Mind the gap: infilling Stiegler’s philosophico-educational approach to social innovation

James Reveley & Michael A. Peters

To cite this article: James Reveley & Michael A. Peters (2016) Mind the gap: infilling Stiegler’s philosophico-educational approach to social innovation, Educational Philosophy and Theory, 48:14, 1452-1463, DOI: 10.1080/00131857.2016.1155433

To link to this article: http://dx.doi.org/10.1080/00131857.2016.1155433

Published online: 08 May 2016.

Submit your article to this journal

Article views: 141

View related articles

View Crossmark data
Mind the gap: infilling Stiegler’s philosophico-educational approach to social innovation

James Reveleya and Michael A. Petersb

aFaculty of Business, University of Wollongong, Wollongong, Australia; bFaculty of Education, University of Waikato, Hamilton, New Zealand

ABSTRACT
According to Bernard Stiegler, social innovations in the educational field are an antidotal cure for social pathologies wrought by the digitalisation of society. This article explores how Stiegler’s social pharmacology links to the human-technical co-constitution thesis that he first expounded in Technics and Time, 1. Not only do we identify in the Stieglerian corpus a lack of conceptual clarity about social innovation, but also problems in the anthropo-philosophy on which this latter work rests. Tying up the loose threads of Stiegler’s philosophical tapestry is accomplished in three steps. In the first, we retrofit Stiegler with an enactivist view of cognition. The second involves precisely defining social innovation, and then pinpointing open education as a ‘pure’ social innovation situated on the socially curative side of Stiegler’s digital ledger. The third closes the loop by identifying complementarity between enactivism and socio-educational innovation in an age of mass empowerment by means of networked computers.

KEYWORDS
Stiegler; social innovation; open education; enactivism; anthropo-philosophy

INTRODUCTION
The pharmacological question raised by the passage from the reading to the digital brain is that of knowing what of the former must be preserved in the latter[,] … [Currently] neurological automatisms are exploited by technological automatisms, an exploitation that is destructive of what Plato called thinking for oneself. The task of philosophical engineering today should be to prevent this short-circuit[,] … a task that implies the need for a thoroughgoing reinvention of social and educational organisations. Bernard Stiegler, Die Aufklärung in the age of philosophical engineering (2013, p. 29)

A scar is what happens when the word is made flesh. Leonard Cohen, The Favorite Game (2009, p. 4)

Social innovation encompassing framebreaking change to educational institutions is a topic that is now at the heart of Bernard Stiegler’s philosophical enterprise. Yet, it was technological innovation that originally preoccupied Stiegler in the work that put him on the philosophical charts: Technics and Time, 1 (1998). This article explores how social innovation in education links to the theme of technics within the Stieglerian corpus. We anchor Stiegler’s early work on human-technical co-constitution in a non-cognitivist philosophy of mind that pays dividends for understanding socio-educational innovation in the digital age. Stiegler (2013) talks about reading and writing being inscribed on the brain— of ‘the word,’ in this sense, writing on the flesh. We expose a tear in the flesh of his philosophy and suture it; we cannot help but leave a scar.

CONTACT James Reveley jreveley@uow.edu.au
© 2016 Philosophy of Education Society of Australasia
Stiegler is not without his critics (cf. Bradley, 2015). Nevertheless, we believe he has keen insight into two phenomena: the techno-prosthetic nature of human cognitive development, and social innovation in education as a counterweight to the ‘global mnemotechnical system’ (Stiegler, 2015, p. 167) that massively externalizes human memory in databases. This can cause young people to forget how to think for themselves; it is a problem schools are currently battling (Stiegler, 2010). For Stiegler’s work to bear its full philosophico-educational fruit, however, two gaps need to be infilled. The first involves identifying a position within the (materialist) philosophy of mind that accommodates Stiegler’s contention that ‘technics’, as far back as palaeoliths (stone tools) and as recently as iPads, play a constitutive role in the development of human cognitive capacities. We identify just such a perspective: enactivism. Stiegler’s treatment of social innovation is the site of the second gap. For Stiegler, if social innovation is not the entire antidotal cure for the social ills caused by the digitalisation of society, then it is certainly a large part of it. There is, however, ambiguousness about social innovation that seeps into the Stieglerian text. This reflects a wider philosophical aporia concerning the nature of social innovation (Cajaiba-Santana, 2014). We insert greater conceptual rigour into the debate Stiegler has initiated that privileges ‘social innovation’ as a master concept for digital technology’s socially therapeutic effects.

