to not merely decry the unsatisfactory state of the present, but also to consider opportunities and spaces for future critical action as well as critical scholarship. As such all the chapters in the book have been written in the spirit of offering an analysis that is able to point toward contradictions, controversies, *and* the spaces of possible action. Such an orientation is intended not to establish a new orthodoxy of educational technology (as if that would ever be possible), but rather to open up new spaces for debate about the history, practice, and opportunities for action in this arena. It is intended to unsettle the dominance of the means-end discourse of educational technology in ways that begin to allow a much wider range of social actors to claim the right to speak and contribute to the shaping of the technologies that we use in education. It is intended as the beginning, rather than the end of a conversation.

Conclusion

This chapter has attempted to make the case for a context-rich analysis of educational technology. It has argued for a research orientation that pays attention to

- the discourses and purposes of education within which educational technologies are framed, and the definitions of the problems to which they are invoked as solutions;

- the contested and unstable political processes by which "technologies" are designed, introduced, and appropriated within education;
- the messy realities of actual educational technology practice in the institutions of today;
- the political economy of the educational technology field and its implications for social justice; and
- that seeks to open up new spaces for debate with a wide range of social actors about the practices and policies of educational technology.

The chapter has shown how a critical approach allows a number of "big questions" to be asked about technology and education—not least how individual learning technologies fit into wider sociotechnical systems and networks, as well as what connections and linkages exist between educational technology and macrolevel concerns of national and global economics. In contrast to these grand concerns, the chapter has also shown how a critical approach offers a direct "way in" to unpacking the social processes that underpin the microlevel politics of digital technology use in educational settings. From both these perspectives, the principal advantage of a critical approach should be seen as the ability to develop a more socially grounded understanding of the messy realities of educational technology "as it happens." In approaching education and technology as a site of intense social conflict, a critical approach allows researchers and writers to address questions of how digital technologies (re)produce social relations, in whose interests they serve, and identify sites for resisting and unsettling such relations (see Apple, 2004).

In extolling the virtues of a critical stance on education and technology this book's intention is not to indulge in academic one-upmanship or convey an arrogant belief that one particular intellectual approach is more privileged and correct than any other. Indeed, none of the chapters in this book set out to contend that their critical approach is somehow superior to existing modes of inquiry and analysis. Rather, it should be concluded that all of the chapters in this collection offer an important additional dimension to the study of educational technology—providing an often challenging but ultimately complementary perspective to the learning-centered studies that have dominated the field over the past 30 years or so. As such, we hope that this book is received by the educational technology community in the spirit that it was intended—as a means of broadening the scope of the conversations and debates that surround the field as it enters a significant period of mainstream prominence.

Moreover, despite the grand scale of all its aims and issues, we hope that the book nevertheless retains a clarity and usefulness in its overall analysis.

Although one of the main aims of writing this book was to problematize the universalizing 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 are under discussion. One dominant theme to emerge by the end of this book is that while the educational technology is a topic that is beset by conflict and contradiction, there *is* still a clear story that can be told about education and technology. As we shall see, this is a story that is as much as about conflict as it is as about change; and that is as much about ideology as it is about innovation.

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