ISSUES AND CHALLENGES IN EDUCATIONAL USES OF SOCIAL SOFTWARE

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world

W. B. Yeats, “The Second Coming”

In this chapter we explore some of the risks and dangers of using social software. We have touched on some of these already in our discussion of each of the social forms, and in our stories—out-of-control feedback loops, privacy, identity, safety, reliability, access, usability, and a host of other issues have emerged in the context of the tools, methods, and systems we use in social learning. In this chapter we focus on issues that arise within an institutional education context, rather than in purely informal and non-formal learning, because many problems are a result of the clash between novel adjacent possibles and the baked-in norms, methods, and behaviours that have evolved in a different evolutionary landscape. The fact that you are probably reading this as a book rather than a more socially mediated form demonstrates that we are in a period of transition, where old ways of thinking and learning are overlaid on and co-exist with the new.

DISRUPTION AND CHANGE

Institutions seldom accept with relish major changes to practice, especially those that impact long-held norms and beliefs, and resistance is common. C. Christensen observes that disruptive innovation, of the sort we are observing here, is almost never successfully developed and adopted within existing
systems (1997; Christensen et al., 2008). This is not surprising, because disruptive innovations are nearly always initially worse than the existing systems with which they compete. Most technologies evolve primarily by assembly, slowly gaining in complexity and sophistication. Only rarely do novel innovations come along, and when they do, they are nearly always less compelling, functional, or useful than what they replace at first. As Arthur (2010) explained, it was around twenty years before jet engines were able to compete with their piston-driven propeller forebears, and at first, they did so in separate, non-competing niches. Educational systems may be viewed as complex adaptive systems, and like ecologies, novelty rarely survives unless the evolutionary landscape changes or they are introduced from a different ecosystem.

Disruptive innovations can therefore only take root where they are allowed to incubate without direct competition with existing technologies. Christensen cites the growth of microcomputers which, he claims, initially targeted children and gaming systems in order to establish a market where they could evolve without clashing head-on with the monolithic mini- and mainframe computers that already had the adult market well sewn up. Net, set, and collective technologies used in learning have evolved outside the educational system in social networks, Q&A sites, blogs, and wikis, filling niches not already taken. Some, at first, crept into the educational system unbidden and are hardly noticed as they sow seeds for change: Wikipedia, the Khan Academy, and other social systems present faces sufficiently similar to existing models that are the thin end of a wedge to prise open educational systems to new technologies.

Net, set, and collective-oriented social technologies for learning, as we have seen, demand a different way of thinking about the learning process than those built for groups. The whole apparatus of institutional learning, including the processes and methods used in schools, universities, and colleges, is a highly evolved set of technologies that does what it aims to do very well. Social technologies designed to support net and set modes of interaction, when placed in direct competition with other tools such as purpose-built learning management systems built to fit with the other technologies of education, will likely fare poorly. In particular, there is a mismatch between the technologies of institutions and those of network, set, and collective-centred social systems. Technologies such as classes, timetables, hierarchical management, assessments, lesson plans, and teacher-oriented pedagogies are unlikely to be well catered for by tools that centre on individuals and networks. This puts a brake on change and progress. It is exacerbated because existing systems such as Moodle, Blackboard, and Desire2Learn
are highly evolved monoliths that perform a wide variety of functions and are purposely incorporating a growing number of tools that, superficially, look like network tools: wikis, blogs and similar features are increasingly included in such systems. However, though the tools may look and act in a similar manner to their counterparts in the wild, the group-based teaching that they are intended to support changes them. They use the same tools, but they are different technologies with different purposes, utilizing different phenomena with subtly different functionalities. Moreover, they are combined with different assemblies, and it is the assemblies that matter more than the parts of which they are comprised. Wheels appear in many different technologies, but it is the cars, watches, boats, cookers, and doors that matter to us, not the fact that they all contain wheels of some sort. It is the same for blogs and wikis: simply providing a tool as part of an assembly does not necessarily make that assembly into a different kind of social technology.

If we are to make effective use of networks, sets, and collectives within an institutional setting, then the greatest impact will be achieved by supporting needs and interests not already catered to by a well-evolved and entrenched set of tools. Potential niches within a formal setting include:

- Inter-/cross-disciplinary learning (e.g., support for using common research tools, cross-course projects, etc.)
- Learner-driven (as opposed to syllabus-driven) pedagogies
- Beyond-the-campus learning (incorporating others beyond the institution, whether formally or informally)
- Beyond-the-course learning, supporting disciplinary activity and interest across cohorts
- Self-guided research
- Self-organizing groups (e.g., study groups)
- Just-in-time learning
- Enduring committees, clubs, and student organizations
- Peer support (e.g., for learning to use research tools, computers, etc.)

**INSTITUTIONAL CROSS-CUTTING CLEAVAGES**

One of the first issues typically raised when a social software system is proposed that empowers students to share with others relates to dealing with posts that are critical, abusive, illegal, or objectionable—especially if the system allows public viewing beyond institutional boundaries. However, we have rarely experienced anything like this, either at Athabasca University or the University of Brighton.
Tens of thousands of posts have been created, almost none of which caused problems for others or threatened the institution, and none, so far as we know, included intentionally malicious or harmful material. Far from it: for the most part, public posts have served as an advertisement and invitation, something to be proud of, not hidden. We do, however, acknowledge the harm caused by bullying, especially in school systems.

