Conceptualizing Open Educational Practices through the Lens of Constructive Alignment

Michael Paskevicius

2017

Open Praxis, vol. 9 issue 2, April–June 2017, pp. 125–140 (ISSN 2304-070X)
2017 Open Education Global Conference Selected Papers

OPEN PRAXIS
INTERNATIONAL COUNCIL FOR OPEN AND DISTANCE EDUCATION

Conceptualizing Open Educational Practices through the Lens of Constructive Alignment

Michael Paskevicius
University of Victoria (Canada)
michael.paskevicius@gmail.com

Abstract

The act of instruction may be conceptualized as consisting of four elements: learning outcomes, learning resources, teaching and learning activities, and assessments and evaluation. For instructors in higher education, the way they manage the relationships between these elements is what could be considered the core of their instructional practice. For each of the elements, this paper seeks to identify open educational practices, their affordances, and evidence of their utility in supporting the work of teachers in shifting from existing teaching and learning practices to more open educational practices. The literature reviewed and model proposed may provide educational developers or proponents of open education a lens with which to discuss open educational practices with faculty specifically related to their teaching and learning design practices.

Keywords: open educational practices (OEP); constructive alignment; open educational resources; educational development; innovation in teaching and learning; Creative Commons

Introduction

Higher education institutions are situated in an increasingly open technological, social, and legal landscape. Various movements are developing which signify those changes, including the emergence of open educational resources (OER), massive open online courses (MOOCs), alternative schooling and training opportunities, and a desire for increased personalization of educational experiences. This paper explores the emergence of this open ecology in higher education and the impact on teaching and learning practices. Specifically, this paper explores how the availability and affordances of open education may impact the pedagogical choices and designs of faculty who teach in higher education.

Digital technologies have been characterized as protean, unstable, and opaque: protean, in that they can be used in a variety of possible ways (Papert, 1993); unstable, in that they are changing and evolving rapidly over time; and opaque in that their potential applications and inner workings are not always made explicit (Turkle, 1997). Unlike traditional teaching technologies which have more evident uses such as a pencil, which is used for writing, or a microscope, which is for viewing small objects, digital technologies can be applied in a number of different ways in an educational context (Koehler & Mishra, 2009). The affordances, or ways of using, digital technologies present opportunities for innovative usage in education but also remain a challenge to apply effectively.

One affordance of digital technologies is widely recognized; they enable the creation of digital resources which can be copied and shared with little cost or effort. The internet now provides a global network facilitating search and access to online resources. In the context of higher education, the recent emergence of open access to teaching and learning material including educational content, learning designs, and learning activities provides a valuable resource for faculty, students, and self-learners as well as an opportunity to move towards a more participatory culture (Brown & Adler, 2008; Ehlers & Conole, 2010). Further, open licensing models support the legal copying, adaptation, and re-sharing of digital educational materials.

Reception date: 23 December 2016 • Acceptance date: 14 April 2017
DOI: https://doi.org/10.5944/openpraxis.9.2.519

Several higher education institutions around the world have leveraged these technologies to support teaching and learning (Smith & Casserly, 2006; Hodgkinson-Williams & Gray, 2009; Murphy, 2013). This is a significant shift away from a time when educational content was mostly only available to individuals enrolled in formal education. Institutionally, the impetus to share materials in this way may be driven by a marketing objective with an agenda to raise institutional profiles (Dos Santos, 2008); altruistic motivations to provide access to knowledge (Hylén & Schuller, 2007); or to invite innovation networks and collaboration across institutions (Carey, Davis, Ferreras, & Porter, 2015). Open educational practices (OEP) are those teaching and learning practices enabled and supported by the open movement, either in making use of OER, engaging students in openness, or making professional practice more accessible.

The goal for this paper is to explore the literature on open education, specifically considering and scrutinizing the impact on the teaching and learning practices of faculty in higher education. Scholars have suggested a move to openness in higher education may provide an impetus for innovative teaching and learning processes, resulting in new conceptualizations of teaching and learning roles and practices (Lane & McAndrew, 2010; Porter, 2013; Littlejohn & Hood, 2016). In this way, open education may be a catalyst for innovation in the practice of teaching in higher education. However, these practices must be supported by both an understanding of the affordances of the tools which support open, emerging technological literacies and competencies (A. Lane, 2009), as well as pedagogical knowledge (Bates, 2011). Additionally, engaging students with openness can advance the competences, knowledge, and skills needed to participate successfully within the political, economic, social, and cultural realms of a more open society (Geser, 2007; McAndrew, Scanlon & Clow, 2010). For those faculty taking on OEP as part of their teaching, a greater understanding of the issues, challenges, and necessary supports is needed to further develop OEP (Beetham, Falconer, McGill & Littlejohn, 2012; Borthwick & Gallagher-Brett, 2014; Camilleri, Ehlers & Pawlowski, 2014; Pitt, 2015; Littlejohn & Hood, 2016).

Defining Open Education Practice

While some literature has suggested OEP are simply those which make use of OER, one of the founding documents on open education suggests a broader vision. The Cape Town Open Education Declaration suggests,

> "open education is not limited to just open educational resources. It also draws upon open technologies that facilitate collaborative, flexible learning and the open sharing of teaching practices that empower educators to benefit from the best ideas of their colleagues. It may also grow to include new approaches to assessment, accreditation and collaborative learning" (The Cape Town Open Education Declaration, 2007, para. 4).

More recently scholars have argued that research on OER should focus less on access to digital content, and more so on the impact of openness in supporting innovative educational practices (OPAL, 2011; Kimmons, 2016). By exploring a broader notion of openness in education, we shift the focus from content (OER) to the practices (OEP) that are necessary for the use of that content (Deimann & Farrow, 2013). The shifting focus of discourses from OER towards OEP represents a positive advancement of the field, as this represents a change from developing and releasing OER content to researching their impact (Weller, de los Arcos, Farrow, Pitt & McAndrew, 2015). As found with the costly learning object repository movement, educational technology initiatives should support and report on practices and processes rather than products alone (Friesen, 2009).

Open pedagogy, open educational practices, or open practices, often used interchangeably, have been defined as "the next phase in OER development, which will see a shift from a focus on resources to a focus on OEP being a combination of open resources use and open learning architectures to transform learning" (Camilleri & Ehlers, 2011, p. 6). Several definitions of OEP have been proposed in the literature. Wiley (2014) proposed the 5R model to describe the affordances, practices, and possibilities of working with OER which form a framework for practice. OEP have also been defined as teaching and learning activities where both "resources are shared by making them openly available and pedagogical practices are employed which rely on social interaction, knowledge creation, peer learning and shared learning practices" (Ehlers, 2013, p. 94). Stagg (2014) contributes a continuum model for OEP which ranges from awareness and access of OER, sharing of one's own works as OER, passive remixing of OER, active remixing of OER, and finally student engagement in the creation of OER. Hegarty (2015) proposes eight attributes which describe the strategies and policies which encompass OEP. These attributes are broadly focused providing guidance on the qualities of OEP while not making specific recommendations for practice. Nascimbeni & Burgos (2016) propose a definition which advances towards defining the specific scholarly practices associated with OEP. This definition identifies activities such as course design, content creation, pedagogy, and assessment design as areas for infusing OEP.

