

Education Letter

A publication of the Faculty of Education

Spring/Summer 2017

In this issue...

Pedagogies in a Fluid Digital Age ... 1

Listen Academic! Against the New Elites 4

Theological Posthumanism and Atheistic Education 7

Technology and Multimodal Instruction 10

An Australian Perspective on the Need for Balanced and Informed Debate on ICT in Education 14

Pencil Code: A great tool for implementing computer science into the classroom 18

Teachers' Self-Directed Online Learning: Cognitive Processes and Experiences 21

Designing Digital Humanities Projects that Increase User Motivation and Engagement 25

Pedagogies in a Fluid Digital Age

Comments from the Editor: ROSA BRUNO-JOFRÉ,
Queen's University Faculty of Education

The digital revolution brought a transformational wave that touched even our vision of the human condition, blurred the contours of the divide between inner life and the outside world, and generated a new sense of connectedness. Out of necessity, conceptions of education and pedagogical approaches have been challenged in its wake.

The content of this wave was nourished by the historical context that in the long term had framed the development of the digital age: the long 1960s included concerns with critical mindedness, rights, and the common good, and introduced new relationships between epistemology, politics, and counterculture. However, as Daniel Rodgers writes, the social shock waves of the long 1960s, which unsettled culture and society, “did not, in the end, set the forms into which the shaken pieces would be recast” (Rodgers, 2011, p. 4). Rodgers qualifies the 1960s as a moment of break, or rupture, but the articulation of a different set of premises and themes would be the work of the era that followed (2011). In fact, the long 1960s gave way, in the early 1970s, to neoliberalism, the notion of market as regulator, consequent stress on individualism over notions of the common good—seen as an aggregation of individual interests—and intense globalization, fed by technology. Intellectually, in the 1970s and early 1980s, feminists and post-structuralists in the Western world were engaged in epistemological searches that challenged traditional humanistic scholarly work and through this the categories of social thinking were recreated. The intersection of the political and the personal, the intellectual turns, the heritage of the 1960s, and the new reading of diversity set the stage for a debate on the educational canon—the expansion of curriculum (which in the United States took the shape of “cultural wars” that involved schools, school prayers, immigration, and a new, religious language of patriotism).



Untitled by Alan Wilkinson, Queen's Faculty of Education

Technology opened a door to expose our lives, enabling us to build a malleable self-fashioned identity, expose the self to the public, create a digital self, and experience a digital way of being.

The canon in Canadian universities dramatically changed in the 1990s, moving beyond Western-centric and male-centered approaches to decentered ones, destabilizing certainties. Social constructivism gained a place in academia. The Canadian social context had also gone through drastic changes that demanded new directions, while generating new tensions.

The digital age amplified the social implications of the ideological, socio-economic, and intellectual changes as well as the dimensions of “liquid modernity” (Bauman, 2015) and the enactments of its possibilities. The arenas of debate became global and transnational. It was the “age of fracture” (Rodgers, 2011), generated by the disaggregation of categories of womanhood and race and by a fluid notion of identity that would reflect subjectivity. Technology opened a door to expose our lives, enabling us to build a malleable self-fashioned identity, expose the self to the public, create a digital self, and experience a digital way of being. This new subject became used to an interplay of exposure and surveillance. These new ways of being deeply affected our understanding of education and teaching and learning. These are related issues that we need to tackle in our process of rethinking educational aims and pedagogy. In this digitally networked world, our students bring a new sense of connectedness with an illusory quality, beyond the warmth of the flesh. Furthermore, the internet, with its magical qualities, has generated within this new world of simulacra a new aesthetic. The challenge is the reconstruction of a democratic life in this setting, which currently sits at the intersection of profoundly anti-democratic and discriminatory tendencies. The digital medium serves both.

There is a need to look at the development of this new way of being historically, in order to rethink conceptions of education and educational aims—endeavours somewhat neglected in favour of hollowed notions of quality and effectiveness. It cannot be done in this one issue of the *Queen’s Education Letter*, but the issue opens the conversation on two fronts: first, by placing education in relation to democracy albeit succinctly, and by situating us in relation to the post-humanist debate; second, by discussing new pedagogical modalities afforded by technology, namely new practices and their limits. Thus this issue of the *Education Letter* opens with historian Josh Cole’s article “Listen Academic! Against the New Elite”, in which he calls attention to current practices in academic social media, and states, in his claims regarding democracy, that “we will get nowhere unless we recognize that ‘education for democracy must itself be democratically controlled’.” This is followed by philosopher Sam Rocha’s *Theological Post Humanism and Atheistic Education*, wherein he reflects on the fashionable conversation about the post-human projections of the digital age of education, which “often implies that education will go the way of the human and fade away.”

The articles on pedagogy are led by philosopher Nicholas C. Burbules’ *Technology and Multimodal Instruction*, drawing our attention to the tendency toward standardization, which runs contrary to what we know about different styles, contexts, and subject matters—knowledge that should move us away from “just one right approach to teaching and learning.” With this in mind, Burbules explores multimodal approaches

("multimodal" meaning more than the use of multimedia). Next, in *An Australian Perspective on the Need for Balanced and Informed Debate*, historian of education Tom O'Donoghue examines concerns about information and communication technology (ICT) as well as the positive argument in its favour. He writes about the need to think critically about the way technology affects students' lives, including the substitution of virtual reality for reality, the diminishing of the scope of intimate interaction and the absence of cultivating solitude.

Tommy Martin-Edwards brings to this issue the voice of a practicing elementary teacher in California. His contribution entitled *Pencil Code: A Great Tool for Implementing Computer Science into the Classroom* is directed at teachers. Talking from his own practice, he writes about how the Pencil Code, an online collaborative programming tool with an easy to navigate interface, straightforward language, and extensive resources, allows the teacher to use the product as an instructional tool without having to become a computer specialist. Pamela Beach, professor of language and literature at our Faculty, contributes *Teachers' Self-Directed Online Learning: Cognitive Processes and Experiences*. She explores three dimensions of Garrison's Model—self-monitoring, self-management, and motivation—as overlapping constructs of self-directed learning. Ina Ghita, a social media manager and doctoral student at the University of Barcelona, a graduate from our M.Ed. program, shares her thoughts in *Designing Digital Humanities Projects that Increase User Motivation and Engagement*. She addresses the need for system design within digital humanities projects to allow for presence and immersion, personal achievement, and social

This issue attempts to provide various facets of the pedagogical issues encountered by educators in the digital age without neglecting the contextual complexities and the fluidity of changes in our way of being. We are just starting to recreate our understanding of education and pedagogies, bringing to them a critical democratic edge in light of a dramatically different historical setting.



Yet Surfacing Now by Alan Wilkinson, Queen's Faculty of Education

REFERENCES

- Bauman, Z. (2015). *Liquid modernity*. Cambridge, England: Polity Press.
- Rodgers, D. T. (2011). *Age of fracture*. Cambridge, MA: The Belknap Press of Harvard University.

We are just starting to recreate our understanding of education and pedagogies, bringing to them a critical democratic edge in light of a dramatically different historical setting.

Listen Academic! Against the New Elites

JOSH COLE, Queen's Faculty of Education

But there is another 'social media academic' on the rise: often white, usually male, junior professors on the tenure-track. They use new media to entrench and extend their elite status by attacking scholars who differ from them ideologically, as well as non-academics who dare to disagree with them on any front.

