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Description

Openness in education can be illustrated as expressions of iterative socio-technological innovations that reduce barriers and create multiple opportunities for practice. Through the convergence of collective intelligence and ICTs, particularly Internet-based applications, openness has been reincarnated as the “new paradigm of social production in the global knowledge economy” (Peters, 2008, p. 10). The ensuing open education renaissance—proliferated through open source, open access, open content, and MOOCs—has radically disrupted the insular worldview of the traditional academy and reignited debate about the purpose and future of formal education. This paper proposes that thinking of openness as a system is a useful construct for examining its complexity, both as a whole and the sum of its parts, in order to gain insights, evaluate, and manage the wide range of possibilities available to educators seeking to respond to changes occurring outside of institutionalized settings.

Keywords

open education, educational practice, systems thinking

Disciplines

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Comments

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Openness in Education, Systems Thinking, and the Practitioner

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Abstract: Openness in education can be illustrated as expressions of iterative socio-technological innovations that reduce barriers and create multiple opportunities for practice. Through the convergence of collective intelligence and ICTs, particularly Internet-based applications, openness has been reincarnated as the “new paradigm of social production in the global knowledge economy” (Peters, 2008, p. 10). The ensuing open education renaissance—proliferated through open source, open access, open content, and MOOCs—has radically disrupted the insular worldview of the traditional academy and reignited debate about the purpose and future of formal education. This paper proposes that thinking of openness as a system is a useful construct for examining its complexity, both as a whole and the sum of its parts, in order to gain insights, evaluate, and manage the wide range of possibilities available to educators seeking to respond to changes occurring outside of institutionalized settings.

Introduction

Openness is the standard-bearer for progressive educational practices that embrace change, empower the learner, and promote unrestricted access to education (Knight, 2008; Spiro & Alexander, 2012). Through the convergence of collective intelligence and Information and Communication Technologies (ICTs)—particularly Internet-based applications such as social media—openness has been reincarnated as the “new paradigm of social production in the global knowledge economy” (Peters, 2008, p. 10). The ensuing open education renaissance—manifested through open source, open access, open content, and Massive Open Online Courses (MOOCs)—has blown open the customarily closed doors of the academy and reignited questions about the purpose and future of education. For some, the new digitized open movement is formidable. What does openness in teaching, learning, or the classroom look like? How does one make sense of the fragmented landscape of open technologies? How might one evaluate openness in educational practice? Can open practice work in formal educational settings?

The purpose of this work is to construct an understanding of the complexities of openness for educational practitioners in traditional institutional settings. Openness in education can be exemplified through expressions of iterative socio-technological innovations that erode barriers and create multiple opportunities for practice—learning, teaching, and the development of content and learning environments. This paper reviews the history of openness and examines how its underlying principles are represented in the recent proliferation of Internet-driven technological advancements. A systems lens is then presented as a framework for studying these expressions or elements, their interconnections, and purpose in order to gain insights for evaluating, adapting, and managing the wide range of possibilities they present for fostering openness in educational practice.

Downes (2008) asserts “the expanding model of Open Education has done one thing without equivocation; it has caused a debate to emerge to rethink the future of education” (p. 80). Despite the historical pervasiveness of closed institutional and political practices, the openness phenomenon has transcended cultural, technological, social, economic, as well as national and institutional boundaries. As such, educators and institutions alike should be cautioned “against assuming that particular configurations will prevail.” (Peter & Deimann, 2013, p. 12). This paper proposes that thinking of openness as a system is a useful construct for acquiring a level of understanding and direction that can benefit educators seeking to align their practices to shifts occurring outside of the academy.

Principles of Open Educational Practices

“Open education as an emergent paradigm has a history that provides much of the context and the motivating values...it is part of the Enlightenment story of freedom and it cannot be separated from wider

political questions concerning epistemology, ontology and ethics” (Peters, 2008, p. 14). The philosophical values—freedom, autonomy, individual transformation, social progress, knowledge for all—pioneered through the progressive works of Rousseau, Montessori, Dewey, Piaget, Neill and other notables established a clear vision of education and its relation to a meaningful life quite distinctive from the more closed, traditional practices—e.g. behaviourist and cognitivist—that still influence formal educational systems (Knight, 2008; Noddings, 1998; Rogers, 1975).

In the past decades, openness has tended to be discussed more in relation to the technological advancements that have contributed to its resurgence (Bonk, 2009; Lane, 2009; Andersen, 2009). A flourish of Internet-based social media tools and systems have coalesced into a new generation of open source, open access, open educational resources, open courseware, and MOOCs “as though the open education movement in its infancy required the technological infrastructure to emerge as a major new paradigm rather than a set of small-scale and experimental alternatives or a form of distance education” (Peters, 2008, p.10). This section summarizes key developments in learning, teaching, content, and learning environments with an eye to helping the practitioner understand ways in which the historical origins of openness have played out in our current day technological context.

