

# **Exploring the Practices of Educators Using Open Educational Resources (OER) in the British Columbia Higher Education System**

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## Abstract

This thesis details a study that investigated the role of open educational resources (OER) in the work of post-secondary educators in British Columbia. An aim of this study was to assess the current state of knowledge about the development and use of OER in post-secondary institutional contexts in British Columbia, with a focus on describing practices of instructors. The study sought to determine the factors that affected instructor adoption and development of OER and instructors' engagement in contributing to the general pool of available OER.

The study participants were post-secondary instructors who had received grants through the BCcampus Online Program Development Fund (OPDF). BCcampus is a publicly funded organization that sponsors the development of open educational resources through its Online Program Development Fund (OPDF). All BCcampus OPDF projects produced open educational resources that were available for free sharing and reuse among educators from BC's public post secondary system. As projects completed their development cycle, they were licensed for sharing and reuse, and then uploaded to the BCcampus Shareable Online Learning Resources repository (SOL\*R).

While there is a growing body of literature on OER development and implementation practices, there appeared to be a gap in addressing specific issues of implementation of OER from the perspective of front-line actors - instructors in post-secondary settings where the potential for OER use was situated. This study addressed the instructors' understandings of the implications for sharing and reuse of OER, the technical skills and practices required for proficiency with these resources, and the business and policy implications for OER use.

The study also examined a more general gap in work-based research that related to a potential need for new instructional development practices to specifically address emergent opportunities that may be afforded by OER. A further goal of this research was to generate knowledge that could support decision-making and policy development about OER implementation practices in post secondary settings.

**Keywords:** educational policy; educational practices: innovation; open licenses; open educational resources (OER)

## **Dedication**

This work is dedicated to my wife, Joan.

Yes Juanita, I know I promised I would never pursue a doctorate.

Thank you for your love and support.

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## List of Abbreviations and Acronyms

AT	Activity Theory
BCAIU	British Columbia Association of Institutes and Universities
AVED	Ministry of Advanced Education, British Columbia
CC	Creative Commons
OECD	Organization for Economic Cooperation and Development
OER	Open Educational Resources
OPDF	Online Program Development Fund
RUCBC	Research Universities Council of British Columbia
UNESCO	United Nations Education, Scientific and Cultural Organization

# 1. Introduction

For the past 12 years I've been closely involved with the development and use of open content in higher education. Open content (Wiley, 1998) refers to instructional resources and media that can be freely used, reused, repurposed or modified ("remixed") to suit specific academic needs determined by individual teachers and instructors.

While at the Open Learning Agency of British Columbia in 2001, I led a team that built a prototype technical system for repurposing educational content for distribution in print, on the web, or on CD-ROM (Porter, 2001). The focus of our development was not just to build a technical innovation that allowed for content customization and remixing; our development strategy was aimed squarely at redefining instructional development practices within the academy to address the manner in which courses and units of instruction were offered.

"For most institutions, courses continue to be the standard units of instruction, the 'one-size-fits-all' building blocks of academic credit, even within the virtual education arena. Very few have considered the idea of component-based instructional units, 'learning objects,' and complementary business systems and student service models that have the potential to revolutionize instructional practice" (Porter, 2001 p. 47).

And further...

"...very few systems store or manage their learning modules in a granular, object-based structure that allows them to be reused, repurposed or repackaged in different media for different situations... (Porter, 2001 p. 48)."

My 2001 commentary on higher education's response to innovation may have appeared strident at the time, but I believe it still resonates today, where innovations with the potential to disrupt learning and teaching practices, such as massive online open courses (MOOCs) are emerging but are considered "fringe" within the academy. Our

content repurposing innovation at the Open Learning Agency did not become mainstream in 2001, in part because the technical challenges for instructors to use our systems detracted from our ability as developers to demonstrate the efficacy of the reuse principles we advocated.

In short, “the pain-for-gain threshold” may have appeared too high for most educators to consider reusable content in their practices in 2001. At the time we did not probe more deeply than the technical aspects of reusable content creation to investigate whether and under what conditions instructors in post-secondary settings could or would implement changes in their content development or use practices.

## **1.1. Open Content Development in British Columbia Higher Education**

In 2003, I was asked to lead a new public sector venture in British Columbia on behalf of the Ministry of Advanced Education. As Executive Director of BCcampus, my challenge was to lead a system-wide post-secondary organization that used information technology to connect the expertise, programs, and resources of all British Columbia post-secondary institutions under a collaborative service delivery framework.

One of the initial tasks for BCcampus was to rethink the manner in which targeted content for online programs and courses would be funded and developed. Traditionally, institutions had been awarded grants to build instructional content based on their expressed needs, and *The Crown*, the BC government, held the copyright. One of the negative consequences of this funding and development model was that redundancy often occurred and course development processes were replicated independently across the post-secondary system by institutions which held the resources as proprietary and typically did not share them.

In 2003, the government was looking to maximize its investment in online courseware development, an emergent trend at the time. It had begun to ask why there was no system-wide coordination or shared practices for sponsored courseware development, especially for content that would be created as digital resources that could be easily replicated.

As a BCcampus team we were assigned the task to explore new practices that could stimulate innovation and encourage collaborative development among post-secondary institutions. To address both challenges, the Online Program Development Fund (OPDF) was launched in 2003. The initial funding program of \$1.5M included an open call for proposals for the collaborative development of online programs and courses. To receive OPDF funding, institutions were required to work with partner institutions to develop online instructional materials. The OPDF also required the instructional resources to be developed with the intention of reuse, to maximize the funding investment for online content development by government.

To stimulate innovation, BCcampus reversed the conventional intellectual property (IP) agreement with government, instead vesting IP with the developers, and requiring an open content license for the instructional resources they produced. The open license would allow other institutions to reuse or remix the new resources to suit local needs. Initially, and after discussions with government and the BCcampus governance body, an open content license called *BC Commons* (BCcampus, 2013) was created. It specified an open reuse license within the boundaries of the British Columbia higher education system.

At the time, Creative Commons (Creative Commons, 2013) licenses that allowed for broader open content licensing (not geography-based), were available and were being demonstrated by projects such as the MIT [Open Courseware](#) project (MIT, 2013). However, BCcampus could not get agreement from government or its own governance body to use the Creative Commons licensing approach. In 2003, open educational resources and the Creative Commons licensing models allowing reuse in a global context were not broadly accepted as a common practice in higher education. As a consequence, BC Commons licenses became hybrid instances of the Creative Commons licenses.

Nevertheless, the OPDF call for proposals was well received by post-secondary institutions and many more proposals than could be funded were received in the initial call, necessitating the establishment of an evaluation process using a peer-review panel with representatives of faculty, deans and instructional technology staff to adjudicate the funding request and proposals.

In the time period between 2003 and 2012, the British Columbia government provided \$10M in funding for online courses, programs and resources, supported through the OPDF. In later years, between 2006-2010, as the use of Creative Commons licenses became more commonplace in academic institutions globally, BC institutional participants could choose between Creative Commons or BC Commons licenses. In 2012, only the Creative Commons license was available as a choice for projects funded by the OPDF.

Over the lifespan of the OPDF, the outcomes were:

- 144 grants awarded (2003-2010)
- 100% participation across the BC post-secondary system
- 83% partnerships - mostly inter-institutional, but also with K-12, health authorities, not-for-profits, professional associations, e-learning companies, First Nations, foundations, among others.
- 47 credentials developed in whole or part through OPDF funding
- 355 courses, 12 workshops, 19 web sites/tools and 396 course components (learning objects, labs, textbooks, manuals, videos) developed across many academic fields of study
- 100% of online resources licensed for free sharing and reuse by all BC post-secondary institutions (BCcampus, 2013)

From a high-level perspective the OPDF could be considered a success in achieving its aims of stimulating collaborative development and providing openly licensed content that could be freely remixed by post-secondary educators; however, no in-depth investigation of the associated practices of educators has taken place in British Columbia in the context of the open educational resource development program characterized by the OPDF.

## **1.2. Open Content Development Programs in Other Jurisdictions**

Open content development programs similar to the OPDF have taken place in other jurisdictions. Over the past ten years, foundations and governments worldwide have been providing grants for the development of open educational resources (OER):

learning materials that can be used, revised, re-engineered and redistributed for personal, professional, or institutional use under the provisions of copyright licenses that afford reuse rights.

It has been proposed that OER have the potential to reduce instructional development costs, build communities of knowledge practitioners and make educational materials more accessible to learners by leveraging the reuse and remixing provisions of open licenses (UNESCO, 2012; Rossini, 2010; Wiley, 2010; OECD, 2007; OECD, 2005).

However, the scope of reuse and the sustainability of open educational resources as a model of practice in post-secondary education is yet unproven. Many current initiatives rely on foundation or government funding or other stimulus funds to operate, despite the notion of OER as a potentially self-sustaining model that draws upon the power of collaboration to provide access to openly licensed teaching and learning materials. As a contribution to research about OER implementation, this study investigated the strategies and practices of instructors from post-secondary education institutions in British Columbia, Canada in order to explore the role of open educational resources (OER) in their work.

### **1.3. Addressing gaps in our knowledge about OER implementation**

A set of key research questions was developed based on a review of literature. They were:

- How are instructors currently implementing OER to support teaching and learning needs within post-secondary educational institutions?
- What understandings of “open” practices and open educational resources do instructors currently hold?
- What issues of organizational culture are associated with collaboration and sharing of OER among instructors within and across institutions? What issues of the culture in academia play a role in use and sharing of OER?
- What quality assurance processes and issues affect the adoption and use of OER?

- What important practices and issues are entailed in the adaptation of open curriculum materials (OER) for use in specific localized contexts in post-secondary institutional settings and programs?
- What key instructional design and development practices and issues are associated with OER development and implementation?
- To what degree do technical infrastructure and related practices affect the potential for OER reuse in institutional settings?
- What business rules and policies have been shown to directly affect OER opportunities?

A further goal of this research was to generate knowledge that can support decision-making and policy development about OER development and use practices in post secondary institutions. While there is a growing body of literature on OER development and implementation practices, there appeared to be a gap in addressing specific issues of implementation of OER from the perspective of front-line actors: instructors and instructional developers in post-secondary settings where the potential for OER use is situated.

This study presents a phenomenological inquiry into the experiences of the recipients of OPDF funding and examined their practices in the context of open educational resources.

It is hoped that the research reported and discussed in this thesis will contribute new knowledge about OER use by illuminating the practices of post-secondary education instructors who are developing, adopting, using and repurposing OER for use in their institutions. The findings may contribute to understanding the potential for sustainability of OER.

