OER Awareness and Use: The Affinity Between Higher Education and K-12

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Abstract

Educators within Higher Education (HE) and K-12 share in the need for high quality educational resources to assist in the pursuit of teaching and learning. Although there are numerous differences between the two levels of education, there are commonalties in the perceptions of the purpose, practical uses, and challenges that abide in the use of Open Educational Resources (OER). Observations made while producing podcasts and videos for OER awareness, use, and championing, form an exposition of the merits of OER for HE and K-12. Benefits include cost-savings in acquiring resources for teaching and learning as well as user-generated content, instructor creativity, and contextualized and responsively timely learning opportunities. Additionally, the teaching culture of K-12 has historically supported the sharing of learning activities and learning resources. At all levels of education, OER awareness requires a deeper understanding of the changes to teaching and learning borne by open educational practices.

Keywords: K-12 OER, HE OER, OER benefits, open educational practices, open pedagogy, OER awareness

Introduction

Prior to the development of open educational resources (OER) within higher education (HE) and the K-12 system, the copyright restricted educational publishing system complemented the rise of public education. However, educational practices are changing and in 2013, to further the OER movement, the governments of Alberta, British Columbia, and Saskatchewan provided OER development grants to assist higher education institutes to increase awareness and use of OER. I received such a grant (*Multiply K-12 OER)* through the Alberta government OER initiative (ABOER) to develop OER podcasts, videos, and transcripts to assist in teaching OER for K-12 to education graduate students. While I currently work in higher education, my background includes teaching within K-12 for over 20 years and this combination allows a dual perspective of the current landscape of Canadian OER. During the media project, I was able to observe and compare the OER perspectives of higher education professors and instructional designers with those of K-12 educators. This paper sets out these observations from OER scholars, communication exchanges with graduate students, and from a broader K-12 audience who reacted to the ABOER media project at practitioner conferences. In this paper, I offer a reflective perspective and conceptual exploration of the commonalties, differences, and challenges that I have observed between OER for higher education and K-12.

OER and Higher Education

In 2012, as part of the Paris OER Declaration, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) published the following OER definition:

> Open Educational Resources (OERs) are any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation (para.1).

Additionally, because of the open license, OER frequently involves Wiley's (2014) 5 Rs: the right to retain, reuse, revise, remix, and redistribute openly licensed content. To meet licensing needs, Creative Commons (CC), which is one of several public copyright licensing available, was developed to reverse how copyright permissions previously had been established (Lessig, 2008). Rather than asking for copyright permissions, CC licensing declares what type of reuse is possible (i.e., permission to use the resources is granted through the type of CC license) thereby eliminating the need to seek permissions for use and thus expedite the process of legally reusing, revising, remixing, or sharing. With the permissions delineated in the license selected and appended by the creator, any user can immediately understand how the learning object may be accessed and attributed, thus moving from a read-only (RO) culture to a read/write (RW) iterative and generative process oriented culture (Lessig, 2008). Although into its second decade, CC licensing is still establishing its presence within all levels of education (Batson, Paharia, & Kumar, 2008) and its effects continue to grow, as in 2015 worldwide there were over one billion CC licenses (Creative Commons, 2015b). The interplay of CC licensing and changes to digital participatory technologies have nurtured the development of OER (Conole, 2012; Hegarty, 2015) so that collectively these three forces have ushered in a

new era of what it means to produce, publish, use, and share content (Creative Commons, 2015b). These changes have also nurtured adjustments to teaching described as open practices or an open pedagogy (Conole, 2012; Cronin, 2017; Hegarty, 2015). Since the establishment and spread of CC licensing, the educational awareness and use of OER has been directly and deliberately influencing all levels of education.