Based on these attempts to articulate OEP and a desire to have a definition which more specifically addresses how faculty might make the shift from existing practices to open practices, a working definition in the context of this research is proposed.

> *Teaching and learning practices where openness is enacted within all aspects of instructional practice; including the design of learning outcomes, the selection of teaching resources, and the planning of activities and assessment. OEP engage both faculty and students with the use and creation of OER, draw attention to the potential afforded by open licences, facilitate open peer-review, and support participatory student-directed projects.*

This definition is purposefully intended to align with the model of constructive alignment (Biggs, 1996) and provide logical pathways for faculty considering enacting OEP in their teaching and learning practices. Previous research suggests there is a need to understand the potential of OEP to change educators' practice around learning design (Harrison & DeVries, 2016). Others have suggested the need for concrete strategies which empower faculty to integrate open teaching and learning practices (Nascimbeni & Burgos, 2016). The proposed approach provides faculty with ways to think about building openness into the design of learning outcomes, selection of resources, planning of teaching activities, and design of assessment.

Method

The literature review that follows presents research on how emergent OEP are impacting teaching and learning practices. These practices are described in terms of their affordances and evidence of their utility in supporting educators shifting from existing to open practices. A combination of methods was used to conduct this narrative literature review. Web of Science was initially used to source literature in relation to the search terms 'open educational practice', 'open education practice', 'open practice', or 'open pedagogy'. A similar query was run using Harzing's *Publish or Perish* software which retrieves and analyzes Google Scholar citation data. Research databases and Google Scholar were used to scan for additional literature. Citation tracing methods were further used to locate research cited within the works reviewed. The corpus of literature was then narrowed to include only empirical research which focused specifically on OEP in relation to instructional practice.

The Atomic Structure of Instructional Practice

A model of instructional practice will be used to frame the analysis of the literature on OEP within the context of teaching and learning. This approach situates OEP within existing instructional practice, rather than taking the common optimistic view that openness alone is transformative and requires entirely novel pedagogical approaches (Masterman & Chan, 2015). Biggs' (1996) model of constructive alignment provides a framework to guide impactful instructional design and practice. The model suggests an ideal synergy between the intended learning outcomes, teaching and learning activities which meet those outcomes, and assessment and evaluation which demonstrate the achievement of the outcomes. Inherent in the model is the notion that students create and construct meaning by engaging in learning activities, rather than having it transmitted to them by faculty (Biggs, 2003). Supporting this process are the knowledge resources which faculty select to support the development of strong outcomes, provide sources for teaching and learning activities, or sources for assessment and evaluation. When the elements of instructional practice are well aligned, studies have shown that students are more likely to adopt approaches to learning which result in meaningful learning (Wang, Su, Cheung, Wong & Kwong, 2013). Thus, students have a clear understanding of the outcomes, see their relation to teaching and learning activities, and are better able to plan for and achieve success during assessment (Beetham et al., 2012).

The framework of constructive alignment provides a lens for conceptualizing the integration of OEP in a deliberate way. Previous studies have shown that faculty tend to pick and choose aspects of OEP might which fit their existing pedagogical approaches (Beetham et al., 2012) or apply a "bolt-on" approach to design which foregrounds the addition of technology over the consideration of how that integration contributes to meaningful pedagogy (Lyons, Hannon & Macken, 2014). Considering OEP within a framework which supports pedagogically sound instructional design practices makes it more straightforward to identify specific, relevant, roles for integrating OER and enacting OEP (Masterman, 2016). An analysis of the literature on OEP follows considering these four core elements of constructive alignment.

Open Practices for the Design of Learning Outcomes

According to Biggs, "teachers need to be clear about what they want their students to learn, and how they would manifest that learning in terms of 'performances of understanding'" (Biggs, 1996, p. 360). Learning outcomes provide a description of the intended knowledge, attributes, and skills of a successful student. Ensuring strongly written learning outcomes are made explicit and openly accessible to students, thereby helping them to understand what is needed for success, may be a simple way to enact OEP. While this may seem a logical activity some scholars have suggested that the deliberate articulation of aligned learning outcomes are often not fully considered or communicated (Blumberg, 2009).

Learning outcomes may further be made openly accessible as OER, so that students have a better sense of the goals of a course prior to enrolling. Increasing the transparency and accessibility of the curriculum also has benefits at the departmental and program level, potentially creating greater alignment of courses within an academic program (Lam & Tsui, 2016). The process of sharing and aligning course and program learning outcomes among faculty has also been shown to positively impact collaboration and collegiality (Uchiyama & Radin, 2009; Petrides, Jimes, Middleton-Detzner, Walling & Weiss, 2011)

Ehlers (2011) articulated a spectrum of open and flexible practices which relate strongly to the design of more open student learning outcomes. Low degrees of openness are reflected in learning outcomes where transmission and reproduction of knowledge is the intended goal. Medium degrees

of openness might be said to exist when learning outcomes are predetermined, but the pedagogy is flexible and students are actively involved in collective dialogue. High degrees of openness would involve co-creation of the learning outcomes, objectives, and methods by students. Moving towards the high end of the spectrum for designing learning outcomes allows for greater personalization, autonomy, and self-regulation on the part of students (Ehlers, 2011). The research of Hipkins (2012) and Reeve, Jang, Carrell, Jeon and Barch (2004) further support the involvement of students in contributing to the formation of learning outcomes, which were found to support personalization, autonomy, and increased student engagement. The move towards more open learning outcomes further shifts the role of the faculty member from transmitter of knowledge to facilitator of learning.

While learning outcomes have not been largely ascribed as OER, it has been argued that they represent educational artefacts worth sharing, improving, and reusing (Ehlers, 2011). De los Arcos, Farrow, Perryman, Pitt and Weller (2014) found that OER that included associated learning outcomes were more likely to be used by self-directed learners and educators seeking resources for their own practice. Conole (2013) further suggests the use and sharing of visualizations such as 'learning outcome maps' which explicitly link intended learning outcomes, activities, resources, and assessment in a visual way. Providing access to these visualized learning designs ensure students know how to be successful and helps expose the instructional design and representative pedagogy to other educators (Conole & Culver, 2010).

Open Practices for the Design of Learning Resources

The selection, adaptation, and creation of learning resources support most aspects of instructional practice. Despite the increased availability of openly licensed resources now available, commercially developed resources are still dominant in higher education (Allen & Seaman, 2016). Commercially developed educational resources limit possibilities for teaching and learning due to their physical and digital affordances in combination with most copyright laws around the world. Where a digital copy of a textbook is available from a publisher, it is often locked into a proprietary format with digital rights protection (DRM), which provides access for a limited timeframe, and under restrictive copyright (Wiley, 2014). This significantly limits what both faculty and students can do with their learning resources.