The academics have arrived on social media. Tens of thousands of them can be found on Twitter, Facebook, and other fora of the “second media age”—communications driven by “digital, optic-fibre and packet-switching technologies,” the “normalization of satellite-based communications,” and “global positioning” (Poster, 1995, p. 2). Many academics—including those previously left out of the conversation due to their racial, class, or gender status—use the ‘new’ media to present their scholarly work to students and the public at large, and for commenting on sociopolitical issues. This is good. But there is another ‘social media academic’ on the rise: often white, usually male, junior professors on the tenure-track. They use new media to entrench and extend their elite status by attacking scholars who differ from them ideologically, as well as non-academics who dare to disagree with them on any front. I’m less interested in condemning such behavior than explaining why the new academic elites are with us, and what can be done about them.



Here I am! Aqui Estoy! by Joaquin Gogorza

The 1920s might seem to be an odd place to begin a conversation about politics and media in 2017, but we live in odd times. During the former period, a group of “democratic realists” gained considerable influence by arguing that the post-WWI world was too complex to be managed by ordinary people. Democracy was a “burden” to be carried by the “responsible administrator” alone (Westbrook, 1991, p. 299). We are in a similar situation in 2017. Post-Brexit and after the election of Donald Trump, a new crop of realists seek to save civilization in our name. As one particularly troubling article in *Foreign Policy* has it, “It’s Time for the Elites to Rise up Against the Ignorant Masses” (Traub, 2016). The new academic elites could not agree more.

The current political trends are not simply a return to the 1920s. To understand our new academic elites, we must consider how academia itself has changed in recent decades. Before WWI, universities were peripheral to North American life. Global war changed all that. University intellectuals proved their worth by creating radar, optical glass, refrigeration, poisonous gases, and eventually, the technical architecture for what would later become the internet. During the long-1960s (1945–75), the university became a crucial part of the ‘welfare state’. Though technocratic expertise was respected during this period that admiration was balanced by a healthy skepticism. The public was aware

that Nazi Germany and Soviet Russia were technocratic dictatorships and they were wary of repeating this pattern in North America. Thus, in universities, the liberal arts were emphasized over more utilitarian subjects, for this was the how one learned to think critically in a dangerous age.

Ironically, the welfare state was brought down by a perceived failure of expertise. With the arrival of stagflation (high inflation, high unemployment, low demand) in the early 1970s, many argued that it was no longer capable of controlling social and economic problems. The solution was to re-introduce market mechanisms into government through deregulation, anti-unionism, and the commodification of culture. Thus we arrive at our present neoliberal moment, in which ‘universal’ social goods are rendered anachronistic, and society itself dissolves into a mere collection of disassociated individuals.

The university has been hollowed-out by this process. In the “post-welfare state university”, pure science and the liberal arts have been downgraded in favour of more utilitarian subjects. Public funding has dried up, replaced by the ‘commercialization’ of the university. Professors are divided into a handful of research stars and an army of part-time instructors with little hope of advancement. Students suffer the most, as they pay more (through rising rates of tuition) and receive less than their predecessors did even a generation earlier.

As the university thins out under neoliberalism, the second media age is generating new educational possibilities. Knowledge can now be gleaned from anywhere or anyone. Time and space are moot. This ‘global village’ harbours dystopian potential, of course, and yet this is dwarfed by its utopian promise. The dream of earlier pedagogues—to make all of life educational—is now conceivable. This will not happen automatically. Standing in the way are the new academic elites, who see no problem with asymmetries of power in the Ivory Tower or online. Rather, it’s a playground in which they stand out as “autonomous entrepreneur[s] in the market” of ideas, shoring up cultural capital by stomping on those they consider lesser than themselves. This is clear echo of a neoliberalism in which education and everything else is reduced to “business ‘partnerships,’ patents . . . serving customers, and downsizing labor” (Williams, 2014, p. 40). It’s tragic that this is what passes for public intellectualism in 2017.

In the 1920s, John Dewey beat back the temptation of elitism. Like the democratic realists, he saw the need for scientific clarity in moments of historical upheaval. But he also saw that elitism is anti-educational and anti-democratic. For Dewey, progress consisted in the mastery of social problems through collective inquiry, not through the efforts of any special class of individuals. Formally trained academics had a crucial but limited role to play. They would clarify problems and offer up solutions as part—but only a part—of a rational society. Dewey understood that democratic politics and democratic education have the same root: a mutual relationship between critically inquiring subjects, not between subject and an object (the elite professor and the average person) (Westbrook,

Professors are divided into a handful of research stars and an army of part-time instructors with little hope of advancement. Students suffer the most, as they pay more (through rising rates of tuition) and receive less than their predecessors did even a generation earlier.

1991, pp. 313–315). We don't need our elites. We do need populism, however. We will get nowhere unless we recognize that "education for democracy must itself be democratically controlled," and that intellectuals do their most important work by making the rest of the population understand that "the fight for democracy is its own" (Vlastos, 1950, p. 33). Otherwise, we are truly lost.

REFERENCES

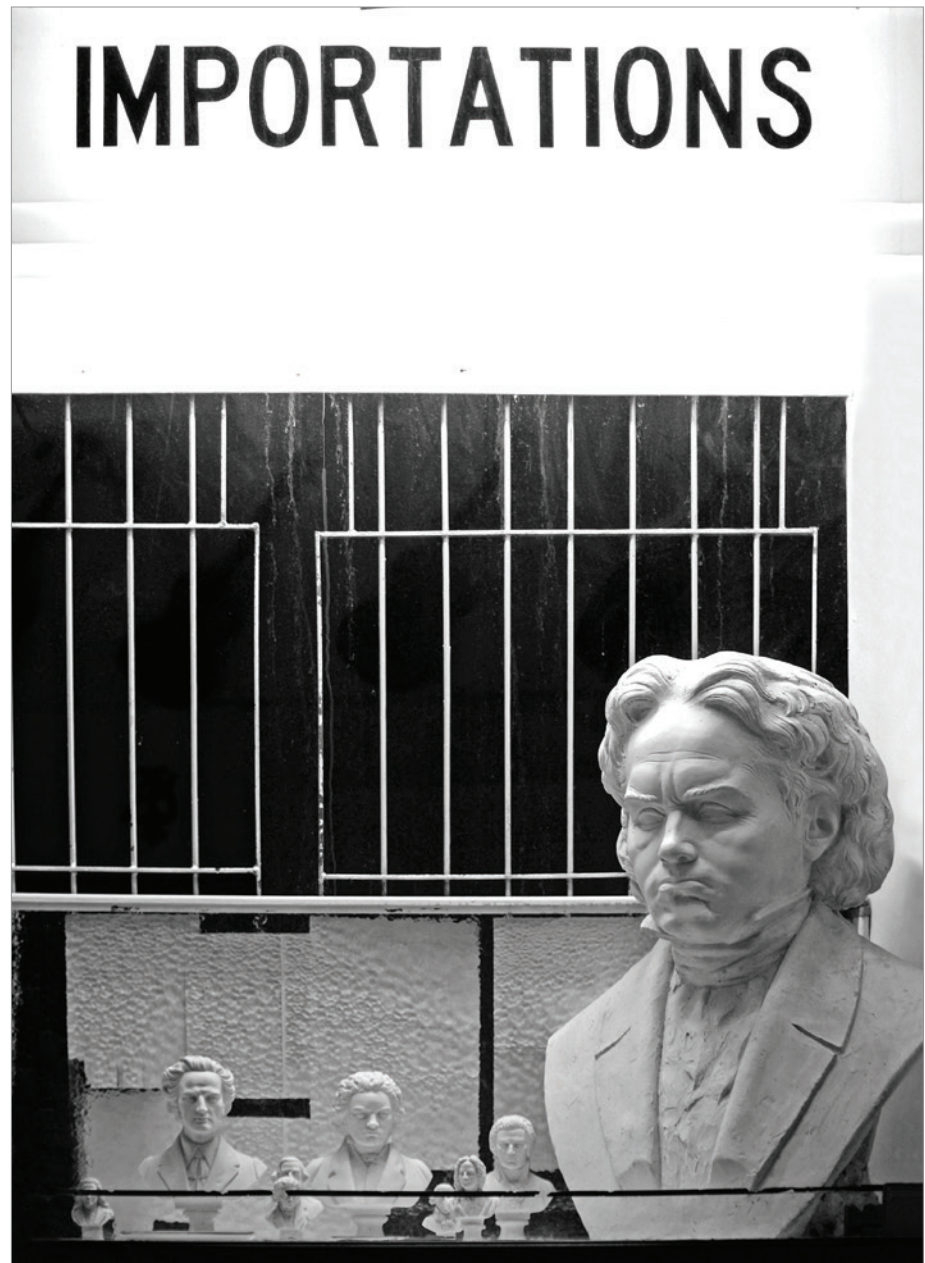
Poster, M. (1995). *The second media age*. London, England: Polity.