Definitions of terms related to OER and the research context for this study follow.

## **1.4. Definition of Terms**

### **1.4.1. Open Educational Resources (OER)**

Open educational resources (OER) is a term that was first adopted at UNESCO's 2002 *Forum on the Impact of Open Courseware for Post-secondary Education in Developing Countries*, funded by the William and Flora Hewlett Foundation. According to the definition generated at the forum, OER are "digitized materials offered freely and openly for educators, students and self-learners to use and re-use for teaching, learning and research" (UNESCO, 2002). The William and Flora Hewlett Foundation has further refined the OER definition to encompass the scope of OER formats and the licensing provisions that govern the ability of users to repurpose OER.

"OER are teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge" (Atkins, Brown, & Hammond, 2007, p.4).

Other OER proponents (Caine, 2011; Lamb, 2009; Wiley 2007) have recommended a structural enhancement to the definition to ensure that OER are accessible and modifiable by anyone. The proposed extension to the definition adds the qualifier that OER should be available in an open file format. An open file format is a published specification for storing digital data, usually maintained by a standards organization. For example, an open format can be implementable by both proprietary and free and open source software using the typical software licenses used by each. In contrast to open formats, closed formats are considered trade secrets.

### **1.4.2. Open Source Software**

Open source software (OSS) is computer software that is freely available, including its source code. The source code and certain other rights normally reserved for copyright holders are provided under an open license that permits users to study, change, improve and distribute the software. OSS is sometimes seen as a precursor

model for OER. Examples of OSS software include the Linux operating system and Apache web server software.

### **1.4.3. Open Licenses**

A key aspect of OSS and OER use is the set of rights afforded by “open licenses,” such as those provided through Creative Commons (CC) licenses (Creative Commons, 2013).

CC licenses extend rights from copyright holders to others in society who would like to make use of existing works such as books, courseware, images, video, animations or other resources that can be freely reused in educational settings. Specifically four areas of practice are covered by CC licenses.

They are:

- Reuse: the right to reuse content in its unaltered, verbatim form
- Revise: the right to adapt, adjust, modify or alter the content itself
- Remix: the right to combine the original or revised content with other content to create something new
- Redistribute: the right to make and share copies of the original content, revisions, or remixes with others (Wiley, 2010).

CC licenses have become the *de-facto* method for providing educational resources in a manner that specifies rights in plain language using one of the Creative Commons licenses. Libraries, resource repositories and educational projects around the world have adopted this licensing model for open courseware, open textbooks, open government web sites and open access academic journals.

### **1.4.4. OpenCourseWare and the OpenCourseWare Movement**

In 2003, the Massachusetts Institute of Technology (MIT, 2013; MIT, 2006) officially launched its OpenCourseWare program, whereby most of MIT’s course content was made available freely and openly on the web for self-study purposes. Following on the initial success of the MIT OpenCourseWare model, the OpenCourseWare Consortium (OCW) was established to provide a practice model for other institutions

worldwide to make college and university courses freely and openly available using Creative Commons licenses. Today there are more than 35 countries and hundreds of institutions represented through the OCW.

#### **1.4.5. *BCcampus***

BCcampus is a publicly funded organization that uses information technology to connect the expertise, programs, and resources of all British Columbia post-secondary institutions under a collaborative service delivery framework. BCcampus provides a number of services including information and communications technology (ICT) infrastructure for student data exchange among institutions, shared instructional systems and learning management system (LMS) services, and a web-based directory of online learning and distance education courses. In addition, BCcampus promotes, funds and supports communities of practice and the development and delivery of online professional resources for educators.

#### **1.4.6. *The Online Program Development Fund***

BCcampus sponsors the development of open educational resources through its Online Program Development Fund (OPDF). The annual OPDF call for proposals emphasizes inter-institutional collaborations and partnerships for the development of online learning resources. Development is focused on giving students access to online programs that will help them complete degrees, diplomas and certificates. All BCcampus OPDF projects produce open educational resources that are available for free sharing and reuse among educators from BC's public post-secondary system. As projects complete their development cycle, they are licensed for sharing and reuse, and then uploaded to the BCcampus *Shareable Online Learning Resources* repository (SOL\*R).

#### **1.4.7. *Post-Secondary Education in British Columbia***

Within the British Columbia post-secondary education sector there are three *functional* categories of institutions: colleges (11), universities and institutes (8), and research-intensive universities (6). These are the functional groupings – the way the institutions group themselves through their sector councils, not categories specified by

regulation or the BC University Act. When the BC University Colleges were “re-branded” as universities after the recommendations of the Campus 2020 Report (Plant, 2007), the government chose not to amend the Universities Act and instead created new regulations concerning the regional universities. So, there was actually a change in regulations, but not a change in legislation.

The *College and Institute Act* governs public colleges and institutes. The statutory objectives of a college are to provide comprehensive courses of study at the first and second year levels of a baccalaureate degree program, applied baccalaureate degree programs, adult basic education, training, and continuing education. Colleges group themselves for planning purposes under the auspices of their sector council, the BC Colleges (BC Colleges, 2013).

The British Columbia Institute of Technology (BCIT) offers technological and vocational instruction, and baccalaureate and applied masters degree programs. Other provincial institutes provide instruction and perform functions designated by the Minister. The institutes in BC, including BCIT, tend to cluster themselves with special purpose teaching universities for strategic planning purposes through the BC Association of Institutes and Universities. (BCAIU, 2013).

The special purpose, teaching universities include Capilano University, Emily Carr University of Art and Design, Kwantlen Polytechnic University, Vancouver Island University, and the University of the Fraser Valley. Special purpose teaching universities serving the whole province provide applied and professional programs leading to baccalaureate and masters degrees. To the extent its resources permit, a special purpose teaching university undertakes applied research and scholarly activities to support its programs (Government of British Columbia, 2008). Five special-purpose teaching universities and three institutes group themselves functionally under the BCAIU sector council.

The “research-intensive universities” include Simon Fraser University, the University of British Columbia, the University of Northern British Columbia, the University of Victoria, Royal Roads University and Thompson Rivers University. Each university has in its own right and power to grant degrees established in accordance with its Act.

The research-intensive universities provide instruction and pursue original research in all branches of knowledge. These six institutions are affiliated under the Research Universities Council of BC (RUCBC, 2013).

#### **1.4.8. OER Projects and Repositories**

Worldwide, there are many examples of OER development in the post-secondary education sector including the OpenCourseWare (OCW) Consortium (MIT, 2013), with materials from MIT and other OCW consortium partner institutions. The *Connexions Project* (Rice University, 2013a) has demonstrated the potential of open textbooks and OER practices in the sciences and engineering. Further, the Connexions model has been adopted in a number of countries with examples of institutions and non-governmental organization (NGO) partners translating OCW and Connexions materials for distribution in a local language (Vietnam Education Foundation, 2013).

### **1.5. Delimitations of the Study**

The BCcampus Online Program Development Fund (OPDF) was used as the sample pool for participants for interviews conducted during this study. Although there were over 100 recipients of OPDF funding between 2003 and 2012, the study was limited to 21 participants, 7 from each of the institutional sectors represented in British Columbia higher education.

In all cases, participants responded as individuals, not as representatives of a particular post-secondary institution.

### **1.6. Organization of Chapters in this Thesis**

This thesis is organized as follows. Chapter Two contains a review of the literature and identifies themes that have been explored by researchers examining OER practices. Chapter Three describes the methodology used for this study and a theoretical framework for data analysis and interpretation. Chapter Four describes the results of the data analysis and the processes for identifying themes for analysis and

discussion. Chapter Five discusses the themes identified from the interview data analysis. Chapter Six provides an analysis of the themes emerging from the phenomenological interview data and attempts to interpret that data in the context of an activity theory framework.

## **2. Review of Literature**

### **2.1. What is the Promise of Open Educational Resources?**

Over the past ten years, foundations and governments worldwide have been providing grants for the development of open educational resources (OER), learning materials that can be reused, revised, re-engineered and redistributed for personal, professional or institutional use under the provisions of a copyright license that affords reuse rights.

It has been proposed that OERs have the potential to reduce instructional development costs, build communities of knowledge practitioners and make educational materials more accessible to learners by leveraging the reuse provisions of open licenses (UNESCO, 2012; Commonwealth of Learning, 2011; Wiley, 2010; OECD, 2007). Yet, despite the apparent opportunity presented by OER, only a small proportion of open resources have been reused by higher education practitioners in the manner envisioned by proponents and funders (Jansson, 2011; Petrides, Jimes, Middleton-Detzner & Howell, 2010; Petrides, Nguyen, Kargliani & Jimes, 2008). OER have been characterized as a supply-side strategy, with funders supporting development of new resources, but without much data on the scale of reuse.

The research initiative described in this thesis sought to understand how open educational resources (OER) could be more commonly used as an instructional development practice among post-secondary faculty and instructors. In particular it looked at grant recipients from the BCcampus Online Program development Fund (OPDF). The study sought to identify conditions, methods or models of practice that could contribute to the greater reuse of OER and investigated understandings, attitudes and models of practice with OPDF grant recipients to determine whether there might be implications for institutional policies.

## **2.2. Scope of the Review of Literature**

This review draws upon literature on the implementation of open educational resources (OER) in post-secondary education and focuses on issues, problems and open questions about OER implementation practices and the potential for the implementation and sustainability of OER as a curriculum practice. Relevant literature was explored from journals and other academic sources, as well as from informal sources such as blogs and wikis.

The literature review is organized into the following sections:

- Open educational resources, open licenses and OER projects
- Issues, criticisms, gaps in knowledge about OER use
- Methodological challenges and potential approaches to research

Academic literature on open educational resources is recent, having been published within the last fifteen years. Studies reported or covered in this review range from 2000 – 2013.

## **2.3. Literature review and examination of existing scholarship on OER**

### **2.3.1. *What are open educational resources?***

The concept and term Open Educational Resources (OER) was originally coined during a UNESCO Forum on Open Courseware held in 2002. The concept was defined as follows, as reported by Wiley (2006, p.1):

*“Open educational resources are defined as ‘technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non- commercial purposes.’ They are typically made freely available over the Internet. Their principal use is by teachers and educational institutions to support course development, but they can also be used directly by students. Open educational resources include learning objects such as lecture material, references and readings, simulations, experiments and demonstrations, as well as syllabi, curricula, and teachers’ guides.”*

Since 2002, the term has gained currency around the world and has become the subject of heightened interest in policy-making and institutional circles as many governments, institutions and individuals explore the concept and its potential to contribute to improved delivery of education within their jurisdictions.

