EDUCATIONAL TECHNOLOGY: AN ECUMENICAL STANCE

Dr Simon Shurville, AALIA(cs), CITP FBCS, FHEA
Senior Lecturer, Information Systems
School of Computer & Information Science
University of South Australia
Australia

Dr Sue Greener MBA, FCIPD, FHEA
Senior Lecturer in Management Education
Brighton Business School
University of Brighton
UK

Asher Rospigliosi
Senior Lecturer
E-Business & Management Information Systems
Brighton Business School
University of Brighton
UK

Abstract

We examine media & technological determinism in the context of educational technology. We argue that educational technologists cannot take a 'deterministic stance' and should practice ethics founded on an ecumenical view of theory and technology. Taking a cue from social cognitive theory, senior educational technologists should also visibly engage in reflective practice leading to ethical outcomes to motivate less senior members of the profession to do likewise. We note the problem that many senior educational technologists are aligned with a particular theory and/or technology, which has helped them to secure their position. They will need to change their outlook in order to address these goals & this is very hard for senior practitioners to do. We suggest that action learning might offer a supportive route to personal transformation.

Educational Technology: 'The New Work Order'

The practice of educational technology is rapidly transforming from a cottage industry into a service-based profession (Browne et al., 2008). In response to global competition, many universities are implementing flexible education (Shurville et al., 2008) and well-executed educational technology can be a key enabler (Conole & Oliver, 2006). So the members of this new profession need to deliver steadfast institutional systems offering educational & institutional flexibility (Shurville et al., 2008). In many cases this requires developing formal business processes & service agreements based upon transparent theory rather than personal wisdom. Ironically, such allegiance to theory can be unusual in higher education, as Suppes has commented: "it is often thought and said that what we

most need in education is wisdom and broad understanding of the issues that confront us. Not at all, I say. What we need are deeply structured theories in education that drastically reduce if not eliminate the need for wisdom" (1974, p. 9). The incongruity is that while educational technologists have helped to replace the infamous "sage on the stage" with the androgogic "guide on the side" (Stinson & Milter, 1996), in many cases educational technologists have adopted and maintained a sage-like persona.

To achieve diffusion of theory, the newly professionalized educational technologists require continuous personal development in the 'hard' aspects of educational technology, such as ontologies and service oriented architectures, as well as its 'soft' aspects, such as change and innovation management (Shurville & Browne, 2006; Shurville & Williams, 2005; Stiles & York, 2006) and people management within higher education (Shattock, 2003). Accordingly, the new profession needs to be examined from theoretical perspectives which encompass both its hard and its soft aspects.

This paper considers ethics and continuous professional development in the educational technology profession from the socio-technical tradition (see Bijker & Law, 1992a). Socio-technical theorists consider both the hard and soft aspects of technological systems. As Scarborough and Corbett suggest, ". . . technology is often presented as part of a spectrum which ranges from hardware at one extreme to social and organizational structures at the other" (1992, p. 3). In reality, a given technology is best thought of as an alloy of hard and soft elements. So socio-technical systems theorists acknowledge that educational technologies are designed and emergent systems composed of artefacts, people and machines.

To the extent that educational technologies *are* designed systems, we believe that educational technologists must accept a share of ethical responsibility for this design. To the extent that they are emergent systems, educational technologists must accept a share of ethical responsibility to redesign and rebuild when needed. This places the profession on a par with mature professions such as architecture.

Here we examine two potential barriers to taking such ethical responsibility viz. media determinism and technological determinism. We argue that educational technologists cannot adopt a deterministic stance and decide to excuse themselves by treating media and technology as if they represent irresistible forces whose trajectories cannot be challenged. Rather, we believe, they should practice ethics founded on an ecumenical view of theory and technology and actively divert such trajectories. As we will highlight, this might call for some major personal transformations.

We Shape Our Educational Technologies and Thereafter They Shape Us

Bijker and Law assert "our technologies mirror our societies. They reproduce and embody the complex interplay of professional, technical and political factors (1992b, p. 3). Feenberg (1991), with reference to Heidegger's substantive theory (Heidegger, 1977), argues that technology has now become our way of life and that in many instances it is an *unexamined* way of life (see also Postman, 1993).

