4-2015

Open Educational Practices' Models using Open Educational Resources

Patricia Hogan
Northern Michigan University, phogan@nmu.edu

Breanne R. Carlson
Northern Michigan Univeristy, brcarlso@nmu.edu

Chris Kirk
Northern Michigan University, ckirk@nmu.edu

Open Educational Practices' Models using Open Educational Resources

Patricia Hogan, Breanne Carlson and Christopher Kirk, Northern Michigan University
phogan@nmu.edu, brcarlso@nmu.edu, ckirk@nmu.edu

Abstract

Open educational resources (OER) are resources that can be freely used – freely copied, shared, revised, and remixed. However, using OER in teaching/learning does not equate with enacting open educational practices (OEP). The educational model the OER serve dictate the degree of openness in educational practice. For example, using OER in the instructivist/behaviorist model of education, a model which employs the broadcast method of teaching where information, even open information, is teacher-chunked, teacher-delivered, and teacher-tested (using multiple choice tests) is not OEP. OEP strive to promote what Bloom calls a radically higher academic level in learners, to use OER to develop networked learners who can self-organize, co-create, innovate, and peer-validate. In this paper the authors, edupreneurs, document why education needs to move to OEP and authentic learning, and showcase examples of their innovative OEP (based on frameworks for 21st Century learning objectives, constructivist and connectivist learning theories, and authentic assessment).

Key Words

OER, OEP, constructivism, connectivism, authentic learning, 21st Century skill sets

Introduction

The Hewlett Foundation (n.d.; 2014) defines open educational resources (OER) as:

> …teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.

Such resources are available to all who have access to them and usually are much less expensive to produce and consume than are traditional educational resources. Although OER are understood to be an important element in leveraging education and lifelong learning in the new (i.e., variously known as the knowledge, information, innovation or creative) economy and society, OER themselves do not constitute OEP - open educational practices (Guntram, 2012, p. 12). For example, using OER in the instructivist/behaviorist model of education, a model which employs the broadcast method of teaching where information, even open information, is teacher-chunked, teacher-delivered, and teacher-tested (usually through a multiple choice test) is not OEP (Campbell, 2012). As such, the "sole usage of OER in a traditional closed and top-down, instructive and final-exam focused" educational environment is not OEP (Conole & Ehlers, 2010, p.3).

For OEP to occur educators need to engage OER in conjunction with new pedagogical models (e.g., constructivism and connectivism) to promote active, self-directed learning in students to help develop requisite skill sets for the new economy and society. In this paper, the authors identify requisite skill sets, discuss the need for change in education practice, identify relevant pedagogical models, discuss criteria for authentic active learning to promote requisite skill sets, and, as edupreneurs, showcase examples of their innovative OEPs in the form of co-created classes and the creative learner-centered projects these classes spawned.

Skill sets for the New Economy and Society

It is time to do new things in new ways in education- to change the subject relative to the purpose of learning. The traditional model of education no longer meets the needs of the new economy and new society, and does not promote the learning students need. Riordan (2013, p. 1) expounds on the question of what students should learn in the 21st century:

> At first glance, this question divides into two: what should students know, and what should they be able to do? But there's more at issue than knowledge and skills. For the innovation economy, dispositions come into play: readiness to collaborate, attention to multiple perspectives, initiative, persistence, and curiosity. While the content of any learning experience is important, the *particular* content is irrelevant. What really matters is how students react to it, shape it, or apply it. The purpose of learning in this century is not simply to recite inert knowledge, but, rather, to transform it. It is time to change the subject.

With the advent of the interactive web (Web 2.0) and OER, information has become abundant and at our fingertips. This has prompted a shift in the role of educators from being distributors of information to one of providing context for students and for nurturing/coaching students as they "collect, evaluate, and process information into unique learning products". And the students' role moves from passive recipient of information to that of researcher, curator, collaborator and creator (McCusker, 2014, p.1). Indeed, products of student creation and individual/group expressions of learning become important parts of the learning process that are shared, peer-evaluated, and augmented via formative feedback by the educator (McCusker, 2014).

In line with the new role of students and educators, Geser (2012, p.39) compiled many reports from European countries to identify the following as essential skills for a new economy and society:

- Ability to search, collect and process (create, organize, and distinguish relevant from irrelevant, subjective from objective, real from virtual) electronic information, data and concepts and to use them in a systematic way;
- Ability to use appropriate aids (presentations, graphs/infographs, charts, maps) to produce, present and understand complex information;
- Ability to access and search a website and to use internet-based services such as discussion fora and e-mail;
- Ability to use Information and Communication Technology to support critical thinking, creativity and innovation in different contexts at home, leisure and work.

