Technology, Attention, and Education

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Introduction

> We seek to enhance a real not a virtual community where staff and students are engaged; where offices are turned into studies; and the library and other learning spaces turned into hubs of active learning. We are not a university where academic staff turn up only to deliver lectures or to perform timetabled duties; or where educational technology substitutes for actual and authentic personal engagement.

> — Liverpool Hope University, *Our Approach to Higher Education*[1]

In a world where more and more higher education institutions are seeking opportunities to offer courses to a global market of "online learners," this commitment to the physical habitat of education might seem somewhat obsolete or anachronistic. Yet many educators attest to the uncanny quality of physical presence; that being physically face to face with students has a singular, irreducible pedagogical power. This raises a question: is the interest in online education really pedagogical? I would argue that the impetus to develop online education is founded, first and foremost, on economic rather than pedagogic concerns, so my general orientation towards online education is critical. There are, no doubt, some intrinsic benefits to online education, such as giving confidence to some students who, for whatever reasons, find the face-to-face encounter too difficult, or by providing opportunities and giving voice to those who might otherwise be excluded from education because of social or practical restrictions. But where the resources of time and money are unrestricted, then the educational encounter is often best served in person. Of course, time and money are never unrestricted, and only disengaged speculations about some distant future could seriously entertain such a scenario. Perhaps then we ought to accept that the prime interest of the industrialists engaged in online education is, and ought to be, the efficiencies that can be harnessed through the reconfiguring, if not full overcoming, of space and time. But the suspicion about online education expressed here does not justify a wholesale rejection of online life. So, despite this critical orientation, I want to explore some of the ways in which technologies and virtual worlds occupy a grey area in the fields of education. The ambiguity arises when we see that technologies are neither simply the neutral means to ends determined by human beings, nor, in opposition to this, artificial intrusions upon a pure state of nature.

Online Education or E-Learning

Online education is a complex and multifaceted phenomenon and can hardly be defined in straightforward terms. We might first wonder whether "online education" is equivalent to "online learning" or "e-learning," terms that *Wikipedia* presents as basically synonymous.[2] This is an important question for philosophers of education (and educationalists generally) because education as a substantive and multifaceted phenomenon can be distinguished from learning in important ways, as Gert Biesta has shown in his critical analysis of the "learnification of education."[3] For Biesta, the

shift in our language from education to learning is related to the fact that "we seem to have lost sight of questions about value and purpose in education."[4]

E-learning does have some of the characteristics that Biesta identifies with a cultural shift towards the language of learning. E-learning is more consumer-driven in the sense that it tries more than ever before to adapt to the needs and context of the "learner." This can be observed in the spatio-temporal flexibility of online education: it can take place synchronously (in "real time") or asynchronously (whenever suits the learner, that is, self-paced), though the asynchronous component is more characteristic of learning online where learners engage in email, blogs, forums, wikis, audio, video, and so on. This flexibility can facilitate independence of mind and self-directed attitudes towards education but, more negatively, plays into the "student-as-consumer" attitude to education that Biesta shows to be damaging. E-learning also tends to be individualistic, often replacing classroom experiences with structured study programs that can be tutor-led but are typically self-directed, emphasizing learning as a process about (and only about) the learner who acquires knowledge, understanding, or a skill.

Despite his critical analysis of the shift to a culture of learning, Biesta also acknowledges that these features of learning (and by implication e-learning) have some emancipatory potential. The shift reflects deeper historical currents that see a less centralized and less authoritarian view of education in which the student is understood as co-constructor of their own understanding of the world. However, Biesta argues that the language of "learning" does not just reflect a more democratic or inclusive form of pedagogy in which the learner is placed center stage. On the contrary, the learnification culture is threatening to democratic and inclusive ways of being because it reduces democratic processes to the aggregation of individual desires. To service aggregated desires does not bring into question the ground and context of those desires. Moreover, the learning culture does not foster reflection upon the purposes of education, but rather takes for granted that purposes basically equate to what individuals want them to be; in other words, they are translated into preferences. Of course, this is thoroughly individualistic, but Biesta is hinting here at a more fundamental problem: that education properly understood, points to a shared cultural enterprise that is elided by the culture of learnification. This point is really calling for a radical reorientation of our hollowed out culture of learning since it reintroduces ontology into education, the idea that education has an orientation to something real and that individual desires must, in some sense, be in dialogue with that reality.

