Enactive Processes, Critical Ontology, and the Digitization of Education

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This introduction will explore the relevant literature on enactive processes, critical ontology, and faculty agency in relation to the digitization of education [1]. This section begins with a review of the enactive process, and its roots in Heideggerian philosophical perspective of reflexive self-examination and continues with an analysis of the critical ontological approach and its implications on digitization and pedagogical practice. Finally, this section introduces the submissions for this special issue and their unique contribution to the critical discourse surrounding technology and education.

Enactive Processes

Critical ontology emerges from a perspective towards knowledge construction and meaning-making known as the *enactive approach*. This perspective asserts that individuals construct knowledge and *enact* worlds of meaning and identity through engagement with the surrounding environment (Kincheloe, 2003; van der Schyff, 2016). Characteristic of this perspective is the notion that knowledge construction and meaning-making occurs in tandem with one's surroundings and is a progressive and beneficial process, a process which creates new forms of identity and ways of being human. Put another way, the enactive approach sees the process of 'being human' as unfolding through engagement with a larger whole, this larger whole itself also unfolding.

While similar to constructivist forms of meaning-making, the enactive process is made distinct by its prioritization of the freeform development of human knowledge and meaning-making, and its unwillingness to constraint knowledge construction to fixed developmental stages (van der Schyff, et al. 2016). The enactive approach encourages critical reflection on the various sociocultural and political currents that influence the commonly assumed body of knowledge/knowledge base in a given society (van der Schyff, et al. 2016). This understood, the enactive perspective is an ontological approach resistant towards instrumentalist and "technological-mechanistic" (van der Schyff, et al. 2016, p. 86) perspectives on meaning-making, with a critical eye towards interrogating the sociocultural factors which influence education.

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Critical Ontology

Within the context of Western education and teacher training, teaching faculty, particularly within higher education, are rarely encouraged to examine the sociopolitical and cultural flows which influence what is considered acceptable teaching practice (Kincheloe, 2003, 2011). The rationalist and instrumentalist philosophical influences which determine the structure of meaning-making and knowledge construction are widespread and the development of one's "identity and consciousness" (Kincheloe, 2003, p. 47) and self-perception is often minimized (Kincheloe, 2011; Meyer, 2011).

These Cartesian/mechanistic perceptions on the role of the teacher as a type of educational delivery robot (Kincheloe, 2003), create the conditions necessary for introducing 'new' more 'enhanced' or 'efficient means of 'education delivery' via the digitization of education. Sociotechnical imaginaries which construe teachers as mechanistic and frame the pedagogical process in the language of industry (efficiency, productivity, outcomes, quality assurance, and the like) see nothing of replacing large swathes of the teaching population with 'intelligent machines'. Dominant narratives on the digitization of education seek to transform both pedagogic practice and the teaching space into an environment which prioritizes mechanistic perspectives on teaching and seeks to squeeze every ounce of perceived efficiency out of the teaching day. In the classroom space, new technologies allow for real-time analysis of student performance and engagement (Farhan et al., 2017), while enhanced facial recognition software enables educators to be 'alerted' if students' show confusion or distraction (Connor, 2018) opening the pathway for the development of intelligent tutor systems (Jiang, Dykstra, & Whitehill, 2018) that can predict student affect (Whitehill et al., 2014). At the level of the institution, an increasing number of schools (in the West and in Asia) have begun to reshape administrative substructures around digital platforms (i.e. learning management systems, school-wide digital assessment systems, etc.) which have the effect of depersonalizing the educative experience, enable the categorization and analysis of large sets of educational data for seemingly objective decision-making.

By examining critically the currents of influence that promote large-scale educational shifts such as these, faculty are better able to develop critical ontologies, and interrogative means of understanding themselves and the impact self-perception has on enabling or undervaluing non-dominant forms of knowledge construction and meaning-making. Not unlike the turn in physics from the classical mechanical understanding of the universe as a precisely winded machine, to a quantum theory understanding, which emphasizes processes of entanglement, interconnectedness, and the impact of the unseen

on what is seen (Bohm, 1980; 1993), critical ontology highlights the progressive unfolding of understanding, opens insight into the role of the larger social environment in knowledge construction, and reveals the power (agency) of educators to develop adaptive and critical pedagogies to examine privileged ways of understanding and to explore other ways of knowing.

When turned towards education, critical ontology allows teachers to act with agency, critically examining the imaginaries which propel digitization along neo-liberal currents and enabling faculty to think of means through which technology integration [itself not inherently destructive] (Heidegger, 1982) could lead to ends which improve upon the human condition within the interconnected life system. Critical ontology is the type of "ontological education" put forth by Heidegger (1982) which encourages an understanding of technology as an unfolding development, advancing alongside humans as free operating agents, co-producing (Jasanoff, 2004; 2015) a world in which technological advances (or disruptions) are not blindly accepted as the desired shared imaginary for humanity, but as a part of the means through which humanity develops a more prosperous and beneficial future (van der Schyff, et al. 2016).