Davies, Fidler and Gorbis (2011), in *Future Work Skills 2020,* identify and explain the following ten skills that will be critical for the new economy/society:

1. Sense-making: Ability to determine the deeper meaning or significance of what is being expressed
2. Social Intelligence: ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions
3. Novel & Adaptive Thinking: proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based
4. Cross-cultural Competency: ability to operate in different cultural settings
5. Computational Thinking: ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning
6. New-media Literacy: ability to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication
7. Trans-disciplinary: literacy in and ability to understand concepts across multiple disciplines
8. Design Mindset: ability to represent and develop tasks and work processes for desired outcomes

9. Cognitive Load Management: ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques
10. Virtual Collaboration: ability to work productively, drive engagement, and demonstrate presence as a member of a virtual team.

Similarly, Bates (2014) identifies the skills required for this new economy/society (which he adapted from Conference Board of Canada, 2014) as the following: communications skills, the ability to learn independently, ethics and responsibility, teamwork and flexibility, thinking skills (critical thinking, problem-solving, creativity, originality, strategizing), digital skills, and knowledge management.

Education has not traditionally focused on developing the aforementioned skills. Indeed, the traditional pedagogical model typically focuses on transmitting information only. There needs to be innovation in teaching and learning and a refocus towards OEP to design learning to promote the requisite skills. This requires non-traditional pedagogical models such as constructivism and connectivism.

Toward Innovative Pedagogies for using OER to Promote OEP to Promote Requisite Skills

"Delivering OER to the still dominant model of teacher-centered knowledge transfer will have little effect on equipping teachers, students and workers with the competences, knowledge and skills to participate successfully in the knowledge economy and society… [there is] the need to foster open practices of teaching and learning that are informed by a competency-based educational framework" (Geser, 2012, p.12). As such, innovative pedagogical models targeted at developing requisite, relevant competencies are important in defining and enacting open educational practices (OEP). The International Council for Open and Distance Education webpage (ICODE) defines OEP as:

> … Practices which support the production, use and reuse of high quality open educational resources (OER) through institutional policies, which promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path. OEP address the whole OER governance community: policy makers, managers and administrators of organizations, educational professionals and learners.

Conole and Ehlers (2010, p.1) argue that more emphasis needs to be placed on using OER to promote quality and innovation in teaching and learning: "The current focus in OER is mainly on building more access to digital content. There is little consideration of how OER are supporting educational practices, and how OER promote quality and innovation in teaching and learning." Similarly, Campbell (2012) differentiates between "open education" and "opening education". Campbell contends that open is "not merely a quality to adopt or a direction to pursue, but a certain attitude or mindset towards systems and the desires those systems empower and focus". As such, Campbell argues that most so-called "open education" discussed today uses the new technology to merely do old things (instructivist model) in new ways, and is not truly OEP. He gave online learning and xMOOCs as examples of new technology that calls itself OEP but that is merely doing old things in new ways, ways that do nothing to further challenge and develop students in owning their learning, engaging with others in their learning, and in innovating than did the traditional model of education. Opening education, however Campbell claims, shifts the focus to doing new things (e.g., developing new capacities) in new ways (e.g., using OER). Open education should strive to promote what Bloom (1984) calls a radically higher academic level in learners, to use OER to develop networked learners who can self-organize, co-create, innovate, and peer-validate (Campbell, 2012).

Similarly, Mott and Wiley (2009) claim that the ubiquitous course management system (CMS) used by many universities at worst merely does old things in new ways and at best, severely limits learner access to OER. They contend that the CMS "reinforces the status quo and hinders substantial teaching and learning innovation in higher education. It does so by imposing artificial time limits on learner access to course content and other learners, privileging the role of the instructor at the expense of the learner, and limiting the power of the network effect in the learning process."(p. 3).

Although educational theorists have long argued against the traditional, didactic, teacher-centered approach to education, it has persisted in the dominant culture even though the alternative of constructivism, and now, connectivism Siemens (2004; 2005) are available. Indeed, Brown & Adler contend, "The most profound impact of the Internet, an impact that has yet to be fully realized, is its ability to support and expand the various aspects of social learning" (2008, 18) or networked learning accounted for by connectivism. The following Table 1 (from Ireland, 2007), portrays answers to Ertmer and Newby's (Mergel 1998) five definitive questions to distinguish learning theory to differentiate traditional learning theories (i.e., behaviorism/instructivism, cognitivism, and constructivism) from connectivism. Ireland (2007) adapted his work from Siemens (2006).