According to Butcher (2008, p. 1), “At its core, OER denotes a very simple concept, first legal, but then largely economic, in concept: it describes educational resources that are freely available for use by educators and learners, without an accompanying need to pay royalties or licence fees.” OERs work with copyright and allow rights holders to license their work for specified uses, some of which simply allow copying, and others that make provision for users to adapt, remix and redistribute the resources that they use. The most well known of these open license formats are the Creative Commons (CC) licences, which provide legal mechanisms to ensure that people can retain acknowledgement for their work while allowing it to be shared. In some cases, Creative Commons licenses can be used to specify only non-commercial uses. In other cases, many rights holders make their work fully open to all uses, with only attribution as a requirement.

### **2.3.2. *The role of open licenses***

Key aspects of OER definition and use are the rights afforded by “open licenses,” such as those provided by using Creative Commons (CC) license models (Creative Commons, 2013).

CC licenses extend rights from copyright holders to others in society who would like to make use of existing works such as books, courseware, images, video, animations or other resources that can be freely reused in educational settings. These rights include:

- Reuse: the right to reuse the content in its unaltered / verbatim form
- Revise: the right to adapt, adjust, modify or alter the content itself
- Remix: the right to combine the original or revised content with other content to create something new
- Redistribute: the right to make and share copies of the original content, your revisions, or your remixes with others (Wiley, 2010)

CC licenses have become the de-facto method for providing educational resources in a manner that specifies rights in plain language using one of the six available Creative Commons licenses. Libraries, resource repositories and projects around the world that have adopted this licensing model include both higher education and K-12 initiatives. The initiatives described below all use Creative Commons licenses to make their materials available for reuse.

### **2.3.3. *OER projects and repositories***

Worldwide, there are many examples of OER development in the higher education sector including the Open CourseWare (OCW) Consortium (MIT, 2013), with materials from MIT and other OCW consortium partner institutions. The Connexions project (Rice University, 2013a) has demonstrated the potential of open textbooks and OER practices in the sciences and engineering by making a searchable database of learning resources available for download in easily reusable formats. More recently, Connexions has published four comprehensive open textbooks for introductory science courses through its OpenStax College project (Rice University, 2013b).

Further, the Connexions model has been adopted in a number of countries including Vietnam, with institutions and private sector partners working together to translate OCW and Connexions materials for distribution in the local language.

General Education (K-12) OER projects include CK-12 (CK-12 Foundation, 2013), Curriki (Curriki, 2013), OER Commons (OER Commons, 2013) and Khan Academy (Khan Academy, 2013). These projects provide OER materials intended for use in the general education sector with a concentration on the science, technology and mathematics (STEM) subject areas. In some cases, an entire syllabus for mathematics and science courses is available, along with lesson materials and teacher guides for using the materials. STEM materials may afford enhanced opportunities for reuse and localization because of the number of graphical and animated resources that are becoming available in an OER format, resources that are generally of higher cost to create and maintain.

There are also many new OER initiatives being developed and implemented, some funded by international development agencies and charitable foundations in an effort to provide support to country or region-specific initiatives in the developing world (OER Africa, 2013). OER Africa, for example, has materials focused specifically on agricultural and food security issues, topics of primary interest in a region where new knowledge and expertise is being locally developed and distributed to support growing populations.

## **2.4. Status of scholarship: Issues, criticisms, gaps in knowledge**

This section discusses themes in the literature associated with OER development and reuse, highlighting issues, criticisms and gaps in knowledge. The issues outlined in the sections that follow are ones that may directly affect the appeal, longevity and sustainability of OER as a practice model. These factors were investigated during the data collection phase of the proposed research in an effort to understand the relationships among technical systems, institutional practices and human factors that may affect the reuse potential provided by OER. These factors and relationships may constitute the “force field” affecting the development and adoption of OERs.

### **2.4.1. *Culture of sharing and collaboration***

One challenge associated with the design of open educational resources (OER) has been the notion of establishing “openness” as a virtue at the design and development stages of resource creation (Carey, 2011; Davis, Carr, Hey, et. al., 2010; D’Antoni & Savage, 2009;). It would seem plausible that educational resources designed to be reusable and adaptable across a range of institutions might have a better chance of being reused and adapted, compared to those built for use at one institution and later repositioned or repurposed for use in different contexts. One potential strategy might be the reduction of local idiosyncrasies, for example reference to course names or numbers or specific instructional delivery systems in the initial resource development process; a parallel factor might be the creation of an initial community with ‘ownership’ and commitment to reuse and adapt, which could build momentum and energy to engage

others (Carey, 2011). But how can these types of open collaborations be achieved in institutional contexts?

A question worthy of exploration was whether and under what conditions could a group of developers at different institutions cooperate on the development of an OER? Investigating the collaborative aspects of OER development was one line of research that this study examined. Promising areas on which to focus were those initiatives where teams of institutions had already made a strategic commitment to the design or development of new approaches to curriculum and instruction.

In British Columbia, the Online Program Development Fund (OPDF) managed by BCcampus on behalf of the Ministry of Advanced Education has offered grant funding to higher education institutions to participate in collaborative instructional development initiatives that will result in openly licensed courses and resources to support credit based programs and credentials. To date, approximately \$10M has been awarded to instructional development initiatives in British Columbia under the OPDF program. Because all public post-secondary institutions have participated in the OPDF program, its funded projects presented an accessible sample of participants for research.

Understanding the motivations of the institutions, individual faculty members and instructional developers was a line of research to pursue using interviews to explore OER development practices. This knowledge could contribute to an understanding of cultural factors that might lead to broader acceptance of OER as a practice model.

#### **2.4.2. *Quality assurance***

This core issue relates to the question of overall quality, adaptability and reusability of OER online materials that are available to educators. There are repositories in the higher education sector providing resources for self-learners, instructors and instructional developers. MIT OCW, Connexions and the California State University Multimedia Resource for Online Learning and Teaching (MERLOT) are among the most well known of these resource libraries. Questions arising from repository use include those about quality assurance models that were used to assess available OER materials. Were there common or established standards for the review of

OER accuracy and quality? How did instructors and institutions make their decisions about whether to use or re-engineer an existing resource, and what part did a quality assurance process play in the decision?

While there have been initiatives that have explored and implemented traditional academic practices such as peer review as a quality assurance oversight process for OER materials, for example those established by the California State University's MERLOT initiative (California State University, 2011), there appeared to be no generally accepted benchmark for quality assurance of OER when development initiatives such as the OPDF program began in 2003 (Hylén, 2006).

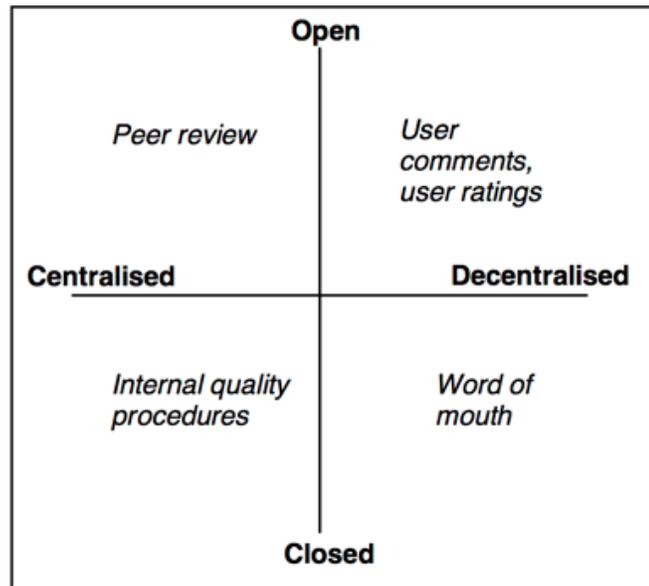
After conducting a review of available OER resources, Hylén (2006) noted that teachers, students and self-learners should have no difficulty finding open resources online, but still might have a problem judging their quality and relevance. He found that some institutional providers relied on their "brands" to back up the quality of their resources and as such they likely risked their reputations if the resource was of poor quality. Hylén (2006) did not find any open quality assurance processes demonstrated by institutions that might persuade potential users of the accuracy or relevance of the resources, but he concluded that institutions probably did use internal quality assurance processes in keeping with their own institutional practices and standards.

Peer review is the most universally recognized quality assurance process in academia. Taylor (2002) argued that the peer review process could be used to come to terms with the lack of a reward system for OER creation by giving recognition and reward to the creator of a learning resource, as well as a dissemination (publishing) method for the resources they developed. The MERLOT repository is an example of peer review in the OER context as used by faculty, instructors and developers who are members of the MERLOT collective. However, MERLOT is a membership-based organization, and its resources are primarily available to its members and are not fully "open." Taylor (2002) proposed that an open, peer review process could contribute to making review decisions about reusable learning resources more credible overall.

More recently, organizations such as *Achieve.org* (Achieve, 2013) have proposed and published OER quality rubrics to allow educators to evaluate the quality of open instructional resources. Funders of OER projects such as the William and Flora Hewlett Foundations and the Bill and Melinda Gates Foundation are contributors to *Achieve.org*.

A third quality assurance model provides individuals with the opportunity to review and decide for themselves whether a learning resource is useful, relevant and of sufficient quality to use in a course or as an instructional resource. This type of quality assurance process often uses a rating scheme or system that allows users to comment on a resource or even describe how it has been deployed. This type of rating process is very much like the consumer-based rating processes of Internet bookstores or software stores where the number of downloads or usage statistics provide a *de-facto* rating of the popularity of a resource and perhaps its implied value. Some OER repositories use the rating approach and provide statistics on the number of downloads of individual resources or aggregate totals. “The argument for such an approach would be that quality is not an inherent part of a learning resource, but rather a contextual phenomenon. It is only in the specific learning situation that it can be decided whether a resource is useful or not, and therefore it is the user who should be the judge” (Hylén, 2006, p. 8).

Hylén summarized the quality assurance perspective of OER by using a diagram to describe the range of quality assurance processes from open to closed, and from centralized to decentralized that exist across various OER initiatives and at institutions that create and deploy OER. Figure 1 below describes a quality management schema diagram by Hylén (2006).



**Figure 1. Quality management processes for OER initiatives (Hylén, 2006)**

Compounding the quality assurance issue is the absence of a standard open file format in which OER materials are made available online. A variety of media formats including PDF (Portable Document Format), PowerPoint™ presentations, Flash™ movies, images, sound file, or interoperable learning management system “packages” are media formats in which OER can be found. But the mix of proprietary and open formats might complicate and impede the reuse process. In the context of quality assurance, this thesis sought to investigate specific OER quality criteria requirements that would invite or even compel institutions and their faculty and instructional developers to explore OER practice models in an intentional manner, or as part of an institutional instructional development and online learning strategy.