An important question emerges from this: what does online education do to the transformation of education into learning? Does it reinforce and extend the shift from education to learning, or does it limit and reorganize our relationship to the purposes of education? Are we at liberty to define our own purposes as consumers? For Biesta, the notion that learner preferences should delineate the purposes of education is fundamentally flawed. It assumes that the learner is able to make independent and informed judgments about the good conferred by the educational experience. The

fact that students are not in a position to choose their own education as though they are selecting a new washing machine distinguishes the realm of education as a profession from the marketplace.[5] In the idealized market model, the consumer knows what they want and will make a rational selection from the offerings available. While there are situations where the consumer needs to be educated by the producer, the market model is predicated on the ideal of the informed consumer. The education profession, on the other hand, inducts students into a community of practice that itself is involved in defining the nature of good practice. The student cannot know the nature of good education prior to engaging in the educational process, and even then the nature of the good will remain in question. One answer to our question would be to say that online education contributes to a culture of individualized and consumerist learning that suppresses the examination of the purposes of education: online learning reinforces the impression that students are able to select a good product determined in advance. I believe there is some credibility to this analysis but would not want to leave it there since it does not treat the nature of technology and being online in sufficiently ambivalent terms and might lead us to a sentimental and unrealistic rejection of our technological being. In other words, there needs to be a way in which online education can express and shape reflection on the purposes of education in a substantive and meaningful way.

I now turn to the philosopher Bernard Stiegler who understands digital technology and modern media as *pharmacological* — both poison and cure. Stiegler rejects the assumption that the human could exist prior to the technical arguing that the evolution of human reflective awareness was concurrent with what he calls "technics."[6] Indeed, for Stiegler, there is no human being without technics.[7] Despite this, he is very critical of the impact of modern technology and media on education and the youth in particular.[8] Yet Stiegler's analysis is interestingly ambivalent, coming out of a reading of critical theories of technology (especially Martin Heidegger), but radically departing from them by his view that technics is coeval with hominization. Stiegler's work is not widely known among philosophers of education so I will develop an account of his thinking on memory and attention that will bring us to examine some of the ideas of particular relevance to education.

The Role of Tertiary Memory in Education

Memory is the foundation of culture. The ancient Greeks mythologized this insight with the story of the goddess Mnemosyne, daughter of Gaia and Uranus, and mother, through union with Zeus, of the nine muses. Through Mnemosyne (memory), poetry, and the arts more generally, are made present. Without memory, then, culture could not exist. For Stiegler, the shared mnemonic heritage that is culture is passed on through a process of "technical exteriorization" (*TCY*, 36). Exteriorizations rely upon forms of prosthesis that might take prehistoric forms such as flint tools and wax tablets, or can appear in the more modern guises of books, magazines, or forms of digital media and databases. Such prostheses are forms of *tertiary* memory, since they are distinct from the primary and secondary forms: genetic inheritance and individual awareness, respectively.

In tertiary memory, then, experience can be liberated from genetic determinism or individual loss enabling humanity to pass on cultural inheritance. In prehistoric times, cultural transmission would have been slow and fitful. Particularly from the eighteenth and nineteenth centuries this transmission is driven and appropriated by a more industrious and methodical spirit. Inspired by the scientific revolution and the Enlightenment with its perception of science as fundamentally progressive, a new sense of the significance of history and the passage of time emerges in the eighteenth century. The realization of culture through memory is only possible through the development of technology as the material supports of tertiary memory. The technics that support tertiary memory constitute an awareness of time that entails the possibility of *retention* and *protension*. In other words, the stitching together of temporality (of past and future) and the emergence of technics are one and the same event. It is here that we see technics as a key aspect of hominization. For Stiegler, the history of philosophy has suppressed the recognition of role of technics in the process hominization.