Traub, J. (2016, June 28). It's time for the elites to rise up against the ignorant masses. *Foreign Policy*. Retrieved from <http://foreignpolicy.com/2016/06/28/its-time-for-the-elites-to-rise-up-against-ignorant-masses-trump-2016-brexite/>

Vlastos, G. (1950). Implications for adult education. In J. R. Kidd (Ed.), *Adult education in Canada* (p. 33). Toronto, ON: Garden City Press Co-operative.

Westbrook, R. B. (1991). *John Dewey and American Democracy*. Ithaca, NY: Cornell University Press.

Williams, J. J. (2014). *How to be an intellectual: Essays on criticism, culture, and the university*. New York, NY: Fordham University Press.



Importations by Alan Wilkinson, Queen's Faculty of Education

Theological Posthumanism and Atheistic Education

SAMUEL D. ROCHA, University of British Columbia

The recent emergence of posthumanism within educational theory carries overlapping and competing sources and meanings. There seem to be two senses of what is meant by the term *posthumanism* that touch on the digital world we are said to be living in and what future, if any, education might have in it.

In the first sense, posthumanism refers to a theoretical and dystopian critique of the humanism it imagines as instrumental in causing the “Anthropocene,” the epoch when humans begin to cause direct ecological and geological harm. Posthumanism of this sort is critical of the Protagoras’ dictum, “Man is the measure of all things,” arguing that it articulates the harmful core of humanism’s anthropocentric (i.e., human-centered) mentality. On this view, posthumanism functions as a political and ethical correction to the ideas it attributes to humanism where human persons dominate the world and become the horizon of that world. I will call this the *anti-Protagorean* view of posthumanism.

The second sense of posthumanism is a concrete implication of technological and biomedical advances of the natural and applied sciences, including digital computation and simulation. This version of posthumanism is radically futuristic, verging on science fiction. It claims that we are transitioning away from the era where the limit of existence for a human person was an exclusively human form of humanity, a form distinct from other forms. Using examples of robotics, artificial intelligence, and prosthetics, this form of posthumanism points to an era when the human person has options for its existence that extend beyond the human. For instance, I could choose to not have a human leg and replace it with something we could call a posthuman one, with an entirely different function and form. Likewise, objects like computers could acquire the qualities previously exclusive to humans and in this sense also be considered posthuman. I will call this the *Jetsons* view of posthumanism.

These views of posthumanism are not mutually inclusive nor exclusive. The anti-Protagorean view works across theories of objects and reality in Object Oriented Ontology, Speculative Realism, and New Materialism. The Jetsons view works across competing claims of philosophers of science, scientists, and futurist venture capitalists. All cases seem to carry radical implications for the future of education, the most radical being the future of no future at all for education as we know it. However, on closer inspection, both senses of posthumanism rest on theological assumptions that are gravely flawed. These flaws suggest that posthumanism, in both senses, could be understood as symptomatic of an old set of theological anxieties and presumptions about what it means to be a finite human being as opposed to being an infinite God. Facing these perennial questions, the humanistic vision of an atheistic education provides a timely and durable response.

What I mean here by “atheistic” is evident in the belief held by many religions that there is a God and that we are not that God. The final clause, “we are not God,” is an atheistic claim religious and non-religious humanists share. In what follows, I will demonstrate some flaws embedded in the theological implications of posthumanism

The second sense of posthumanism is a concrete implication of technological and biomedical advances of the natural and applied sciences, including digital computation and simulation.



In Our Own Image by Alan Wilkinson, Queen's Faculty of Education

and close by pointing towards the tragic hope of atheistic education as an appropriate humanistic response to it.

The anti-Protagorian view of posthumanism is exposed as unpersuasive when one considers the meaning of “Man is the measure of all things.” On its own, it does seem to indicate a total supernatural dominance of humans over nature. But this reading misunderstands the obvious contextualized meaning. “Man is the measure of all things” is ultimately a reaction *against* the idea that the gods are in control of the natural world. This statement does not mean to superimpose humanity over everything but, instead, to wrest human freedom away from a superstitious theological determinism. Posthumanism of this anti-Protagorian sort cannot simply begin with humanism as its negative antithesis without first understanding the opposition to theological determinism that makes humanism uniquely atheistic, demanding an atheistic sense of education. To be more persuasive, the anti-Protagorian view of posthumanism must account for pre-humanism, i.e. the view in which humans are denied freedom and agency by the Gods. Interestingly, if not ironically, the anti-Protagorian view tends to almost back itself into a prehuman state, where ecological and natural forces become deified. At the very least, it would be helpful to understand how this posthuman restoration of the Gods is understood and justified.

The Jetsons view of posthumanism suffers from a similar flaw. It fails to account for the element of human freedom, not in relation to a mythological set of Gods, but, instead, to the causal and creative relation of the human to the posthuman. In the case of the prosthetic limb, for instance, the human limb is in a real sense far less “human” than the hyper human prosthetic substitute that is a purely human creation. This shows how the shift from humanism to posthumanism in the Jetsons view fails to account for the hyper humanity that, similar to the anti-Protagorian view, deifies humans in a way humanism could never do. (Unlike the anti-Protagorians, however, the Jetsons seem less concerned about this and even appear to celebrate it.) When the world is taken over by machines, the posthumans become the new *imago dei* (i.e., beings made in the image of God), humans become their creators and, in this ontogenetic sense, Gods.



New Time, New Hope | Nuevo Tiempo, Nueva Esperanza by Joaquin Gogorza

The digital age of education has produced posthuman projections of a future that often implies that education will go the way of the human and fade away. The fiery apocalypse or YouTube will educate us all and gone forever will be the teacher, rabbi, imam, and priest. The anxiety of this theological vision of posthumanism is in some ways understandable, but its recent popularity can only be understood when wrapped within the durable and even tragic hope that humanism in all its forms has always defended, producing an atheistic education appropriate for those of us not so willing to go extinct or become immortal just yet.

The digital age of education has produced posthuman projections of a future that often implies that education will go the way of the human and fade away. The fiery apocalypse or YouTube will educate us all and gone forever will be the teacher, rabbi, imam, and priest.

Technology and Multimodal Instruction

NICHOLAS C. BURBULES, University of Illinois, Urbana-Champaign

An underexplored aspect of new teaching and learning technologies is their ability to support multimodal approaches to instruction. In these comments I'd like to explore five ways in which these technologies can help diversify and broaden our ideas about teaching, about class communication, and even about what a "course" is.