Critical Ontologies and the Digitization of Education

Applied towards the digitization of education, a critical ontology allows faculty to carefully analyze the dominant currents of imaginary futures that guide and influence technological developments. A critical ontology, and the enactive perspective, influence faculty self-perception, imbuing educators with a strong sense of agency and the ability to create learning environments which integrate technological developments only to the extent as such developments encourage new and beneficial ways of being human within the surrounding environment (van der Schyff, et al. 2016).

At its core, a critical ontological approach encourages teachers to reflect on their presumptions about the surrounding world and the impact that concretized Western philosophical structures and instrumentalist perspectives on technology dominant and diminish other ways of knowing. This is important as the modernist philosophical perspective and its emphasis on empiricism, rationality, and materialism, is quite unlike pre-modern modes of understanding which tended to see human life as interconnected with nature (Kincheloe, 2003). Critical ontology and enactive approaches aid in the creation of pedagogical practices which encourage faculty and likewise student's, towards viewing meaning-making as a co-productive process with the surrounding environment. With this in mind, Kincheloe (2003) puts forth 23 characteristics of a turn

towards a critical ontology. I have grouped several of these below with relation to those helpful for faculty to consider when critically analyzing digitization in education:

External Forces: Critical Sociotechnical Imaginary Analysis

- to understand the importance of socio-historical consciousness concerning the production of self.
- to recognize dominant power's complicity in self-production vis-à-vis ideologies, discourses, and linguistics.
- to construct a power literacy that alerts individuals to their placement in the web of reality - a web refashioned by the increasing influence of power-wielders in electronic hyperreality (Kincheloe, 2003, p. 48).

Internal Forces: Developing a Reflective Critical Ontology

- to move beyond mechanistic metaphors of selfhood
- to appreciate the autopoietic (self-producing) aspect of the "self" in order to gain a more sophisticated capacity to reshape our lives.
- to see that the self is not pre-formed as it enters the world - that it emerges in its relationships to other selves and other things in the world
- to realize that the nature of the interactions in which the self engages actually changes the structure of the mind.
- to become detectives of difference who search for new ways of being human (Kincheloe, 2003, p. 47-48).

The literature discussed here offers a good first step towards thinking about technological disruption and the currents of sociotechnical imaginaries which influence pedagogical practice. While the authors here do well in pointing to the importance of looking beyond only Western forms of knowing and philosophical understandings, towards non-dominant and contextually appropriate ways of knowledge construction and meaning making, the literature seldom engages with faculty perceptions outside that of the Western framework. It is at this juncture that we offer this special issue.

Special Issue

Curation of this issue was attended with care to ensure that submissions commented not only on the laudatory benefits of technology but provided a balanced and critical perspective towards the usage of technology within the larger educational sector.

Critical, as defined here, is a view of technology as a value-laden tool (Feenberg, 1999, p.9). A critical view of technology allows one to see humanity, as alongside technology, co-producing social norms (Feenberg, 1991 & 1999, Jasanoff, 2015, Williamson, 2017). Put another way, critical approaches towards technology see the digital future as one within our ability to shape in ways beneficial for humanity (Wajcman, 2015). This is different than instrumentalist views on technology which see the application of technology as essentially neutral, and it's usage as the ideal mechanism for social progress (Andrew Feenberg (1999). Critical approaches tend to view technology as an actor able to shape the social environment (Latour, 1992). Critical perspectives on technology are important as they often challenge the dominant technological imaginaries in place (for more on imaginaries, see Hu within). An example of a critical counter imaginary can be seen in the strategy that informed Indonesia's early pioneers of the Internet and their desire to build an internet infrastructure and ultimately an alternate digital imaginary, one that emphasized public participation, learning, and the development of a people-powered internet (Barker, 2015).

Within this issue, **Mary Mendenhall, Makala Skinner, Sophia Collas, and Sarah French** and **Edmund S. Adjapong, Christopher Emdin, and Ian Levy**, writing about contexts in Africa and the United States (respectively), bring special focus to the issue of teacher mentoring and professional development. Both explore the development of educators through the use of technology platforms and offer complementary analysis on the benefits of technology as a virtual augmenter of human processes, often as described by the educators themselves. **Chia-Ming Hsueh** provides commentary on the integration of technology, particularly social media, into university internationalization plans, and remarks on the pressing need to consider options such as these in Asia. **Zi Hu** concludes this issue with an insightful review of Ben Williamson's landmark text on the digitization and datafication of education, offering a good preview of the text and a pathway for those interested in exploring the influence of sociotechnical imaginaries on the digitization of the education sector.

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Notes

[1] The term *faculty*, here and throughout, is used to define higher education academic staff (i.e. professorial) and is not used to describe an academic division or unit within a higher education or tertiary institution.

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