<div align="center">THE PHARMAKON OF TECHNICS</div>

History, as the story of culture, is generally defined by its constitution through one particular technology: writing. Where written accounts exist we have entered "history." But this birth of history is marked by ambiguity, an undecidable that Jacques Derrida calls the *pharmakon* of writing.[9] For Derrida, the dual (and undecidable) nature of the *pharmakon* undercuts the binary logic that structures Western thought: it is not a matter of deciding whether writing reveals or conceals because it does both simultaneously. But doesn't this binary logic structure contemporary discussions about whether technology is an educational force for good or a bad influence on youth? We might want to avoid talking about "technology" in a general and abstracted sense, a sense that is sometimes called "essentialist," by arguing that each technical device has some educational potential and some dangers. For Derrida, though, this response would point to complexity but not "undecidability" — an intrinsic and irreducible quality of ambiguity. Furthermore, I would argue that it is quite clear that technologies have something undecidable about them: technology is both what puts power in our hands while simultaneously threatening to erode that power by making us blind to the scope and significance of own actions. As Günther Anders puts it, "by way of our technology … we can no longer conceive what we can produce and do."[10] Technology both makes us smarter and more stupid, more engaged and disengaged, more potent and more powerless. Online environments feel much the same — they simultaneously present the world and hide it.

Drawing on Heidegger's critique of technology, Albert Borgmann makes the point that the characteristic feature of technology — which he says is its ability to make things available to us in unprecedented ways — is marked by an erosion of the significance of things. In other words, the more things are made available to us, the less significance things have *for* us. The more film and music becomes "on demand," for example, the less committed my listening and viewing becomes. We see with Massive Open Online Courses, or MOOCs, for example, the extraordinarily

enthusiastic take up does not translate in quite as extraordinary completion rates.[11] Borgmann defines technological availability as what is rendered "instantaneous, ubiquitous, safe, and easy."[12] This definition of technical availability might well be applied to online environments and extended to online learning specifically (at least where they work well). But does this availability carry with it an uncanny disengagement with the substance of learning, as Borgmann might suggest? This is a question that we need to at least be able to ask. Do we not often mistake the content or process of education for education itself? In a similar sense, doesn't online education presuppose an educational model as little more than the transmission of knowledge, Paulo Freire's banking model? Is online learning not fundamentally reductive? Isn't education irreducibly rooted in the contact and relation between teacher and student a relation that cannot fully exist in an online world? It might be tempting to argue this, but I want to resist the temptation to reintroduce the binary that assumes "online" means somehow existentially disconnected, in contrast to a norm that sees "real" education as entailing an unmediated presence of the other. It seems to rest upon the norm of a pretechnical human that has never existed. Nevertheless, I wish to take seriously the issue that Borgmann raises by acknowledging that there is both an uncanny disengagement in online environments, but equally a new profound possibility.

Do we really need to argue for such technological ambivalence? I suggest that common sense finds the *pharmakon* of technology rather unthinkable. Populist views of science and technology tend to encourage binary judgments about the place of technology. Science fiction often projects dystopic visions that encourages us to disregard the dual nature of the *pharmakon*. Even discussions within philosophy of technology have generally been characterized by exactly the kind of binary logic that the *pharmakon* seeks to undercut: Jacques Ellul, Heidegger, Herbert Marcuse, Jürgen Habermas (all of whom are read to some extent as techno-pessimists — not always fairly). As I have suggested, online learning is often viewed in similarly binary terms, either as negating some aura of presence essential to the community of education or as some panacea for our complex and overloaded lives. Some higher education institutions like the Open University, Stanford, or MIT embrace the opportunities of virtual learning though largely without asking seriously about the existential disengagement implied in online learning.