Table 1: Connectivism as a Learning Theory
Source: Ireland, Tim. (2007). Situating connectivism. *Ireland constructed page*. http://etec.ctlt.ubc.ca/510wiki/Situating_Connectivism

Questions	**Behaviorism Instructivism**	**Cognitivism**	**Constructivism**	**Connectivism**
How does learning occur?	Black box - observable behavior main focus	Structured, computational	Social, meaning created by each learner (personal) [Or individuals in groups in social constructivism.]	Distributed within a network, social, technologically enhanced, recognizing and interpreting patterns
What factors influence learning?	Nature of reward, punishment, stimuli	Existing schema, previous experiences	Engagement, participation, social, cultural	Diversity of network
What is the role of memory?	Memory is hardwiring of repeated experiences - where reward and punishment are most influential	Encoding, storage, retrieval	Prior knowledge remixed to current context	Adaptive patterns, representative of current state, existing in networks
How does transfer occur?	Stimulus, response	Duplicating knowledge constructs of "knower"	Socialization	Connecting to (adding nodes)
What types of learning are best explained by this theory?	Task-based learning	Reasoning, clear objectives, problem solving	Social, vague ("ill defined")	Complex learning, rapid changing core, diverse knowledge sources

Constructivism and connectivism are active learning venues that move students into roles and projects designed to develop new economy and society skill sets and to empower students to be self-directed and connected in their learning. According to Geser (2012, p. 37) "priority must be given to open educational practices that involve students in active, constructive engagement with content, tools and services in the learning process, and promote learners' self-management, creativity and working in teams." For example, cMOOCs (Downes & Siemens, 2008), versus the aforementioned xMOOCs, "are designed to inspire self-directed learning communities, fueled by the desire to co-create and freely exchange knowledge on any number of topics… and are, by design, interactive and learner-centered where the ultimate goal is to create social capital, by building knowledge networks of value for those who take part in them" (Aldridge 2013, para 5). As cMOOCS have an open curriculum, there are opportunities for students to both consume and produce information. "In addition, cMOOC learners master and demonstrate their competencies by actively creating web-based learning artifacts, such as blogs, wikis, and podcasts" (Aldridge 2013, para 6). cMOOCS are an example of OEP that employ OER and other materials in a connectivism educational model.

Vygotsky (1978 in University College Dublin, n.d.) argued that constructivism should morph into social constructivism as learning was a social endeavor. So, in our hyper-connected world, social constructivism and connectivism seem to be the most viable learning theories. Below, the additional components of social constructivism (beyond constructivism) are identified (University College Dublin Open Educational Resources, n.d.):

Table 2: Constructivism vs. Social Constructivism
Source: University College Dublin. (n.d.) Open Educational Resources of UCD Teaching and Learning. *Educational theory: constructivism and social constructivism*. Available http://www.ucdoer.ie/index.php/Education_Theory/Constructivism_and_Social_Constructivism

Constructivism (Dewey, 1933; Bruner, 1990; Piaget, 1972 in University College Dublin, n.d.)	**In addition for Social Constructivism (Vgotsky, 1978 in University College Dublin, n.d.)**
• Deep roots classical antiquity. Socrates, in dialogue with his followers, asked directed questions that led his students to realize for themselves the weaknesses in their thinking. • Learning is perceived as an active, not a passive, process, where knowledge is constructed, not acquired • Knowledge construction is based on personal experiences and the continual testing of hypotheses • Each person has a different interpretation and construction of knowledge process, based on past experiences and cultural factors.	• Emphasis is on the collaborative nature of learning and the importance of cultural and social context. • All cognitive functions are believed to originate in, and are explained as products of social interactions • Learning is more than the assimilation of new knowledge by learners; it was the process by which learners were integrated into a knowledge community. • Believed that constructivists such as Piaget had overlooked the essentially social nature of language and consequently failed to understand that learning is a collaborative process.