Equally, our societies come to mirror our technologies. As Culkin commented in discussion of McLuhan's theories: "we shape our tools and thereafter they shape us" (in Stearn, 1968, p. 60). For example, in the domain of educational technology, the virtual learning environment has become a new orthodoxy (Stiles, 2007), which has ironically often constrained teaching styles towards a didactic PowerPoint© based approach. Neither orthodox virtual learning environments, PowerPoint© nor didactic teaching are inherently bad. However, we assert, the unexamined adoption of any of them is unprofessional; yet it can be hard to recognize that such ubiquitous choices warrant examination or are even examinable from 'inside the system.' Rather, such choices sometimes can just feel inevitable or unopposable, which is where technological and media determinism enter our narrative.

Technological/Media Determinism and the Determinist Stance

In this section we explain technological and media determinism and the inevitability thesis. We also introduce a determinist stance which treats technology and media as if their trajectories are pre-determined and cannot be resisted by ethical professionals.

Technological determinism (see Smith & Marx, 1995) is a philosophical position which maintains that introducing new technologies shapes societies and their structures by influencing the choices that are available to their citizens. This often happens in unforeseen or unintended ways. For example, the invention of fast food exerted significant and unforeseen impacts on health and unionized labor (Leidner, 1993), the development of networks of petrol stations and the consequent adoption of automobiles changed American sexual mores (Jakle & Sculle, 2002), and while home video recorders were invented for the home entertainment market they also helped to mediate a generation of distance education (Gallagher & Marshall, 1975).

Media determinism[1] (Chandler, 1995) is a subset of technological determinism which acknowledges that mass media can constrain a society's inputs and choices. It links closely with concerns that globalized media restricts cultural variety, a process which has been ongoing since the 15th century (Stephens, 1988). The Google China affair also shows that media determinism it is alive and well in the Internet era (see BBC, 2006).

Hard-line technological and media determinists could be said to believe in an inevitability thesis (see Chandler, 1996). This maintains that technologies, mass-media and choice of delivery medium exert forces are as irresistible as hard-line capitalists believe market forces to be. Hard-line technological and media determinism is close to the philosophical position of strong determinism in debates on the existence and nature of free will. Strong determinists maintain that free will is illusory due to the laws of physics governing our brains from an initial state set at conception through a subsequent chain of states that form our lives (see Dennett, 1984). The fact that the initial state is too complex to measure and that the exact rules of physics are unknown to us is a practical frustration but philosophically irrelevant. A proponent of strong determinism would argue that these positions offer some excuse for unethical or immoral behavior because the transgressor was constrained by their initial and subsequent mental and environmental states and the laws of physics. Hence they literally could not have done otherwise (see Churchland, 2007).

Pragmatic jurisprudence tends to ignore arguments for leniency based upon strong determinism when writing and enforcing laws to deter errant behavior (although it makes some exceptions for mental illness). Similarly, many governments, with exceptions such as Japan, attempt to regulate free markets in the face of arguments for capitalism red in tooth and claw. Meanwhile professional societies create and enforce ethical codes of practice for the production and deployment of new technologies (see Olsen, 1998; Shurville & Fernstrom, 2007; Snow & Snow, 2007).

In the philosophy of mind, Dennett coined the term the "intentional stance" to describe a pragmatic attitude that agents can take to themselves and other systems, including creatures and computer programs, when it is useful to treat them *as if*

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[1] An alternative usage of 'media determinism' describes the affordances of particular types of media that are used to deliver messages: "according to proponents of media determinism, media are not merely neutral carriers of information. Media systems & technologies contain inherent biases that profoundly influence their content & rearrange patterns of human association." (Ebersole, 2003). As McLuhan observed about the medium of print: "the theme of this book is not that there is anything good or bad about print but that unconsciousness of the effect of any force is a disaster, especially a force that we have made ourselves" (McLuhan, 1962, p. 248). Here we shall assume a convention that this second usage is subsumed by technological determinism.

they had intentions while 'knowing' at a more scientific level that this is not the case (Dennett, 1989). The pragmatic appeal of the intentional stance in everyday life derives from the fact that it allows us to make reasonably accurate predictions of future behavior of other systems based upon our mental models of their intentions.