It would be convenient to reject technology as King Thamus rejects writing in order to remain in a natural state of immediacy with nature where our faculties can be employed in a fully human way. Even if we wanted to make such a rejection, we could not do so if technology is part of who we are. As Stiegler argues, the history of technogenesis is the history of anthropogenesis. From this point of view, the problem of how to "humanize" online education might seem predicated on a false assumption, namely that online is basically inhuman, unreal, absent, disconnected, disengaged. But the recognition that technology is central to human identity does not mean we uncritically embrace all that we call technology as the affirmation of human creativity. Technology — as the invention of writing or the splitting of the atom — is the *pharmakon*.

THE THREAT TO CRITICAL CONSCIOUSNESS

In his recent work, Stiegler has shifted his emphasis from technics to the related question of attention (*TCY*). There is a clear connection to memory here. In some respects, Stiegler's analysis is a rather hackneyed, neo-Frankfurtian attack on the dangers of a manipulative culture industry determined to commodify, colonize, and corrode the attention of the youth. New media technologies are increasingly effective at manipulating attention and so the emergence of the new science of attention economics is both inevitable and alarming. With the proliferation of each form of new media — newspapers, pulp paperbacks, movies, television, the Internet — emerges new worries about the creation of the next generation of "I-don't-give-a-damners." In this vein, Stiegler draws on Katherine Hayles's view that our media-rich environment is eroding our capacity for deep attention — especially in youth. Deep attention is here being replaced by what Hayles calls "hyper attention,"[13] which is characterized by "switching focus rapidly among different tasks, preferring multiple information streams, seeking a high level of stimulation, and having a low tolerance for boredom." Indeed, Stiegler argues that the very distinction between adults and youth is becoming unhelpfully confused whereby the critical maturity of adulthood is stunted or even entirely arrested.

Stiegler is also keen to acknowledge the insights from brain imaging that establish the shifting scene of the brain by exploring synaptogenesis (*TCY*, 18–19). This is alarming Stiegler since not only are we weakening our attentional capacity, but we are also in danger of irretrievably losing our intellectual maturity. Pointing to the contradictions at the center of Stiegler's project here, Richard Iveson says, "Proclaiming himself thus a prophet of and from potentially the last generation of mature adults, Stiegler seeks to hastily recall us to rational critique before the new media has its way and irretrievably restructures the connections which constitute intelligence so as to render such constitution impossible."[14] For Stiegler, the effect of new media is, in a nutshell, the destruction of that hard-won product of Immanuel Kant's *Aufklarung*, critical consciousness.

What is somewhat ironic in Stiegler's account of the erosion of our critical consciousness is that it acknowledges the pharmacological nature of technological development but then appears to rely on a conventional, even banal, critique of modern technology and new media as the manipulation and erosion of attention and critical consciousness. This is important and illustrates some deeply held assumptions about attention itself, for example, that attention exists before culture engages it. Common among psychologists is the view that attention is akin to a spotlight that the subject can point towards objects. This view of attention suggests that the spotlight itself does not alter what it points towards but only illuminates it — it is simply a faculty or tool.

There are many problems with this view of attention as a neutral tool. For one, it disregards the historical constitution of attention, as if attention exists as an Archimedean point and assumes that, when we attend, we can see the world afresh (seeming to invite a form of naïve realism). It also tends to ignore how attention is related to and affected by its object. If we consider with Stiegler that attention is

affected by its object (*TCY*), then the ways in which different media form and shape attention become significant. The question of online learning can then be seen in terms of the ways in which technologies form attention rather than supposing that attention is a fixed and natural faculty that is either enhanced or diminished by our ever-shifting technological milieu. We do not, then, need to begin our debate with questions like "how do we stop the Internet from destroying our attention span?" Susan Greenfield, Professor of Pharmacology at Oxford University has recently raised concerns (not dissimilar to Stiegler) about the dangers of the growth in online living for our changed intellectual and attentional capacities. She says, "Whilst of course [Internet use] doesn't threaten the existence of the planet like climate change, I think the quality of our existence is threatened — and the kind of people we might be in the future."[15] Greenfield here is expressing a fairly conventional concern about the erosion of deep attention that Hayles says is needed for complex problem solving and sustained understanding. In the educational world in particular, deep attention is regarded as normative while hyper attention, useful though it may be in certain commercial contexts from air traffic control to currency trading, is connected to the loss of some essential aspect of human identity. But Hayles suggests that the two forms of attention can be brought together: "stimulation by media, if it is structured appropriately, can actually contribute to a synergic combination of *hyper attention* and *deep attention*, which could have interesting implications for pedagogy" (*TCY*, 75). Stiegler on the other hand, is not optimistic about such a synergy.