### **2.4.3. Localization requirements**

Localization (the process of adapting a product or service to a particular language, culture, and desired local "look-and-feel") is considered to be a requirement in most institutional contexts in order to match available instructional resources with

academic and pedagogical requirements for courses and resources to satisfy program and credential requirements. The research for this thesis also sought to investigate the design decisions that institutions, departments and design teams faced in the process of considering the localization of existing OER to meet specific institutional requirements for program requirements and credentials.

Because institutions and jurisdictions in higher education tend to operate autonomously, there often exists a mismatch in the interoperability of the various course design standards of academic institutions as well as a mismatch among their course syllabi, further adding to the complexity of the opportunity for OER reuse in conventional academic settings (Pirkkalainen et al., 2010; D'Antoni & Savage, 2009). This may be less of an issue in professional and technical fields governed by the requirements of large-scale credentialing or licensing agencies, such as in the finance or medical domains. Localization may be more of an issue in fields where instructor personality and individuality are valued and where it is expected that faculty will put a personal "stamp" on their courses and take particular positions within the field—positions reinforced by their scholarship and writings. As a consequence, the complexity of localization issues in higher education may be one of the biggest challenges to OER reuse.

In addition, this study also explored new approaches to the use of OER in credentialing initiatives where localization concerns were addressed in innovative ways that capitalize on the unique potential of OER for self-study and prior learning assessment. The Open Education Resource University (OERu) concept (Open Education Resource Foundation, 2013) has been conceived as an alternative to localization challenges faced by individual institutions, proposing as an alternative that open self-study materials could be used by individuals to pursue a body of knowledge that could be evaluated and credentialed through the use of challenge exams and prior learning assessment techniques.

The concept is launching in October 2013 with 25 universities worldwide (with two in BC and one in Alberta) participating as partners in this OER-based model that attempts to capitalize on two initial pathways that seek to avoid some of the typical localization challenges. Partners have agreed to either offer and credential courses based on existing OER, or provide challenge exams based on their existing credentials

to students who complete courses using available OER that are a match to curricula and syllabi provide by the participating universities. In each case the students will either pay for courses or the challenge exam. OERu serves as a potential model that avoids OER localization issues.

#### **2.4.4. *Instructional design and development processes***

OER are increasingly available for use and reuse. However, a tension exists that arises from the availability of OER and apparent variations in instructional design quality of the available resources. This creates a situation in which instructional developers and faculty may need to review, refine or revise their personal or institutional instructional design processes and workflows to match the potential for OER reuse. (Conole, 2010; Pirkkalainen et al., 2010; Petrides et al., 2008; Wiley, 2007).

Instructional development and design processes tend to be structured with well-established methodologies. However, it is not clear how such approaches fit for the design of courseware based on open educational materials. Because there is a large supply of OER in many disciplines in a variety of formats, approaches to OER adoption may increasingly need to focus on processes and workflows for the reuse of existing materials. For reasons of quality assurance previously cited, existing OER materials may not be of uniform instructional quality, nor rendered in easy accessible open file formats, requiring more labour and potentially incurring higher development costs.

The existence of OER and the ability to use, reuse or remix content using Creative Commons licenses suggests that individuals as well as institutions could be both suppliers and consumers of open resources—underscoring the Web 2.0 and crowdsourcing potential of the open movement and its ethic of inviting participation from all interested parties. Such an approach could ensure that the pool of OER available worldwide is diverse and heterogeneous in quality, based on the numbers of individuals actively engaged in the creation and dissemination of information and knowledge online. Petrides, Nguyen, Karlani and Jimes, (2008) noted that the emergence of OER, has started to open up avenues for educators and students to select and adapt learning resources that meet their unique teaching and learning needs, but the question remains as to how much of this new paradigm of adaptation and selection is being realized.

A potentially fruitful avenue for research inquiry that could inform future practice would be the exploration of how instructional developers, instructors and faculty approach the use and reuse of learning resources in their current practices and the implications for new practice afforded by openly licensed OER. Such inquiry could inform the analysis and documentation of workflows and processes that might be used to streamline the adaptation and localization of OER materials for reuse, re-engineering and redistribution in higher education settings.

#### **2.4.5. *Technological determinism vs. democratic rationalization***

Technological determinism is a theory that espouses the belief in technology as a key governing force in society, shaping culture and values. Most interpretations of technological determinism share two general ideas:

- The development of technology itself follows a predictable, traceable path largely beyond cultural or political influence, and
- Technology has "effects" on societies that are inherent, rather than socially conditioned or that the society organizes itself in such a way to support and further develop a technology once it has been introduced. (Smith & Marx, 1994)

Technological determinism stands in opposition to the theory of the social construction of technology, which holds that both the path of innovation and the consequences of technology for humans are strongly, if not entirely, shaped by society itself more constructively than by determinism, through the influence of culture, politics, economic arrangements, and the like (Feenberg, 2004; Williams & Edge, 1996).

In the context of OER development and deployment, a dominant technology of the day is the learning management system (LMS). Learning management systems are commonly the primary delivery tools used by post-secondary institutions to service the online learning needs of students, and the course development and delivery requirements of faculty and instructors. Examples include Moodle, Canvas, Blackboard, and other LMS.

Typically, LMS have authoring, storage and delivery functions that faculty are trained to use, or that instructional design teams use to create and deliver course

materials that faculty and instructors author. As a consequence of LMS use, many valuable instructional materials covered by open licenses are effectively locked into the technical format of the LMS delivery tools, making it difficult to find them on the open Internet and complicating their extraction from an LMS for reuse, without extra effort. Technological determinism, where it exists, may play a role in making OER difficult to harness in typical institutional settings where large-scale deployments of LMS technologies have become the *de-facto* methodology for online course creation and delivery. How then can instructors, faculty and instructional developers effectively use OER in institutional contexts where technological deployment decisions may be beyond their influence?

Kehrwald (2010, p. 221) further noted “that at a broader level relevant to institutions, findings indicate that technological determinism, in the forms of structured learning management systems and highly controlled online learning environments, is being challenged by ‘new demands’ in the form of online learning communities. These communities challenge the *status quo* of online learning programs which are a legacy of highly structured, systematic approaches to distance education.”

In the context of OER deployment in higher education settings, the study described here examined what new demands and new solutions might support an effort to employ OER as part of a personal or institutional strategy to enhance online learning practice.

#### **2.4.6. *Business models and policy structures***

Higher education institutions are always concerned with development and delivery costs for educational programs. An attraction of the OER movement is the notion that use and reuse of open educational resources can lower development costs by building upon the development investments made by others who have created and licensed their resources for reuse. OER proponents encourage institutions and individuals to share their resources and benefit from the pool of OER available for use, reuse and re-engineering. It follows that the cost of running OER projects may be an important element in the sustainability of such initiatives, especially if the costs are lowered through OER use or reuse.

Bates (2010, p.1) studied the costs of designing and operating online learning programs at the master's degree level. His research indicated that course development costs were "quite a small proportion of the overall costs, while delivery costs including faculty salaries and required technical infrastructure constitute just over a third of all costs. Development costs occur early in the program. Annual maintenance costs are quite small, at less than 10 per cent of the total."

Bates (2011, p.1) concluded, "Open content is not going to lead to major cost savings in online learning. Even without creating new content, someone will have to select, assess and modify open content, or provide some kind of curriculum framework or guide for students studying a subject or topic." Bates focused primarily on instructor-led online courses and OER use. However, if the course was designed to be offered using a self-directed model without the involvement of an instructor in real-time, then the costs would be different than if there was active involvement of a human instructor (moderating on-line discussions, giving feedback of assignments, etc.). New models that are designed with an OER strategy from the outset, such as the previously cited OERu model, may change entirely the economics of selected higher education programs.

Downes (2007) and Dholakia, King and Baraniuk (2006) have identified a variety of options to explore in examining the business case for OER development and deployment. They include:

1. The foundation, donation or endowment model, where a base fund is managed by a charitable foundation such as the Hewlett Foundation or the Bill and Melinda Gates Foundation, and interest earned by the fund is converted into grants to OER projects in their start-up phases. The assumption is that the materials developed as OER will be useful and will be reused and improved by end users who find them useful and relevant in their educational contexts.
2. The sponsorship model such as *iTunes University* (Apple Computer) is an example of a sponsor-paid, hosted environment for media resources into which contributing institutions can provide educational resources in the form of audio podcasts and video lectures. End users can freely download and link to the resources for educational purposes. The payoff to Apple is in attracting users to the iTunes Store where other purchases can be paid through "proximity marketing" techniques.
3. The institutional model is one in which an institution assumes responsibility for an OER initiative, such as the MIT *OpenCourseware*

initiative or the *Connexions* project (Rice University). Funding for the initiative may combine foundation grants and the institutions' own funding to provide an environment for showcasing the institutions' work and for freely sharing it with others using an OER license such as Creative Commons.

4. The government model is one in which a government invests in OER creation to foster innovation or even reduce duplication of content development in the higher education sector. The model is based on the notion of leveraging government investment in educational development through the reuse provisions of open licenses. Examples of the government model exist in Canada in the provinces of Alberta and British Columbia through models such as the OPDF.
5. In the conversion model, base-level software or content is provided for free, and if the user or consumer is satisfied with result and requires further enhancements or features, they are "converted" to a subscription or service fee arrangement. This model is popular with open source software tools such as Moodle, where the base technology is open source, but requires professional services to customize the software environment to suit particular end user or institutional needs such as customized look and feel, or branding. LambdaSolutions (2013), a Vancouver software integrator, uses precisely this model with higher education and corporate clients, customizing the deployment of open source software such as Moodle.
6. The contributor-pays model is a unique approach where the contributor of a resource donates the resource and pays for its curation and availability over time. It could be argued that the public facing collections of universities or libraries use the contributor pay model.

Each OER initiative is unique, and no single model will fit all. There is indeed a need to discover the different approaches that might be suitable in a local context (OECD, 2007). Stacey (2010) examined two of the dominant strategies associated with the business models for OER development and sustainability. He described the attributes of OER practice models associated with foundation-funded and taxpayer-funded initiative. Stacey proposed that collaborative open practices that result in the development of reusable open courses that lead to recognized credentials are sound business practices, and ones that could be justified by leveraging taxpayer investment in OER practice models. However, as Stacey (2010) noted, the sustainability of such taxpayer-funded initiatives might require policy or practice changes in the way in which curriculum resources are funded and developed.