This approach runs up against a persistent myth in education, the search for the One Best Approach to Teaching. Ranging from conservative, technicist approaches, like Direct Instruction, to progressive, radical alternatives like Summerhill or critical pedagogy, advocates of one approach or another would like to see the entire educational system modeled on their principles. Our common trend is toward standardization. Yet this aspiration runs up against what we know about different learning styles, different contexts, and different subject matters that should make the idea that there could ever be just one right approach to teaching and learning a counterproductive myth.



Flower Warehouse by Alan Wilkinson, Queen's Faculty of Education

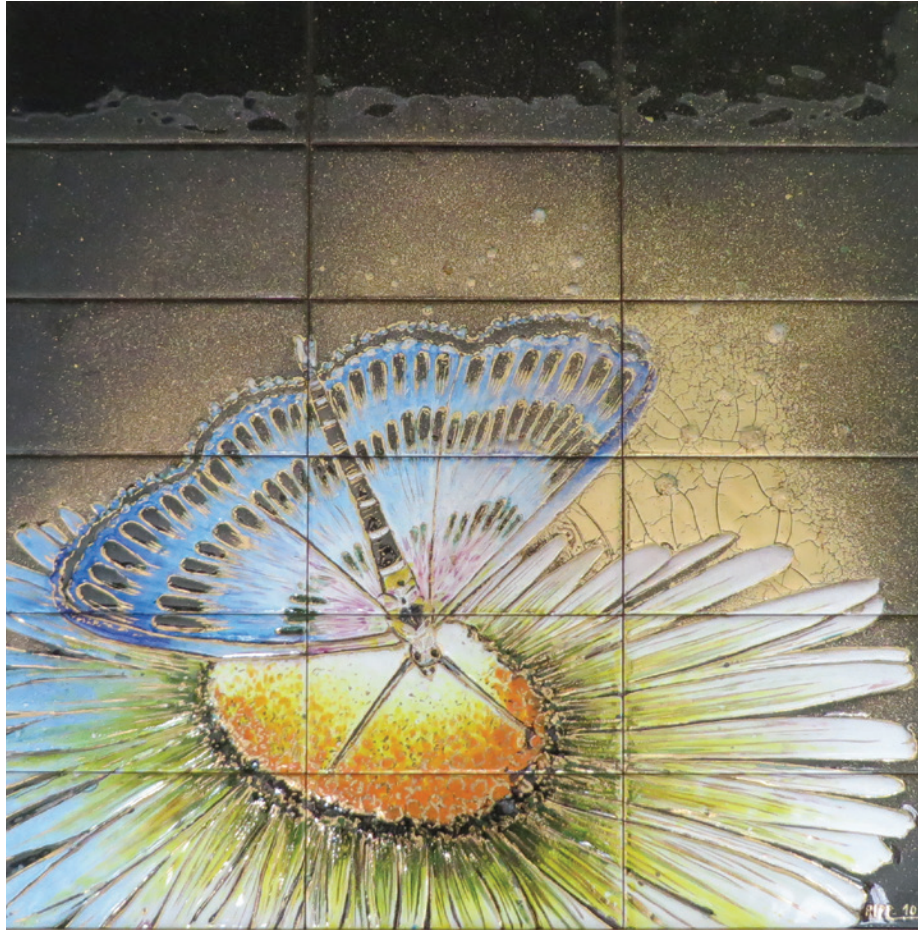
New technologies, and the ways they provide new affordances for online, physically face-to-face, and blended or hybrid classes, provide an opportunity to move beyond this myth. Any reform that enhances the resources and affordances available to us provides an opportunity to try out new and different things, to diversify the approaches we can take,

and to rethink our assumptions about when, where, and how teaching and learning can best occur. It also provides an opportunity to create more choice on the side of the learner, to access and participate in course content in varied ways that might better suit individual learning styles, interests, and situations.

First, we can offer a variety of types of course materials and a variety of media for presenting course content: text, video, podcasts, short-form or long-form lectures. But multimodal here doesn't just mean multimedia; it means different formats, lengths of time, and styles of representation (for example, Powerpoint versus other ways of organizing and presenting content). This diversity moves away from the standard lecture and other dominant modes of presentation, which may suit teacher styles but may or may not suit student learning. Synchronous and asynchronous modes have different benefits: the energy of a live presentation, for example, versus the advantages of pausing, rewinding, or re-listening to a recorded presentation, or of accessing information in smaller chunks. My point here is that we don't need to choose among these: the same course can experiment with different modalities, and provide options or choices to students to select modalities that suit them, given their schedule and time available. It is far from obvious that listening to a 45 minute continuous lecture offers the best learning opportunity for everyone.

Second, the typical class offers a very limited range of communicative options to student-teacher and student-student interactions. Large group/small group; one to one/one to many; synchronous/asynchronous; text-based/audio/video; public/private; and various permutations among these, can radically diversify the options available to students—and with this multimodal diversification can offer a better chance that students will find the communicative modalities that best fit their own styles and personalities. The classroom where students raise their hands to get the first chance to speak publicly before a group rewards and advantages certain kinds of student personalities and disadvantages others—for example, shy students or many for whom English is their second-language. Again, technologically enhanced or online classes provide an opportunity for creating multiple “channels” of communication and letting students find the ones they are most comfortable with. Class participation will improve.

Third, the kinds of projects, problem-solving, or tests that we use to challenge and to assess student learning can be much more varied than just quizzes, multiple choice tests, work sheets, or written term papers. Multimodal instruction can take advantage of a range of applications to allow students to build or create things; to demonstrate their growing capabilities through a variety of performances; and in certain kinds of classes to approximate the skills of planning and production that suit the kinds of workplaces they are being prepared for. Teachers tend to fall into certain patterns of assessment because they are easier or more familiar to us. This reinforces the trend toward standardization and vanilla course design, whereas now we have a host of new possibilities. One major resource in rethinking course project work and assessment is the students themselves: often they can come up with creative and dynamic project ideas that are very different



#3 Porque ha mirado la humillacion de su sierva | Because he has seen the smallness of his servant
by Maria Cruz Bascones

from what the teacher takes for granted. And of course, this sort of creative planning and taking responsibility for the results of their learning can be valued learning goals themselves.

Fourth, we tend to think of the boundaries of a course in spatial and temporal terms: classes begin and end, as do semesters, because these are the calendars that are familiar to us. Who is “in” the class is governed by an enrollment list given to us by the institution. But I once told a class I didn’t mind their using their laptops in class as long as they were doing course work “and not just updating their Facebook page.” A student shot up her hand and said, “but what if I am posting things said here in class to my Facebook page and sharing them with others?” Who is ‘in’ my class? If she reposts things (with attribution),

isn't that a good thing for me? Isn't that another way of sharing ideas and insights with learners? Social media provide a host of examples of how the duration and audience of a "class" can be extended in all sorts of productive ways.

Finally, what is a "class" anyway? We organize learning and a curriculum in terms of chunks that fit a structure that makes sense to us. We think that finishing that syllabus, in sequence and to completion, with a final assessment of some sort, is the point of the class. But many learners, especially more mature learners, may not want or need to "complete" the course in this way. They may want to follow a different sequence, spend more time on some sections and less on others, may want to skip some sections to come back to later, may in fact want to skip certain sections entirely—because they do not suit their priorities, their schedule, their goals. What would it mean to organize a multimodal class in such a way as to deconstruct the idea of a necessary sequence of learning with a discrete beginning and end?