The Learner: Broadly defined, learning reflects “a persisting change in human performance or performance potential...[which] must come about as a result of the learner’s experience and interaction with the world” (Siemens, 2011). In open education, the constructivist approach to the active construction of knowledge or meaning through individual and collective interactions supplants the behaviourist use of conditioning to elicit behavior changes in the individual. The learner, the principal lead in the education enterprise, possesses an innate curiosity that, left unconstrained, leads to a natural desire to exercise agency, solve problems, engage in decision-making in their exploration of the world, and gravitate towards hands-on educational experiences instead of strictly textbook-focused instruction (Downes, 2011; Knight, 2008). The learner should therefore be viewed as competent and be encouraged to become curators of knowledge and to pursue the social lifelong learning which transcends the boundaries between formal and informal settings (Seely Brown & Adler, 2008).

Cooperative learning is suggested as providing more opportunities for both individual flexibility and affinity to the learning community than either individual learning, which allows the highest flexibility with lowest affinity to a learning community, or collaborative learning, which supports high engagement at the cost of limiting individual flexibility. This cooperative freedom supports one’s given right to determine their own learning, and is enabled through allowing flexibility facets of time, space, pace, medium, access, and content. (Dalsgaard & Paulsen, 2009). This is noteworthy as models of social learning and learning communities are extremely popular in education. In contrast, however, Peter & Deimann (2013) note, “The exact form that learners would choose (or not) to provide support for their individual learning is hard to infer. There is a risk of assuming that all learners require, or even prefer to be part of a larger community” (p. 12).

As a further contribution to the concept of open learning, Siemens (2004) argues that learning theories need to be reframed within a digital context and proposes the concept of connectivism. Connectivism describes learning, or actionable learning that can reside outside of the individual within entities such as organizations or networks and that consists of recognizing patterns or connecting specialized information sets, that extend beyond our current state of knowing.

The Teacher: Based on this understanding of the learner, the corresponding role of the teacher is a facilitator who guides and provides instruction based not on a prior conception of what the student should learn, but rather on what is needed based on observations of student differences in the learning environment. This “allows a pupil to function according to his sense of himself rather than what he is expected to be” (Knight, 2008, p.105). In this respect, the emphasis is less on predefined outcomes-based learning and more on personal achievement, the reflective processes of learning, and providing freedom of choice for students to learn what they need and want to learn (Wiley & Green, 2012; Downes, 2011). Nurturing of skills such as Grow’s Stages Self-Directed Learning (SSDL): a) dependent; b) interested; c) involved; and d) self-directed prepare learners to self-organize and adapt in a complex digital society (Anderson, 2009; Grow, 1991). Finally, teachers use transparency in the creation of systems, processes, educational practices—i.e. encouraging a culture of openness through publically posting course materials, using free open educational resources, and encouraging students to publicly share their work—and model inquiry to both solve problems of practice that arise to help students understand the value of developing critical, adaptive skills in preparation for life in a knowledge economy (Laurillard, 2008; Mishra, 2012; Wiley & Green 2012).

Educational Content: Access to content has undergone monumental expansion due to the combination of digital technologies, an emerging ethic of sharing, and the development of a set of primary permissions or usage rights for open content that Wiley (2012) has called the 5R activities:

Retain—make, own and control copies of the content [e.g. copies]

Reuse—use the content original or your new version of the OER in a wide range of contexts.

Revise—adapt, adjust, modify or alter content so it better meets your needs.

Remix—combine original or revised content with other content to create something new.

Redistribute—share copies of the original content, your revision, and remixes with others.

Open educational resources (OERs)—e.g., courseware, courses, textbooks, research articles, videos, assessments, simulations, repositories of learning objects, software tools—present numerous prospects for innovation in teaching and learning, including the ability to dramatically improve the affordability of education and enable better personalization of instruction through providing materials that allow for self-directed study and that cater to the learner’s needs and interests (Seely Brown & Adler, 2008).

Learning Environments: A significant conceptual shift for today’s practitioner has been the extension of the traditional face-to-face classroom into the virtual arena of online learning communities. These socially-constructed eco-systems, or participatory cultures, harness the power of the Internet to support co-creation as well as multimodal interactions between learners, instructor, content, and communication tools. This engagement leads to distributed cognition and affinity-based self-organization (Oblinger & Lombardi, 2008; Seely Brown & Adler, 2008). The educator has options for bringing virtual learning environments into the classroom ranging from closed institutional systems—such as, content or learning management systems that interface with other internal information systems—to a free alternative of internet-based social media—e.g., wikis, blogs, social bookmarking—that allow for the creation of personalized virtual learning spaces for learning, teaching, and professional development (Zijdemans Boudreau, 2011).