Prior to the use of OER in higher education, few alternatives for educational resources were available. Educational publishers would publish discipline focused textbooks and due to the niche market monopsony - a small number of highly motivated buyers that needed the specific textbooks but had no say in the decision as to which textbook was to be purchased - the ability to have high profit margins existed (Koch, 2006) and over time this situation has created a broken market (Senack, 2016). Although faculty at higher education were aware of the high costs of these educational resources (Koch, 2006), self-publishing, in whole or in part, required substantial resources, time, and effort directed away from teaching or conducting research (Roediger, 2004) with research dominating faculty pursuits (Macfarlane, 2016; Caster & Hautala, 2008). As Issitt (2004) notes "the negativity of textbooks in terms of use and status as both literary objects and vehicles for pedagogy is profound" (p. 683) and further reinforces faculty priorities upon other pursuits. Consequently, control of content; publication and revision cycles; availability of additional resources including exams; and, with the advent of digital technologies, online resources, have all long rested with the publishers and not with individual faculty members. Additionally, the developments in digital technologies have encouraged publishers to expand into digital educational offerings including claims of improved learning and personalization (Levin, 2016) and list their strengths in developing exams, classifying and organizing content, sophisticated instructional design, institutional relationships, and pedagogical knowledge (Bailey, David, Henry, & Loureiro, 2014). All further evidence that authoring educational resources, in whole or in part, may not change radically and that the previously lucrative educational market (Koch, 2006) will continue forward albeit with digital influences now part of the offerings.

Unlike the compulsory education that inscribes the K-12 system, students attend college or university as a choice, not a legal requirement. Many adults tend to highly desire an education (Veletsianos & Moe, 2017) and forfeit full or better employment upon the completion of their studies, so they are sacrificing time and potential current earnings for a belief in the various benefits of formal post-secondary education. Such students have a strong belief in the social capital of education, and as adults, they are seeking the best opportunities for their learning context with OER translating to financial savings (Jhangiani, Pitt, Hendricks, Key, & Lalonde 2016; Creative Commons, 2015a). Additionally, benefits to adult learners include the currency of OER content compared to a copyright restricted textbook as well as OER allowing for the application of open teaching practices (Cronin, 2017). Considered the next phase in using OER (Ehler, 2011), Open Educational Practices (OEP) occur when students and an instructor participate in the revision or iterative cycles of enhancing content through the contributions of many intelligent people invested in open learning and teaching activities.

With the advent of OER, the rather stable and previously unchallenged textbook business model has begun to change. Open access textbooks highlights only one part of the movement toward openness as other transformations include open data, open research journals, and a teaching-learning philosophy that inheres participatory technologies integral to openness (Batson, Paharia, & Kumar, 2008). As these branch

activities illustrate, the open movement inclusive of OER used within higher education is more than saving student textbooks costs.

Although this emphasis on cost-saving on textbooks continues to be of primary concern for HE, the awareness and use of OER other uses are occurring. In 2016, a research report by BC campus published the results of faculty use of OER at 17 higher education British Columbia institutes including research-intensive, teaching intensive, colleges, and other institutes. Although it is commonly acknowledged that OER use in higher education relates primarily to OER textbooks, only 35% of the 78 faculty respondents noted the use of OER textbooks, with videos (63%) and images (47%) as the two most frequently OER noted in this study (Jhangiani et al., pp. 15-16). The drive toward affordable textbooks certainly has a place within higher education as Senack (2014) noted the cost of textbooks in the USA have increased by 1041% since 1977, including 82% between 2002 and 2013 alone (as cited by Jhangiani et al., 2016, pp. 6). However as the BC Campus research indicated, textbook costs savings is one part of the impetus behind the use of OER at college and university campuses.

At research intensive institutes, the teaching of students is intended to absorb one third of a professor's responsibilities and the BC Campus research shows that faculty either new into their career or at the end are most interested to investigate and use OER (Jhangiani et al., 2016). Due to the composition of the sample, the two wing effect was not statistically significant, yet it does prick attention and from this author's perspective it may be suggestive that early career faculty have a dearth of instructional materials and thereby seek out teaching materials some of which happen to be OER. Being younger they may have been exposed to OER as a student and are also closer to the financial costs of obtaining a degree. In contrast, late career faculty members may have an abundance of materials and knowledge, of both subject and andragogy, and may view OER as a means to contribute to both areas of expertise and to the broader learning community. Of additional note is that this study also found that faculty with a higher personality trait of openness to experience were the individuals who also scored higher on the adapting and creating of OER (Jhangiani et al., 2016). Another key finding from the BC study indicated that the three main reasons faculty reported accessing OER included "for ideas and inspiration, to supplement existing coursework, and to prepare for teaching" (Jhangiani et al., 2016, p. 5). An earlier study found that academics will pursue OER development and sharing if they have protection from litigation and criticisms, receive incentives, and are encouraged to further their discipline (Lee, 2008). The use of OER within higher education flows from numerous impulses that originate within the individual, the broader influences of faculty members upon the teaching and learning environment, and the institutional support for innovations to teaching.