There are a couple of reasons why we retrofit Stiegler with enactivism of the more ‘radical’ variety (Hutto & Myin, 2013), combined with its close cousin, Material Engagement Theory (Malafouris, 2013). Firstly, enactivism is well suited to weaving the disparate cognition, education and innovation threads of Stiegler’s philosophical tapestry together. Enactivism is one of four theories of social cognition—the mind as enacted, embodied, embedded and extended—called ‘4e’ for short (Rowlands, 2010). Each challenges Cartesian, internalist-computational conceptions of cognitive processes as content-laden ‘processes occurring inside the brains of cognizing organisms’ (Rowlands, 2010, p. 52). Rather than stressing contentful mental representation, the 4e theories emphasise situated action (Rowlands, 2010, p. 49). For radical enactivism, in particular, ‘mind (or cognitive activity) is the result of an individual’s situated embodied interactions with environmental affordances’ (Hutto, Kirchhoff, & Abrahamson, 2015, p. 374). Using this variant of enactivism, we draw a straight line between Stiegler’s insights into the co-determinacy between cognitive development and technics, and his analysis of the socially toxic (‘mnemotechnical’) and therapeutic (social innovation-promoting) effects of digital technology. Enactivism enables us to increase complementarity between Stiegler’s technics-based account of cognitive development and his looser notion of digital social therapeutics as a form of social problem-solving.

Secondly, enactivism fits well with how learning is shaped by the digital media environments in which young people are currently immersed, where information is readily accessible through digital devices. Bereiter (2002, p. 13) argues that the internalist cognitivist metaphor of the ‘mind-as-container’, the pedagogical concomitant of which is that educational instruction simply fills it up, is singularly ill-suited to understanding education in an age when knowledge is socio-technically distributed. Enactivism shifts the focus from internalist accounts of cognition to interaction between ‘brains, bodies, and things’ (Malafouris, 2013, p. 17). The educational implication of enactive cognition is that learning ‘and understanding are not tied into the workings of an “inner mind”, some cognitive core, but occur in directed interaction between the student, others and the world he or she inhabits’ (Branson, 2010, p. 93). Enactivism highlights the openness of human cognitive capacities to being shaped by digital technologies that mediate the learner’s interaction with the world. We ground in enactivist theory Stiegler’s contentions about the capacity of cognitive devices such as networked computers, which are the product of the human mind, in turn, to reconfigure the mind, and how this can be to the detriment of independent thought. Enactivism, we maintain, also houses a collectivist view of human cognitive development that is congruent with understanding the Internet as a platform for the socio-educational innovations Stiegler champions as a counterweight to digitalisation’s mind-numbing effects.

Our article is structured as follows. Firstly, we provide a broad brushstrokes overview of Stiegler’s account of technological development. Secondly, we disentangle Stiegler’s anthropo-philosophy from his not uncontroversial view of Palaeolithic tools as memory devices. In so doing, we redirect Stiegler’s implicit cognitive theory towards enactivism. Thirdly, we review Stiegler’s (2012a) ‘digital pharmakon’ argument and note the problems that result from his intuitive use of the social innovation concept.
Fourthly, we draw on Pol and Ville’s (2009) reworking of that concept to identify open education as a social innovation that aligns with the socially curative side of Stiegler’s digital pharmacon. Fifthly, our conclusion reflects on the suitability of enactivism, as a cognitive theory, to understanding digital and knowledge-era socio-educational innovation.

**Stiegler on technics and prosthetic extension**

Stiegler’s philosophical take on the macro-dynamics of technological innovation is informed by the French historian of technology Bertrand Gille’s magistral History of Techniques (1986). In Technics and Time, Stiegler uses Gille’s systems thinking framework to conceptualise technology as a subsystem of the wider social system that is society. From Gille, Stiegler derives the idea that technological innovation – technical progress through the technological subsystem – can evolve at such speed that it outstrips the adaptive capacity of the sociocultural subsystem. As Stiegler puts it, ‘Technics evolves more quickly than culture’ (1998, p. 15, original emphasis). Stiegler then uses Gilbert Simondon’s philosophical instrumentalum to radically extend this point. With industrialisation, technological evolution is propelled ‘by a dynamism’ that is ‘independent of all human intention’ (Stiegler, 1998, p. 82). This displacement, in turn, skews the ‘codetermination’ that Stiegler (1998, p. 157) identifies as the originary relationship between humans and technology.1

Stiegler interrogates that relationship through the work of the classic French anthropo-archaeologist, André Leroi-Gourhan. The key point is that ‘the who’ (i.e. human beings) and ‘the what’ (technics) are inseparable because they evolve together (Stiegler, 1998, p. 177, original emphasis). Through technics, human beings are fundamentally prosthetic: ‘the human invents himself in the technical by inventing the tool – by becoming exteriorized techno-logically’ (Stiegler, 1998, p. 141).

We believe Stiegler then takes one step too far. He contends that primitive stone tools, including those dating from early in the Lower Palaeolithic Period (which began approximately 2.7 million years ago),2 serve as ‘artificial memory supports’ that bequeath ‘the memory of past experience’ of previous generations to later ones (Stiegler, 1998, p. 159). Here is how his argument unfolds. The memory of particular individuals is ‘epigenetic memory’; technology-mediated sociocultural memory is ‘epiphylogenetic memory’ (Stiegler, 1998, p. 177). Stiegler calls the former ‘secondary retention’; the latter is the repository of ‘tertiary retentions’ (Stiegler, 2013, p. 34). According to Stiegler, tools conserve secondary retentions, bearing traces of individual experiences and choices (to modify or retain the shape of a tool), which then form a template for later generations to copy or adapt. This is ‘epiphylogenesis’ (Stiegler, 1998, p. 177).