These comments are meant to be brief and provocative. My hope is to suggest a vast opening up of possibilities that new learning technologies make available: an opportunity to rethink modalities of instruction and communication; to adopt a more modular and perhaps more discontinuous curriculum; and to challenge the familiar structural forms of a class, its boundaries, its audience(s), and its goals. New technologies are not just tools for achieving our (current) purposes and aims; they are opportunities to reconsider and rethink those purposes and aims.

Social media provide a host of examples of how the duration and audience of a "class" can be extended in all sorts of productive ways.



Los ojos de la primavera by Salas Davila

An Australian Perspective on the Need for Balanced and Informed Debate on ICT in Education

TOM O'DONOGHUE, Professor of Education, The Graduate School of Education, The University of Western Australia

ICT is promoted for use in schools by advocates motivated primarily by the fact that they like using the technology themselves, in some cases being self-confessed addicts.



Open Door | Puerta Abierta by Joaquin Gogorza

While Australia has one of the highest rates of integration of information and communication technology (ICT) in schools internationally, a recent report by the Organization of Economic Cooperation and Development (OECD) concluded that the literacy and numeracy skills of Australian students may be declining (Jacks, 2016). Little public debate is taking place on the extent to which the two issues may be related. Rather, supported by vested interests, ICT is promoted for use in schools by advocates motivated primarily by the fact that they like using the technology themselves, in some cases being self-confessed addicts.

In light of this, some open debate which takes into account sound analytical and empirical research on the effectiveness of ICT in the classroom is necessary. A complete outline of the literature on this matter would lead to a book-length work. What is offered here is just a brief overview of some of the broad areas that need to be considered.

First, it is important that we do not lose sight of the positive arguments put forward for ICT in the classroom. Empirical research indicates it can allow us to create classrooms in which students have all sorts of valuable sensory experiences. It can also enhance interactivity and connections with peers, allowing children to reimagine themselves and their relations to the world, and connect to other cultures. Also, teachers can use ICT to tailor programs to various levels. For example, iPads have begun to replace textbooks and pencil cases. Students of all ages find them easy to use and they are affordable for many. Some declare them to be game changers.

It would be folly, however, to ignore some of the concerns about ICT. In particular, it is important that cognisance be taken of the relationship between screen use and sleep deprivation and learning, of the eye strain condition that has come to be known as 'computer vision syndrome', and of the results of studies that illustrate the significant advantages of writing over typing for learning, of how ICT use in class can lead to student distraction, and of how one can learn better with paper than with screens. It is also important that students are given opportunities to think critically about how technology affects their lives. This means putting aside ICT from time to time to talk about it. Students also need the tools to deal with information on the Internet and appreciate the difference between merely accessing this data and truly acquiring knowledge. They need to learn how to use open—rather than pointed—searches, and how to evaluate sources.

There is also a need to preserve much of what is good about traditional approaches



Life in the Stacks of the Education Library by Hung Mai, student, Queen's Faculty of Education (winner of 2012 Photo Contest)

to teaching and learning in order to stop students from slipping into virtual worlds and cutting themselves off from one another through technology. There is a significant amount of research demonstrating that if one is too well connected with ICT, one stops thinking. Especially concerning is the possibility that the constant absorption of other people's thoughts interferes with the deep abstraction required 'to find one's own way'.

In a recent opinion piece, David Brooks (2016) pointed to Andrew Sullivan's essay "I used to be a human being" (2016) as aptly descriptive of "what it's like to have your soul hollowed out by the web" (Brooks, 2016, para.10). "By rapidly substituting virtual reality for reality", Sullivan argues, "we are diminishing the scope of [intimate] interaction even as we multiply the number of people with whom we interact" (2016, para. 26). Sullivan goes on to state that we are inclined to remove or drastically filter all of the information we might get by being with another person. We reduce them to "some outlines—a Facebook 'friend,' an Instagram photo, a text message—in a controlled and sequestered world that exists largely free of the sudden eruptions or encumbrances of actual human interaction" (Sullivan, 2016, para. 26). "We become", Sullivan states, "each other's 'contacts,' efficient shadows of ourselves" (2016, para 26).

David Brooks argues that, "at saturation level, social media reduces the amount of time people spend in uninterrupted solitude" (2016, para.12). In a similar vein, O'Donoghue (2017) has recently drawn attention to Deresiewicz's (2009) view that while the current emphasis on the use of social media in education is valuable, it needs to be accompanied by a reinstatement of an emphasis on solitude. The argument is that ICT

Students also need the tools to deal with information on the Internet and appreciate the difference between merely accessing this data and truly acquiring knowledge.

is taking away our privacy, our concentration, and our ability to be alone. Traditionally, solitude has been a societal value which was democratized by the Reformation and secularized by Romanticism. It accommodated reading which, for many, became an act of great inwardness and subjectivity, facilitating self-discovery. By the latter half of the twentieth century, however, our great fear was isolation from the herd. As Deresiewicz has put it:

The child who grew up between the world wars as part of an extended family within a tight-knit urban community became the grandparent of a kid who sat alone in front of a big television, in a big house, on a big lot. We were lost in space (Deresiewicz, 2009, para. 9).

The advent of the Internet was promoted as an antidote to the latter position on the grounds that it would allow isolated people to communicate with one another and allow marginalized people to find one another, which it did for a while, and still does in many cases.

Deresiewicz goes on to say, however, that as the Internet's dimensionality has grown, it has quickly become too much of a good thing. The goal of the individual now, as he sees it, is simply to become known, to turn oneself into a sort of miniature celebrity. This, he argues, has led to a loss of solitude, as a result of which people have lost the propensity for introspection (the examination of the self) and the related propensity for sustained reading. "The Internet . . . [has remapped] our attention spans. Reading now means skipping and skimming; five minutes on the same Web page is considered an eternity" (Deresiewicz, 2009, para. 16).

The challenge this loss of solitude presents for schools can be addressed through re-emphasising the traditional emphasis that was placed on debating ideas and testing theories in the classroom so that adolescents can develop their sense of self. It also requires a recognition that technology can stand in the way of this, hindering emotional and social growth. As a result, the benefits of collaborative learning can be lost.

To summarise, technological developments in schools can be successful only when the benefits and challenges of the innovation have been carefully weighed (O'Donoghue, 2016). Certainly, a new generation of young adults must be equipped with modern media literacy. This, however, must build on traditional literacy skills, since one cannot be part of an online community without being able to read and write. It is also crucial not to lose sight of the official guidelines that recommend children spend no more than two hours a day looking at screens. More time needs to be allocated to extended conversations. Open conversations are crucial to developing literacy skills, but they are being destroyed by the world of incessant connection. Indeed, many are now growing up without experiencing unbroken conversations at home or even with friends. School is one place where this can be addressed. In a world where students are constantly attached to digital technology, school can provide an escape through which they can disconnect from virtual worlds and reconnect with the real one.

The challenge this loss of solitude presents for schools can be addressed through re-emphasising the traditional emphasis that was placed on debating ideas and testing theories in the classroom so that adolescents can develop their sense of self.