As we move from what Stiegler calls the "republic of letters" to an age of "numeric programming" (a contrast that evokes the binary logic that cannot abide the undecidability of the *pharmakon*), we must, I think, be extremely alert to the dangers to which Hayles, Stiegler, and others draw attention. We can be sympathetic to Stiegler's concerns about the threat to critical consciousness without seeing the life online as heralding the destruction of the literate world. There is, furthermore, a strongly political dimension to Stiegler's concerns since modern media not only replace deep attention with hyper attention, but also desire, which is shaped in dialogue with the community, is decomposed to constituent and individualized drives. We can see here a correlation with Biesta's analysis of the consumerist attitude to learning in which the individual preferences are the start and end of the examination of purposes in education.

<p style="text-align:center">Time and Space Are Out of Joint</p>

Where am I when I am online? Everywhere and nowhere? When online, vast educational resources are available to me in an abstracted equidistance. I have already suggested that Borgmann would understand this availability as erosion of significance. But can we clarify the nature of this loss? If online education overcomes spatio-temporal situatedness, it may also undo some essential qualitative dimension of spatio-temporality. Perhaps philosophy of religion can help us here. Mircea Eliade distinguishes between sacred and profane with particular reference to the nature of time and space.[16] The significance of human life can be found first and foremost through the structuring and delineating of space and time. The capacity for *hierophany* (of a God who is Wholly Other) exists where space and time are consecrated through

the paradigmatic rituals of the tradition. For Eliade, rituals allow for the world to be formed, from chaos to cosmos, as they bind us to certain times and places which become sanctified. From the Sabbath to the ritual of the Mass, specific times have specific significance. Furthermore, myths and rituals provide structure and orientation to the world that would inhibit and disrupt the total availability of life online. One must be in the church at evensong oriented to the altar in order to hear the choristers that, theoretically, could be streamed direct to your mobile phone. This could have relevance to online education since it argues for the irreducible significance of the physical encounter. But Eliade's ideas have been reworked by Jonathan Z. Smith. Smith takes up but also departs from Eliade where he says "ritual is, first and foremost, a mode of paying attention. It is a process of marking interest…. It is this characteristic, as well, that explains the role of place as a fundamental component of ritual: place directs attention."[17] In brief, Smith's innovation over Eliade is the priority he gives to attention as the key component of presence. Attention is the core dimension of ritual, an attention that for Eliade entailed the specificity of sanctified time and space. For Eliade, the singular times and places are "given" (whether from God or tradition) and so are not easily translated into the virtual. For Smith, space at least is sanctified by virtue of the act of attention and could therefore take place only in the mind (as in the monk's mental representations) or conceivably online.

Conclusion

The path we have taken has sketched out some of the relations between technology, time, attention, and life online. Smith's interpretation of Eliade has allowed us to redirect our attention from the material to the attentional, thus avoiding a crude opposition between the physical and virtual. For Stiegler, attention and temporality are fundamentally related since the formation of attention is coeval with tertiary retentions available to us through technological innovations. Thus, authentic temporality and life online are not, in principle, mutually exclusive, though Stiegler does expose the risks to our critical attention of modern digital media. Elsewhere, Stiegler has been keen to show the "virtual" to be simply a new form of an ongoing process of humanization: "Rather than talking about "virtual space" one would have to refer to a new, digital, retentional system: a system which affects institutions of space and time, and which is no more and no less virtual than any other form of tertiary retention equally involving space and time, calendarity and cardinality."[18]

We also considered Biesta's thesis of learnification and asked whether online education would reinforce and extend the pervasive language of learning. I argued that online education does reinforce some aspects of learnification but suggested that it does not need to. That is why I paired a discussion of Biesta with an ambivalent reading of technology and modern media. It is within the draft of this ambivalence that the questions of significance and purpose are more likely to have traction and could, therefore, resist learnification.