Authentic Activities for Student-centered, Active Learning

To develop requisite skill sets using new pedagogical models, Reeves, Herrington, and Oliver (2002, p. 562) recommend the following 10 criteria to consider in the projects selected to promote learning. Authentic activities: have real-world relevance; are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity; comprise complex tasks to be investigated by students over a sustained period of time; provide the opportunity for students to examine the task from different perspectives, using a variety of resources; provide the opportunity to collaborate; provide the opportunity to reflect; can be integrated and applied across different subject areas and lead beyond domain-specific outcomes; are seamlessly integrated with assessment; create polished products valuable in their own right rather than as preparation for something else; allow competing solutions and diversity of outcome.

OEP Models and Authentic Activities Developed by the Authors

As evidenced by information presented in earlier sections of this paper there is a need for doing new things in new ways or changing the subject in learning. According to Riordan (2013, p. 1):

> Changing the subject…means deriving the curriculum from the lived experience of the student. In this view, rather than a collection of fixed texts, the curriculum is more like a flow of events, accessible through tools that help students identify and extract rich academic content from the world: guidelines and templates for project development, along with activities and routines for observation and analysis, reflection, dialogue, critique, and negotiation.

The following blended courses (in health and athletic training) and their respective student projects reflect this prescription of Riordan's and use social constructivist and connectivist ways to do new things in new ways – to use OER including social media (such as wiki, wix, weebly, YouTube) and authentic activities to promote active, meaningful learning in students with the intention of developing in students requisite skill sets (identified in previous sections of this paper) for the new economy and society. These blended courses are driven by the frameworks presented in this paper. They are offered (see Table 3) as examples of ways to use OER in OEP, as new models for active learning, and they reflect the innovative work of the authors in their efforts to engage students as co-creators of the class (Hogan et al., 2013).

Table 3: Models of OEP Using OER as Designed by the Authors
Source: Authors' Respective Courses

Topic	**Projects**
HL 322 International Health Issues – Co-created Class and Text with Wix and Wiki and with Reflection Sheets HL 322 Weebly and YouTube	Course Wix: http://www.wix.com/phoga7/cohl322createdtextf11 Course Wiki: https://wiki.acs.nmu.edu/hl322f11/index.php/Main_Page Student Project: http://cever8.wix.com/x-women Project Reflection: http://phoga7.wix.com/cohl322createdtextf11#!page-5 Student Project: http://hl322vaccines2014.weebly.com/ and see https://www.youtube.com/watch?v=ZwFK2MYukV4 and see http://drawthelinewithdaisies.weebly.com/
ATR 492 Advanced Athletic Training Practicum – Co-created Study Guide for Professional Exam	Course Wix and student projects: http://skifast1.wix.com/winter-2012-492

HL 485 Drug Use and Abuse; Course Weebly and Student Project	Course Weebly: http://hl485.weebly.com/ Sample Project: http://hl485tobacco1.weebly.com/
HL 250 Applied Health Theory Weebly and Student Project	Course Weebly: http://hl250.weebly.com/ Student Project Logic Model (http://logicmodel.weebly.com/)

Conclusion

In this paper the concepts of OER and OEP were defined and related. It was determined that OEP is more than just using OER. It was argued that OEP should represent authentic learning for the new economy/society – a society that requires radically higher academic levels and creativity in learners. Such learning requires that new things (i.e., engaging authentic activities/projects in learner-centered ways using new pedagogies such as social constructivism and connectivism) are done in new ways (i.e., using new media including social media, interdisciplinary approaches, and student-centered practices where OER are utilized). Finally, the authors offered examples of their and their students' work reflecting OEP as prototypes that others could model. The work of the authors and their students was guided by the frameworks and theories identified in previous sections of the paper.

References

Aldridge, S.C. (2013). MOOC-tastic or MOOC-trocious. *Dr. Susan C. Aldridge homepage*. http://www.drsusanaldridge.com/keynote-by-dr-susan-aldridge-exploring-the-academic-value-of-higher-educations-latest-trend/ accessed September 20, 2014.

Bates, A.W. (2014). Teaching in a digital age: Open text book project. *Press Books*. http://opentextbc.ca/teachinginadigitalage/ accessed September 24, 2014.

Bloom, B. S. (1984). The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One tutoring. *Educational Researcher*, 13(6), 4–16.

Brown, J. S. and Adler, R. P. (2008). Minds on fire: Open education, the long tail, and learning 2.0. *Educause Quarterly*, 42 (6), 16-32.

Campbell, G. (October 16, 2012). Ecologies of yearning. Keynote address at *Open Ed Conference 12,* Vancouver, B.C. https://www.youtube.com/watch?v=kIzA4ItynYw accessed September 15, 2014.