Here we introduce the term deterministic stance, as a slight parody of Dennett, to describe a pragmatic attitude which can be taken to technology and media and our relationship to them. When adopting the deterministic stance we can agree that the inevitability thesis is correct and decide to treat markets, media, technology and *ourselves* as if we or our societal structures had no power to intervene and change their course. The pragmatic temptation derives from the fact that this appears to offer some excuse for unethical or negligent professional behavior. We believe there is no excuse for professionals to adopt a hard line determinist stance and claim they could not influence outcomes which were preordained by over-whelming technological or media forces. Instead they can and should aspire to make ethical choices and interventions when designing, evaluating and embedding new technologies. Moreover, they should certainly not contribute to technological determinism by adopting a one size fits all approach to a particular technique or technology.

The deterministic stance to technology and media is compatible with both dystopian and utopian views. Technological/media dystopians believe that new technology and media tends to constrain personal choice and access to *la dolce vita*. Technological/media dystopians might characteristically cite Google Books as a project that promised to widen access to knowledge but which, at least in the first instance, restricted the cultural knowledge to that of Anglo-American culture (Miller, 2005). Technological/media utopians believe that new technology and media tend to widen personal choice and support the pursuit of happiness (Segal, 1985). Technological/media utopians would characteristically have faith that the World Wide Web will inevitably broaden access to information and publishing in the mainstream and in education. Yet such outcomes are neither preordained in mainstream media — witness Google in China (BBC, 2006) — nor in education (Dron, 2007). Neither of these extreme views is particularly pernicious unless personal or professional responsibility for new technologies and media is avoided via recourse to the inevitability thesis. Sitting back and waiting for Google Books to solve all issues of online access to knowledge is simply not an option. Rather active engagement with such projects is necessary to ensure pluralistic access to knowledge.

Reflection in Educational Technology

We believe that self-reflection is foundational to ethical practice in educational technology. Here we advocate a grounded path to encouraging reflection within the educational technology community based upon Bandura's social cognitive theory (1986).

People reflect as a part of our natural thinking behaviors (Hall, 1997) and it is this that makes us human. From an andragogic perspective, Schon (1987) emphasizes the ideas of "reflection in action," "reflection on action," and "reflection through action," distinguishing between that which is done in the midst of action and can alter our responses and behaviors in real time, and that which takes place after an action is completed, where new views of reality can be made, producing post facto learning. Here reflection takes on a purposive flavor, a tradition, which includes Dewey and Habermas advocating a deliberate and systematic approach to reflection (Dewey, 1997; Morrison, 1995).

For reflection to grow systematically across a profession, we believe that senior practitioners need to visibly engage in reflective practice and share the process and outcomes with more junior members of the community. This promotes the ideal that personal and interpersonal learning within the work environment is an ethos of the profession. We suggest that Bandura's social cognitive theory (1986) is a widely practical philosophy that can underpin the promotion of reflection in professional settings. We believe it can provide a means to implement the goal of achieving a profession of reflective practitioners engaging in ethical practice.

Bandura identifies self-reflection as a uniquely human ability, making it a vital part of his social cognitive theory (1986); he saw it as a way in which people could think, learn and take control of their own actions. At the time, this was part of his reaction against the constraints of prevailing behaviorist theories, which suggested that individuals were at the mercy of external stimuli and deep-seated inner drives. In parallel we believe that social cognitive theory also shows that individuals can reflect and take action in the face of overwhelming external forces such as perceived technological/media determinism.

Social cognitive theory considers the power of human agency in life's achievements, beliefs and outcomes. In proposing reciprocal determinism among personal emotional and cognitive factors, actual behavior and the environment in which this happens, he envisages a complex feedback mechanism. What people believe about their capabilities, what they see other people achieving around them, (and how they identify with those people), how they assess prior performance of tasks, their estimation of the skills and knowledge they possess, and the community in which tasks are to be achieved — all these factors will interact. The

outcomes affect choices of what will be undertaken, how people feel about approaching the task, & how much effort they are likely to put into it.

Bandura's ideas of self-efficacy relate to the social psychological thinking of Weiner (1974), in turn based on Heider's work in 1958, who, in attribution theory, attempted to explore how we attribute causality to outcomes such as achieving success or failure. Self-efficacy in Weiner's perspective would be affected by levels of self-esteem which, in turn, would determine how individuals attribute success to internal or external, controllable or uncontrollable factors — in fact what we might blame for failure and rate for success. As in social cognitive theory, intentional behavior must first be noticed, and then follows a filtering process to decide whether the behavior can be attributed to the situation or the individual performing it, i.e., an external or internal locus of control. This thinking sets up a feedback loop which affects how an individual rates their chances of success or failure. For example, if they are confident, they may see success as caused by an internal, uncontrollable factor such as ability, whereas failure would come from external uncontrollable factors such as complexity of task, or internal controllable factors such as effort put in.