Perfectly legitimate posts, taken out of context, can be offensive or disturbing for others using the system. Most university courses in the arts and humanities actively encourage students to explore complex adult issues and, in many cases, be provocative. In the comfort and safety of a role-controlled, group-based LMS, such posts are read by others with an understanding of the context, course requirements, expectations and norms. When this moves into a network, or worse, a set mode of engagement, posts that are made visible beyond the group might be seen out of context and may not be understood or may be deemed offensive by others. Discipline boundaries may make this more difficult to address. For instance, a religious student who is using a social media system as part of her course and treats it as an extension of the classroom—a safe space, a functional tool—especially if she objects to, say, swearing, may not appreciate a work of art posted by a student of fine arts deliberately constructed with profanities and blasphemies to challenge sensibilities. Some respond to this kind of problem with a knee-jerk reaction of censorship, asking for tools to hide such things, while others suggest self-censorship or tutor regulation of activities, but that denies the point of the provocative piece in the first place. Such anomalies are rare but important, affecting the beliefs, opinions, feelings, and relationships of individuals within a social system. This relates closely to the problem of contextual ambiguity.

**Contextual Ambiguity**

Within an institutional setting, learners are constantly switching between different groups, networks, and sets, in a far more diverse and discontinuous manner than, say, when engaging with a social network of friends or people in similar businesses. A single tool that supports group, network, and set modes of interaction can soon become an unwieldy and confusing space unless it has been carefully designed to take these discontinuities into consideration. Traditional learning management systems, being group-oriented, carefully divide spaces into well-defined, course-oriented segments. Social networks base their design models on the assumption that a single individual has a single network, a single persona, a single facet that
is displayed, with more or less filtering, to others. Some systems, such as Elgg, Google+ or, in an inelegant way, Facebook lists, explicitly recognize the discontinuous nature of networks and offer support for filtering different content to and from different people, but these are simply filters: the underlying presentation of content does not vary, it’s just that some people see more than others, and some content is preferentially displayed depending on its originator. One very common way to get around this problem is to use different tools for different groups, nets, and sets. However, this raises important issues: it becomes significantly harder to maintain and for users to master, especially given the fact that groups, nets, and sets often overlap with one another in multiple dimensions, so similar lists of the same people may often recur in different systems. It also raises the spectre of duplicate functionality.

We have created a range of solutions in Elgg for the problem of contextual ambiguity clustered under the umbrella term of “context switching” (Dron et al., 2011). The tools allow anyone to switch between different social and personal learning contexts, and to show different things to different people in different ways. Tools include tabbed profiles, dashboards, and group profiles, which allow an individual or a group to organize their learning life into separate spaces, each built with highly configurable widgets. These spaces may have different appearances and display quite different content and, crucially, may be visible to different people. The circle-like collections that allow people to create sets of networks make this highly configurable: people can reveal what they want to reveal, how they want to reveal it, and to whom they want to reveal it too easily and fluidly. Different dashboards can also be configured to make navigation and retrieval easier as a user switches from task to task. We have added many different widgets that make it possible to show fine-grained results not just from personal content but also from networks, groups, and sets that are of interest. We have also created a “set” tool that enables people to group collections of related content together so that they can more easily represent different interests and identities to different people.

“DUPLICATE” FUNCTIONALITY

One of the largest problems that we have faced in encouraging uptake of the Landing at Athabasca University is that it is perceived to offer little that is different from other systems in use at the institution. This is a valid concern. It is, for example, possible to use email to replicate almost anything that can be done
with social software, from a discussion forum to an LMS or social networking system. However, the complexities of doing so for anything that departs from one-to-one or one-to-many messaging are immense, requiring a great deal of effort, interpretation, and coordination by people involved in the dialogue, and slowing the pace to the extent that, for many uses, would be highly impractical. For email to be a shared repository, for example, every recipient would have to keep a copy and organize it in a way that would make it easily discoverable when others refer to it; in contrast to the simplicity of sharing a web page or link to an online repository, this is clearly a poor approach. The same is true of many tools, especially when they provide rich toolsets. For example, an LMS may offer messaging (like email), chat (like an instant messenger), wikis, blogs, discussion forums, bookmark sharing, file sharing, and many other tools duplicated in social systems. Conversely, Facebook may provide many tools that are similar to or improve on tools provided by an institutional LMS. The toolsets that we use for different networks such as LinkedIn, Google+, Facebook, Bebo, Hi5, or MySpace may offer very similar functions to one another, or subsume others. Most systems have Twitter-like microblog variants, for instance. However, quite apart from the different networks and sets that inhabit these spaces, there are very few cases where systems are drop-in replacements for other systems. All have some differentiating value in terms of access control, role systems, aesthetics, usability, price, manageability, tools, long-term prospects, support communities, capabilities for integration, and so on.

Faced with a potential infinitude of alternatives, it makes no sense to choose them all. This is especially true of social systems, where the fact that someone is using one system may act as a disincentive to use another, and make it pointless to do so: if everyone in the world were using a different, non-interoperable social system, then they would not be social at all. In an ideal world, tools would be interoperable so that one could be integrated with any other, and any community could extend its tool use in any way appropriate to the social form. Where possible, such interoperable, mashable, and connectable tools should be used. However, real-world decisions seldom provide this luxury. Apart from the ability to use tools together, there are few general rules for making decisions about which to choose. We have found our framework of social forms very useful in establishing criteria and heuristics for selecting appropriate technologies. For example, our selection of an Elgg system was due to the lack of support within Moodle for set and net modes of engagement. However, this left us with many further choices to make. We list a number of weighted criteria here that may be useful to others...
faced with similar decisions, but it should be borne in mind that the context of every decision of this nature will strongly determine important factors, and this is far from an exhaustive list:

- Cost
- Support (internal and community/company)
- Potential longevity
- Control (personal, and at group level)
- Usability
- Accessibility
- Import capacity
- Export capacity
- Interoperability with other systems
- Device support
- Learnability
- Diversity of tools
- Scalability
- Hosting (local, cloud)
- Access control and role models
- Network/set/group features

We encourage those who are trying to decide whether to implement social tools in their learning, and which to choose, to extend and amend this list to fit their own constraints, interests, and contextual concerns. When selecting the technologies for the Landing, we gathered stakeholders together and asked them to contribute the things they wished to see and what they wished to avoid in the new system: our list was many times longer than the one presented here. Every socio-technical context will be different and should be dealt with on its own terms.