A central theme of the OER movement is that the availability of open resources can make the process of curriculum development more accessible, more affordable, more efficient and more diverse through access to the many free resources that can be selected, revised and reused without incurring new development costs or licensing fees. Development costs for video, images and animations can be particularly expensive, for example. The strategy that emerges is one that compels educational jurisdictions contemplating curriculum reform, or even simple revisions of curriculum, to review freely available open educational resources before undertaking a new and potentially costly development process.

Currently most OER are generated by educational organizations, usually universities or schools, using new or existing grant funding to do so (Lane, 2008), but these grant funds account for only a proportion of all funds allocated to educational resource development in higher education. Charitable foundations such as the Hewlett Foundation, the Bill and Melinda Gates Foundation and the Shuttleworth Foundation (2008) have been active in funding OER initiatives in developing and developed countries, and inter-governmental organizations such as the Commonwealth of Learning have similarly been active in promoting OER, along with non-governmental organizations (NGOs) and international development agencies such as the Canadian Crown Corporation known as the *International Development Research Centre* (IDRC).

While the use of OER is increasing among educators (MIT, 2006; Petrides, et al., 2008), OER practices often happen discretely, outside the mainstream of well-established institutional frameworks. Research by Petrides and Jimes (2006) indicated that while educators and learners were accessing and using OER materials for evaluation or self-study, they were less likely to take part in other behaviours including sharing their own content, reusing existing content to create new or enhanced resources, or creating content collaboratively.

Wiley (2007) argued that the sustainability of OER projects in universities would only be achieved by making OER part of mainstream university activities, including teaching and learning, research and/or business and community engagement activities. Bates (2011) argued that OER have a valuable role in education, but only if they are properly designed to work within a broader learning context that includes interactions

between students, peers and instructors, and within a culture of sharing and mutual support. In other words, OER are not to be seen as complete courses in a box, capable of being used by learners without faculty intervention or as simply a replacement to face-to-face learning.

Through research with practitioners, the study described here explored the motivations and practices of educators and instructional developers who have chosen to work with OER. It also examined how higher education institutions were dealing with the challenges posed by OER while at the same time seeking to define policy and practice guidelines for OER to help achieve operational objectives such as the need to reduce costs, maintain quality and increase access to higher education.

## **2.5. Methodological challenges and potential approaches to research**

As indicated by the literature review, OERs are a potentially disruptive innovation in the higher education sector that may impinge upon core principles and practices of the academy that are associated with its culture and its mission to produce new knowledge. Beliefs about institutional collaboration and the culture of sharing, instructional development and quality assurance processes, decision-making about the use of technical systems, and business models associated with course development and delivery are all factors that can play roles in the complicated ecosystem of post-secondary education.

OER use is not currently a well-established practice in institutions. It is generally recognized that a minority of faculty, instructors and developers is familiar with the approach. There have been OER capacity building programs designed to attract and familiarize institutions and their staff with the potential of OER reuse, some promoted through government agencies. In exceptional cases grant-funding programs have targeted OER development with the goal of creating incentives for collaboration among institutions to develop programs, courses and instructional resources that can be freely shared. These initiatives often have another agenda that seeks to reduce costs and the redundancies created by the replication of course development at individual institutions

by encouraging cooperation and leveraging investment among the collaborating partners.

Seeking to understand the question of how OER are being used as an instructional development strategy by post-secondary instructors and course developers required the rationalization of a series of interacting factors as described above. Thus, the study required the use of research methods, data collection strategies and an interpretation framework appropriate for reconciling those factors. The research strategy and methodology is discussed in Chapter Three.

### **3. Methodology**

As outlined in the review of literature and the discussion of emergent themes in Chapter Two, Open Education Resources (OER) are a potentially disruptive innovation in the post-secondary sector, impinging on core principles and practices of the academy associated with its culture and mission to produce and disseminate new knowledge. Beliefs about institutional collaboration and the culture of sharing, processes for selection, development and quality assurance of curriculum materials, decision-making about the use of technical systems, and business models associated with course development and delivery, may all be factors that play a role affecting the adoption of open practices and OER within the complicated ecosystem of post-secondary education.

OER use does not yet appear to be a well-established practice in British Columbia institutions. It is generally recognized that a minority of faculty, instructors and developers is familiar with the approach. There have been OER capacity building programs designed to attract and familiarize institutions and their staff with the potential of OER use. Some were promoted through government agencies like BCcampus. In special cases, funding programs targeted OER development with the goal of creating incentives for collaboration among institutions to develop programs, courses and instructional resources that could be freely shared or repurposed. These initiatives often had an explicit (or even implicit) agenda to reduce costs and the redundancies created by the replication of course development at individual institutions by encouraging cooperation among collaborating institutional partners (BCcampus, 2012; Stacey, 2010).

Investigating how post-secondary instructors and course developers used open educational resources (OER) was the focus of this study. The study required the use of a research methodology, data collection strategy, and interpretation framework that was appropriate for reconciling OER use and reuse challenges, identified in a literature review, with the experiences of British Columbia instructors. A qualitative research methodology (Creswell, 2009; Yin, 2009), using a semi-structured phenomenological

interview process was chosen as an appropriate approach to explore the practices of post-secondary educators because of that methodology's ability to address emergent contexts where pragmatic, grounded, interactive and flexible approaches were required.

In the case of OER, open development strategies and practices are in a formative state of deployment with a generally low adoption rate in the post-secondary education sector relative to conventional instructional development practices. Understanding the context in which instructors understand and do their work, the communities of practice in which they are situated, and the traditions, rules, and constraints that govern their practices within an institution and post-secondary system, required a research methodology and interpretation framework that could work within the context of professional and institutional activities.

### **3.1. Third Generation Activity Theory as a Construct for Research and Analysis**

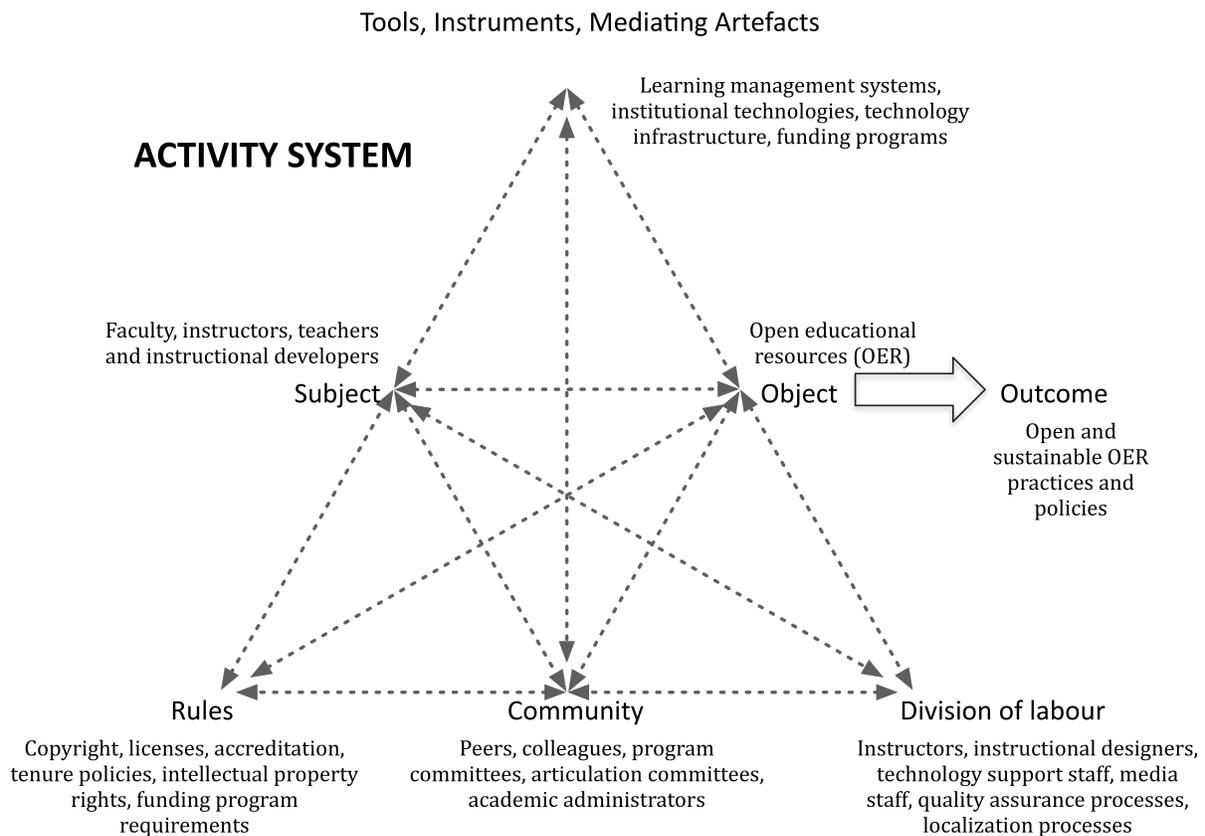
Activity-theory (AT) (Kaptelinin & Nardi, 2006; Engeström, 2001; Nardi, 1996) is a framework for the analysis of human interactions with technologies, systems, rules and practices.

Third Generation Activity Theory is the construct that guided this research design and analysis process (Engeström, 1987). Activity Theory enabled the researcher to investigate activity within a cultural-historical and social setting—referred to as an activity system. Engeström (1987) formulated a model of the structure of activity systems that included the subject, object, instrument (tools), division of labour, community, and rules.

Using labels for the elements in the system developed by Engeström (1987), descriptions can be added for the elements of a specific activity system under study, such as the OPDF in the British Columbia post-secondary system that was designed to facilitate the development, adaptation and use of instructional materials as open educational resources (Figure 2).

In the AT triangle the tools, rules and division of labour are the mediating artefacts through which an object is transformed into an outcome (Figure 2).

These mediating artefacts influence how the subject(s) act/s on the object in order to arrive at the outcome. The subject is also influenced by the rules of the system, the community and its division of labour (Engeström, 1987). The division of labour represents the power structure in the system, including any hierarchical relations that may be at play. The tools in the system include institutional technologies, learning management system infrastructure and the digital library (repository) in which OER produced by the OPDF were to be stored.



**Figure 2. The Activity Theory Triangle (adapted from Engeström, 1987).**

The activity theory (AT) triangle provides a conceptual framework for discussion that can be used to examine interactions in authentic contexts. The activity system diagram in Figure 2, conceived by Engeström (2001; 1987), has been annotated to label key elements of activities studied in the context of this study. The activity system

encompasses the set of contextual elements that are proposed to interact within workplaces as individuals and communities work toward an outcome, such as a change in practice—for example the adoption of open educational resources (OER) for teaching and learning.