OER in K-12

Similar to higher education, rising financial costs are given as an impetus for further support for K-12 OER. Annually, American taxpayers paid over 9 billion dollars in support of K-12 textbooks and educational resources (Bliss, Tonks, & Patrick, 2012) and within Canada, taxpayer support is also substantial. The history of Canadian book publishing has been substantially influenced by the development of K-12 textbooks beginning with a French alphabet primer printed in 1764 (Rollans & De la Chenelière, 2010, p.

8). Over time the role of provincial and federal governments played a significant role within K-12 educational publishing. As Rollans and De la Chenelière (2010) describe:

> The [K-12 educational publishing] industry's main markets are education ministries, school boards and schools: arguably a near-monopsony, where a small group of customers — the provinces — shape the market. These customers have the market strength to stimulate or discourage publishing through their buying practices, the availability or lack of direct subsidies, and other measures. They can also regulate publishing through stipulating, for example, authorship and printing requirements, approvals processes, and market access (p. 12).

This long and complicated history among the public sector, publishers, and the Canadian institution of K-12 education with its numerous and highly invested stakeholders, speak to the complexity of publishing K-12 textbooks, in the past and now within the digital age.

Although large educational publishers such as Pearson have dominated the educational landscape within Canada and the USA (Bailey et al., 2014, para. 4) such publishers are seeing a shift in revenue from textbooks to digital resources and services (Geist, 2016). In the USA PreK-12 market during the years 2008 -2012 spending on basal textbooks dropped by nearly 10 % with a cotemporaneous seven per cent increase in the area of courseware and supplements (Bailey et al., 2014, para. 4). Although these are American figures, the Canadian K-12 educational publishing industry since its inception has had strong connections to British or American parent offices (Rollans & De la Chenelière, 2010) and the USA trends have an influence within the Canadian context. These figures suggest that no longer are K-12 teachers needing only textbooks but seek access to provincially mandated curriculum resources such as high-quality videos and various other digital learning objects (e.g., handouts, assessment rubrics, graphic organizers, and exams). Educators want textbooks but also desire a variety of resources (Rollans & De la Chenelière, 2010) to support individualizing and personalizing the content covered in the textbooks. Consequently, the shift in educational publishers' revenue reflects the costs of resources by school boards, which are primarily funded by public dollars, now being distributed to various learning formats rather than an older educational model with its sole focus on textbooks.

Canadian K-12 education is a provincial responsibility and whenever there are K-12 curriculum changes (currently occurring in Ontario, BC, and Alberta) a concomitant spike in educational publishing for K-12 occurs (Rollans & De la Chenelière, 2010). Historically, this spike in publishing involved 2-3 publishers creating new textbooks to support the provincially mandated curriculum, with smaller provinces using textbooks written for a neighbouring province or versioned for that province (Rollans & De la Chenelière, 2010). For example, in the province of Alberta for each subject taught within K-12 [i] the provincial ministry would create a list of approved resources from which school jurisdictions would select and purchase class sets for schools. Publishers would have a consultation process and editorial boards composed of various levels of K-12 educators assisted the content curation and shaping its delivery. Occasionally, teachers were hired or given releases to work with publishers during the creation of a textbook, and frequently those employed by educational publishers had once been classroom teachers. Publication cycles involved several years or longer if pilot offerings of a textbook occurred. Revisions were also part of this cycle and it was not uncommon for students to use expensive textbooks with dated content, a situation that this author

encountered numerous times within her K-12 teaching career much to the chagrin of skeptical students and disappointed parents.