Stiegler is at his most anthropo-philosophically controversial when he insists there is continuity between Lower Palaeolithic tool-making, where the mind is first ‘exteriorized’ (Stiegler, 1998, p. 141), to cave art, and on down to the invention of writing and then, beyond that, to the industrial and digital eras. The controversy is not because the exteriorisation thesis flies in the face of the received internalist philosophy of mind wisdom. Though it certainly does that, each of the 4e approaches competes with the internalist cognitivist view of the mind, under which cognitive processes are seen as brain-bound (Rowlands, 2010). Rather, our concern is that Stiegler puts too much under the banner of one process: exteriorisation. Furthermore, for all his conceptual ostentation, Stiegler leaves undisclosed the theory of cognition to which he subscribes—if any. In teasing out these problems, the next section supplies a suitable one.

**Retrofitting Stiegler enactively**

In his path-breaking How Things Shape the Mind (2013), Lambros Malafouris helpfully summarises Leroi-Gourhan on exteriorisation. It is a shorthand concept for ‘how human evolution has been oriented towards placing outside what in the rest of the animal world is achieved inside’ (Malafouris, 2013, p. 14, original emphasis). In Stiegler’s hands, exteriorisation encompasses three processes: how the human mind’s development and tool use are co-determined (beginning in the Lower Palaeolithic more than...
two million years ago); the tool as a form of externalised memory (also dating to that period); and how ‘the exteriorisation of the content of the mind begins to unfurl’ (Stiegler, 2013a, p. 36). This unfurling, which Stiegler says began comparatively recently through cave art in the Upper Palaeolithic Period 40,000 years ago, is described as a process of ‘grammatisation’.3 In his words:

Grammatisation begins during the Upper Paleolithic Era, some two million years after technical life arose. It enabled mental and behavioural flows to be made discrete[,] (Stiegler, 2013a, p. 33).

By ‘discrete’, Stiegler means that mental content is transposed into a non-mental material medium and stored somewhere other than in the head. Under this definition, ‘the digital is simply the most recent stage of grammatisation’ (Stiegler, 2013a, p. 32). For Stiegler, therefore, grammatisation extends in a straight line right back to the Upper Palaeolithic; it is simply an extension of exteriorisation. What Stiegler proposes, in essence, is an historical continuity thesis.

Does Stiegler provide adequate foundations for his claim that there is a uniform process of the mind being externalised in memory containers that extends from Lower Palaeolithic tool-making all the way through to the advent of digital technology? Stiegler’s (highly selective) reading of Leroi-Gourhan, which concatenates vast periods of time in human evolution, certainly raises doubts. Worryingly, as Johnson (2013, p. 43) observes, Stiegler assumes that ‘the essential features of the human are present from the origin’ in Zinjanthropus. Indeed, in crucial passages of Technics and Time, 1, Stiegler (1998, p. 173) can be read to suggest that Zinjanthropus is a tool-using fully human precursor. Here he is wide of the mark. Renamed Paranthropus boisei, this hominin species (Zinjanthropus) originated more than two million years ago; its remains were found at the Olduvai Gorge in Tanzania.4 The site has significant deposits of stone tools made and used by hominins. Contra Stiegler, the current thinking is that Paranthropus was not among them. Moreover, while a basic human type, Paranthropus is a branch of human evolution that became extinct and, in consequence, did not give rise to Homo sapiens.5 Stiegler’s problematic reference to Zinjanthropus (Paranthropus) notwithstanding, we think that he is largely correct about the co-evolution of the human mind and its technical prosthetics. But we question his identification of Lower Palaeolithic stone tools as memory supports akin to fully linguistic ones, such as clay tablets, written parchments and books. We will deal with each point in turn.

Channelling Leroi-Gourhan, Stiegler (1998, p. 160) talks of ‘the flint mirror’—by which he means that primitive tool-making shapes cognitive development.6 Recent anthropo-philosophical work supports the view that the human mind was extended and developed through stone tool-making and tool use in a manner that is not inconsistent with Stiegler’s account. Consider the case of knapped tools. Developing in several stages from their origins in Africa more than two million years ago (with prime examples from the Olduvai Gorge), these tools are produced by ‘knapping’—a process of ‘striking of a flake off a core’ by hitting one stone against another (Malafouris, 2013, p. 161). After reviewing the knapping literature, Malafouris lends support to Stiegler’s prosthetics thesis.7 It is not inappropriate to regard:

stone tools as enactive cognitive prostheses capable of transforming and extending the cognitive architecture of our hominin ancestors[,] (Malafouris, 2013, p. 164)