Another useful aspect of the AT theory framework is the concept of “contradiction.” Murphy and Rodriguez-Manzanares (2008) have provided a review of educational technology research studies that have focused on the principle of contradictions—a key aspect of activity theory. These contradictions or tensions occur when there is a “misfit within elements, between elements, between different activities, or between different developmental phases of a single activity” (Kuutti, 1996, p.34), and these contradictions can be visible or invisible, intentional or ‘...unintentional disturbances...’ (Engeström, Brown, Christopher & Gregory 1991, p.91).

Contradictions commonly develop as an AT system develops over time. When a new activity is introduced into the system, internal ‘primary contradictions’ result in “aggravated secondary contradictions where some old element collides with a new one...” (Daniels, 2008, p.125). Contradictions are present and are crucial driving forces of transformation (Engeström & Sannino 2010). Articulating the location of these contradictions in the system and overcoming them can transform the activity.

### **3.2. Other Interpretation Frameworks Considered for Use in this Study**

The research questions that were identified for research with participants from BC post-secondary institutions emerged from gaps in current knowledge of OER use and practices. The research questions were designed to explore how faculty and instructors learned about OER and how they incorporated open practices in their courses, with the lens of activity theory as a guiding construct. Other interpretation frameworks were also considered.

From the perspective of relating the proposed research to similar work in professional settings, a closely relevant tradition of workplace learning in academic settings is “situated learning” (Wenger, McDermott & Snyder, 2002; Suchman, 1997;

Blackler, 1995; Lave & Wenger, 1991; Brown, Collins & Duguid, 1989)—learning that occurs in the same context in which it is applied. One type of relationship that could also be examined in this study might involve linking a relevant model of learning to the process by which individuals, departments and institutions adopted and implemented new practices such as OER. Were they trained, or did they acquire knowledge through a peer-to-peer process, or was their knowledge acquisition about OER principles and practices purely self-directed?

Another area of interest within the instructional development process is the conceptualization of technology use and the transfer of knowledge among practitioners. Spinuzzi's (2003) work on computer-mediated information design in workplace settings is relevant and notes that formal and explicit processes that specify technology practices generally exist in workplaces. In his study, Spinuzzi found there was also another level of computer-use, micro-interactional processes, through which people actively accomplished everyday practices that remained tacit. This study also attempted to surface and identify any micro-interactional processes relevant to OER deployment and reuse that emerged from interviews with participants in the study.

Work by Suchman (2002) was also particularly relevant. Suchman's analysis of information flows and "local improvisations" within what she called a process of "artful integration" of "indigenous technologies" in use within ICT design and implementation may be another conceptual resource for exploring OER use and reuse practices of educators as they occur natively. Like Spinuzzi's research, Suchman points to the localized and situated tacit processes that may be relevant to adoption of innovations such as OER.

### **3.3. Research Strategy and Methods**

The research for this thesis used a *phenomenological approach* (Creswell, 2009) that included semi-structured interviews with faculty, instructors and instructional developers. The research process involved engaging educators in conversations about their experiences with OER curriculum preparation, design, resource selection and evaluation, and implementation practices. The interviews also probed beliefs,

experiences, observations, and inquired about recommendations for training and policy support.

In this study, research interviews explored both the affordance and constraint aspects of instructors' and developers' experiences in implementing open educational resources in post-secondary educational settings. Using a semi-structured interview process with phenomenological elements allowed the researcher to gain a better understanding of instructors' and developers' experiences and perceptions in developing or using OER for instructional purposes. The research design also allowed the extension of the interview questions into new topic or theme areas as they emerged during the interview processes.

The study was framed by activity theory (AT) (Engeström, 2001). AT uses an "activity system" as its unit of analysis. The interviews conducted with instructors and developers provided in-depth analysis of particular contexts, and the strategic decisions and practices associated with OER use and reuse in their educational settings. Each participant's experience constituted their activity system in interaction with the goals of the BCcampus Online Program Development Fund (OPDF), the common OER activity system against which each participant's experiences were investigated. The qualitative interviews focused on the participants' site-based experiences and provided a focused perspective about their activity system. The interview data provided a frame for understanding their situated practices as well as any common experiences shared by all participants in the study.

Each institutional setting where participants worked represented distinct organizational cultures, training practices and working conditions. Hence, the design of this study permitted the opportunity to investigate experiences across different sites and organizational groupings where OER use was occurring, with a view to identifying common themes, understandings or contradictions. An implicit hypothesis here was that the usage of OER was deeply contextualized locally, rather than being driven by generalized concepts.

### **3.3.1. *Using the Online Program Development Fund (OPDF) as a Sample Pool for Research***

The OPDF was a funding program of the Ministry of Advanced Education, British Columbia. It was administered through BCcampus on an annual basis from 2003 to 2012. During that time period there were nine rounds of funding, totalling \$10M in grant awards. The OPDF provided a sample of convenience for this research study.

The OPDF as a funding program was structured using a call for proposals that was issued to BC post-secondary institutions through the offices of Vice-Presidents Academic or Education. The fund was designed to support collaborative development of credit-based programs, courses and resources. Proposals were submitted through a lead institution that also identified partner institutions. A peer review panel consisting of seven members from post-secondary institutions (usually deans, directors or other senior academic staff) and one external panel member, adjudicated the proposals during a two day, face-to-face meeting organized by BCcampus.

Awards were granted after approval of the peer review committee's recommendations. Lead institutions and partners signed a developer agreement that specified a work plan and schedule, and an agreement to license the developed resources for use and reuse within British Columbia using a BC Commons license, or more generally using a Creative Commons license. The award funding typically paid for release time for faculty and instructors, and/or for instructional development and media costs. The funding was provided to the lead institutions in two instalments. The first instalment was paid on receipt of a detailed project plan. There was a mid-term review of progress, and the final instalment was paid when the development process had been completed and reviewed, and after the finished open resource had been contributed to the Shared Online Learning Resource (SOL\*R) repository.

As of 2012, the OPDF had made 144 awards totalling \$10M. One hundred percent of BC public post-secondary institutions participated in the program, with 83% of the awards involving multiple institutions. The OPDF contributed in whole or in part to 47 credentials, 355 courses, 12 workshops, 19 web sites/tools, and 396 discrete course components.

Because 100% of BC public post-secondary institutions had participated in OPDF proposals and 83% of the successful OPDF proposals were collaborative in nature, the sampling strategy for the interview phase of this research sought to identify participants from across the range of OPDF award recipients with which to conduct qualitative interviews on the research questions.

### **3.3.2. *Potential Study Participants***

Faculty, instructors and individuals from program/course developer teams from BC post-secondary institutions who received grants through the OPDF program were recruited to participate in the study. The potential participants had designed or developed programs and courses in which instructional materials were created as OER through the OPDF.

Interview participants were recruited initially by an email sent to them directly, or to their team leaders if they were a part of collaborative development initiative. The email explained the purposes of the research, described the research process and the requirements of participants, and invited their involvement (Appendix A). The email invitation contained an email link that potential participants could use to reply and indicate their tentative agreement to participate, and to receive a follow-up information package with an informed Consent Form.

The recruitment document mentioned above and placed in Appendix B indicated that the semi-structured interview process would take approximately one hour. When the researcher met with participants for the interview, he provided a Consent Form in print copy that participants signed and he witnessed. Each participant received a copy of the Consent Form for his or her records.

With the participant's permission, interviews were digitally recorded using an audio recorder. The recorded interviews were transcribed verbatim to provide a database for analysis. Prior to the data analysis process, a copy of the interview was provided to the participants for review. The interview transcript review process allowed an opportunity for the participants to withdraw or revise any part of the interview that they did not want to have included in the research database. Only seven of the eventual

21 interview participants requested edits, which they provided to clarify statements or correct specific program references. In one case, an interview participant sent supplementary information.

### **3.3.3. Criteria for Segmenting Potential Research Participants**

Potential research participants were chosen from the individuals and institutions that make up the BC public post-secondary system, and in particular individuals and teams that had been awarded grants through the BCcampus OPDF.

In order to represent institutional functional groupings in a purposeful sample (Onwuegbuzie & Collins, 2007) for in-depth qualitative interviews, all OPDF award recipients were recruited with information packages requesting their participation in the qualitative interview portion of the study. Based on response to the recruitment appeal, the researcher also sought to achieve representation of respondents from each institutional category (colleges, universities and institutes, and research-intensive universities) to a maximum of 21 interview subjects in total.

A general call for participants was sent out and a matrix based on the three functional institutional groupings was used to segment those who responded until a suitable sample size was achieved for the qualitative interview process. Table 1 below describes the matrix.

**Table 1. Sampling matrix used to segment participants in the study**

<b>Institutional functional groupings in the BC public post-secondary sector</b>	<b>Total number of institutions in each post-secondary functional grouping</b>	<b>Sample size achieved per functional grouping for the research study</b>
Colleges	11	7
Universities and institutes	8	7
Research-intensive universities	6	7

## **3.4. Data Collection**

The interviews were semi-structured, and the topics of the interview conversations were based on topics derived from the review of relevant literature

concerning the use of OER in post-secondary contexts, and also with some contextual questions derived from the stated purposes of the OPDF program. These included questions dealing with cultural issues, quality assurance, localization, instructional design, technological determinism, business rules and policies—all in the context of OER use. The semi-structured interview format also allowed participants to add topics or extend the conversation in directions of their choosing. Interview topics and an interview guide appear in Appendix C.

### **3.4.1. The Primary Research Question**

The primary research question was:

*How are faculty and instructors currently implementing OER to support teaching and learning needs within post-secondary educational institutions?*

The primary research question was aimed at developing an understanding of the background knowledge of faculty and instructors about OER, and the efficacy of OER practices for professionals, their institutions and their students. It was also designed to establish the extent to which the study participants were engaged in open practices.

Guiding questions were also formulated, associated with the primary research question, to explore training or workshop presentations or materials that may have guided initial OER understandings or practices by instructors. However, as the study was exploratory, it was not possible at the outset of each interview to determine the subordinate research questions that would be needed to guide the interview process. The following questions were used to guide the initial semi-structure interview process.

#### **Guiding Questions**

- Why did you choose to submit a proposal to the BCcampus OPDF?
- What compelled you to choose an open approach to developing or adopting curriculum resources to meet your instructional needs and those of your students?
- Do you routinely collaborate with peers to develop instructional resources, and under what conditions or agreements do you work?
- What features of OER do you see as potentially contributing to enhancing or changing your instructional development practices or those of your peers?