In contrast OER offer significant financial, legal, and technical freedoms. Several empirical studies have been conducted to assess educators' engagement and use of OER. These studies show that while awareness of OER is increasing, adoption, usage, and contributions by faculty remain low (de los Arcos et al., 2014; Allen & Seaman, 2016; Jhangiani, Pitt, Hendricks, Key & Lalonde, 2016). Faculty widely recognize the cost savings for students in assigning OER and evidence of increased student performance and satisfaction are emerging (Pitt, 2015; Weller et al., 2015). Further empirical research suggests that, in comparison to the use of traditional texts, the usage of OER does not adversely impact existing learning outcomes (Robinson, Fischer, Wiley & Hilton, 2014; Fischer, Hilton, Robinson & Wiley, 2015; Jhangiani et al., 2016). Faculty cite the challenges of locating relevant, high quality, and topical resources in their subject area as a significant barrier to more actively using OER (de los Arcos et al., 2014; Allen & Seaman, 2016).

Despite the challenges cited there is a vast quantity of OER now available on the internet. Resources, many of which could be considered educational, licensed with Creative Commons have surpassed a billion, tripling in volume over the last five years. Creative Commons speculates that over 76,000 of those resources are OER; 1.4 million research papers; 46 million articles, stories, books, or documents; and over 400 million encompass other forms of media including audio, images, or video (Merkley, 2015). These resources may be compiled: into other educational resources; for developing

online learning materials (Beaven, 2013); as sources of inspiration (Borthwick & Gallagher-Brett, 2014; Weller et al., 2015); or for engaging students in creative projects (Tur, Urbina & Moreno, 2016). More theoretical research is needed on the time, effort, and literacies needed to conduct these activities as well as their impacts on pedagogy (Beetham et al., 2012; Jhangiani et al., 2016; Littlejohn & Hood, 2016).

Faculty's adoption of OER also has a secondary impact on students, in that it may be their first exposure to open education, open licensing, and non-commercial sources of knowledge. Acknowledging and sharing the resources being collaboratively created through open education can have an impact on students' own knowledge practices (Carey et al., 2015). Not only do these practices make the activities in higher education more relevant in modern society but they also foster the development of valuable literacies for students entering the workforce (Royle, Stager & Traxler, 2014).

Open Practices for the Design of Teaching and Learning Activities

The availability of OER has been frequently cited as a way for faculty to find inspiration for their own teaching and learning activities (Petrides et al., 2011; de los Arcos et al., 2014; Jhangiani et al., 2016; Kimmons, 2016). Further, this exposure to practice can create opportunities for the collaborative development of learning resources and designs (Masterman & Wild, 2011; Petrides et al., 2011).

Many faculty initially access OER to explore discipline specific pedagogical approaches and resources with the intent of enhancing their practice (de los Arcos et al., 2014; Weller et al., 2015; Jhangiani et al., 2016). By seeking teaching and learning activities which are more openly accessible, faculty may review strategies relevant in or beyond their discipline, discovering new ways to introduce concepts or design teaching and learning activities (Beaven, 2013). Petrides et al. (2011) reported that faculty were able to build upon and adapt OER to enhance their own courses. Faculty noted that OER provides ideas for teaching activities in the classroom and resources which can be used to design more interactive learning experiences (Petrides et al., 2011). Engagement with OER has also been found to stimulate critical reflection in faculty leading to the reconsideration of existing teaching and learning activities (Beetham et al., 2012; McGill, Falconer, Dempster, Littlejohn & Beetham, 2013).

Much like sourcing OER, faculty report that finding appropriate resources and integrating new activities in their curriculum is time consuming (Petrides et al., 2011). Furthermore, knowing where to find resources is still reported to be one of the biggest challenges to using OER (de los Arcos et al., 2014; Allen & Seaman, 2016). Professional development programs can be helpful in bringing faculty together to take time to share and explore practice (Borthwick & Gallagher-Brett, 2014; Kimmons, 2016). Further, promoting openness at the institutional level can support capacity building and collaboration on curriculum development within departments (Lyons et al., 2014; Karunanayaka, Naidu, Rajendra & Ratnayake, 2015).

Faculty may gradually gravitate towards more OEP as they engage further with the movement. Pitt (2015) reported that 25% of faculty who had engaged with OER reported changing their pedagogical approaches based on this exposure. Further research is needed to determine if engagement with OER leads to the development of OEP. Additionally, research is needed to determine whether adopting OEP alters the dominant model of teacher-centred education. It has been argued that many of the teaching and learning activities which still prevail involve an educator mediating an authoritative learning resource, requiring students to study and reproduce it (Geser, 2007; McAndrew et al., 2010).

Students' perceptions of the move to greater OEP are also crucial to understand, as "teachers who use OER instead of lecturing risk being seen as 'not real teachers'" (Ossiannilsson & Creelman, 2011, p. 376). Therefore, research is needed into both faculty's move towards OEP and the subsequent impact on students. The pedagogical value of a move towards OEP is that it can provide space for and foster dialogue, co-creation, and participatory learning, deconstructing the teacher-student binary by increasing access and inviting participatory learning (Morris & Strommel, 2014). By adopting OEP in their teaching and learning activities, faculty may enable students to be further involved in the active creation and curation of knowledge during their learning.

Open Practices for Designing Assessment and Evaluation

Constructive alignment derives from a constructivist view of learning emphasising the "centrality of the learner's activities in creating meaning" (Biggs, 1996, p. 347). OEP which impact assessment rely on the active participation and production of knowledge by students, shifting the role of student as consumer of knowledge to student as a producer of knowledge (Neary & Winn, 2009). In doing so students are tasked with greater autonomy and must take responsibility for their own learning (Ossiannilsson & Creelman, 2011). This may be interpreted as a risky venture for faculty concerned about students who are uncomfortable with less traditional teaching methods (Dohn, 2009; Ossiannilsson & Creelman, 2011; Gray et al., 2012). Conversely, it has been argued that OEP may be a way to bridge the formal/informal learning divide in higher education (Cronin, 2016).

While introducing students to OER and OEP, researchers have found that students generally hold positive attitudes around the possibilities these practices offer (Tur et al., 2016). Dohn (2009) surfaces several challenges related to student's perceptions around knowledge, learning, and the goals of the practice implicit in more open forms of assessment. Engaging students in OEP requires a change of orientation around issues such as "authorship, copyright, knowledge production, and expertise […] enabled by the distributed authorship, the renouncement of copyright, and the acceptance of one's text being edited and transformed by later coauthors" (Dohn, 2009, p. 344). Despite this, it is argued that more open assessment practices have benefits to the learner, including the practicing of digital literacies in the context of teaching and learning, active engagement in the production of knowledge, working within and integrating both formal and informal learning environments, and developing digital literacies and competencies relevant and needed in future workplaces (Dohn, 2009).