**Privacy and Social Software**

Many a parent has been shocked by the personal disclosure exhibited by their children on networked social software sites. Do they really want the whole world to see the pictures or read about their antics at last weekend’s beach party? Will they want those images retrieved in ten years, when the not-so-young person applies for a new position or runs for public office? The affordance of cyberspace to provide and in some senses become a personal newspaper, radio, and television station broadcasting 24 hours a day to a global audience raises very profound
questions about privacy, openness, and identity. The persistence of digital data on a network, and the fact that it may be seen in a very different context from its original posting, makes this a pressing concern. For many of us, the Net forces a profound rethinking of privacy and public identity. Privacy issues have likely been of interest since prehistoric times, when we shared our caves with others. The advent of both mass and personal communications has served only to speed up and magnify these concerns.

In his ground-breaking work, Altman (1976) noted the interest in privacy from many discipline perspectives shown by citizens, social institutions, and governments. He lists three ways in which privacy is defined and understood. To some, privacy revolves around exclusion, the avoidance of others, and keeping certain types of knowledge away from others. A second definition focuses on control, individuals’ abilities to open and close themselves to others, and the freedom to decide what aspects of themselves are made accessible to others. Paradoxically, privacy is not defined merely by the presence or absence of others, as is implied in the sense of being anonymous or “lost in the crowd.” Likewise, privacy is not valued in and of itself; it is relative to changing needs. An ultimately private life might look like a sentence of solitary confinement in jail, or being shipwrecked on a desert island. Finally, privacy is not static: each of us has moments when we desire both more and less of the presence of others, and similarly, there are times when we want to share more or less of ourselves and our ideas. Thus, Altman’s second definition, with its focus on privacy as choice and control, suggests we need mechanisms that allow us to control the boundaries in time, space, perception, and communication so we may selectively open and close ourselves to both general and particular sets of “others.”

Altman also describes the systems, tools, and behaviours we use to create, defend, and appropriately modify our sense of privacy to align with our ever-changing needs. He notes three types of boundary tools. The first use verbal and non-verbal behaviours: we invite others to enter or to leave our individual spaces. The second is built upon on environmental constraints we build and inhabit such as doors, fences, and speaking platforms. Finally, Altman notes cultural constraints, such as the type of questions that are appropriate to ask, the loudness of voice, and the amount of physical touch we use to build and reinforce interpersonal boundaries that culturally define privacy spaces and practices. Each of these boundary behaviours has evolved over millennia and been finely honed by evolutionary selection. The Internet, however, has evolved with breakneck speed,
and has created privacy concerns with which we have had little experience, nor enough time for us to evolve appropriate boundary tools and systems.

Palen and Dourish (2003) invite us to unpack our concepts of privacy for a networked context. They note that “with information technology, our ability to rely on these same physical, psychological and social mechanisms for regulating privacy is changed and often reduced” (p. 130). If we return to Altman’s three sets of boundary tools, we see that each is fundamentally altered by network affordances. Verbal and nonverbal behaviours certainly change in networked contexts, and their diversity, from text messages to immersive interaction with avatars, makes generalizations challenging. Most notably, networked behaviours span boundaries of time. A Google search reveals not only the comments I made this week or last, but reveals my comments from years past. Given that the boundaries I use to protect and define my privacy comfort zone are ever-changing and context-dependent, it is important that I know who threatens these barriers, so that I can raise the appropriate level of boundary protection. Unfortunately, such awareness of others is often not possible on the Net. The searcher of my name can easily be a trusted colleague, a potential new friend, an aggressive salesman, or an identity thief. Furthermore, the audience changes over time. Trusted colleagues one year may become aggressive competitors the next, and information that I may be proud to share this year may prove highly embarrassing in the years to come. Worse still, the place where I left private information may change its privacy rules and technologies without me being aware of this. Many users of Facebook, in particular, have suffered because of the network’s ever-shifting privacy controls that have often revealed more than they originally intended to different people.

Environmental boundaries also are morphed in cyberspace. All but the most tightly encrypted activity in cyberspace leaves traces. Many Net users use multiple email addresses and maintain multiple identities in immersive environments and open social software sites so that they can contain these traces. Passwords, access to members and friends, and other security tools replace locks and keys from the physical world but fill similar functions. And just like in the real world, locks, doors, and barriers require active maintenance and attention to adequately serve as boundary defenders.

The cultural boundaries are perhaps most profoundly altered in networked contexts. There are as yet only emerging standards and social norms that are acknowledge and adhered to by Net citizens. For example, many of us have different standards with regard to email functions such as use of blind copies, forwarding messages with or without approval, and the release of our own email addresses...
or those of others. In even newer contexts such as SecondLife, World of Warcraft, and other immersive environments, social and cultural practices are constantly evolving and altering, and currently these customs change while millions of new users are exploring these environments.