The guiding questions were not specific questions to be answered, but rather, they were conversation starters that suggested themselves at the commencement of the study as being the most productive guides to generate data relevant to the central area of interest. As participants raised unforeseen issues, they were allowed to pursue these in their responses and the interview conversation.

### **3.4.2. The Sub-Questions**

A series of sub-questions was developed to probe specific themes from the literature review, as well as to leave room for new themes to emerge through conversations about experiences with OER. Sub-question 1, 2 and 3 are described in the following sections.

#### **Sub-Question 1**

*When educational resources that have been developed in another department or institution are selected for use in another institution or program, it may be found that some amount of revision has to be made to make the resource suitable for the new context. In your adoption of OER, have you found it necessary to make some revisions or adaptations to the resources? How do you typically decide about this and what approaches do you use in making the revisions?*

This sub-question aimed to explore the instructional development themes identified in the review of the literature. Guiding questions probed experiences associated with the theme. These were discussion elements that were used to probe the experiences of participants using OER, and were not specific questions used in all cases.

#### **Guiding Questions**

- What instructional design and development practices or processes do you employ? Have there been any instructional development issues associated with OER use or reuse?
- Does your institution or program have a particular Learning Management System? How does your LMS technology affect your use of OER for course development and delivery?

- What business rules and policies affect OER use in your course, department or institution? For example, does your institution or program/department have a specific budget line item set aside for the acquisition or development/adaptation of OER?
- Is the development or adaptation of OER considered as part of a faculty or instructor's workload or is it factored as overload or voluntary?

## **Sub-Question 2**

*What conditions, methods or models of practice can contribute to use of OER by faculty and instructors in post-secondary institutions?*

This sub-question was aimed at eliciting practical recommendations that began to describe (or propose) conditions and methods to support use and reuse of open resources in post-secondary institutional contexts.

### **Guiding Questions**

- How did you learn about OER? What approaches did you take in order to incorporate the use of OER in your course or program?
- In your institution or department/program, was training and support provided for faculty and instructors in the use of OER? How was the training or staff development handled in your institution or department? Do you have recommendations to make with regard to training about OER use?

## **Sub-Question 3**

*What organizational policies and practices could contribute to the use of OER as components of an institutional teaching and learning strategy?*

This sub-question was aimed at eliciting policy recommendations from individual practitioners that could contribute to wider use of OER as a mainstream practice.

### **Guiding Questions**

- What opportunities, barriers, issues or concerns have you faced in exploring, developing, adopting or using open educational resources in your practice?
- How are the issues and concerns dealt with in practice?
- What policy recommendations can you make that might foster the use of OER as a component of supported mainstream practice in your institution or department?

- Do you think that your recommendations would be generally applicable to other, or most, post secondary institutions, or are they specific to your context?

## **3.5. Data Analysis**

### **3.5.1. *Interview Analysis***

The interview data was gathered to provide a means to identify themes within each selected interview with the potential to identify the similarities, variations and differences among participants and their activity systems. In this study, thematic analysis included looking for evidence of instructors' and developers' efforts to make sense of their experiences in developing or using OER in the authentic context of their institution and its systems, rules and practices, using an Activity Theory (AT) framework.

For the interview analysis the researcher used thematic analysis and coding within an AT framework. The semi-structured design of the interviews also provided an opportunity for new topics and themes to emerge from the participants. Analysis of responses from the qualitative interviews used perspectives developed in the activity theory work of Engeström (2001), as well as others who have looked at activity and interactions in the workplace including Blackler (1995), Bardram (1997b) Engeström, Miettinen and Punamäki (1999), and Dobson, LeBlanc, & Burgoyne (2004). Each outlined means of describing and assessing interactions and contextual features of the work and activity of participants in complex activity systems, such as the OER activity systems under study in this research in post-secondary institutional settings. An initial alignment of research questions with the AT framework is shown in Table 2. AT was used as a theoretical grounding for the questions; however, the researcher remained open to interview data that did not fit the expectations of the AT model.

**Table 2. Alignment of research questions to the Activity Theory framework**

Activity Theory Framework	Alignment of example research questions
Subject: Faculty, instructors, developers	How did you learn about OER? What approaches did you take in order to incorporate the use of OER in your course or program?
Object: Open educational resources (OER)	Why did you choose to submit a proposal to the BCcampus OPDF? What compelled you to choose an open approach to developing or adopting curriculum resources to meet your instructional needs and those of your students?
Outcome: Open and sustainable OER practices	What policy recommendations can you make that might foster the use of OER as a component of supported mainstream practice in your institution or department?
Tools: Learning management systems, instructional technologies, infrastructure, funding programs	What instructional design and development practices or processes do you employ? Have there been any instructional development issues associated with OER use or reuse? Does your institution or program have a particular Learning Management System? How does your LMS technology affect your use of OER for course development and delivery?
Rules: Copyright, licenses, accreditation, program requirements, funding program requirements, institutional business rules,	What business rules and policies affect OER use in your course, department or institution? For example, does your institution or program/department have a specific budget line item set aside for the acquisition or development/adaptation of OER?
Community of practice: Peers, colleagues, program committees, articulation, tenure,	Do you routinely collaborate with peers to develop instructional resources, and under what conditions or agreements do you work? What features of OER do you see as potentially contributing to enhancing or changing your instructional development practices or those of your peers?
Division of labour: faculty, instructors, instructional designers, media staff, technology staff, quality assurance processes, localization processes	What opportunities, barriers, issues or concerns have you faced in exploring, developing, adopting or using open educational resources in your practice?

The researcher used *ATLAS.ti*™ qualitative data analysis software to conduct the text-based analysis and coding of the interview data. The researcher took an open-minded approach to assessing the extent to which the research data supported the framework of the original themes derived from the literature review. New themes that emerged from the open-ended interview data were coded and explored against the

existing themes. All responses were categorized, and themes and codes for each category were generated from the transcript data within *ATLAS.ti* to reduce and transform that data for interpretation. The coded thematic data from the qualitative interviews provided the basis for interpretation and discussion.

Chapter Four, which follows, provides a summary of the interview data, the codes that were used to categorize the data and the themes that emerged through the data reduction process.

## 4. Data Analysis

This chapter describes the data analysis process that was used to identify themes for exploration from a qualitative research process that used semi-structured interviews with educators from British Columbia higher education institutions on the topic of open educational resources (OER). The chapter outlines the process of deriving themes from coded interview data for analysis and display which are then explored further here and in Chapter Five where a discussion of the themes and their relationship to the research questions under study is presented.

As described in Chapter Three interview participants for the study were recruited as individuals from the 25 institutions that make up the British Columbia post-secondary sector. Each participant had been a member of a curriculum team that had received a grant from the BCcampus Online Program Development Fund (OPDF). The OPDF was a government-sponsored fund that provided financial support for the development of curriculum materials that were licensed as OER.

For the purposes of the study and to provide representation from all segments of BC higher post-secondary education that had received OPDF funds, the participants were recruited from three groups associated with each of three British Columbia (BC) post-secondary sectors (research-intensive universities, teaching universities and institutes, and colleges) to ensure representation from of all types of system institutions.

Semi-structured interviews explored the experiences of post-secondary educators in working with open educational resources (OER) in the context of the OPDF, and in particular in the context of the opportunities and challenges presented by OER use.

Aspects of OER use were explored in guiding questions for the semi-structured interview process derived from key themes present in a literature review. Questions were created that dealt with cultural issues, quality assurance, localization, instructional

design, technological determinism, institutional business rules and policies—all in the context of OER use. The semi-structured interview format also allowed participants to add topics or extend the research conversations in directions of their choosing, based on their experiences in working with OER, either individually or as a part of a larger development team. An Activity Theory Framework was employed as a grounding source for the broad topics and questions explored during the interview process.

Interviews were conducted between October 2012 and February 2013, with 18 interviews conducted and recorded in private offices at the participants' institutions. In three cases, Skype and/or telephone calls were used to conduct and record interviews because of problems of distance, or time constraints for participants.

All interviews were recorded using an Olympus LS-10 digital recorder and were transcribed to Microsoft® Word™ for coding and analysis using *ATLAS.ti*™ software.

#### **4.1. Summary of Participant Characteristics**

Table 3 below presents a summary of demographic information about the interview participants. Participants represented three segments of the British Columbia post-secondary sector: research-intensive universities, teaching universities and institutes, and colleges.

**Table 3. Summary demographics for research interview participants**

Participants	Institution: C=College; UI=Teaching University RU=Research University	Gender (M / F)	Experience in teaching and/or instructional development (years)	Length of Interview (minutes)
1	C	M	27	49
2	UI	F	22	51
3	RU	M	18	55
4	RU	M	06	52
5	C	F	19	60
6	C	F	25	50
7	RU	F	10	48
8	UI	F	19	61
9	UI	F	20	67
10	C	F	17	43
11	RU	F	17	58
12	UI	F	12	36
13	UI	F	24	64
14	UI	M	33	46
15	RU	F	10	52
16	C	F	10	46
17	RU	M	25	56
18	RU	M	13	62
19	C	F	23	45
20	C	F	30	52
21	UI	M	27	62
<b>Totals</b>	<b>7 C; 7 UI; 7 RU</b>	<b>14 F; 7 M</b>	<b>407</b>	<b>1115</b>
<b>Averages</b>			<b>19.33 Years</b>	<b>53 Minutes</b>
<b>Ratios</b>	<b>7:7:7 ratio</b>	<b>2F:1M ratio</b>		

Verbatim transcriptions were produced and were shared with participants for review, comment, revisions or additions before they became a part of the data set for analysis.

## **4.2. Understanding the Data Using Qualitative Methods**

The data from the interviews became part of a qualitative analysis process. A qualitative methodology lends itself to the discovery of multiple meanings and interpretations (Weiss, 1995; Denzin & Lincoln, 1994; Merriam, 1988;) and was appropriate for this study because it addressed an emergent instructional technology practice that was being used by a limited number of practitioners in higher education. The focus of inquiry in this qualitative research study was on the use of participants' voices to understand the possibilities and constraints of an emergent practice. Foremost, the voices of the participants enabled the researcher to study the particular phenomenon of interest: the use of OER in BC higher education settings.

Data analysis in qualitative research has two purposes: (a) to understand the participants' perspectives, and (b) to answer the research question/s. Marshall and Rossman (2006) defined qualitative analysis in terms of organizing and attributing meaning to the data. To accomplish these tasks, the researcher followed a three-phase procedure described by Miles and Huberman (1994) which included: (a) data reduction, (b) data display, and (c) conclusion drawing and verification.