The phrase ‘transforming and extending’ is the master key to the enactivist view of how human cognition develops. Enactivism develops ‘the thesis that material culture’ is ‘responsible for “extending” our cognitive and interactive possibilities in important and transformative ways’ (Hutto, 2008, p. 242). The important enactivist distinction is between the ‘basic minds’ of tool-making but prelinguistic hominins, such as Homo habilis, on the one hand, and later developing ‘superminds’ of fully linguistic hominins (notably, Homo sapiens), on the other (Hutto, 2008, p. 96). Basic minds are ‘extensive’, but they are not ‘contentful’ (Hutto & Myin, 2013, p. 137). By content is meant the standard philosophical ‘propositional attitudes’ (Hutto, 2008, p. 233). In contrast, ‘supermental thinking’ is ‘based on adopting linguistically mediated attitudes towards propositions’ (Hutto, 2008, p. 96). Hence the mind is scaffolded by the acquisition of natural language atop of which further scaffolding is erected. The implication is clear:

The capacity to think using contentful representations is an example of a late-developing, scaffolded, and socially supported achievement. It originates from and exists, in part, in virtue of social practices that make use of external public resources, such as pen, paper, signs, and symbols. (Hutto & Myin, 2013, p. 152)
This developmental model is consonant with much that Stiegler has to say about how spoken and written language co-creates the cognitive capacities of human beings as materially, reading and writing becomes ‘inscribed upon their brains’ (Stiegler, 2013, p. 37).

In our view, however, Stiegler too cavalierly describes some of the earliest Lower Palaeolithic stone tools as memory supports. That he does so is beyond doubt: knapped tools, he avers, are ‘an actual nonliving yet vital memory’ (Stiegler, 1998, pp. 176–177). Here Stiegler makes too much of the symmetry (similarity in shape, that is) of stone tools. Malafouris’ discussion of the Acheulean handaxe, a stone tool developed and used for cutting by Homo erectus approximately 1.5 million years ago in Africa, is germane. As he points out:

many archaeologists … argue that the perceived symmetry in stone tools is simply a consequence of the manufacture technique, rather than a product of human intention. (Malafouris, 2013, p. 157)

Even if there is an element of conscious intention—and Malafouris thinks there is—the shape and form of the handaxe is discovered through practical action. This can be guided by the example of a pre-existing handaxe but such a prototype does not function as a memory storehouse that records the sequence of tool-making procedures, which then insinuates itself into the hominin mind in the form of a plan. Material Engagement Theory provides an alternative account:

The best angles for flake removal are neither identified nor imagined in the knapper’s head before the act. The topography of the knapping activity and the accurate timing of a powerful blow are neither pre-planned nor recollected; they are embodied, and therefore must be discovered in action. (Malafouris, 2013, p. 174, original emphasis)

Furthermore, the symmetry of the tool (how much it resembles others of its kind) was just one of the toolmaker’s concerns; ‘the feeling of weight, the sense of sharpness at the edge, or the smoothness of its surface’ would have been equally important (Malafouris, 2013, p. 174). When the lack of forethought in the form of pre-planning and recollection is added to this account of tool-making, it is hard to see how the tool stores memories which are transmitted across time in the way Stiegler contends.

The next step Malafouris takes is important for our enactive retrofit of Stiegler. Tool-making is a form of ‘mark making’ (Malafouris, 2013, p. 180). But mark-making undergoes a qualitative transformation, from the marks of knapping blows on stone tools 1.5 million years ago, to the Upper Palaeolithic cave art of approximately 30,000 years ago at sites such the Chauvet Cave in Southern France. Each is a form of enactive projection, but the difference is that the cave art projections entail:

actions whose purpose is not simply to alter the world so as to advance physically toward some goal, but rather to alter the world so as to help make available a new way of thinking about it. (Malafouris, 2013, p. 194)

A knapped stone tool may have been based on a prototypical model but it is not a mnemonic device comparable, say, to the Mycenaean clay tablets inscribed in the ancient language called Linear B that date from around the fourteenth-century B.C. This is another of Malafouris’ examples. Loaded with semantic content, the Linear B tablets mark a qualitatively different phase in the development of mark-making that enables memory to be externalised (or ‘grammatised’, in Stieglerian parlance). The ‘mnemonic properties of the Linear B system’ are such that ‘it is not the individual scribe that remembers; it is the Linear B tablet’ (Malafouris, 2013, p. 82). Here is the key point we derive from our reading of Malafouris: the knapped stone tool is not a vessel that remembers à la Linear B, but rather is a step in the materially engaged cognitive development that enabled the representational thinking, and memory externalisation, that Linear B (and cave art before it) affords.