Downes (2010) argues that those benefiting most from OER are the people who are producing the resources. This argument is reinforced in Littlejohn & Hood's (2016) study which investigates how individuals learn and construct knowledge through the creation, adaptation, and reusing of OER. In engaging with and sharing OER, individuals promote their own work, teaching, and research processes. Further, contributors to OER may engage with and form networks around the resources they create, collecting feedback and reviews to further improve their work. Following Downes' argument, engaging students as contributors and creators of OER as part of assessment could lead to benefits for the student in terms of promoting their own creative work, forging connections, and building their own portfolio.

So much of the work students produce for assessment in higher education remains invisible to their peers, wider institution, local community, or the world. Students most often produce works which are submitted via closed learning management systems (LMS), then reviewed only by the faculty member who provides feedback and a grade. Naturally this is appropriate for many instances of assessment, for example sensitive reflections or early formative work. Moreover, students may find themselves uncomfortable sharing openly, so flexibility and sensitivities to this

should be accommodated (Masterman & Wild, 2011). However, students may be provided with encouragement, opportunities, and literacies which empower them to share their work more widely if appropriate. In doing so we equip them with the literacies of purposeful searching, curation of their own works, understanding of open licenses, and ways of using OER in their professional lives (Masterman & Wild, 2011).

In some cases, it may be quite appropriate that resources created by students during the process of their learning should be accessed by future students. By doing so we enable students to build on the work of their peers. An example may be found with community outreach projects; providing students with access to the work previously done in the community fosters the collective and collaborative advancement of a community outreach project. Making student contributions openly available "is seen by educators as an important factor for improving teaching and learning and for creating more open and participatory cultures" (Alevizou, 2012, p. 11). Student work shared openly invites review, comment, refinement, network formation, and potential opportunities for collaboration. "When work is done privately – when it is carefully hidden from the public – no synergy is possible. When the individual nodes remain disconnected, no network can emerge" (Wiley, 2016, para. 18). Increasingly examples of the benefits of open and networked learning can be found in the development of student eportfolios, social networks, and personal websites which showcase academic works developed through the course of study.

The literature suggests that faculty should be encouraged to design assignments which involve students in the creation and adaptation of OER (Jhangiani et al., 2016). Engaging students in the production of OER levels the student-teacher relationship while engaging students as co-producers of knowledge (Masterman, 2016). Faculty in Masterman's (2016) study reported that engaging students with OEP supported the development of communication, analytical, and problem solving skills. Hodgkinson-Williams & Paskevicius (2012) study investigated students' development of agency as they engaged in the development of OER in collaboration with faculty. This collaboration resulted in the development of students' digital literacies while preserving the time that faculty would have had to invest in reworking and distributing their own existing materials as OER. Involving students in the production of OER allowed them to practice developing digital literacies using both informal and formal tools and learning environments. Students developed creative agency as they worked, initially removing unnecessary details or addressing copyrighted concerns, then questioning the pedagogic design and presentation of the materials. This feedback was presented to faculty and the team worked together to address technical and pedagogical issues.

When exploring more openness in relation to assessment and evaluation, some faculty have expressed concern this may lead to students copying open versions of previous students' work or sourcing content from the web in academically inappropriate ways (Glud, Buus, Ryberg, Georgsen & Davidsen, 2010; Waycott et al., 2010). While this does become possible with more open methods of assessment and evaluation, it may be managed through alternative learning designs which challenge students to build upon, critique, or evaluate previous students work and adhere to explicit attribution and citation inherent in the practice. A core feature of OER is the practice of attribution and usage as defined by the permissions embedded in open licences. Developing student literacies around how to interpret open licenses, attribute authorship, and appropriately provide links back to the source are valuable for working on the open web and in developing creative works. In doing so students may further develop an understanding of how adopting open licenses for their own works might enable the creative process of others, further developing the commons.

Conversely, faculty have voiced concern about students creating inaccurate resources and a need for quality control of student generated OER (Masterman & Chan, 2015). Peer-review and

assessment of student works may help alleviate some of these issues. However, these are valid operational issues for enacting OEP around assessment and can be addressed through the thoughtful design and alignment of the assessments to the learning outcomes. Further research is needed to better understand how engaging students with OEP as part of assessment impacts their knowledge creation processes and practices.

Discussion

There is mounting evidence that suggests engagement with OEP has the potential to transform educational practices by shifting the relationships among faculty, between faculty and students, and between faculty and organisations (Ehlers, 2011; McGill et al., 2013; Masterman, 2016). In terms of instructional practice, these changes show "potential to flatten the traditional hierarchy and change the balance of power in learner/teacher relationships" (McGill et al., 2013, p. 7). The potential for increasing accessibility and promoting the sharing of learning outcomes, resources, activities, and assessment designs among faculty represents a great opportunity to collectively improve educational practice, within and across disciplines.

Constructive alignment provides a framework to situate examples of OEP within a pedagogically sound model for the design of instructional practice. Figure 1 provides a visual model of the main themes of OEP drawn from the literature within the model of constructive alignment. For each of the elements of the model, examples are provided which may guide faculty towards how to consider OEP as part of their design or redesign process. For example, when designing assessment and evaluation activities, faculty may enact OEP by exploring ways in which they can engage students as producers of content, find ways to integrate peer-review and assessment, promote student collaboration, and develop digital literacies. Additional examples may be developed to further enhance this model, however this provides a starting point for faculty familiar with learning design, but not OEP, to conceptualize their practice.