As all taxpayers know, supporting public education involves high costs and alternatives to maintaining or improving the system regularly appear. Consequently, the K-12 system is now beginning to view OER as a means to achieving sound spending of public dollars (Wiley, Hilton, Ellington, & Hall, 2012) that also supports the movement toward 21st century learning and more flexible models of delivery (Blomgren, 2017b; Kimmons, 2015). Despite these positive financial changes evoked by the initial use of OER and in a manner similar to HE, the costs of educational resources including textbooks have been and will continue to be a concern for K-12 educators.

However, cost is only one of the advantages that K-12 OER holds. In addition to financial efficiencies, five additional benefits have been identified (Bliss et al., 2012). At a macro level, collaborations and partnerships with outside non-profit agencies (Creative Commons, 2016), such as the Society for the Prevention of the Cruelty to Animals (SPCA), are possible with OER. Involvement in local issues related to environmental concerns or citizen science as part of community engagement, mark distinct benefits to the use of OER for K-12. Improving the quality of resources, support for independent learning, and the fifth advantage of knowledge sharing distinguish three further benefits of OER use (Bliss et al., 2012). In the *Multiply K-12 OER* podcasts, OER experts also identified enhancing the professional stature of teaching (Blomgren, 2017a, Kimmons, 2016). As OER for K-12 continues to develop, the benefits of OER will likely continue to grow and thus promises this nascent area of educational studies numerous practice-based and theoretical possibilities. Because of this infancy, the Multiply K-12 OER media project filled an identified awareness niche and this area continues to require further attention by the stakeholders of K-12 education.

In the process of making podcasts and videos to support the graduate studies of in-service K-12 teachers, 14 OER experts were interviewed and six practicing teachers participated in an OER awareness workshop. From these opportunities, OER commonalities and differences between higher education and K-12 were discussed and challenges were also identified. From these interviews, it became apparent that K-12 teacher use of OER can be viewed from several vantage points including implications for individual students and teachers, for an entire class of learners, and for teacher colleagues.

Differentiating and Personalizing Instruction

Broadly speaking, within the K-12 system, recent years have seen stronger strides towards both differentiating and personalizing instruction. Differentiating instruction involves thoughtful selection of applicable teaching methods and approaches so students have different access points into the content and are therefore able to demonstrate their learning in multiple ways according to their abilities (Alberta Education, 2010). An aspect of differentiation involves the individualization of programming by taking differentiated group approaches and further changing them to meet the very specific individual learning needs. Such needs are frequently documented in an individual educational program plan or an instructional support plan that relate to a student's psychologically documented learning profile such as a student's reading ability (Alberta Education, 2017). Both individualization and personalization occur for the specific individual (Bray & McClaskey, 2012). The movement to personalized learning "begins with engagement; is active and effortful; is assessment rich; and is meta-cognitive and transformative" (Calgary Board of

Education, 2012, p.3). Personalization therefore requires a "highly intentional and responsive teaching and learning experience that intensely attends to *each* [sic] student's learning so that *all* [sic] students can participate, progress and achieve" and it is "the result of a complex interplay of interactions around the instructional core" (p. 3). Differentiation, individualization, and personalization as educational practices may be addressed in various ways but the ability to apply the 5Rs to curriculum content commands attention as a multivalent approach to meeting these ongoing classroom changes to K-12 educational delivery.

Teacher Creativity

The study of creativity as an aspect of K-12 teaching has not been broadly studied (Jeffrey, 2006). Unlike widely heralded creative acts in the sciences and popular culture, teacher creativity is fleeting, classroom confined, and coded as commonplace (Rejskind, 2000). Teacher creativity may ebb and flow but when present, it enriches the learning environment through the four attributes of *relevance* of the learning to the student, *ownership of knowledge* by the student, *control of the learning processes* through self-motivation , and *innovation* where by something new is realized or gained (Jeffrey, 2006, pp. 3-4).