Social cognitive theory clearly emphasizes the social impact of others' behavior on learning, showing that attention given to others' behavior is affected by the observer's perceptions of similarities or differences between the observer and the actor. If attention is achieved, retention of this observed behavior in memory will be made possible by the observer's ability to symbolize, making sense of the action and relating this to their own relationship to the action (e.g., past experience or skills and knowledge required). Reproduction of this behavior is compared with the retained memory of that observed behavior. Whether the modeled behavior is reproduced will be mediated by incentives (or disincentives) from the external environment, from the actor, the individual's self-efficacy beliefs or other influences in that environment, as well as the individual's emotional and physiological state.

In the context of professional practice, if senior members of a profession visibly act upon self-reflection to generate ethical professional behavior and also emphasize their similarities with new members of the profession, then we can appeal to social cognitive theory to predict that these new members of the profession will be highly motivated to become reflective practitioners. In the face of deterministic attitudes, professionals who wish to engage in 'transformational' learning, facing head-on the passive acceptance of commonly accepted technologies and ways of using them, must fully understand the context in which this acceptance is forged. Mezirow (2000) suggests that this contextual understanding involves historical, cultural and biographical factors and is an enabler of self-directed reflective and transformational learning. To challenge

dominant views within an institution may require radical reframing and the development of partnerships across disciplines within the institution. Social cognitive theory offers attention to the behaviors and perspectives of others, in addition to processes of collaborative and individual self-reflection as enablers to serious change. And there lies the rub.

Ecumenicalism in Educational Technology

Diana Laurillard has observed that learning ". . .design has to be generated from the learning objectives and aspirations of the course, rather than from the capability of the technology" (2002, p. 22). Here we paraphrase Laurillard to suggest that educational technology should be generated from the needs of the stakeholders rather than from the capability or interests of the technologist. The problem here is that recognizing the limitations of one's capability or interests and envisaging alternatives can be a tall order even for highly educated and experienced decision makers.

As Argyris (1991) famously observed, senior professionals find it especially hard to learn to change, partly because few people are willing to risk suggesting that they need to change and even fewer of these people bring sufficient status to exert the necessary influence. This observation is especially apposite for senior academics because "among the paradoxes that abound in academia, one of the most curious is the apparent coexistence of radical chic with entrenched conservatism" (Becher & Trowler, 2001, p. 97). Such conservatism is often justly supported by fears that new approaches will increase workloads, reduce status and cause redundancies (Evaline, 2004). In the case of senior educational technologists changing mindset and role description to that of a service provider can certainly increase workload and reduce status.

It can be hard for senior educational technologists to commit to change their approach. For example, it is common for senior educational technologists to have been research active and to have achieved a reputation. Hence their senior position can be predicated on their involvement in the development of a particular theory or a particular educational technology. Once such senior educational technologists are asked to lead an institutional service it can be hard for them to abandon allegiance to that particular theory or educational technology and undertake a more pluralist approach to educational technology. If they do so, then the quality and quantity of their publications is likely to suffer and hence their local status and their status in the wider community will plummet.

It is essential that ethical professionals accept that there limits to the efficacy of purely reflective practice because their own viewpoint and experiences are only a part of the multiple viewpoints and experiences that could pertain to particular

projects. Ethical professionals need to examine each project from a variety of perspectives, methodologies and technical options. This means remaining open to external ideas that critique their favored views. This is where group reflective approaches such as action learning can be beneficial (for a recent overview of action learning see Pedler et al., 2005). We realize that implementing action learning can be difficult because there are only so many senior educational technologists in a particular town or city. So online action learning, which is an emerging area of practice (Pedler et al., 2005), might offer a means for senior educational technologists to self-organize their professional development & to learn by challenging one another in a trusted environment.

Perhaps, then, it is only by taking courageous steps away from evangelizing their own research and towards adopting an ecumenical stance that senior educational technologists can transform their practice into a profession?

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