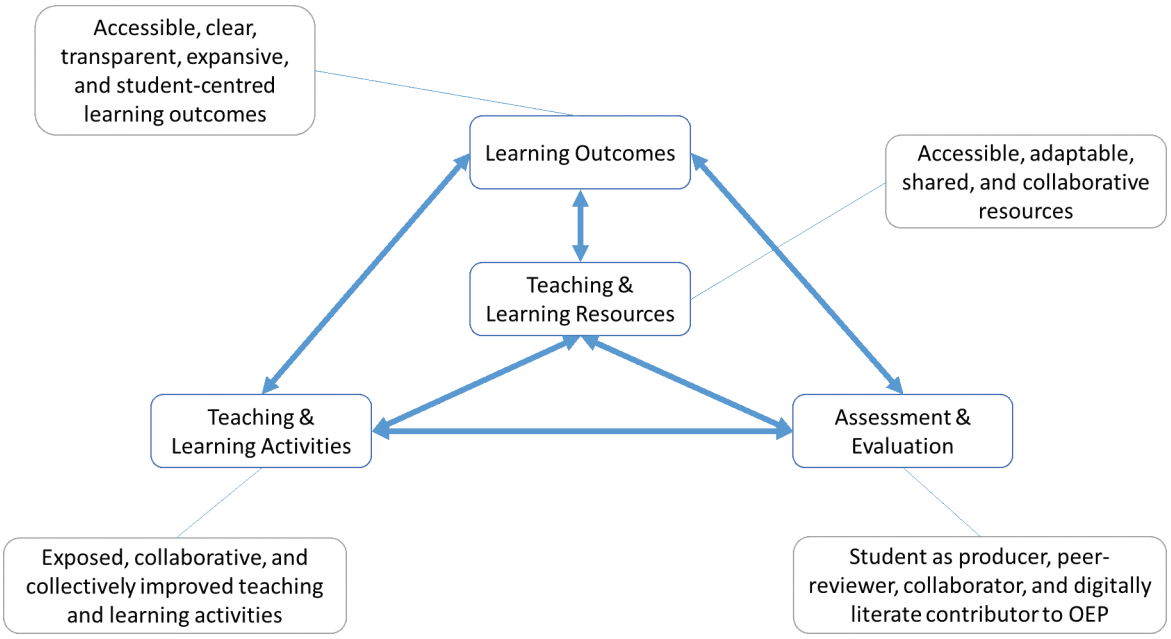

Figure 1: Aspects of OEP within the model of constructive alignment

Despite the opportunities presented through this new landscape of OEP, many in higher education operate largely as they did in the past (McGoldrick, Watts & Economou, 2015). Both leadership and professional development are needed to support a shift to OEP. Additionally, further research is needed to better understand the phenomenon of OEP and their impacts on faculty and students. It has been suggested that educational leadership should embrace "openness as a core organizational value if [they] desire to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education" (Wiley & Hilton III, 2009, p. 1). Further recommendations have been made to embed support for engaging with openness as part of the institutional mission (Masterman & Chan, 2015). In many ways, the ethos of higher education is closely aligned to the open education movement, however, it is often not made explicit or done in a coordinated way. For Lerman, Miyagawa and Margulies (2008) "open sharing of knowledge is at the heart of the academic process. For many faculty, it is an intrinsic value, convincingly demonstrated in their teaching and research" (2008, p. 214). Willinsky (2014) further argues that by opening access to the teaching, learning, and research processes which occur in universities, we promote the possibility for unintended lessons and unexpected interests among new groups of individuals in society. Openness is a way of engaging with our communities, offering a window into the activities happening on our campuses while inviting broader access and participation from individuals who might not have traditionally had contact with the institution (McGill et al., 2013; Willinsky, 2014).

Engaging students with OEP may contribute to the development of valuable literacies for working in the information age. Despite the increased availability and breadth of available OER, students report limited awareness of what this means and how to locate these resources (Czerniewicz, 2016). More research is needed into how engaging students with OEP might impact their own personal knowledge and creative practices (Carey et al., 2015). Engaging students with OEP may motivate students to become engaged in the learning process. By involving them as contributors, collaborators, partners, knowledge creators, and reviewers which can lead to enhanced learning experiences (Nel, 2017). Students may further benefit from the opportunity for peer-review, assessment, and feedback enabled by the integration of OEP into assessment design. By inviting students to make selections of their work more visible to their peers and the wider public we present opportunities for community engagement, network formation, and experiential learning.

A remaining challenge is higher education's entrenched relationship with closed systems and copyright enforced content. Most higher education institutions have invested in some form of LMS, a toolset characterized by its closed, ridged, over functioned, and inflexible nature (Broekman, Hall, Byfield, Hides & Worthington, 2014). Many faculty gravitate towards using the LMS as a consequence of its availability (Bennett, Dawson, Bearman, Molloy & Boud, 2016). The physical and digital boundaries created by these environments determine available pedagogies (L. M. Lane, 2009; Dron, 2016). Porter (2013) suggests that the rigid technical frameworks which the LMS typically employs may act as a barrier to the creation and use of OER. Therefore, tools which explicitly support OEP should also be considered as part of the institutional offering. New forms of digital technologies are providing opportunities to enact flexible pedagogies which promote student agency, autonomy, and self regulation (Evans, Muijs, & Tomlinson, 2015).

The literacies which support these emergent practices may not come naturally by learning about and interacting with OER alone. Professional development and further training is needed to become equipped with the skills necessary to effectively leverage OEP for enhancing pedagogy (Petrides et al., 2011). This is also true for students, who may not have previously engaged with OEP (Ross, 2012). Allocating time to develop literacies in OEP as well as time to work with colleagues to develop and share practices are cited as significantly important considerations for fostering OEP (Kimmons, 2016). Faculty highly value time to collaborate with other teaching professionals and generate opportunities

for open and shared practice (Petrides et al., 2011; Lyons et al., 2014; Karunanayaka et al., 2015; Masterman & Chan, 2015; Kimmons, 2016). Engaging faculty with professional development opportunities around OEP are noted as essential elements to increasing engagement with OEP (Borthwick & Gallagher-Brett, 2014; Kimmons, 2016).

Conclusion

The open movement has come a long way in higher education, as awareness has grown in terms of what OER can offer faculty, the potential cost savings for students, and the impact of collaboration and open sharing of teaching and learning practices. The emergence of OEP reinforces that "open education is not just about disseminating resources […] but also about an opportunity toward broadening and deepening our collective understanding of teaching and learning" (Iiyoshi & Kumar, 2008, p. 439). Situating OEP within the model of constructive alignment allows faculty to envision how open practices might fit into their landscape of practice. Furthermore, integrating OEP in a deliberate way, always with a focus towards contributing to meaningful learning outcomes, ensures that OEP contribute to aligned and meaningful instructional practice.

Acknowledgment

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 (http://conference.oeconsortium.org/2017), with whom *Open Praxis* established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in *Open Praxis*.

References

Alevizou, P. (2012). Open to Interpretation?: Productive Frameworks for Understanding Audience Engagement with OER. Presented at the *Cambridge 2012: Innovation and Impact – Openly Collaborating to Enhance Education*, a joint meeting of OER12 and OpenCourseWare Consortium Global 2012, Cambridge, UK. Retrieved from http://www.ucel.ac.uk/oer12/docs/Conference_Proceedings_Cambridge_2012.pdf

Allen, E., & Seaman, J. (2016). *Opening the Textbook: Educational Resources in U.S. Higher Education, 2015-16*. Babson Survey Research Group. Retrieved from http://www.onlinelearningsurvey.com/reports/openingthetextbook2016.pdf

Bates, T. (2011, February 6). *OERs: The Good, the Bad and the Ugly*. Retrieved from http://www.tonybates.ca/2011/02/06/oers-the-good-the-bad-and-the-ugly/

Beaven, T. (2013). Use and Reuse of OER: Professional Conversations with Language Teachers. *Journal of E-Learning and Knowledge Society*, *9*(1). Retrieved from http://www.je-lks.org/ojs/index.php/Je-LKS_EN/article/view/802

Beetham, H., Falconer, I., McGill, L., & Littlejohn, A. (2012). *Open Practices Briefing Paper*. JISC. Retrieved from https://oersynth.pbworks.com/w/page/51668352/OpenPracticesBriefing

Bennett, S., Dawson, P., Bearman, M., Molloy, E., & Boud, D. (2016). How Technology Shapes Assessment Design: Findings from a Study of University Teachers. *British Journal of Educational Technology, 48*(2), 672–682. https://doi.org/10.1111/bjet.12439

Biggs, J. (1996). Enhancing Teaching through Constructive Alignment. *Higher Education*, *32*(3), 347–364.