We see that the maintenance of privacy and the boundary tools that we use in the networked world are in many ways markedly dissimilar to those we encounter in real-life contexts. Thus, it should come as no surprise that privacy issues are a major concern for all who use the Net, and perhaps especially so for those using social software tools for both formal and informal learning.

Many social software suites allow users to set privacy controls on personal information, permitting them to effectively select the amount of disclosure they allow and to what audience this information is revealed. However, studies are showing that the majority of users do not alter these privacy settings, leaving the default settings of the system (Govani & Pashley, 2005). In a 2005 study at Carnegie Mellon University of over 4,000 students registered on Facebook, Gross and Acquisti (2005) found “only a small number of members change the default privacy preferences, which are set to maximize the visibility of users profiles” (p. 79). Govani and Pashley (2005) found that over 30% of university students in the US had given permission for people they had never met to be their “friends” on the popular social networking site, allowing these strangers access to their entire profile, containing contact information, photos, and other personal details. As awareness of the dangers increases, however, users are becoming more careful. A US-based Pew Internet Study in 2011 revealed that 58% of adult users of social networking sites limited access to only friends, 26% of them adding further access controls, and another 19% making them partially private (Rainie & Wellman, 2012). Even so, this still means that 23% of users make no effort at all to control their privacy.

It is interesting to speculate on the reasons why users are not more actively constraining the visibility of private content. This is likely not because of a lack of awareness about the problem, given the coverage in the popular press on issues related to identity theft and cyber-stalking. In a 2007 qualitative study of Facebook users, Strater and Richter found that “while users do not underestimate the privacy threats of online disclosures, they do misjudge the extent, activity, and accessibility of their social networks.” (2007, p. 158). The participants in this study did realize that posting personal information could have negative repercussions, but they assumed (often incorrectly) that such data was only accessible to a selected group of trusted friends. One might also wonder about the user-friendliness and
design of social software tools. It may not be clear to users exactly who has access, and perceived as difficult to restrict access further. But what is more likely is that those users realize the value of social software increases in proportion to their support for connections with new and current friends and acquaintances. The balance is always a trade-off: many social software systems provide their services in return for information about individuals.

Taken to its logical conclusion, those most concerned with privacy would not participate in social networks at all, and indeed, this does happen—we have relatives who avoid all but personal communication online. Thus, we can assume users need very flexible systems that allow them to hide and reveal information at a low level of granularity, both in regard to the nature of the information and the membership of the various audiences who are allowed access to it. These decisions are very personal, and defy generalizations based on socio-demographic details. For example, the authors release their cellphone numbers only to a small group of very close friends and family. Yet for others, their mobile number is very public knowledge and is listed in many places on the Web just as many home phone numbers appear in paper-based telephone directories even today. We also provide information to select and changeable audiences. For example, we might share our calendars with associates at our workplace, but would withdraw this if either we or our colleagues left our current place of work.

PRIVACY AND TEACHERS

The mismatch between the social forms of classroom groups, with their formalized hierarchies and social networks and sets, has led to many difficulties for teachers, especially in schools. The formal relationship between teacher and student causes difficulties for some when teachers disclose information about their personal lives, reveal preferences and interests outside the professional context of the classroom, and engage in social chat with students. Indeed, recognizing this mismatch, the makers of Facebook provide explicit advice on separating the formal context of the teacher from the networks of their students (Dwyer, 2009). We understand that the formality of teacher–student relationships can lead to difficulties in a network context that, in extreme cases, lead to teachers losing their jobs, or at least their credibility in the classroom. Many teachers deliberately refuse to accept “friend” requests from students and former students for this reason. On Athabasca Landing, we deliberately renamed “friend” as “follower” in order to address the fact that there are complex ethical and practical issues for some
teachers and students treating one another as friends. However, the corollary to this issue is that a blurring between student and teacher networks can allow richer, longer-lasting, valuable relationships. By enabling students to see their teachers as human beings, warts and all, they can gain a clearer idea of what it means to be a lifelong learner, to see that education is not divorced from life but is an integral part of it.

The notion that teachers should be role models is deeply embedded in the way the profession is viewed in society, but we question the value of a role model who demonstrates secrecy, and by implication, hypocrisy. We believe that teachers should present themselves as they are, not as they should be. Institutional values need to be seen in a human context, not as aspirational rules but as lived behaviours. This is not to suggest that teachers should reveal every aspect of their private lives. Context matters, and some things are rightfully kept private from some people. But the notion that the solution to the problem is to keep everything secret to the extent that we reject personal connection with those we teach is taking secrecy too far, and represents a failure to embrace an adjacent possible that can greatly enrich the learner experience.

WHY DO PEOPLE DISCLOSE?

“Several objects motivated blogging in our sample. Bloggers blogged in order to:

1. Update others on activities and whereabouts.
2. Express opinions to influence others.
3. Seek others’ opinions and feedback.
4. ‘Think by writing.’

The previous sections reveal that the control of privacy is a challenging and ongoing task. Effective management must work at a number of levels and entails a partnership of software designers, ethical and attentive systems managers, and knowledgeable and empowered users.

The design constraints of this context focus on three challenging propositions:

1. There is no single control setting that meets both the privacy and dissemination needs of all users.
2. There is no single control setting that effectively both secures and exposes all of the components of my personal profile and contributions or postings I wish to share.

3. There is no single setting or control that effectively both secures and exposes information over an extended period of time, since users’ needs are subject to change.

The first constraint leads naturally to the solution that each individual should be able to easily set the privacy controls over personal information. While such a solution works for informed adults, it presents further challenges when educational social software systems are used by children who require either institutional or parental guidance.