Conference Board of Canada. (2014). Employability skills 2000+. http://www.conferenceboard.ca/topics/education/learning-tools/employability-skills.aspx accessed October 2, 2014.

Conole, G.C., and Ehlers, U.D. (2010). Open educational practices: Unleashing the power of OER. Paper presented to *UNESCO Workshop on OER* in Namibia 2010. Windhoek. http://efquel.org/wp-content/uploads/2012/03/OEP_Unleashing-the-power-of-OER.pdf accessed September 21, 2014.

Davies, A., Fidler, D., and Gorbis, M. (2011). Future work skills 2020 (SR-1382A). *Institute for the Future for Apollo Research Institute*, Palo Alto, California. http://issuu.com/gfbertini/docs/future_work_skills_2020 accessed October 2, 2014.

Downes, S. and Siemens, G. (2008). The MOOC guide. https://sites.google.com/site/themoocguide/3-cck08---the-distributed-course accessed October 2, 2014.

Geser, G. (2012). Open educational practices *and resources*. OLCOS Roadmap 2012, p. 1-150. http://www.olcos.org/cms/upload/docs/olcos_roadmap.pdf accessed September 22, 2014.

Hogan, P., Carlson, B., Kirk, C., and Pendleton, G. (2013). Prosumerism – students as co-creators of course content. *The Online University: Building Viable Learning Experiences for Higher Education.* Editor Kesner, R. Publisher: World Universities Forum.

International Council for Open and Distance Education (ICODE) Webpage. (n.d.) Definition of open educational practices. http://www.icde.org/en/resources/open_educational_quality_inititiative/definition_of_open_educational_practices/Definition+of+Open+Educational+Practices.9UFRzYWq.ips accessed September 22, 2014.

Ireland, T. (2007). Situating connectivism. *Ireland constructed page*. http://etec.ctlt.ubc.ca/510wiki/Situating_Connectivism accessed October 28, 2014.

Mergel, B. (1998). Instructional design and learning theories. *University of Saskatchewan, College of Education Web site*.

http://www.usask.ca/education/coursework/802papers/mergel/brenda.htm accessed September 22, 2014.

McCusker, S. (2014). Teachers' most powerful role? Providing context. *Mindshift*. http://blogs.kqed.org/mindshift/2014/04/teachers-most-powerful-role-adding-context/ accessed September 20, 2014.

Mott, J. and Wiley, D. (2009) Open for learning: The CMS and the open learning network. *in education*, 15(2) Fall 2009, p. 3-23. http://ineducation.ca/ineducation/article/view/53/530 accessed September 22, 2014.

Reeves, T., Herrington, J. and Oliver, R. (2002). Authentic activities and online learning. *HERDSA*, 562-567. http://www.coulthard.com/library/Files/reeves_2002_authenticactivitiesonlinelearning.pdf accessed October 22, 2014.

Riordan, R. (January 17, 2013). Change the subject: Making the case for project-based learning. *Edutopia: Education Trends*. http://www.edutopia.org/blog/21st-century-skills-changing-subjects-larry-rosenstock-rob-riordan accessed October 22, 2014

Siemens, G. (2004). Connectivism: A theory for the digital age. *Elearnspace.* http://www.elearnspace.org/Articles/connectivism.htm accessed October 20, 2014.

Siemens, G (2005). Connectivism: Learning as network creation. *Elearnspace*. http://www.elearnspace.org/Articles/networks.htm accessed October 20, 2014.

Siemens, G. (2006). Connectivism: Learning theory or pastime for the self-amused. *Elearnspace.* http://www.elearnspace.org/Articles/connectivism_self-amused.htm accessed October 20, 2014.

University College Dublin Open Educational Resources of UCD Teaching and Learning. N.d., *Educational theory: constructivism and social constructivism*. http://www.ucdoer.ie/index.php/Education_Theory/Constructivism_and_Social_Constructivism accessed September 22, 2014.

William and Flora Hewlett Foundation. (n.d.). Open Educational Resources. *William and Flora Hewlett Foundation Webpage.* http://www.hewlett.org/programs/education/open-educational-resources accessed September 20, 2014.

William and Flora Hewlett Foundation. (2014). Launching the development of an OER world map: Phase 2. *Request for Proposals.* http://www.hewlett.org/sites/default/files/OER%20mapping%20RFP_Phase%202%20Final%20June%2023%202014.pdf accessed September 20, 2014

License and Citation