In thinking about access in relation to learning environments, Irvine et. Al, (2013) present a four-tiered multi-access framework as a means of enabling students, in face-to-face (F2F) and/or online (OL) contexts, to personalize their learning experience while participating in a course:

- 1) *Face-to-Face*: traditional classroom teaching & learning;
- 2) *Synchronous*: both F2F and OL through tools such as web conferencing;
- 3) *Asynchronous*: providing OL access to archives of F2F classes and designing collaborative activities that support co-construction of meaning;
- 4) *Open Learning*: following the MOOC approach, non-credit students are able to access the course at no cost and the learning community has potential for global reach.

Open Systems Design: Harnessing the increasing abundance of available technological tools has generated lively discussion around the need to consider the role of design in creating instruction. Kahle (2008) states, “Recognizing that design matters, that the values and goals of open education can be either hindered or advanced through design choices, is the primary motivation for establishing design principles” (p. 44). He presents access, agency, ownership, participation and experience as five key considerations in the design of open technology for teaching and learning.

Collen & Minati (1993) outline a design of educational systems based on 5 levels or degrees of openness that reflect how activity and creativity are managed:

- 1) *Factual*: the teacher sends messages and controls the student’s answers under the presupposition that both share a common language;
- 2) *Active*: the teacher’s tools and context are considered fixed;
- 3) *Flexible*: the teacher and learner each have model of each other which can change during learning process; have perceptions of their relationship during the learning process, and formulate a model of the interactions between them;
- 4) *Creative*: the teacher invents tools and games based on an awareness of the learner’s context; and
- 5) *Reflexive*: the teacher both applies and designs strategies; design becomes a central activity.

These educational design theories are just two examples of many emphasizing the importance for educators to think strategically about how best to use organizing frameworks for understanding the possibilities and challenges inherent in effective technology integration.

Systems Thinking as an Evaluative Tool

In extending the notion of creating constructs to understand the complexity of openness in educational practice, systems thinking attends “to the multifaceted socio-historical systems within which individuals are embedded, and allows us to reclaim our intuition about whole systems, hone our abilities to understand parts, see interconnections, ask ‘what-if’ questions about possible future behaviours and...use our insights to make a difference in ourselves and our world” (Meadows, 2008, p. 4). A system is much more than the sum of its parts, however, its basic structure is comprised of:

- 1) Elements – these can be physical or intangible, human or nonhuman;
- 2) Relationships or Interconnections – that hold the elements together [e.g. information flow] and play a role in determining how the system operates; and
- 3) Purpose – the least obvious part of the system yet most decisive determinant of its behavior.

Figure 1 presents a proposed systems-informed construct for openness. The key elements, heretofore discussed and listed down the left in black, are distributed along a continuum from closed to open practices. Using an imaginary sliding scale, one can imagine conducting a reflective analysis for levels of openness in one’s own practice.

ELEMENTS	Closed ----- Open
LENS	Behavioural Cognitivist Constructivist Connectivist
LEARNER	Dependent Interested Involved Self-Directed
TEACHER	Authority Facilitator Co-Constructor Consultant
CONTENT	Prescribed Teacher-Generated Co-Generated
ASSESSMENT	Of Learning— Outcomes based For Learning— Achievement based As Learning— Reflective, personal
VIRTUAL ENVIRONMENT	LMS LMS+SM pVLE MOOC Loose ‘Community’ Learning Community Community of Inquiry
SYSTEM LEVELS	Factual Active Flexible Creative Reflexive
ACCESS	F2F—Trad SYN—F2F+OL ASYN—OL Fully Open

Figure 1. A Reflective Tool for Situating Openness in Educational Practice

Subsequent stages of analysis would constitute examining interconnections between different elements and their purposes, identifying and examining any subsystems in order to uncover behaviours that constitute openness, and identifying strategies for ongoing instructional design or future practice.

Final Thoughts

Collen & Minati (1993) state, “Innovative open models of education are needed to match the complexities of contemporary life. It is our view that a general process model which possesses the levels of openness will build into the process of education a more self-reflective, purposive-seeking, systemic perspective that will enable design and evolution of education systems to coevolve within their societal systems” (p. 278). A systems thinking approach to exploring openness in education focuses less on reproducing rigid designs, patterns or structures and more on nurturing a habit of personal practice that can be adapted as needed across different learning contexts, closed or open.

The goal of this paper has been to offer insights into how the ideologies of openness in teaching, learning, content development, and learning environment design have been borne out in present-day society. As ICTs and Internet-based applications continue to shape and influence a context within which openness can flourish, it has been proposed that a systems framework can serve as a holistic map for grappling with its inherent complexity. For educators seeking to infuse openness within traditional or closed institutional settings, systems thinking and using an analytical tool, such as the one presented here, offer a means for reflective appraisal of where openness either currently exists or may be incrementally increased in one’s practice. Relevant entry points for the newcomer, for instance, might be to use open educational resources or to invite students to participate in a joint exploration of open teaching and learning experiences. Continued investigation appears warranted given the persuasive indications that the open movement stands to radically disrupt the landscape of formal education and we currently know it.

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