Linked with concerns about privacy, and in some sense predicating them is the notion of online identity. Increasingly, we establish a range of online identities across social networks, on the websites that we visit, in our email systems, and in the online group tools we use. Despite efforts to consolidate identities through systems such as OpenID, Facebook Connect, Twitter, or Google+, those who choose to engage with cyberspace have to deal with multiple ways of revealing identity across different contexts. Our own context-switching approaches are one way to deal with this (Dron et al., 2011), but the bulk of solutions involve using different social systems and tools for different purposes.

**Trust**

Beyond issues of privacy and identity, networks and sets (in particular) raise issues of trust and security. We have already observed that one of the most significant issues driving the use of collectives in networks is to establish faith in the credentials of those with whom, and from whom, we learn online. The popular press is full of examples of ways that trust can be broken online, notably in the behaviour of some pedophiles and other stalkers in cyberspace, who take advantage of the many-to-many strengths of the Internet combined with the potential for anonymity to achieve nefarious ends. While we hope such problems are rarely present in learning communities, it is vital to their success that learners feel safe and secure when learning. Learning outcomes are far more easily achieved if, in particular:

- One trusts the skills and capabilities of a teacher, both in subject matter and in pedagogical abilities
- One feels safe from attack or lesser antagonism by one’s peers
Learning is, by definition, a leap into the unknown, and the unknown is scary. While we may justifiably be scared by what we know is harmful, what we don’t know is often scarier. It is a sensible evolutionary adaptation that makes us fearful or wary of dark places and novel situations: until we gain awareness of the potential risks, it is safer to assume that danger may be lurking than that there is no danger at all. This is only true up to a point, of course—risk avoidance also means opportunity avoidance, so it is more an issue of being wary than of not doing anything that might be dangerous. It is also true that many of us positively relish the tingle of fear that comes when starting a new learning trajectory, the thrill of uncertainty that comes with learning something new, but again, only up to a point. This is perhaps itself a learned behaviour, something we have come to recognize as a result of previous successful experiences, probably with the kind of assistance and safety that a teacher provided, even if we have now learned to teach ourselves.

One of the many roles played by teachers and teaching institutions is to provide reassurance and a measure of safety. This is an essential process: if the only way we had to learn how to swim, perform surgery, ride a bicycle, or hunt a wild animal were to actually do so in real life, then far fewer would survive the process. Any child who has learnt to swim by being thrown in at the deep end is unlikely to have a very comfortable memory of the process, even though it might have been tempered by an underlying trust in the one doing the throwing. While learning about medieval history, how to be a teacher, literary criticism, or how to play the piano may lack the risks and dangers of the previous examples, there can still be fear involved, if only of failure to achieve our learning goals.

Whatever the risk factor of our learning is, nevertheless, it is helpful to be led by one who we believe knows the paths. We need teachers not just because we can achieve more with the aid of an expert—remember Alan Kay’s warnings about the danger of a “chopsticks culture,” when learners are provided with technologies but no examples from which to learn (1996)—but because the expert reduces uncertainty and/or reassures us about what we do not know, and offers us the security of knowing someone will be there to catch us when we fall. Similarly, if there are fellow travellers, we usually want them to, at the very least, not wish us harm in achieving our goals. We need supportive fellow learners not just because they help us to explore perspectives, including our own, but because they reduce the danger. We generally feel more comfortable when entering an unknown place or situation if there is someone else we know and trust with us.
All of this leads to some interesting problems in networked learning. We have seen that collective approaches can help in establishing trust, but when learning and engaging with others, it is the purely human and social processes of communication that we fall back on. Different cues in what people say can help: it is usually obvious, for example, when someone is being provocative, flaming, or trolling. Equally, it is generally clear when someone is using dialogue to be supportive and helpful. Unfortunately, when the former has occurred, it may poison us against a particular community or network, reducing our willingness to participate. We, the authors, have experienced some responses to our thoughts and discussions on the subject of this book in a networked environment that were discouraging, infuriating, or just plain useless or irrelevant. Partly we are supported by each other, partly by a belief that the medium is worth persisting in, and partly we have been inured to such things over many years of participation, but it is easy to see how such experiences might dispirit someone feeling uncertain and insecure. Indeed, if it happens often enough, it may prevent them from wanting to participate at all in any network.

This is a larger problem than it might be in a closed group context because our networks are typically joined and borderless, so withdrawal from one network may mean withdrawal from others. To make matters worse, there are subtler problems than simple antagonism. People may use a network as a platform to discuss things that do not interest us, get sidetracked by things we consider irrelevant, or simply talk at a level that is either beneath or above us, leaving us feeling alienated or bored. The very diversity that gives networks much of their strength also, potentially, contains the seeds of their demise. Much of the work that we have performed in the area of context-switching and context awareness has been an attempt to reduce such dangers by allowing people greater control of how and what is disclosed, and with whom it is shared.

ACCESS ISSUES AND THE DIGITAL DIVIDE

Although access to cyberspace is fast becoming the norm in both highly and less-well developed countries, the majority of people in the world still do not have access to an Internet-connected computer. This proportion becomes significantly smaller when we take into account those with mobile phones but, despite over 2 billion broadband-connected mobile devices, most cellphones used at the time of writing have limited access to the totality of cyberspace, and that still leaves billions with limited means to access even a small part of it, let alone the Internet whether
for economic or political reasons. This remains the case despite the growth of services like U2opia (www.u2opiamobile.com) that bridge the gap by allowing Facebook or other service access through traditional “dumbphones.” The topic of mobile telephones raises a further concern that there is much inequality in access speeds and the capabilities of machines used to gain access to cyberspace.