These attributes, although described in slightly different words by the K-12 teachers interviewed in the ABOER media project, were all given as potential benefits of OER use by K-12 teachers. Although the terms applied varied with the individuals, the creative potential for teachers to adapt, revise, and share out such resources were consistently identified and it was also noted these practices could then be used with and by students. Because of the nature of K-12 teaching, digital tools and resources have enhanced the creative choices and abilities available, and with deeper OER awareness and district or provincial supports, the creative contributions of teachers, including those made by students, could not be easily matched in a copyright restricted educational landscape.

Contextualizing Curriculum

With OER, the ability to contextualize provincially mandated curriculum becomes more accessible, transparent, and flexible. Aligning curricular goals to the interests of a group of students heralds a common practice of K-12 educators and the initial days with a class frequently involves methods to understand the general interests of the students. Such knowledge is also adjusted when transitory events, such as a major earthquake or world events, allow teachers to select content or make curricular connections that support these in-the-moment interests thus making assignments more appealing, engaging, and relevant. From their professional practices, teachers have experienced that the ability to localize and contextualize curricular content nurtures engagement, comprehension, and appreciation of the unique natural and human elements of where the teacher and students live. Because of contextualizing "a new understanding of cognition is thus implied. Rather than being cast as a locatable process of phenomenon, cognition has been reinterpreted as a joint participation, a choreography" (Davis, Sumara, & Luce-Kapler, 2000, p. 74).

Although publishers attempt to provide accurate content in areas such as ecology, a relatively small area of the biology curriculum, accurately portraying the multiple and unique aspects of the montane forest, a relatively small ecosystem in contrast to the boreal forest would likely not be financially sound. Because most K-12 Canadian textbooks are produced by publishers located in highly populated southern Ontario by people who live and work there (Rollans & De la Chenelière, 2010), the impetus to have something like the

montane forest well-discussed in a textbook is relatively weak in comparison to other content related decisions. This example of the need for place-based learning highlights how the older model of educational publishing has become challenged by the OER movement. Invariably, not all of the content that could be included is included in a copyright restricted environment, and in a country like Canada with its vast and diverse geography and social forces, regional and local content is not adequately represented by textbook companies. This ecological example can be extended to the remaining disciplines taught within schools, and of great import to meeting the Call to Action of the Truth and Reconciliation Commission to indigenize Canadian education at all levels (Truth and Reconciliation Commission [TRC], 2015; University of Regina, 2015). OER allows for teachers who know their groups of learners best to adjust and contextualize the delivery of the curriculum.

Although publishers have historically worked with the various provincial governments to create updated textbooks and other educational resources to support curricular changes (Rollans & De la Chenelière, 2010), there is a substantial time lag involved. In the digital age, content becomes continuously outdated and new contributions emerge more rapidly and ever more frequently. In the age of citizen science and participatory technologies (Dunn, Urban, Cavelier, & Cooper, 2016; Lamb, 2016), the ability for educators to revise, remix, reuse, and redistribute local and current content is a strength of K-12 OER that cannot be duplicated by publishers.

The current K-12 curriculum changes within Alberta and British Columbia reflect the directions of a globalized world with its concomitant political and social changes. In 2016, the K-12 ministry, Alberta Education, published its curriculum *Guiding Framework* that summarizes the connections among education, pluralism, and diversity as follows:

> (T)he curriculum endeavours to develop an understanding of the need for civic responsibilities, …support for social justice for all people and groups . … Through the provincial curriculum, students value diversity and recognize differences as positive attributes. … Students as ethical and engaged citizens, develop respect for democratic principles and processes for decision making. (p. 8)

Teaching about and for diversity requires K-12 educators to be locally adaptive and inclusive of changes occurring within the communities where they teach. This allows for the narratives of small populations and those who have historically lacked access to publication of content, such as First Nations, Metis, and Inuit communities, to indirectly or directly participate in the creation of curricular resources (TRC, 2015). Local concerns related to environmental sustainability, the far north, agriculture, forestry, or social justice issues can be more easily addressed through OER and its practices that thereby allow a teacher to reinforce the general tenets of a discipline to the fecundity of the individual, local case (Kimmons, 2016). This is not to say that broader issues from further afield will not be taught but the silences within the curriculum based in a copyright restricted, textbook centric educational model no longer need be silent.