Biggs, J. (2003). Aligning Teaching for Constructing Learning. *Higher Education Academy*, 1–4.

Blumberg, P. (2009). Maximizing Learning Through Course Alignment and Experience with Different Types of Knowledge. *Innovative Higher Education*, *34*(2), 93–103. https://doi.org/10.1007/s10755-009-9095-2

Borthwick, K., & Gallagher-Brett, A. (2014). 'Inspiration, Ideas, Encouragement': Teacher Development and Improved Use of Technology in Language Teaching Through Open Educational Practice. *Computer Assisted Language Learning*, *27*(2), 163–183. https://doi.org/10.1080/09588221.2013.818560

Broekman, P. van M., Hall, G., Byfield, T., Hides, S., & Worthington, S. (2014). *Open Education: A Study in Disruption*. London; New York: Rowman & Littlefield International.

Brown, J. S., & Adler, R. (2008). Minds on Fire: Open Education, the Long Tail, and Learning 2.0. *EDUCAUSE Review*, *43*(1), 16–32.

Camilleri, A. F., & Ehlers, U.-D. (2011). *Mainstreaming Open Educational Practice: Recommendations for Policy*. European Foundation for Quality in E-Learning: The OPAL Consortium. Retrieved from http://efquel.org/wp-content/uploads/2012/03/Policy_Support_OEP.pdf

Camilleri, A. F., Ehlers, U.-D., & Pawlowski, J. (2014). *State of the Art Review of Quality Issues Related to Open Educational Resources (OER)*. Luxembourg: European Commission Institute for Prospective Technological Studies.

Carey, T., Davis, A., Ferreras, S., & Porter, D. (2015). Using Open Educational Practices to Support Institutional Strategic Excellence in Teaching, Learning & Scholarship. *Open Praxis*, *7*(2). https://doi.org/10.5944/openpraxis.7.2.201

Czerniewicz, L. (2016). Student practices in copyright culture: accessing learning resources. Learning, Media and Technology, 1–14. https://doi.org/10.1080/17439884.2016.1160928

Conole, G. (2013). *Designing for Learning in an Open World*. New York, NY: Springer New York. https://doi.org/10.1007/978-1-4419-8517-0

Conole, G., & Culver, J. (2010). The Design of Cloudworks: Applying Social Networking Practice to Foster the Exchange of Learning and Teaching Ideas and Designs. *Computers & Education*, *54*(3), 679–692. https://doi.org/10.1016/j.compedu.2009.09.013

Cronin, C. (2016). Open, Networked and Connected Learning: Bridging the Formal/Informal Learning Divide in Higher Education. In *Proceedings of the 10th International Conference on Networked Learning*. Retrieved from http://www.networkedlearningconference.org.uk/abstracts/pdf/S3_Paper2.pdf

de los Arcos, B., Farrow, R., Perryman, L.-A., Pitt, R., & Weller, M. (2014). *OER Evidence Report 2013-2014*. OER Research Hub. Retrieved from http://oerresearchhub.files.wordpress.com/2014/11/oerrh-evidence-report-2014.pdf

Deimann, M., & Farrow, R. (2013). Rethinking OER and their use: Open education as Bildung. *The International Review of Research in Open and Distributed Learning*, *14*(3), 344–360. https://doi.org/10.19173/irrodl.v14i3.1370

Dohn, N. B. (2009). Web 2.0: Inherent Tensions and Evident Challenges for Education. *International Journal of Computer-Supported Collaborative Learning*, *4*(3), 343–363. https://doi.org/10.1007/s11412-009-9066-8

Dos Santos, A. I. (2008). The Discourses of OERs: How Flat Is This World? *Journal of Interactive Media in Education*, *2008*(1), 11.

Downes, S. (2010). *The Role of Open Educational Resources in Personal Learning*. UOC - Universitat Oberta de Catalunya. Retrieved from https://www.youtube.com/watch?v=AQCvj6m4obM

Dron, J. (2016). The Classroom-less Society: The Shifting Boundaries of Online Learning. In *6th Annual Education Technology Summit*. Toronto, Canada. Retrieved from https://landing.athabascau.ca/file/view/1580870/the-classroom-less-society-slides-from-ed-tech-summit-2016-toronto

Ehlers, U.-D. (2011). Extending the Territory: From Open Educational Resources to Open Educational Practices. *Journal of Open, Flexible, and Distance Learning*, *15*(2), 1–10.

Ehlers, U.-D. (2013). *Open Learning Cultures: A Guide to Quality, Evaluation, and Assessment for Future Learning*. Springer Science & Business Media.

Ehlers, U.-D., & Conole, G. (2010). Open Educational Practices: Unleashing the Power of OER. In *UNESCO Workshop on OER in Namibia*. file://localhost/Retrieved from http/::efquel.org:wp-content:uploads:2012:03:OEP_Unleashing-the-power-of-OER.pdf

Evans, C., Muijs, D., & Tomlinson, M. (2015). Engaged Student Learning: High-Impact Strategies to Enhance Student Achievement. University of Southampton: Higher Education Academy. Retrieved from http://www.heacademy.ac.uk/system/files/engaged_student_learning_high-impact_pedagogies_1.pdf

Fischer, L., Hilton, J., Robinson, T. J., & Wiley, D. A. (2015). A Multi-Institutional Study of the Impact of Open Textbook Adoption on the Learning Outcomes of Post-Secondary Students. *Journal of Computing in Higher Education*, *27*(3), 159–172. https://doi.org/10.1007/s12528-015-9101-x

Friesen, N. (2009). Open Educational Resources: New Possibilities for Change and Sustainability. *The International Review of Research in Open and Distributed Learning*, *10*(5). https://doi.org/10.19173/irrodl.v10i5.664

Geser, G. (2007). *Open Educational Practices and Resources: OLCOS Roadmap 2012*. Salzburg: Open Learning Content Observatory Services. Retrieved from http://www.olcos.org/cms/upload/docs/olcos_roadmap.pdf