Reflecting Upward by Alan Wilkinson, Queen's Faculty of Education

REFERENCES

- Brooks, D. (2016, October 7). Intimacy for the avoidant. *The New York Times*. Retrieved from <https://www.nytimes.com/2016/10/07/opinion/intimacy-for-the-avoidant.html>
- Deresiewicz, W. (2009, January 30). The end of solitude. *The Chronicle of Higher Education*.
- Jacks, T. (2015, September 15). Are iPads in schools a waste of money? OECD report says yes. *The Age, Victoria*. Retrieved from <http://www.theage.com.au/victoria/are-ipads-in-schools-a-waste-of-money-oecd-report-says-yes-20150914-gjmnqf.html>
- O'Donoghue, T. (2016, January 12). The ICT debate. *Education Review (Australia)*. Retrieved from <https://www.educationreview.com.au/2016/01/the-ict-debate/>
- O'Donoghue, T. (2017). *Understanding contemporary education*. London, England: Routledge.
- Sullivan, C. (2016, September 18). I used to be a human being. *New York Magazine*. Retrieved from <http://nymag.com/selectall/2016/09/andrew-sullivan-technology-almost-killed-me.html>

Pencil Code: A great tool for implementing computer science into the classroom

THOMAS MARTIN-EDWARDS, Newark Memorial High School, Newark Unified School District, Newark CA, Spanish teacher, grades 9–12 and Instructional Technology Literacy Coach

Teachers need a way to teach computer science principles without being computer scientists themselves.

The trend of Science, Technology, Engineering and Mathematics (STEM) education has spread to the far corners of the teaching world. Today, you can find teachers implementing technologically intensive curriculum into every aspect of their daily classes. From early primary school students with access to Scratch Jr. to older students learning Python and R as standalone curriculum, many classrooms are now preparing our students for college and for careers in the 21st century's growing tech industry. The use of block-based programming such as Scratch and Scratch Jr. has become the hallmark of STEM education because it is easy to understand, low cost, and intuitive (Meerbaum-Salant, Armoni, & Ben-Ari, 2013). Sadly, however, the transition in teaching and learning between a simple, student-friendly language and more traditionally career-oriented coding languages is not very easy. Teachers and students alike often struggle with moving from a very intuitive interface where a 'block' of code does exactly what it says it does, to the intimidating 'terminal' where commands are entered line by line.

Teachers need a way to teach computer science principles without being computer scientists themselves. They also need strategies for working with diverse groups of learners who may be at different levels in language, content knowledge, and even motor skills. This is where Pencil Code truly shines.

Pencil Code is an Integrated Development Environment (IDE), that helps students and teachers enter the world of computer science at whatever level they may be. Pencil Code is a product created by Google developer David Bau and his son Anthony Bau. The Baus spent years developing tools and curriculum to teach coding in the K–12 classroom. The free product uses familiar, easy to understand, block based coding and allows users to switch back and forth between these blocks and Coffeescript, a very user friendly version of Javascript, the language that much of the internet is built on.

Block-based coding languages are great for young learners, and for learners who are just getting started in computer science. A set of pre-created blocks acts as a vocabulary list so that new coders can move beyond learning commands and instead dive right into making meaningful code. Block-based coding languages also aid coders who are not yet skilled in typing or who have difficulty with motor skills. Users simply click on the block that they want and drag it into the workspace. As students become more and more confident in coding and are able to memorize the names of commands and functions, they are able to use Pencil Code to transition to text-based coding.



Shared Space | Espacio Compartido by Joaquin Gogorza

Students who explore the text based coding environment in Pencil Code are using Coffeescript. Coffeescript is a text based language based on Javascript, an object-oriented language that is universally used across the Web. Unlike Javascript, Coffeescript is very user and learner friendly. When learning a text-based language, many students and teachers find it hard to read and difficult to spot-check grammar of traditional coding languages, which can become a barrier to teaching and learning. Many teachers are unfamiliar with programming languages and find the complexity of text based languages to be intimidating. Coffeescript, however, uses much simpler vocabulary and syntax to read, write, and debug without sacrificing the robust capabilities that Javascript offers (Bau & Bau, 2014).

<pre> # Assignment: number = 42 opposite = true # Conditions: number = -42 if opposite # Functions: square = (x) -> x * x # Arrays: list = [1, 2, 3, 4, 5] # Objects: math = root: Math.sqrt square: square cube: (x) -> x * square x # Splats: race = (winner, runners...) -> print winner, runners # Existence: alert "I knew it!" if elvis? # Array comprehensions: cubes = (math.cube num for num in list) </pre>	<pre> var cubes, list, math, num, number, opposite, race, square, slice = [].slice; number = 42; opposite = true; if (opposite) { number = -42; } square = function(x) { return x * x; }; list = [1, 2, 3, 4, 5]; math = { root: Math.sqrt, square: square, cube: function(x) { return x * square(x); } }; race = function() { var runners, winner; winner = arguments[0], runners = 2 <= arguments.length ? slice. call(arguments, 1) : []; return print(winner, runners); }; if (typeof elvis !== "undefined" && elvis !== null) { alert("I knew it!"); } cubes = (function() { var i, len, results; results = []; for (i = 0, len = list.length; i < len; i++) { num = list[i]; results.push(math.cube(num)); } return results; })(); </pre>
---	--

Diagram 1: Comparison of Coffeescript (left) and Javascript (right) from Coffeescript.org

One of the stumbling blocks in teaching STEM, especially when teaching computer programming, is that multi-subject teachers are often not well trained, if trained at all, in teaching to teach STEM subjects.

As can easily be seen in **Diagram 1**, Coffeescript is much easier to read than Javascript, thus allowing less initiated teachers and learners to create and interact with the code.

One of the stumbling blocks in teaching STEM, especially when teaching computer programming, is that multi-subject teachers are often not well trained, if trained at all, in teaching to teach STEM subjects. (Epstein & Miller, 2011). This often leads to teachers using products that are intended to stand alone in the classroom and do not allow for direct instruction or assistance from the teacher. To encourage teachers to provide learners with guidance, Pencil Code offers teaching manuals, lesson plan resources, and pre-built activities for independent practice. This allows teachers to use the product as an instructional tool without requiring that they be computer specialists themselves.

Pencil Code's easy to navigate interface, straightforward language, and extensive teacher resources make it an easy choice for teachers who are interested in integrating computer science into their classroom. The various ways students can interact with the coding environment make it developmentally appropriate for a wide range of ages and ability levels.

REFERENCES

Bau, D., & Bau, D. A. (2014, October). A preview of pencil code: A tool for developing mastery of programming. *Proceedings of the 2nd Workshop on Programming for Mobile & Touch: PROMOTO '14*. <http://dx.doi.org/10.1145/2688471.2688481>

Epstein, D., & Miller, R. T. (2011, May). *Slow off the mark: Elementary school teachers and the crisis in science, technology, engineering, and math education*, Retrieved from: https://cdn.americanprogress.org/wp-content/uploads/issues/2011/04/pdf/stem_paper.pdf

Meerbaum-Salant, O., Armoni, M., & Ben-Ari, M. (2013). Learning computer science concepts with Scratch. *Computer Science Education*, 23, 239–264. <http://dx.doi.org/10.1080/08993408.2013.832022>



Open Gate by Alan Wilkinson, Queen's Faculty of Education

Teachers' Self-Directed Online Learning: Cognitive Processes and Experiences

PAMELA BEACH, Assistant Professor of Language and Literacy, Queen's Faculty of Education

Informal online learning has become an increasingly popular approach to teacher professional development. Various factors have contributed to this increased popularity, including the removal of temporal and situational barriers and “just-in-time” access to information. This “anytime-anywhere” approach to professional development promotes the immediate application of teachers’ newly formed knowledge. In addition, multiple modes of information delivery are accessible in online environments. Interactive tools, images, text, virtual platforms, digital technologies, and social networks are engaging ways in which teachers can conveniently access information and construct knowledge. Within these online platforms, learning can become intertwined with instruction, making it “likely that what [teachers] learn will indeed influence and support their teaching practice in meaningful ways” (Putman & Borko, 2000, p. 6). Whereas formal online learning opportunities (e.g., distance education courses) are usually facilitated by an instructor and follow a set curriculum, informal opportunities foster autonomy and self-direction. Teachers are at the centre of their own learning free to evaluate and use material on their own terms.