Learner-Generated Content

OER also allow for learner-generated content and artifacts of learning to become models from which future students may learn or study, a strength of OER for all levels of education. A collective effort, such as building

a wiki, enables students to participate in the shaping of content and contributing through the benefits of participatory technologies (Blomgren, 2017c). Because K-12 learning objects range from a singular image to a textbook, as Benkler (2005) notes the variety of open resources logically inhere various levels of coherence and develop over time with potentially multiple voices, such as in a wiki project. Summarized educational research describes learning as:

> (T)he mindful and effortful involvement of students in the individual and social processes of knowledge and skill acquisition through interaction with the environment. *Learning thrives in contexts that view learners as central participants*, [emphasis added] encourage engagement and activate learners' prior knowledge and evolving understanding of themselves as learners (Istance & Dumont, 2010, as cited in Alberta Education, 2016, p. 8).

Using OER requires students to be participatory in their own learning (Alberta Education, 2013; Petrides, Jimes, Middleton-Detzner, Walling, & Weiss, 2011) and in the future learning of students yet to come. Like any substantial educational change, there are challenges and pitfalls to avoid, mitigate, or accept as an experience not to be repeated. OER practices are no exception to the vagaries of implementation and change but with the confluence of digital technologies and education, the broader stream of changes are shaping the current and future educational resource landscape.

K-12 Teacher Colleagues

At a collegial level, OER encourages educators to exercise the 5 Rs (reuse, revise, remix, redistribute, and retain) of an open educational practice (Wiley, 2014). Such practices are furthered when educators understand Canadian copyright law, fair dealing, and the licensing possibilities through Creative Commons. Educational practices are expansively shifting due to the numerous digital tools that easily allow for locating, curating, reusing, revising, and resharing of resources. This movement is from scarcity-based/inertial frameworks towards abundance-based/enabling frameworks (Batson, Paharia, & Kumar, 2008, p. 91). Nearly a decade ago these authors stated that "open educational resources (OER) are so abundant that the scarcity-based assumptions of educators are challenged" (p. 90). Now, within the age of resource abundance, of both copyright restricted and OER, K-12 teachers need to acquire open education literacies (Ehlers, 2011; Kimmons, 2014) to take advantage of the digital tools and participatory shifts that shape the learning and teaching landscape.

Prior to the 1990s and the flourishing of the open movement, K-12 educators would assist one another through various ways. A common metaphor is that of the binder or some other compendium that held the accumulated teaching resources that a teacher or a group of teachers had assembled to supplement and support the mandated textbooks[ii]. These resources in a pre-digital age of scarcity were integral to teaching and represented hours of searching, locating, acquiring, and reusing, with or without revisions. Such compendiums were part of surviving the first few years of teaching and other educators would supply them to be kind or because they were directed to do so by the school's principal. Teachers would also assemble, informally or formally, to collectively create lessons, units, tests, and major exams, and such a collective model of resource building continues to be part of the professional practice of teachers. Because of the nature of their work, most K-12 teachers do not want to write a textbook or even a chapter for a book but instead apply their creativity and skill to producing smaller learning objects such as lesson or unit plans

and the accompanying assessments (Kimmons, 2014). Overall, the K-12 professional ethos is one of trust and helpfulness, and differs from a higher education context which can be competitive, individualistic, career-oriented, and focused on personal goal achievement as part of the tenure-track career path faculty within higher education (Greene, O'Connor, Good, Ledford, Peel, & Zhang, 2008; Macfarlane, 2016).

But times are changing, as Starr-Glass (2011) notes and invokes Boyer's (1996) model of scholarship and efforts to revitalize higher education through the scholarship of learning and teaching. Through participatory technologies, a "scholarship of sharing" (Boyer, 1996, as cited by Starr-Glass, 2011, p. 4) is digitally possible "in which sharing means active engagement with current students, the scholars of the future. Teaching and its scholarship have become a shared enterprise, a communal act" (p. 4).