What can be reached and how fast it can be accessed with a basic cellphone is far less than what can be achieved with a top-of-the-line laptop or tablet with a high-speed connection. The massive growth in such technologies seems set to continue for some time to come, but inequalities will still remain even when, by 2017, it is projected that a broadband connection will be available for almost everyone on the planet (Broadband Commission, 2013, p. 14). In the authors’ own country (Canada), the majority of the population is at least able, if they wish, to gain high-speed access to the Internet, but even in this highly developed country, there are huge areas where dial-up or, surprisingly often, satellite access is still the only option available. This immediately discounts a wide range of the technologies we have written about, including VoIP telephony, videoconferencing, live web meetings, immersive 3D environments, and more, as well as making even common websites, especially those using rich media, Flash, or AJAX technologies, unbearably slow to access. Having said that, access to more basic technologies like books, desks, and even pencils remains an issue in many parts of the world, so the problem is not new. Moreover, while the costs of initial access remain relatively high and still beyond the reach of some poorer families, once a connection is made into cyberspace, the cost of networked information is typically much lower than that of traditional books (Renner, 2009).

At Athabasca University we are making the transition from paper to electronic books and have calculated that, even given publishers’ often exorbitant textbook prices (whether electronic or on paper), the cost of a good e-reading device, whether a tablet or dedicated reader, will be offset after the purchase of two or three textbooks for an average course, while the cheapest tablets now cost significantly less than a typical textbook, and come with access to tens of thousands of free books from sites such as Project Gutenberg. Such devices offer more than just an alternative means of reading; they also provide access to the Web, email, and many other facilities of cyberspace. While many issues remain, such as the cost of network access, the availability of infrastructure, and the complexity of calculating environmental impact relative to the cost of paper, storage, and transport needed for books, the accelerating move to ever greater cyberspace access for an ever-increasing diversity of people seems inevitable for economic reasons alone. There are large economic and gender inequalities that must be overcome but we
are already at the point where access to the Internet is more widespread than to a decent traditional education, especially at higher levels, and so we are optimistic about the future. We hope that the ideas we promote in this book, particularly as they apply to networks, sets and collectives, may suggest ways that learning can happen without a formal educational process, enabled by the massive growth in socially-enabled technologies that is bound to occur.

MOBILE LEARNING

Mobile technologies offer many affordances. A modern smartphone is far richer than the average personal computer in its input capabilities (e.g., voice, video, velocity, direction, text, geo-location, Bluetooth, Wi-Fi, cellular networks, and more); even the simplest cellphones offer text and speech capabilities. Cellphones are typically with us all the time and smartphones allow us constant, uninterrupted access to cyberspace. At the same time, they have at least as many limitations as affordances, such as small screens, deeply incompatible standards, limited processing power, limited battery lives, expensive tariffs and overly diverse interfaces. With some exceptions, content developed for the Web needs to be re-presented for use on cellphones. Indeed, content and applications developed for one make and model of cellphone may fail to work on another, even from the same manufacturer. Despite the growth of popular platforms like iPhone, Blackberry, Windows Mobile, and Android, most applications will fail to work across even two of them, let alone all.

There are pedagogical challenges too. It would be wrong to suggest that the migration from traditional media to the Web was unproblematic, but it was a far simpler transition process than it now is from the Web to mobile platforms. Partly this was due to the fact that most uses of digital technology in education, as in other industries, do not show an imaginative leap when presented through a new medium: the typical LMS is a classic example of the “horseless carriage phenomenon,” a mirror of existing face-to-face processes in an online environment, with little heed for the affordances of the medium. The small-screened, incompatible devices with awkward systems at best for text input do not succumb so neatly to mimicry, apart from some limited contexts such as language learning. As technologies such as Twitter Bootstrap (twitter.github.com/bootstrap/) that allow multiple representations of content for different devices become more prevalent, awareness of these issues is increasing and the tools to address them are more widely available.
The global nature of networked environments poses a range of challenges to many of our legal systems in different countries, states, and provinces. We have seen in recent years a sharp reaction from governments to the increase in network freedom new technologies allow. From the extreme black hole of North Korea and the censorship activities of China, to the subtler scrutiny and control of the US (as evidenced by the provisions of the Patriot Act), governments are becoming more active in controlling the use of the Internet by their populations. Even in relatively libertarian countries such as Canada and the UK, service providers are required to keep records of activities that may be scrutinized with, some would argue, insufficient concern for the rights of citizens.

Copyright (Cross Country/State/Province Concerns)
The increasing economic value of videos, blockbuster novels, and sound recordings has provoked governments to respond to pressures from their media and cultural industries to increase the length and enforcement of copyright protection for intellectual property. This has resulted in extensions of the exclusive but temporary monopoly granted to creators to market their intellectual products in many parts of the world. As a result, educators have had to wage extensive battles with copyright owners, who are often major for-profit publishers, rather than content creators, to assert their right to Fair Use of content for education and research purposes. Recently in Canada and elsewhere, the tide seems to be turning, and courts and legislatures are realizing that allowing dissemination, review, and critique in the education system actually enhances and stimulates the development of cultural and intellectual content, which was the original aim of copyright legislation.