Whereas formal online learning opportunities (e.g., distance education courses) are usually facilitated by an instructor and follow a set curriculum, informal opportunities foster autonomy and self-direction. Teachers are at the centre of their own learning free to evaluate and use material on their own terms.



Right Turn by Alan Wilkinson, Queen's Faculty of Education

As a component of adult learning theory (Knowles, 1975), self-directed learning is a complex process of independently seeking out and acquiring knowledge (Garrison, 1997). The concept of self-directed learning stems from the notion that humans have an underlying desire to learn and understand a phenomenon, an incident, or a concept (Ponti, 2014). Teachers who become deeply connected to their practice are likely to seek out information which supports their professional goals and instruction. They have a desire to learn, a devotion to their profession, and consciously choose to improve their practice.

Self-directed learning involves a range of cognitive activities and decision-making strategies, requiring the learner to take responsibility for constructing knowledge that is meaningful and worthwhile. During self-directed online learning teachers must negotiate between meaningful and irrelevant information and decide on what material is worthwhile to pursue. At the same time, they will likely consider the readability of the interface, evaluate the quality of the website features, and contemplate the relevance of the content with respect to their unique teaching context and students' needs. Garrison considers self-directed learning "as an approach where learners are motivated to assume personal responsibility and collaborative control of the cognitive (self-monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes" (1997, p. 18). Three overlapping dimensions—self-monitoring, self-management, and motivation—are essential constructs of Garrison's model and can provide a framework for understanding the cognitive processes and experiences that occur as teachers self-direct their learning in online environments.

Cognitively monitoring the learning process involves consciously making sense of information. *Self-monitoring* requires acute attention to personal goals and an ability to think about our thinking. This metacognitive aspect can lead to knowledge construction in which newly acquired information is connected to existing understandings. In the context of online learning, teachers who decide to view a demonstration video, for example, self-monitor their learning by being aware of their instructional goals while concurrently modifying and planning for their own classroom. Self-monitoring requires teachers to assume responsibility for the integration of prior knowledge and experience with new information in meaningful ways.

The *self-management* domain emphasizes the cognitive management of learning and the construction of meaning through critical reflection. Online learners employ strategies to manage the sometimes overwhelming breadth of knowledge and source variability. Within online environments, it is essential for teachers to take control of their learning by continuously assessing and evaluating web-based information, including source features (e.g., website author) and the mode of information delivery (e.g., text, video). Teachers must critically evaluate information through their unique teaching lenses. Self-management, in turn, will help teachers determine whether a website is worth using and returning to. In a recent study examining elementary teachers' informal online learning experiences, teachers spent time evaluating various aspects of a professional development website (Beach, 2017). During their navigation, teachers evaluated the functionality of the website (organization and accessibility), the content richness (credibility and currency of information), and the novelty of the available technology

Self-monitoring requires teachers to assume responsibility for the integration of prior knowledge and experience with new information in meaningful ways.



#14 Y ensalza a los sencillos | And he extolls the humble by Maria Cruz Bascones

(evaluation criteria outlined by Song and Lee, 2014). They were continuously managing the content, organization, and medium of the learning platform, ultimately “facilitating the analysis, construction, and confirmation of meaning and understanding” (Garrison, Anderson, & Archer, 2003, p. 55).

The third dimension of Garrison’s model is *motivation*, a key determinant “in the initiation and maintenance of effort toward learning” (1997, p. 26). Various factors influence a teacher’s decision to initiate and continue an online learning experience, such as the perceived value of the online resource and whether goals are proving to be achievable in a given timeframe. Autonomy, choice, and self-efficacy are also factors that influence the process of deciding to participate. Additionally, the visual design and quality of information have been found to influence a teacher’s decision to initiate and maintain an online learning experience (Beach & Willows, 2014).

REFERENCES

- Beach, P. (2017). Self-directed online learning: A theoretical model for understanding elementary teachers' online learning experiences. *Teaching and Teacher Education*, 61, 60-72. <http://dx.doi.org/10.1016/j.tate.2016.10.007>
- Beach, P., & Willows, D. (2014). Investigating teachers' exploration of a professional development website: An innovative approach to understanding the factors that motivate teachers to use Internet-based resources, *Canadian Journal of Learning and Technology*, 40(3).
- Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly*, 48(1), 18-33.
- Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. New York, NY: Routledge.
- Garrison, D. R., Anderson, T., & Archer, W. (2003). A theory of critical inquiry in online distance education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 113-127). Mahwah, NJ: L. Erlbaum Associates.
- Knowles, M. (1975). *Self-directed learning: A guide for learners and teachers*. New York, NY: Association Press.
- Lee, S. (2013). Understanding user experience with computer-based applications with different use purposes. *International Journal of Human-Computer Interactions*, 29, 689-701. <http://dx.doi.org/10.1080/10447318.2013.768138>
- Ponti, M. (2014). Self-directed learning and guidance in non-formal open courses. *Learning, Media and Technology*, 39(2), 154-168. <http://dx.doi.org/10.1080/17439884.2013.799073>
- Putnam, R., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4-15.
- Song, D., & Lee, J. (2014). Has web 2.0 revitalized informal learning? The relationship between web 2.0 and informal learning. *Journal of Computer Assisted Learning*, 30, 511-533. <http://dx.doi.org/10.1111/jcal.12056>
- Self-monitoring, self-management, and motivation are overlapping constructs of self-directed learning. Each of these constructs plays an intricate role in the success of the self-directed learner. Garrison's model can provide a framework for the underlying processes that may occur during teachers' self-direct online learning. As teachers increasingly turn to online resources for their professional learning, it is essential to understand their interactions with web-based applications and the reasoning for why they engage with such applications in certain ways (Lee, 2013). This, in turn, can provide insights into teachers' cognitive processes as they navigate informal online environments and ultimately lead to the development of more effective interfaces and digital spaces which are conducive to teachers' self-directed online learning.



Mind by Alan Wilkinson, Queen's Faculty of Education

Designing Digital Humanities Projects that Increase User Motivation and Engagement

INA GHITA, M. Ed. Queen's, doctoral student Universidad de Barcelona, Spain

Humanities education and digital technology have been closely linked together for more than half a century, from Roberto Busa's first attempt to create a digital index of medieval Latin terms in the works of St. Thomas Aquinas in 1949 (Schreibman, Siemens, & Unsworth, 2004), to the creation of the first interdisciplinary journals such as *Computers and Humanities* (1966) and *Literary and Linguistic Computing Journal* (1986), to recent projects such as the *Proceedings of the Old Bailey, 1674–1913* (<https://www.oldbaileyonline.org/>), a digitized, fully searchable, open access database containing 200,000 reports on criminal trials at the central criminal court of London, representing the largest single body of text about the everyday lives of people in Britain.

Today, there are many projects merging digital technology and the scholarly research of the humanities, but there is little research on how system design,¹ and the specific technologies used, influence the way users interact with these projects. One of the criticisms of digital humanities today is the small-scale focus of the projects and their inability to communicate with and engage the extended humanities community (Juola, 2008; Liu, 2012; Prescott, 2012). Prescott (2012) notes that digital humanities projects today do very little to “enhance public engagement with humanities scholarship” (p. 63).