To summarise: we have refined Stiegler’s framework by grounding it in an enactivist view of cognition. Based on this philosophical retrofit, we find that the ‘exteriorisation’ concept should be kept distinct from the ‘grammatisation’ concept. The latter does not, and cannot, encompass the former. Stiegler’s conflates the two by contending that a transhistorical master process of memory externalisation connects them. We disagree. From an enactivist standpoint, the continuity that unites the Lower Palaeolithic toolmaker, the Upper Palaeolithic cave artist, the Mycenaean scribe, and the contemporary writer and reader is not the memory devices they use (for the Palaeolithic toolmaker has none), but rather their ‘enactive intentionalities’ (Malafouris, 2013, p. 173, emphasis omitted). That is, how their cognitive capacities develop and are extended through material culture, including writing itself and its
digital transformation. Stiegler’s argument about digitalisation, which we review in the next section, certainly says much about memory. Nevertheless, based on what we have argued so far, what best connects Stiegler’s take on digitalisation back to his account of originary human-technics co-development is not the leitmotif of memory, but rather enactive cognitive development.8

Revisiting the digital Pharmakon

Enactivism and Material Engagement Theory provide the missing piece in the puzzle, connecting up the Stieglerian thesis of human cognitive and technical co-dependency and Stiegler’s (2013) view that we have crossed the boundary from the ‘reading brain’ to the ‘digital brain’. Enactivism also puts a congenial layer of cognitive theory beneath Stiegler’s envisaging of technology-enabled public learning as the antidote to digital grammatisation’s tendency to sap independent thinking. This line of reasoning concerns the mixed social effects of technics.

Stiegler describes the grammatised mechanisms that began with writing and are epitomised by the book, in Platonic terms, as inherently ambiguous pharmaka—being both poison and cure. Pharmakon is the apt metaphor that Plato applies, in the Phaedrus (2005), to the act of writing (274). Plato suggests that words spoken have some priority over written words because one can make direct inquiries over ambiguities to the people who are the source of these ambiguities and hence who may be able to supply an explanation. Put in terms of Plato’s arguments against eloquent sophistry, as a pharmakon, writing allowed sophists to ‘produce a logography that manipulates logical minds’ thus undermining their ‘ability to think by themselves’ (Stiegler, 2012b, pp. 191–192). Here Stiegler says that Plato sets up a false dichotomy between ‘anamnésis as a living and transformative reminiscence’ from which emerges rational knowledge that seeps into memory; and ‘memory as a passive reproduction (hypomnésis)’, which a mnemonic device such as writing can handle (Stiegler, 2012b, p. 190). Far from anamnesis and hypomnesia being opposites, Stiegler (2012b, p. 193) contends that ‘anamnestic experience’ is attained precisely ‘on the basis of a hypmnemonic practice’—learning to read and write.

For social progress to occur, Stiegler argues, the externalisation of memory as tertiary retentions in memory supports must be accompanied by ‘re-interiorisation’—or re-learning—of the cultural norms and values the retentions store (Stiegler, 2013a, p. 37). For Stiegler (2010), the school is the primary medium of this process, which is needed for social maturity and responsibility in the sense of taking care of oneself and others to emerge. It is re-internalisation that the ‘speed’ of technological innovation disrupts:

As the role of digital tertiary retention in innovation becomes increasingly important, the speed with which knowledge circulates accelerates, transforming knowledge into information, which in turn becomes calculable data, and hence allows this selection to be automated. The anamnesic process is thereby short-circuited, and this leads, seemingly inevitably, to the destruction of the après-coup and the elimination of delay, without which there can be no time for reflection. (Stiegler, 2015, p. 189)

For Stiegler, Web 2.0 platforms are the tertiary retentions of the digital age. The combination of digital technologies and marketing ‘psychotechnologies’ under consumer capitalism disrupts the social circuits, attention-forming mechanisms and educational institutions—schools and universities—through which rational theoretical knowledge is formed and transmitted from one generation to another (Stiegler, 2010). What Stiegler (2015, p. 123) calls ‘digital grammatisation’ fosters an automaticity that dulls thought and harnesses knowledge and reason to fulfilling the imperatives of globalised digital capitalism. Google’s Internet dominance ‘has led to an unprecedented functional integration of knowledge into the apparatus of production and consumption’ (Stiegler, 2015, p. 168). Machine-based tertiary retention both grammatises ‘reason’ and ‘understanding’ and displaces them (Stiegler, 2015, p. 166), as these functions are exteriorised and replaced by algorithmic processes. Thus, we are in ‘a technological state of shock’ which ‘consists in a production of tertiary retentions that tend to automatically and by themselves link themselves together, outside of any knowing subject’ (Stiegler, 2015, p. 120). As an algorithmically driven system, financialised capitalism epitomises this state.
What about the digital *pharmakon*'s positives? This is where social innovation enters the picture. Stiegler identifies contributory, peer-based systems that brush against the grain of automaticity. Jeremy Rifkin (2014) deals with peering at length in his discussion of the fast-developing Internet of Things—a multitude of devices and people connected in real time. To the extent that the Internet of Things 'enables billions of people to engage in peer-to-peer social networks,' it raises the possibility of instituting large-scale 'lateral peer production' that crowds out capitalism (Rifkin, 2014, p. 18). For Stiegler (2015, p. 142), such a prospect is the ‘therapeutic’ side of the ‘the new digital pharmacology’. Central to this vision are framebreaking changes in socio-institutional arrangements under a radical societal reconstruction that ushers in an ‘economy of contribution’ (Stiegler, 2015, p. 147). Stiegler’s digital therapeutics thus prizes equity over efficiency. The logic of Wikipedia as a participatory, decentralised platform for the production and sharing of user-generated content is emblematic of this ethos (Benkler, in press).