Also of increasing importance is the capacity to lawfully share intellectual products while retaining some or all copyright, typically through various Creative Commons licensing schemes. It is a tragedy that so much potentially valuable educational content lies unused and unusable, not because educators or other creators want the product to be restricted from educational use, but because, prior to the Net and Creative Commons licenses, there was no cost-effective way to share it while retaining rights such as attribution, restriction from others commercially exploiting the product, or changing parts and then redistributing product.
Openness, Interoperability, and Integration

We should disclose a personal bias at this point: the authors of this book are strong advocates of open sharing of knowledge, and chose AU Press at least partly because it is committed to making its books available freely for education and non-commercial download. In a social learning context, a lack of openness can cause difficulties. For example, if a wiki has been worked upon by multiple authors, then ownership is hard to ascertain and the solution in a non-open context is often to default to that of the service provider—a university, publisher, or closed company. This situation both reduces motivation to contribute, because contributors do not have control of distribution, and prevents the free flow of knowledge. The issue becomes more complex when data are aggregated and re-presented, as may often occur when, for example, pulling in and re-displaying an RSS feed. There is a tension between personal ownership, the social capital that accrues as a result, and the sharing of knowledge that is essential for learning to occur.

The issue goes beyond simple questions of ownership, however. It is not quite enough that we own and share the data we produce: we also have to be able to re-use it, integrate it, and re-present it. For this, protocols and standards such as TinCan, OpenDD, Europass, RSS, and Atom are required to enable the easy movement of data from one system to another. Unfortunately, many proprietary systems are deliberately designed to make such transfers difficult. As is often the case, the dominant social software provider at the time of writing, Facebook, is one of the worst offenders: although user pressure has forced the company to allow people to export their own data, it is in a form that cannot easily be re-used in a different and potentially competitive social system. Facebook, Twitter, and other commercial systems often assert some degree of ownership over the content produced by their millions of users, and their business models are based on analysis and sale of “their” content. This is one of the reasons that boutique systems such as the Landing are valuable, because they make it possible to return ownership to users. However, efforts to do this on a larger scale, such as Diaspora, have failed to gain momentum so far.

Cultural Considerations

Despite a widespread feeling that we inhabit McLuhan’s global village, cultural identities remain strong. As with personal identity, we are typically not just part of a single culture, but engage in many cultures in many contexts. One of the most popular means of distinguishing differences in cultures comes from Hofstede
(2001), whose study of a multinational corporation across 40 different countries revealed five distinct dimensions of culture. Of these, the dimension that showed most variation and has been frequently verified and observed in other studies (Church, 2000; Triandis, 2004) is the collectivist/individualist dimension. In individualist cultures, people see themselves as separate individuals and prioritize their personal goals over those of others, motivated by personal needs, goals, and rights—culture in the US, though diverse, provides a classic example of this set of behaviours, but it may be found in most Western cultures. In collectivist cultures, on the other hand, people see themselves as parts of “collectives” (note that this is not in the technical sense that we have used the term, but rather used in a more general social sense) such as families, organizations, tribes, and nations. Their motivations are more closely aligned with those of their social aggregations, and are driven by norms, duties, and expectations of these groups, nets, sets, and collectives.

Indian culture, though arguably even more diverse than the US, provides a good example of a more socially oriented set of attitudes. Given the great differences between cultures in this dimension, one would expect significant differences in uses of social networks, and this is indeed what we find (Kim, Sohn, & Choi, 2011; Vasalou, Joinson, & Courvoisier, 2010). Even more significant, from a learning perspective, is what happens when people with divergent cultural attitudes inhabit the same virtual spaces. Many of these differences are masked because social groupings need to share a common language. But, increasingly, as English competencies are developed by citizens of all nations in the world, we expect to see more confrontations and misunderstandings resulting from differences in this collectivist/individualist dimension. This is particularly significant inasmuch as, to a greater extent than when meeting face to face, obvious signals that a person belongs to a particular culture may be less prominent or not be observable at all.

Social software is only part of a learning system: content, behaviours, norms, existing social forms, and many other factors play strong roles in determining the shape it will take. Because of the way that structure can determine or influence behaviour, there is a risk that a social software system designed with one set of cultural expectations in mind may work against the dominant (or conversely, dominated) culture that uses it. Conversely, where a strong culture exists, it may undermine the effectiveness of software built to support different needs. Where, for example, as in India it is the cultural norm for teachers to be treated with a particular kind of respect (Jadhav, 1999), a system that deliberately equalizes participants in a learning transaction may cause discomfort to some or all participants.
Author Dron experienced this firsthand when working in a cross-cultural collaboration between English and Indian computing students in the early 2000s, where different norms posed a major threat to effective collaboration (Singh & Dron, 2002).

After trying and failing to encourage discussion through closed forums, at least partly because such exchanges were not the norm in India, a large part of the solution to this problem was to use a set-based, topic-oriented collective bookmarking application, CoFIND, that largely anonymized interaction and required little direct contact beyond cooperative sharing. By focusing on a shared topic of interest to both groups of students, many of the social differences and imbalances could be safely ignored, while both groups benefited from the process. This topic-oriented sharing was a common denominator that reflected common practice among students in India, where sharing of notes was common but challenging the wisdom of elders, including those within the student body, was frowned upon or caused discomfort. This was in almost total opposition to the more constructivist, guide-on-the-side approaches taken with the UK group, where argument and conflict were seen as part of the process. As a result, what little dialogue there was when these cultures were blended was stilted and strange. On a smaller scale, we have observed that cultural expectations of teachers by learners trained to stand up and bow to their professors can make for a similarly strange and stilted dialogue in an open learning environment like the Landing. The fact that some students, especially those from collectivist cultures, feel uncomfortable addressing us as anything other than “Dr. Dron” or “Professor Anderson” overlays a different kind of ethos to that of the casual, first-name culture we typically encourage and that students from more individualist cultures more often find easier to adopt. This tendency is exacerbated by the formal context of institutional learning that reinforces and sustains roles and hierarchies, regardless of the equality we deliberately encourage on the Landing. Like all cultural differences, there is huge variety to be found among individuals and a great deal of blurring between cultures, but the propensity of groups to converge on norms and develop groupthink behaviours means that such behaviours can spread in both directions. Whether this is a good or a bad thing depends on one’s perspective and the context of the group. On a good day, it can help to provide a sense of membership and commonality. On a bad day, it can clash with the pedagogies and processes intended to bring about learning, either by preventing easy sharing or by causing discomfort to those for whom such sharing may feel unnatural.
Lost Souls