The times and places of face-to-face education can work to structure time and space in ways that are demanding. Those who want to learn should not assume that education can come to them, anytime, anyplace, anywhere. Like good parenting, the role of structuring space and time, of drawing lines and limits to when and where

good education takes place, is an important part of the job of educational institutions. It is the role of the institution to offer the structure and support that is not infinitely flexible or able to meet the whimsical preferences of the student-as-consumer. This is not paternalism as much as constituting the world on the axes of meaningful spatiality and temporality. It ensures that the purposes of education are not closed off by the reductive wants of the consumer any more than by an authoritarian or dictatorial structure.

1. Liverpool Hope University, *Our Approach to Higher Education* (2014), www.hope.ac.uk/media/liverpoolhope/contentassets/media,42616,en.pdf, accessed May 22, 2015.

2. At the time of writing (October 2014), *Wikipedia* redirects "Online Education" to "E-Learning."

3. Gert Biesta, *Good Education in an Age of Management: Ethics, Politics, Democracy* (London: Paradigm, 2010).

4. Ibid., 14.

5. Gert Biesta, *Beyond Learning: Democratic Education for a Human Future* (London: Paradigm, 2006), 20–21.

6. For Stiegler, "technics" structures human existence. The term is broadly equivalent to "technology," but Stiegler wants to note that technics cannot be separated from culture or human existence, unlike a more general understanding of technology.

7. Bernard Stiegler, *Technics and Time I: The Fault of Epimetheus* (Stanford: Stanford University Press, 1998), 134.

8. Bernard Stiegler, *Taking Care of the Youth and the Generations* (Stanford: Stanford University Press, 2010). This work will be cited as *TCY* in the text for all subsequent references.

9. Jacques Derrida. "Plato's Pharmacy," in *Dissemination*, trans. Barbara Johnson (London: The Athlone Press, 1981), 61–172.

10. Günther Anders, *Endzeit und Zeitende: Gedanken über die Atomare Situation* (München: Beck, 1972), 73, quoted in Alfred Nordmann, "Noumenal Technology: Reflections on the Incredible Tininess of Nano," *Techné: Research in Philosophy and Technology* 8, no. 3 (2005): 3–23.

11. Having said that, a 7% completion rate is still very impressive given the extraordinary sign up. Chris Parr, "MOOC Completion Rates Below 7%,'" Times Higher Education, May 9, 2013, http://www.timeshighereducation.co.uk/news/mooc-completion-rates-below-7/2003710.article, accessed November 15, 2015.

12. Albert Borgmann, *Technology and the Character of Contemporary Life: A Philosophical Inquiry*, (Chicago: University of Chicago Press, 1984), 41.

13. Katherine N. Hayles, "Hyper and Deep Attention: The Generational Divide in Cognitive Modes," *Profession* (2007): 187–198.

14. Richard Iveson, "Taking Care with Bernard Stiegler," *The New Cross Review of Books*, April 29, 2012, http://newcrossreviewofbooks.wordpress.com/2012/04/29/taking-care-with-bernard-stiegler/, accessed May 22, 2015.

15. Ian Semple, "Oxford Scientist Calls for Research on Technology 'Mind Change'" *The Guardian*, September, 14, 2010, http://www.theguardian.com/science/2010/sep/14/oxford-scientist-brain-change, accessed November 15, 2015.

16. Mircea Eliade, *The Sacred and the Profane: The Nature of Religion* (New York: Harper Torchbooks, 1961).

17. Jonathan Z. Smith, *To Take Place: Toward Theory in Ritual* (Chicago: University of Chicago Press, 1992), 103.

18. Bernard Stiegler, "Our Ailing Educational Institutions," *Culture Machine* 5 (2003).