Critique of OER

Skeptics of OER question the quality of such resources and contend that the content and approaches have not been vetted through the processes inherent to the publishing industry. This concern is viable and should cause all levels of educators to pause and reconsider how quality OER resources are created and maintained which come at the cost, both personal and financial, of whomever revises or remixes a resource (Kimmons, 2014; Wiley et al., 2012). However, as Kimmons (2015) states: "though accurate, up-to-date content is an essential element of quality, K-12 teachers need resources that can be differentiated for students' diverse learning needs and that can be easily integrated into institutional and state [provincial] requirements of teachers, through meaningful standards alignment and the provision of appropriate supplementary materials"(p. 5). In his 2015 study, Kimmons had middle school and high school teachers evaluate textbooks and compare commercially prepared textbooks, open textbooks, and open/adapted textbooks. Applying a textbook evaluation survey, the participants rated the open textbooks 22% higher overall than the conventional textbooks with the open/adapted textbooks receiving a further 16% above the open textbooks (Kimmons, 2015, p.10). Although research of K-12 OER is nascent and still developing, Kimmons' study suggests that OER quality is highly competitive with that produced within a copyright restricted environment. This finding echoes faculty surveyed in the BC Campus study whereby a "majority of faculty perceive OER to be comparable or superior in quality to traditional, proprietary materials" (Jhangiani et al., 2016, p. 5).

As discussed previously, it is the confluence of digital participatory technologies and CC licensing that have been the combined catalyst for the growth of OER and these combinatory elements will not be subsiding. Positioning for or against OER is a simplistic view of the present and ongoing need for educational resources. As Cronin (2017) aptly states "recognition of the complexities and risks of openness, as well as the benefits—for individuals as well as institutions—should inform both policy and practice" (p. 28).

Conclusion

Education at all levels has been substantially changed with the progression from resource scarcity to resource abundance and these changes have affected various forms of copyright and user rights. In the 2014 Horizon Report (Johnson, Adams Becker, Estrada, & Freeman, 2014) K-12 OER widespread adoption was viewed as a 3 to 5 year trend although in the USA some states such as Utah were strongly ahead of this

projection. Further support for K-12 OER came through the United States Department of Education (2015) #GoOpen initiative that announced materials produced with federal grants would require open licensing thereby allowing K-12 educators and districts throughout the nation open access to the resources produced. However, in contrast, the status of Canadian K-12 OER is not as developed and varies widely from province to province. Currently, the historical educational leaders of Ontario, British Columbia, and Alberta have not established clear policy directives nor technical support in the way of developing repositories even within their own provincial boundaries, with the exception of TeachBC (https://teachbc.bctf.ca/). Overall, there is a substantial Canadian void. As the educational market will always continue to be potentially lucrative, companies such as Amazon are currently beta-testing a new platform that would enable easy uploading, searching, and downloading of OER materials created by K-12 teachers (Molnar, 2016). The profitable market of educational resources will be a contested space.

Ranging from personalization of learning to expression of creativity, the process of creating the ABOER Multiply K-12 OER media project provided a variety of insights, some of which have been previously articulated through OER research and exploratory efforts within higher education. Overwhelmingly, as the producer of the podcasts and videos, I found that there was a range of understanding for OER awareness and use, and these two foci guided the development of the media and transcripts that are now housed on the Blended and Online Learning and Teaching (BOLT) Multi-Authored blog. These CC licensed media were created to support OER awareness and use, and thus enhancing the conceptual shift toward an open pedagogy.

Rather than simply being for or against OER, educators at all levels need to be deeply aware of the various and connected implications of the OER transformation. Within higher education, the momentum has begun to include more than the cost-savings for students with the use of OER textbooks toward a broader sense of open educational practices. For K-12 educators, the greater awareness for the implications of OER requires a complex understanding and response that is broader and deeper than the concept of free resources. Although OER differences exist between HE and K-12, both levels have begun to acknowledge that open educational resources have the potential to revitalize and guide all levels of education toward substantially participatory and inclusive possibilities.

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