Glud, L. N., Buus, L., Ryberg, T., Georgsen, M., & Davidsen, J. (2010). Contributing to a Learning Methodology for Web 2.0 Learning—Identifying Central Tensions in Educational Use of Web 2.0 Technologies. In L. Dirckinck-Holmfeld, V. Hodgson, C. Jones, M. De Laat, D. McConnell, & T. Ryberg (Eds.), *Handbook and Abstracts for the Seventh International Conference on Networked Learning 2010* (Aalborg, p. 64). Retrieved from http://nordicom.statsbiblioteket.dk/ncom/files/30082174/NÃ¸rgaard Glud.pdf

Gray, K., Waycott, J., Clerehan, R., Hamilton, M., Richardson, J., Sheard, J., & Thompson, C. (2012). Worth It? Findings from a Study of How Academics Assess Students' Web 2.0 Activities. *Research in Learning Technology*, *20*(0). https://doi.org/10.3402/rlt.v20i0.16153

Harrison, M., & DeVries, I. (2016). Advocating for Open: The Instructional Design Experience. Presented at the *Open Education 2016*, Richmond, VA. Retrieved from https://openeducation2016.sched.com/event/7lot/advocating-for-open-the-instructional-design-experience

Hegarty, B. (2015). Attributes of Open Pedagogy: A Model for Using Open Educational Resources. *Educational Technology*, 4.

Hipkins, R. (2012). The Engaging Nature of Teaching for Competency Development. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of Research on Student Engagement* (pp. 441–456). Springer US. Retrieved from https://doi.org/10.1007/978-1-4614-2018-7_21

Hodgkinson-Williams, C., & Gray, E. (2009). Degrees of Openness: The Emergence of Open Educational Resources at the University of Cape Town. *International Journal of Education and Development Using ICT*, *5*(5), 101–116.

Hodgkinson-Williams, C., & Paskevicius, M. (2012). The Role of Postgraduate Students in Co-Authoring Open Educational Resources to Promote Social Inclusion: A Case Study at the University of Cape Town. *Distance Education*, *33*(2), 253–269. https://doi.org/10.1080/01587919.2012.692052

Hylén, J., & Schuller, T. (2007). Giving Knowledge for Free. Organisation for Economic Cooperation and Development. *The OECD Observer,* (263), 21.

Iiyoshi, T., & Kumar, M. S. V. (2008). Conclusion: New Pathways for Shaping the Collective Agenda to Open Up Education. In T. Iiyoshi & M. S. V. Kumar (Eds.), *Opening up Education: The Collective Advancement of Education Through Open Technology, Open Content, and Open Knowledge* (pp. 429–440). Cambridge, Massachusetts: MIT Press.

Jhangiani, R. S., Pitt, R., Hendricks, C., Key, J., & Lalonde, C. (2016). *Exploring Faculty Use of Open Educational Resources at British Columbia Post-Secondary Institutions*. BCcampus Research Report. Retrieved from https://bccampus.ca/files/2016/01/BCFacultyUseOfOER_final.pdf

Karunanayaka, S. P., Naidu, S., Rajendra, J. C. N., & Ratnayake, H. U. W. (2015). From OER to OEP: Shifting Practitioner Perspectives and Practices with Innovative Learning Experience Design. *Open Praxis*, *7*(4), 339–350. https://doi.org/10.5944/openpraxis.7.4.252

Kimmons, R. (2016). Expansive Openness in Teacher Practice. *Teachers College Record*, *118*(9), 1–34.

Koehler, M., & Mishra, P. (2009). What is Technological Pedagogical Content Knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, *9*(1), 60–70.

Lam, B. H., & Tsui, K. T. (2016). Curriculum Mapping as Deliberation – Examining the Alignment of Subject Learning Outcomes and Course Curricula. *Studies in Higher Education*, *41*(8), 1371–1388. https://doi.org/10.1080/03075079.2014.968539

Lane, A. (2009). The Impact of Openness on Bridging Educational Digital Divides. *The International Review of Research in Open and Distributed Learning*, *10*(5). https://doi.org/10.19173/irrodl.v10i5.637

Lane, A., & McAndrew, P. (2010). Are Open Educational Resources Systematic or Systemic Change Agents for Teaching Practice? *British Journal of Educational Technology*, *41*(6), 952–962. https://doi.org/10.1111/j.1467-8535.2010.01119.x

Lane, L. M. (2009). Insidious Pedagogy: How Course Management Systems Affect Teaching. *First Monday*, *14*(10). https://doi.org/10.5210/fm.v14i10.2530

Lerman, S. R., Miyagawa, S., & Margulies, A. H. (2008). OpenCourseWare: Building a Culture of Sharing. In T. Iiyoshi & M. S. V. Kumar (Eds.), *Opening up Education: The Collective Advancement of Education Through Open Technology, Open Content, and Open Knowledge* (pp. 213–227). Cambridge, Massachusetts: MIT Press.

Littlejohn, A., & Hood, N. (2016). How Educators Build Knowledge and Expand Their Practice: The Case of Open Education Resources: How Educators Build Knowledge and Expand Their Practice. *British Journal of Educational Technology*, *48*(2), 499–510. https://doi.org/10.1111/bjet.12438

Lyons, J. P., Hannon, J., & Macken, C. (2014). Sustainable Practice in Embedding Learning Technologies: Curriculum Renewal Through Course Design Intensives. In M. Gosper & D. Ifenthaler (Eds.), *Curriculum Models for the 21st Century* (pp. 423–442). Springer New York. Retrieved from https://doi.org/10.1007/978-1-4614-7366-4_22

Masterman, E. (2016). Bringing Open Educational Practice to a Research-Intensive University: Prospects and Challenges. *Electronic Journal of E-Learning*, *14*(1).

Masterman, E., & Chan, J. (2015). *Openness in Teaching and Learning: An Exploration of Principles and Practices at the University of Oxford* (Research Report). Academic IT group, IT Services, University of Oxford. Retrieved from https://weblearn.ox.ac.uk/x/nNvkjt

Masterman, E., & Wild, J. (2011). JISC Open Educational Resources Programme: Phase 2 OER Impact study: Research report. *University of Oxford*. Retrieved from http://www.academia.edu/download/26062930/oerimpactstudyresearchreport.pdf

McAndrew, P., Scanlon, E., & Clow, D. (2010). An Open Future for Higher Education. *Educause Quarterly*, *33*(1). Retrieved from http://er.educause.edu/articles/2010/3/an-open-future-for-higher-education

McGill, L., Falconer, I., Dempster, J. A., Littlejohn, A., & Beetham, H. (2013). *Journeys to Open Educational Practice: OER Journeys* (UKOER/SCORE Review Final Report). JISC. Retrieved from https://oersynth.pbworks.com/w/file/fetch/67270310/briefing paper summary.V2.pdf

McGoldrick, B., Watts, J. S., & Economou, K. (2015). *U.S. Postsecondary Faculty in 2015: Diversity In People, Goals And Methods, But Focused On Students*. FTI Consulting. Retrieved from http://postsecondary.gatesfoundation.org/wp-content/uploads/2015/02/US-Postsecondary-Faculty-in-2015.pdf