I argue that applying a system design that allows for presence and immersion, personal achievement, and social engagement within digital humanities projects, could enhance users' motivation to interact with the content. In my master's thesis (Ghita, 2016), I argue that the design of a technologically enhanced digital humanities project should begin with the user and should have at its core the aim to motivate the user to interact, to explore, and engage with the content and other individuals.

One of the ways in which this aim can be achieved is by using design to satisfy the three basic psychological needs outlined in Ryan and Deci's (2000) self-determination theory: autonomy,² competence,³ and relatedness.⁴ According to Ryan and Deci, to be motivated is to be moved to perform an action or engage in an activity. Individuals are intrinsically motivated when they engage in an activity for only the *pure enjoyment* of the activity itself and are extrinsically motivated when they engage in activities for a *separate outcome*. However, self-determination theory was framed in terms of social and

Today, there are many projects merging digital technology and the scholarly research of the humanities, but there is little research on how system design, and the specific technologies used, influence the way users interact with these projects.

1 For the purpose of this paper, I define system designs as the process of defining the architecture, components, data, and user experience for a system to satisfy specific requirements.

2 Autonomy is defined in this paper as the universal urge of an individual to be causal agent of his life.

3 In this case, competence is defined by a means to control the outcome of an activity and experience mastery.

4 Relatedness is defined as the universal need to interact and be connected to others.

MMOGs are niche video games designed to support a large variety of players, simultaneously, in the same virtual setting.



Vertical Sheer by Alan Wilkinson, Queen's Faculty of Education

environmental factors that may alter motivation, and Ryan and Deci argue that the degree of motivation to engage in an activity could be either facilitated or undermined by whether the basic psychological needs for autonomy, competence and relatedness are met.

One example of a digitally enhanced environment that successfully manages to *pull* in users, maintains their engagement with the content and encourages them to create relationships with other users, can be found in massively multiplayer online games (MMOG). MMOGs are niche video games designed to support a large variety of players, simultaneously, in the same virtual setting. MMOGs connect players within the game and enable them to compete or cooperate, allowing them at the same time to explore and interact with the virtual environment.

Digital humanities projects are similar to MMOGs in that they share a focus on comprehensive storytelling, they encourage user interaction with primary sources and artefacts, and they seek to transport the user into a complex socio-historical context. One of the reasons video games exert such a tremendous motivational pull on participants is that they manage to satisfy precisely the needs of autonomy, competence and relatedness for the user (Ryan, Rigby, & Przybylski, 2006; Rigby & Przybylski, 2009). Ryan et al. (2006) assert that players' motivation and enjoyment are closely related to their feelings of autonomy and competence, and that relatedness emerges as an important satisfaction that promotes presence, game enjoyment and future play. The authors define presence as the psychological state that allows players to situate themselves within the game when playing. Lombard and Ditton (1997) define presence as an "illusion of nonmediation" (Concept Explication section).



Book of Levi by Marc Chagall (Own work)
CC BY-SA 3.0 via Wikimedia Commons

REFERENCES

- Bartle, R. (1996). *Hearts, clubs, diamonds, spades: Players who suit MUDs*. Retrieved January 22, 2016, from <http://mud.co.uk/richard/hcds.htm>
- Ghita, I. (2016). *Digital history: Designing virtual environments that support critical thinking and idea exchange, motivate and engage users* (Master's thesis). Retrieved from <http://hdl.handle.net/1974/14815>
- Juola, P. (2008). Killer applications in digital humanities. *Lit Linguist Computing*, 23(1), 73-83. <http://dx.doi.org/10.1093/lit/fqm042>
- Liu, A. (2012). The state of the digital humanities. *Arts and Humanities in Higher Education*, 11, 8-41. <http://dx.doi.org/10.1177/1474022211427364>
- Lombard, M., & Ditton, T. B. (1997). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication*, 3(2). <http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.1997.tb00072.x/full>
- Prescott, A. (2012). Consumers, creators or commentators? Problems of audience and mission in the digital humanities. *Arts and Humanities in Higher Education*, 11, 61-75. <http://dx.doi.org/10.1177/1474022211428215>
- Rigby, C. S., & Przybylski, A. K. (2009). Virtual worlds and the learner hero: How today's video games can inform tomorrow's digital learning environments. *Theory and Research in Education*, 7, 214-223.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54-67. <http://dx.doi.org/10.1006/ceps.1999.1020>
- Ryan, R. M., Rigby, C. S., & Przybylski, A. (2006). The motivational pull of video games: A self-determination theory approach. *Motivation and Emotion*, 30, 344-360. <http://dx.doi.org/10.1007/s11031-006-9051-8>
- Yee, N. (2006). Motivations for play in online games. *Cyberpsychology & Behavior*, 9, 772-775. <http://dx.doi.org/10.1089/cpb.2006.9.772>

Queen's Education Letter

Queen's *Education Letter* is a thematic annual publication of the Queen's Faculty of Education.
© 2017 Queen's University, Faculty of Education.
Special permission is required to reproduce in any manner, in whole or in part, the material contained herein.

Founding Senior Editor

Rosa Bruno-Jofré, Ph.D.
Professor, Graduate Faculty
Queen's Faculty of Education

Board of Editors

Valeria Fisher, Teacher, R. G. Sinclair Public School

Gonzalo Jover, Vice-Dean Research and Graduate Studies, Faculty of Education, Universidad Complutense de Madrid

William Pinar, Professor and Canada Research Chair, University of British Columbia

Monsignor Joseph Lynch, St. Joseph Parish, Alumnus

Online

The *Queen's Education Letter* is available online at educ.queensu.ca/education-letter

The *Queen's Education Letter* is supported by annually-pledged donations from alumni and friends as well as matching funds from the Office of the Dean of Education.

ISSN 2560-6999 (Print)
ISSN 2560-7006 (Online)



FACULTY OF EDUCATION
Duncan McArthur Hall
Queen's University
511 Union St.
Kingston, Ontario Canada
K7M 5R7
educ.queensu.ca

A second important aspect of game design is accommodating for a variety of player styles. Bartle (1996) classifies video game players into four types, depending on whether they are interested in interacting *“on”* or *“with”* other players and the virtual environment. They are: a) killers, who are interested in interacting on other players; b) socializers, who are interested in interacting *with* other players; c) achievers, who look to interact *on* the environment; and d) explorers, who are interested in interacting *with* and manipulating the virtual game world. In digital humanities, we can similarly expect users to have different kinds and levels of motivation to interact and engage.

A third key element of how video games keep users engaged sits within the concept of the *learner hero* (Rigby & Przybylski, 2009), where each player is the hero of the story and the play experience is rendered specifically for each player. The learner hero has everything she needs to succeed and blazes new trails in search of adventure (thus satisfying needs of *autonomy*); she continuously masters challenges (achieving a feeling of competence) and she acts in relationships with others, in general for the betterment of the community (satisfying needs of *relatedness*).

In conclusion, digital humanities projects could engage more users and potentially maintain engagement by designing virtual contexts (content and interactions) in ways that facilitate extrinsic motivation.

In conclusion, digital humanities projects could engage more users and potentially maintain engagement by designing virtual contexts (content and interactions) in ways that facilitate extrinsic motivation. Applying the concept of learner hero to digital humanities projects could allow users to experience personal agency and encourage them to master their own challenges, fostering deeper engagement with the digital content. Virtual worlds can be made more immersive by designing interactions for different types of users, through story lines, graphic environments and intuitive controls.



Ribbon Stream Flowing by Alan Wilkinson, Queen's Faculty of Education