Stiegler envisages boundary spanning activity in which universities and schools enter into new relationships with the wider community. He talks about the ‘development of contributory research’ drawing on ‘communities of amateurs’ in ‘digital academies’ that span the arts, politics and the sciences (Stiegler, 2015, p. 204, emphasis omitted). Social innovation is integral to this process:

> The curative transformation of digital pharmacology … passes through a new arrangement between the university and this outside, where collective … initiatives of all kinds proliferate, and this constitutes an entirely new process of social innovation. (Stiegler, 2015, p. 204, original emphasis).

Yet, there is a lack of conceptual clarity in what Stiegler says about social innovation as a cure that allows the social subsystem to catch up with the technical subsystem. What counts as a truly ‘social’ innovation and how does it differ from ‘technological innovation’? What makes an educational innovation a ‘social’ innovation? Stiegler does not clearly and unambiguously spell out the answers. To clarify matters, the next section does three things. It draws a distinction between business innovation and social innovation; it positions the Internet at the intersection of these different types of innovation; and it provides open education as the quintessential example of social innovation consistent with Stiegler’s boundary spanning manifesto.

**Social innovation redefined**

Pol and Ville’s (2009) innovation typology provides a method for firming up the Stieglerian perspective. Their gambit subsumes technological innovation into the broad category of business innovation:

> It is generally agreed that business innovation is profit-seeking innovation, that is, the creation of new ideas with the intention of making money. It is also generally agreed that business innovation consists of either technological innovations (new or improved products or processes) or organizational innovations (changes to the firm’s strategies, structures or routines). (Pol & Ville, 2009, p. 881)

Social innovation is defined in a way that is congruent with Stiegler’s notion of the good: ‘an innovation is termed a *social innovation* if the implied new idea has the potential to improve either the quality or quantity of life’ (Pol & Ville, 2009, p. 881; original emphasis). Stiegler’s interest lies not in quantity or bare life, but rather in the very things encapsulated in the concept of ‘macro-quality of life’—education opportunities (including quality of teaching and learning practices); ‘family life’; ‘community life’ and ‘political freedom’ (Pol & Ville, 2009, p. 882). Though Stiegler (2010) philosophically inscribes these in Kantian terms as preconditions of social maturity, he does so in a way that is not incommensurable with the above quality-of-life formulation.

While social innovations and business innovations can overlap, according to Pol and Ville, a business innovation is not a social innovation if it does not improve the macro-quality of life. We point to the much vaunted ‘enterprise resource planning’—a system to manage intra-organisational information flows—as an example of a business innovation through-and-through; it is intended to enhance firm profitability (Scarborough, Robertson, & Swan, 2015). By the same token:

> A social innovation is not necessarily a business innovation (for example, a new pedagogical method to teach mathematics to toddlers available for free would not be a business innovation) and a business innovation is not necessarily a social innovation[.] (Pol & Ville, 2009, p. 884)
Pol and Ville then come up with a masterstroke. They identify ‘pure social innovations’ that are not profit-driven business innovations because, at their inception, ‘they do not exhibit potential profits’, and thus ‘are not created with the purpose of making money’ (Pol & Ville, 2009, p. 883). This provides a way of nailing down Stiegler’s therapeutic side of the digital pharmakon: innovations unmotivated by profit-seeking that enhance the macro-quality of life. Kaletka and Pelka (2011) describe user-generated content in Wikipedia as a social innovation; this would rate as an example of a pure social innovation, as it enables the distribution of knowledge throughout the wider community. Some say Wikipedia creates and reproduces new forms of (online) hierarchical domination (Tkacz, 2015). We see hierarchy reinforcement as a second-order effect that does not detract from Wikipedia’s non-profit status and ‘purity’ as a social innovation.

What about the Internet more broadly? Looking at the commercialised Internet today, Figure 1 shows it at the intersection of social innovation and business innovation in a category Pol and Ville (2009, p. 884) label ‘bifocal innovations’: This concept captures the dual-edged nature of Stiegler’s digital pharmakon. The Internet fundamentally is a technological innovation, but one that provides a platform for business innovations and social innovations alike. The Internet enables profit-seeking business innovations that Stiegler sees as poisonous, principally the activities of digital goliaths such as Google that harness and economise Internet users’ attention. But the Internet also enables pure social innovations that compensate for digital technology’s pernicious effects. Only the pure social innovations, in Stieglerian terms, are likely to be socially therapeutic or curative.