Merkley, R. (2015). State of the Commons. Retrieved 10 November 2016, from https://stateof.creativecommons.org/2015

Morris, S. M., & Strommel, J. (2014, November 20). If Freire Made a MOOC: Open Education as Resistance. Retrieved from http://www.digitalpedagogylab.com/hybridped/freire-made-mooc-open-education-resistance/

Murphy, A. (2013). Open Educational Practices in Higher Education: Institutional Adoption and Challenges. *Distance Education*, *34*(2), 201–217. https://doi.org/10.1080/01587919.2013.793641

Nascimbeni, F., & Burgos, D. (2016). In Search for the Open Educator: Proposal of a Definition and a Framework to Increase Openness Adoption Among University Educators. *The International Review of Research in Open and Distributed Learning, 17*(6). https://doi.org/10.19173/irrodl.v17i6.2736

Neary, M., & Winn, J. (2009). The Student as Producer: Reinventing the Student Experience in Higher Education. In L. Bell, M. Neary, & H. Stevenson (Eds.), *The future of higher education: policy, pedagogy and the student experience* (pp. 192–210). London: Continuum. Retrieved from http://eprints.lincoln.ac.uk/1675/

Nel, L. (2017). Students as Collaborators in Creating Meaningful Learning Experiences in Technology-Enhanced Classrooms: An Engaged Scholarship Approach. *British Journal of Educational Technology*. https://doi.org/10.1111/bjet.12549

OPAL (2011). *OEP Scape: The Open Educational Practice Landscape*. Essen, Germany: ICDE Educational Quality Initiative.

Ossiannilsson, E., & Creelman, A. (2011). Quality Indicators Within the Use of Open Educational Resources in Higher Education. In A. Méndez-Vilas (Ed.), *Education in a Technological World: Communicating Current and Emerging Research and Technological Efforts* (pp. 372–382). Badajoz, Spain: Formatex Research Centre. Retrieved from http://www.formatex.info/ict/book/372-382.pdf

Papert, S. A. (1993). *Mindstorms: Children, Computers, And Powerful Ideas* (2nd Revised ed.). New York: Basic Books.

Petrides, L., Jimes, C., Middleton-Detzner, C., Walling, J., & Weiss, S. (2011). Open Textbook Adoption and Use: Implications for Teachers and Learners. *Open Learning*, *26*(1), 39–49. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/02680513.2011.538563

Pitt, R. (2015). Mainstreaming Open Textbooks: Educator Perspectives on the Impact of OpenStax College open textbooks. *The International Review of Research in Open and Distributed Learning*, *16*(4). https://doi.org/10.19173/irrodl.v16i4.2381

Porter, D. A. (2013). *Exploring the Practices of Educators Using Open Educational Resources (OER) in the British Columbia Higher Education System* (Doctoral Dissertation). Simon Fraser University. Retrieved from http://summit.sfu.ca/item/13663

Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing Students' Engagement by Increasing Teachers' Autonomy Support. *Motivation and Emotion*, *28*(2), 147–169.

Robinson, T. J., Fischer, L., Wiley, D., & Hilton, J. (2014). The Impact of Open Textbooks on Secondary Science Learning Outcomes. *Educational Researcher*, *43*(7), 341–351. https://doi.org/10.3102/0013189X14550275

Ross, J. (2012). Just What Is Being Reflected in Online Reflection? New Literacies for New Media Learning Practices. In L. Dirckinck-Holmfeld, V. Hodgson, & D. McConnell (Eds.), *Exploring the Theory, Pedagogy and Practice of Networked Learning* (pp. 191–207). New York: Springer. https://doi.org/10.1007/978-1-4614-0496-5_11

Royle, K., Stager, S., & Traxler, J. (2014). Teacher Development with Mobiles: Comparative Critical Factors. *Prospects*, *44*(1), 29–42. https://doi.org/10.1007/s11125-013-9292-8

Smith, M. S., & Casserly, C. M. (2006). The Promise of Open Educational Resources. *Change: The Magazine of Higher Learning*, *38*(5), 8–17. https://doi.org/10.3200/CHNG.38.5.8-17

Stagg, A. (2014). OER adoption: a continuum for practice. *RUSC. Universities and Knowledge Society Journal*, *11*(3), 151. https://doi.org/10.7238/rusc.v11i3.2102

The Cape Town Open Education Declaration (2007). Retrieved from http://www.capetowndeclaration.org/read-the-declaration

Tur, G., Urbina, S., & Moreno, J. (2016). From OER to Open Education: Perceptions of Student Teachers after Creating Digital Stories with Creative Common Resources. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, *7*(2), 34–40.

Turkle, S. (1997). *Life on the Screen* (Reprint edition). New York: Simon & Schuster.

Uchiyama, K. P., & Radin, J. L. (2009). Curriculum Mapping in Higher Education: A Vehicle for Collaboration. *Innovative Higher Education*, *33*(4), 271–280. https://doi.org/10.1007/s10755-008-9078-8

Wang, X., Su, Y., Cheung, S., Wong, E., & Kwong, T. (2013). An Exploration of Biggs' Constructive Alignment in Course Design and Its Impact on Students' Learning Approaches. *Assessment & Evaluation in Higher Education*, *38*(4), 477–491. https://doi.org/10.1080/02602938.2012.658018

Waycott, J., Gray, K., Clerehan, R., Hamilton, M., Richardson, J., Sheard, J., & Thompson, C. (2010). Implications for Academic Integrity of Using Web 2.0 for Teaching, Learning and Assessment in Higher Education. *International Journal for Educational Integrity*, *6*(2). Retrieved from http://www.ojs.unisa.edu.au/index.php/IJEI/article/view/699

Weller, M., de los Arcos, B., Farrow, R., Pitt, B., & McAndrew, P. (2015). The Impact of OER on Teaching and Learning Practice. *Open Praxis*, *7*(4), 351–361. https://doi.org/10.5944/openpraxis.7.4.227

Wiley, D. (2014, March 5). The Access Compromise and the 5th R. Retrieved from http://opencontent.org/blog/archives/3221

Wiley, D. (2016, March 16). 'Open' Educational Resources vs 'Open' Pedagogy: Why Meanings Matter. Retrieved from http://opencontent.org/blog/archives/4496

Wiley, D., & Hilton III, J. (2009). Openness, Dynamic Specialization, and the Disaggregated Future of Higher Education. *The International Review of Research in Open and Distributed Learning*, *10*(5). https://doi.org/10.19173/irrodl.v10i5.768

Willinsky, J. (2014). The New Openness in Educational Research. In A. D. Reid, E. P. Hart, & M. A. Peters (Eds.), *A Companion to Research in Education* (pp. 575–582). Dordrecht: Springer Netherlands. Retrieved from https://doi.org/10.1007/978-94-007-6809-3_75