Sherry Turkle’s book, *Alone Together* (2011), is a tightly argued warning against the alienation and increasing separation between people that cyberspace technologies can create. As we increasingly cease to engage in physical spaces, often preferring the convenience and controllability of SMS, email, messaging, social networks, and other forms of electronically mediated interaction, the breadth of our social interaction increases while becoming shallower, less engaged, less human. Our knowledge of others becomes what they choose to represent with avatars and profiles, abbreviated and edited, essentially a narcissistic performance where friendship is measured in quantity rather than quality. This is indeed a worrying trend, though Turkle’s arguments are diminished somewhat by studies that show those who engage more online and through mobile devices also spend more time in face-to-face interaction (Rainie & Wellman, 2012). There are also notable benefits for those who have found communities and engagement with others who would otherwise have found it difficult to do so (Wei & Lo, 2006) and huge benefits that Turkle acknowledges in sustaining relationships at a distance (T. H. Christensen, 2009). However, even when active users of social media have extensive contact with others in person, that face-to-face time may not be full engagement. We have all sat in public spaces surrounded by others who are at once with us but also texting, messaging, and talking to people at a distance on cellphones and tablets. Whether or not we find this disturbing, for distance learners something is usually better than nothing. Without such technologies, many distance learners would be far more isolated than they are.

Information Overload

The ease with which information can be shared is both a blessing and a curse. In a formal course setting, students with who tutors might have had sporadic and formal contact in the past may now require or at least expect far more attention. One of author Dron’s students, studying the “benefits” of social media in online learning, proudly proclaimed the effectiveness of her intervention by pointing to increased satisfaction levels, greatly improved grades, and deeper learning outcomes. On further investigation, the interview responses quickly revealed the reason for this. For instance, instant messaging was seen as especially useful because, according to one responder, “It was wonderful to be able to contact your teacher any time, even after midnight.”
One of the greatest benefits of social media lies in their potential to create richer channels that let great teachers do what they do best. However, dedicated online teachers are rapidly drowning in a torrent of interaction where there are no longer quiet times of the day, no longer holidays or conference times when they cannot be contacted. Some have taken email sabbaticals, or specified online hours during which they will attempt to reply, but the torrent continues for most of us regardless of good intentions to constrain our availability to others. This is an unfortunate result of the combination of network and group forms.

The group form typically includes, as part of the implicit or explicit rules that govern it, the requirement for a teacher to be responsive and demonstrably caring. That expectation has, however, arisen in a controllable environment in which caring need only be evidenced during class and office hours. More network-oriented social media such as social networking tools, blog comments, and email increase both the volume of traffic and the expectations of a response: the many-to-one nature of the engagement can quickly overwhelm a teacher. It is essential for the network-engaged teacher to make response time expectations clear at the outset and, in designing learning experiences that incorporate the crowd, to ensure that there are opportunities (and expectations) for others to answer questions and discuss issues.

A similar problem afflicts the online learner. A popular connectivist MOOC can generate hundreds of posts a day, and sorting the wheat from the chaff can be a major problem. Collectives can help a great deal in this case, however, providing assistance in filtering and searching for dialogue.

FILTER BUBBLES AND ECHO CHAMBERS

We have already written of some of the ways that the Matthew Effect and preferential attachment can lead to mob stupidity rather than wise crowds. The perils of groupthink, echo chambers in which we only hear what we choose to, and the blind leading the blind are particularly problematic in a learning context (Pariser, 2011). Network and set forms of engagement remove the comfortable assurance of accredited sages telling us what to learn and how, replacing it not only with the difficulties of deciding who and what to trust but also a set of dynamics that may actually make things worse by their very nature. In a formal learning context, it is therefore of vital importance that teachers challenge and refocus students who are led to low fitness peaks and into filter bubbles.
CONCLUSION

We have solutions to some of the risks of a networked learning environment, but many risks and uncertainties still remain. The greatest risks all come back to difficulties in understanding the nature of social engagement in social media. Excessive content is often a direct consequence of superimposing a network or set form on that of the group, without adjusting the processes and methods used by the group. Privacy concerns often occur as a result of misplaced assumptions in a closed group, when in fact the social environment is net-like, or worse, set-like. Alienation and separation occur when people mistake Net-enabled interaction for relationships in meat-space (i.e., the non-cyberspace “real world”). Shifting contexts become hidden in simplistic, one-dimensional models of identity provided by many networked social environments. Collectives, used uncritically, are as likely to lead to stupid mobs as they are to wise crowds, perhaps more so, and the dangers of filter bubbles creating echo chambers where vision becomes narrow are great. We hope that the clearer understanding of social forms we have provided in this book will help networked learners and teachers to at least be aware of the risks and be more mindful of the ways that they engage. These issues will continue to emerge as technologies develop in years to come. With that in mind, in our final chapter we move on to discuss current and projected innovations that are currently emerging, providing new challenges as well as exciting opportunities.