Not only is open education a prime example of a pure social innovation, under Pol and Ville’s criteria, it is congruent with the primacy that Stiegler (2010, 2012b, 2015) accords to social innovations of an educational nature. Open education has three distinguishing features: (1) openness of learning content (‘full courses, courseware, content modules, learning objects, collections and journals’); (2) tools for openness (‘software to support the development, use, reuse and delivery of learning content’); and (3) implementation of openness (through IP licences to promote open publishing of materials, design principles of best practice and localise content’) (OECD, 2007, pp. 30–31). Open education builds on the nested and evolving convergences of open source, open access and open science, and links to a set of still wider political and economic changes that usher in ‘social production’ as an aspect of the global digital economy (Peters, 2008).

With regard to educational institution boundary-spanning, Massive Open Online Courses (MOOCs) are the relevant open education example. As with Wikipedia, there are those who say that MOOCs institute new hierarchies (Rhoads, Berdan, & Toven-Lindsey, 2013). Certainly, alongside the non-profit Udacity (the first MOOC) and edX, there is the profit-seeking Coursera (Rifkin, 2014, p. 115). Rather than rehearsing the debates, we note that even pure social innovations can be diverted to profit-seeking ends, and this development can be readily accommodated by the fundamental ambiguity that Stiegler’s digital pharmakon metaphor highlights.

Moreover, open education’s implicative sharing and democratisation of knowledge is a counter-weight to the ‘googlization’ of the Internet (cf. McChesney, 2013; Vaidhyanathan, 2011). Academic studies link information sharing and knowledge dissemination to the practical realisation of democratic ideals (Peters, Liu, & Ondercin, 2012). In a path-breaking work a decade ago, Benkler (2006, p. 215) spotlighted ‘the emerging networked public sphere’. It is the political counterpart of the peer-based participatory economy whereby informed publics break the trance of mass media and recreate participatory democracy. This is a networked public’s sine qua non:

The network allows all citizens to change their relationship to the public sphere. They no longer need be consumers and passive spectators. They can become creators and primary subjects. It is in this sense that the Internet democratizes. (Benkler, 2006, p. 272)

The recreation of the institutions of democratic governance, built on the foundations of a contributory (peer-based) economy, is something that Stiegler’s notion of social innovation implies. Despite envisioning a peer-based economy as an alternative rather than a complement to the free-market capitalism to which Benkler is committed, Stiegler’s formulation is not dissimilar to Benkler’s. Stiegler (2015, p. 194)
notes the rise of ‘publics who are no longer audiences, who have passed from being a mass of consumers to associations of contributors’. Likewise, Stiegler (2012b) points to Wikipedia’s contributory nature as not just a model to be emulated in practical politics, but rather as enabling educational institutions—both schools and universities—to help with anamnesis, by encouraging young people to learn to become ‘contributors’ rather than ‘consumers’. This education is crucial to mitigating the depoliticising effects of the Internet, given its current capitalistic configuration (Dean, 2005).

The renegotiation of organisational and institutional boundaries permitted by the Internet both supports the open education movement and goes beyond it, suggesting the possibility of entirely new ways of coordinating economic activity by opening a production space beyond the firm and market that is potentially liberating. In so doing, the Internet offers the tantalising prospect of reharnessing technical progress to the ends of social progress. This is the wider social innovation agenda where Stiegler places his hopes. As we have argued elsewhere, there is much credence in Internet-based collective intelligence as a force for transformative social change along Stieglerian lines (Peters and Reveley, 2015).

**Conclusion**

In terms of contemporary cognitive theory, a blend of radical enactivism and Material Engagement Theory is what Stiegler grasps towards in his anthropo-philosophical explanation of how cognitive activity and technics co-develop. Namely, one in which ‘basic minds’ are contentless and content only enters in through the vector of external social scaffolding including natural language, reading and writing, culturally supplied narratives, and so forth (Hutto, 2008; Hutto & Myin, 2013). This learning process is now being illuminated by enactivism-inspired educational research. Steven Khan and his co-authors argue that enactivism is ‘a fit framework for the study of spatial reasoning in mathematics education’ (Khan, Francis, & Davis, 2015, p. 269). In applying enactivism to education, we want to take one step further. Enactivism is also a fit (cognitive theoretical) framework for understanding—in
Stieglerian terms—how the Internet functions as a scaffold for socio-educational innovation. We will make a concluding comment along these lines.

Under our interpretation of Stiegler, Internet-based collective intelligence is central to pure social innovation. Yet, it is not enactivism but one of its 4e counterparts—the ‘extended mind’ (Clark & Chalmers, 1998)—that philosophers have tended to apply to the Internet. There are, however, many problems with the idea of the Internet as the basis for Clark and Chalmers-style extended cognition (Smart, 2012). We single out Hutto and Myin’s criticism, albeit one they make in a different connection, that the extended mind hypothesis is inherently individualistic. That is, it ‘narrowly applies to the cognitive antics of lone individuals using highly trusted and entrenched external resources’ (Hutto & Myin, 2013, p. 153). This, they maintain, contrasts starkly with the ‘Scaffolded Mind Hypothesis’ which they absorb into their enactivism. In a nutshell:

the Scaffolded Mind Hypothesis focuses on the communal and collective resources that stably augment and expand upon the resources supplied by our basic cognitive capacities. (Hutto & Myin, 2013, p. 153)

While they do not bracket the Internet among these sociocultural resources (reading, writing, narratives and so forth), there is no reason why it cannot be included in subsequent iterations of enactivist theory. Extending these practices to include reading and writing on digital devices likewise provides an opportunity to factor Stiegler’s ‘digital brain’ arguments back into the enactivist-theoretic equation.

At minimum, enactivism has a collectivist orientation that dovetails with the idea of collective intelligence on the Internet, a property that is emergent as people are linked together through networks of computers. This view of cognition is not inconsistent with the mass empowerment potential of networked computers enabling what Wittes and Blum (2015, p. 47) call ‘metacreativity’. Extrapolating from Stiegler, such creativity, in turn, has the potential to reconstitute the public realm. The digitally mediatised public sphere—central to which are scaffolded (enactive) minds networked through the Internet—might even rejuvenate social democracy in a digital political economy of contributors rather than passive, broadcast media-stultified consumers. To the extent that this endeavour implies new forms of public engagement and public learning, boundary-spanning pure social innovations in the educational field are likely to be at its forefront.

Notes

1. For a critique of this reading of Simondon, see Combes (2013, pp. 67–68).
2. We employ Roe’s (2004) periodisation; academic opinion differs as to whether there is a distinguishable Middle Palaeolithic Period (roughly 300,000–40,000 years B.C.). The Upper Palaeolithic ran from 40,000 B.C. until 10,000 B.C. (Sinclair, 2004).
3. Stiegler (2015, p. 253, n. 45) discloses that he derives the ‘grammatisation’ concept from the linguist Sylvain Auroux but applies it well beyond language.
4. Following the new archaeo-anthropological convention, we use the term ‘hominin’, which is restricted to human species including extinct ones, in preference to ‘hominid’, which refers to all past and present Great Apes, including chimpanzees and gorillas (see Australianmuseum.net.au). For the details of the Olduvai Gorge finds, see: olduvaiproject.org.
5. For a summary of the evidence on each of these matters, see the Smithsonian Museum site: humanorigins.si.edu.
6. The word ‘flint’ should not be taken literally. According to Johnson (2013, p. 51), lost in the translation from French is the sense of ‘flint’ as a metonymic stand-in for a host of materials, including other types of stone.
8. We acknowledge there are different interpretations of Stiegler. For one that stresses historical continuities in memory’s dependency on exteriorisation, see Vlieghe (2014).
9. For an overview of the critical literature on the Internet and politics, see Peters and Reveley (2015).
Acknowledgments

We would like to thank the two reviewers for their comments and Dan Hutto for conversations about radical enactivism and Material Engagement Theory from which the corresponding author benefitted.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

James Reveley is an Associate Professor in the Faculty of Business at the University of Wollongong. His research interests include the changing nature of education and innovation in digital capitalism. His recent publications focus on positive education, social media and collective intelligence. He is currently engaged in a critical-theoretic analysis of how mindfulness training is being applied in schools and the workplace.

Michael A. Peters is professor of education, WMIER, University of Waikato. He held a personal chair at University of Auckland, was professor at University of Glasgow and University of Illinois at Urbana-Champaign (now emeritus professor). He is an international scholar with interests in education, philosophy and social policy, who has published over 65 books and is Editor-in-Chief of *Educational Philosophy and Theory* (EPAT), editor of *Policy Futures in Education* and *E-Learning and Digital Media*, Open Review of Educational Research, co-editor of *E-Learning and Digital Media*. Some recent books: *Education Philosophy and Politics: Selected Works of Michael A. Peters* (2011); *Education, Cognitive Capitalism and Digital Labour* (2011), with Ergin Bulut; *Neoliberalism and After? Education, Social Policy and the Crisis of Capitalism* (2011); *The Last Book of Postmodernism: Apocalyptic Thinking, Philosophy and Education in the Twenty-First Century* (2011); *The Virtues of Openness: Education, Science and Scholarship in a Digital Age* (2011), with Peter Roberts; *Education in the Creative Economy* (2010), with D. Araya; a trilogy on Creativity all with Simon Marginson & Peter Murphy (2009–10); *Subjectivity and Truth: Foucault, Education and the Culture of the Self* (2008) (AESA Critics Book Award 2009), and *Building Knowledge Cultures: Educational and Development in the Age of Knowledge Capitalism* (2006), The Creative University, Re-imagining the Creative University in 21st Century, with Tina Besley.

References