### **4.2.1. Data Reduction**

Data reduction is the first phase of qualitative data analysis (Miles & Huberman, 1994). Data reduction involved the process of selecting, simplifying, and extracting themes and patterns from the transcripts of the audio-recorded interviews, and also from field notes recorded by the researcher during or after the interview process. To accomplish this task, the researcher read and re-read interview transcripts while searching for similarities and differences in the concepts and themes that emerged. Code names were assigned to the concepts or themes that were detected and then organized into categories of related topics, patterns, concepts, and ideas that stemmed from participants' experiences and perspectives in the context of OER use and the OPDF program, and in a more general sense in their views on openness in education. Coding and clustering strategies from Saldana (2012), Braun and Clarke (2006) and Boyatzis (1998) were used as a part of the data reduction and thematic analysis processes.

### **4.2.2. Generating Data Themes**

The next step involved collating codes into potential themes, gathering all data relevant to each potential theme, and checking if the themes worked in relation to the individually coded extracts (Level 1) and the entire data set (Level 2), to generate a thematic map of the analysis.

Ongoing analysis then took place to refine the specifics of each theme, and to frame the overall story told by the data, by generating clear definitions and names for each theme. As a final step in the data analysis phase, compelling extract examples from the data were identified, relating back to the research questions and literature reviews, producing a coherent story of the analysis on which to organize discussion and base conclusions and recommendations.

### **4.2.3. Data Display**

Data Display is specified by Miles and Huberman (1994) as the second phase of data analysis. Data displays are schemas for presenting the results of data reduction. Displays are used to assemble information into a clear and accessible summary to facilitate later conclusion drawing.

Display techniques include transcript data tables, code definitions and thematic-maps (networks) that illustrate the clustering of data codes. Transcript data tables are rows and columns of data that have been extracted from coded transcripts and are organized according to themes, with supporting quotations to illuminate and illustrate the themes.

Networks and cluster maps are diagrams or charts that summarize information by providing a picture of the reduced data, as it exists in the context of participants' experiences. An Activity Theory triangle, with its activity-system interrelationship flows, is an example of a network chart that can also be used as part of a data display and discussion process related to this research.

The final decision for the technique(s) utilized in the study was made according to the results of data reduction. According to Miles and Huberman (1994), form follows

function—meaning that particular techniques should be used based on the research questions and the emergent concepts or themes that exist in the transcript data. Once an appropriate technique is identified, data displays can be created to demonstrate findings across all instances of the data along with any other available supporting information.

#### **4.2.4. Conclusion Drawing and Verification**

According to Miles and Huberman (1994), the final phase of data analysis consists of drawing initial conclusions based on data displays and then subjecting these initial conclusions to verification procedures. These procedures are intended to verify that findings are appropriate before they are labeled as conclusive results. In qualitative research, results are verified and deemed appropriate by evaluating their relative degree of veracity or trust. The following section provides some initial discussion about the establishment of trustworthiness in the results of the research.

#### **Trustworthiness of Results**

While quantitative research relies on measures of reliability and validity to evaluate the utility of a study, qualitative research can be evaluated by its “trustworthiness.” This term was used by Lincoln and Guba (1985) to represent several constructs including: (a) credibility, (b) transferability, (c) dependability, and (d) confirmability. A description of each of these concepts is included in the following sections.

#### **Credibility**

The credibility of conclusions in a qualitative study is comparable to the concept of internal validity in quantitative research. Lincoln and Guba (1985) and Miles and Huberman (1994) suggested that the veracity of research results be scrutinized according to three basic questions:

- (a) Do the conclusions make sense?
- (b) Do the conclusions adequately describe research participants' perspectives?
- (c) Do the conclusions authentically represent the phenomena under study?

The researcher used triangulation and respondent validation throughout the interview processes in his effort to enhance credibility. According to Lincoln and Guba (1985), triangulation is the corroboration of results with alternative sources of data. A literature review and current data from research in the field were utilized as alternate data sources during analysis and for discussion. As well, paraphrasing and rephrasing of questions during the interview process were used to clarify or add detail to participants' responses. Validating participants' responses through paraphrasing and re-phrasing is exhibited in sample transcript data for this study (Appendix D).

### **Transferability**

Similar to the concept of external validity in quantitative studies, transferability seeks to determine if the results relate to other contexts and can be transferred to other contexts (Lincoln & Guba, 1985; Miles & Huberman, 1994). In this study, the researcher sought to enhance transferability by providing a description of the contexts, perspectives, and findings that surrounded participants' experiences. By providing some degree of detail to provide a glimpse into the participants' context, I offer readers of this research the opportunity to consider whether or not the results are transferable to other circumstances. By maintaining field notes of all activities, contacts, and procedures, as well as keeping a personal journal of my research experiences, I believe I was able to provide enough background and description to enhance transferability of findings.

### **Dependability**

Similar to the concept of reliability in quantitative research, dependability refers to whether or not the results of the study are consistent over time and across researchers (Lincoln & Guba, 1985; Miles & Huberman, 1994). To address dependability in my study, I relied on consultations with three peer reviewers familiar with OER and the issues surrounding OER use in higher education. The peer reviewers were each asked to review two sample transcripts that were selected randomly from the 21 available interview transcripts. The peer reviewers were asked to identify themes that they believed were exhibited within the transcripts they reviewed. The researcher used the themes identified by the peer reviewers to add another dimension of dependability to the manner in which the dominant themes were identified, labeled and defined for analysis and discussion.

## Confirmability

Confirmability assumes that the findings are reflective of the participants' perspectives as evidenced in the data, rather than being a reflection of the researcher's perceptions or bias. The researcher enhanced confirmability by stating explicitly his assumptions about the topic of interest in the recruitment letter he sent to all participants in relationship to my own position within the post-secondary sector in BC. Both in the recruitment letter, and within the interview process itself, the researcher invited research participants to address the research questions being explored, as well as to add their own unique perspectives to the interview process and recordings for further analysis within the data analysis and interpretation phases of the study.

### 4.3. Initial Coding of Transcription Data

The coding process involved the following steps:

- Getting familiar with the data by reading, re-reading and making journal entries for each interview
- Generating initial codes using both in-vivo coding (using the actual wording of the transcript to generate a code) and codes generated from the transcript text based on the researcher's determinations of the themes or concepts that emerged
- Searching for overarching themes based on the clustering of codes to reduce the data to a manageable set of themes that represented the overall data set
- Reviewing the themes generated from the data reduction process
- Defining and naming themes for further analysis and discussion

*ATLAST.ti* software was used to import the transcribed data to a computer for coding interesting features of the data in a systematic fashion across the entire data set and for collating data relevant to each code. *ATLAS.ti* can be used to associate codes with quotations, determine code frequencies and also create code families for use in thematic analysis.

The initial coding process generated 203 codes from 21 transcripts. Each code was also given a preliminary definition in an effort to localize its meaning and to aid in

the identification of themes that could be assembled from transcript data segments for naming and further analysis.

Appendix E provides an alphabetical list and definition of the 203 initial codes generated from the transcript data.

Appendix F provides a frequency analysis of codes that helped with the discovery and refinement of major themes, as well as the combining of overlapping codes within the research data to produce the themes.

#### **4.4. Reducing the Data to Assist Theme Discovery**

An initial clustering exercise (Appendix G) was used to group codes into code families derived from the transcripts using the definitions that were applied to each code in the initial processing of the transcripts. A set of initial themes was developed based on the results of the clustering exercise. There were nine themes identified after the clustering exercise. The entire cluster map can be viewed in sections in Appendix H, or downloaded at <http://www.sfu.ca/~davidp/clustermap.pdf>.

Table 4 below identifies nine initial themes and their key attributes, based on coding definitions and the application of the codes in context within transcript extracts.

**Table 4. Themes (9) generated from the 203 codes from 21 transcripts**

<b>Initial theme label</b>	<b>General attributes of the theme</b>
Academic culture	Referring to the practices of the academy
Educational practices	Referring to educational practices affected by openness and OER use
Funding support	Referring to funding incentives and support for open practices
Institutional contexts	Referring to the business rules, policies and articulation practices within higher education
Instructional design	Referring to the practices associated with instructional development
OER concepts and practices	Referring to core concepts of OER practice
Professional support	Referring to support for training and professional development associated with open practices
Quality assurance	Referring to process that affect quality of content
Technology factors	Referring to online instructional technologies

Figure 3 below illustrates the results of the clustering exercise with all 203 codes grouped in nine themes.

Appendix G lists the themes and codes as “code families.”

Appendix H provides enlarged detailed sections of the cluster map.



Following the reduction of the 203 codes generated from the transcripts to nine themes, *ATLAS.ti* software was used to create nine code families that could be used to group coded transcript excerpts for further exploration and analysis using the research questions developed for this study as a discussion guide. Table 5 below provides a summary of the coded data, clustered, and reduced to themes.

**Table 5. Summary of themes, codes and quotation excerpts from 21 interview transcripts**

<b>Code families (themes)</b>	<b>Number of codes contained within the theme</b>	<b>Number of associated transcript excerpts (quotations) associated with theme</b>
Academic culture	46	374
Educational practices	5	131
Funding support	18	75
Institutional contexts	42	225
Instructional design	27	131
OER concepts and practices	8	346
Professional support	18	202
Quality assurance	26	83
Technology factors	13	154
<b>Totals</b>	<b>203</b>	<b>1721</b>

## **4.5. Discussion of Data in Relation Research Questions**

Chapter Five that follows provides a discussion of the identified themes derived from the research interviews in relation to the following topics:

- In relation to research questions derived from the literature review and their relationship to themes identified from the data clustering process
- In relation to themes not evident in the literature review

## 5. Data Discussion

The purpose of this study was to investigate the strategies and practices of instructors from post-secondary education institutions in British Columbia (BC) in order to explore the role of open educational resources (OER) in their work. Proponents of OER have suggested that open resources have the potential to reduce instructional development costs, build communities of knowledge practitioners and make educational materials more accessible to learners by leveraging the reuse provisions of open licenses (UNESCO, 2012;Wiley, 2010; OECD, 2007).

This research initiative sought to understand how open educational resources (OER) could be more commonly used as an instructional and curriculum development practice among post-secondary faculty and instructors. It also sought to identify conditions, methods or models of practice that could contribute to the greater reuse of OER. The research project used a qualitative methodology to investigate the understandings, attitudes and practices of educators in BC higher education institutions where OER concepts have been promoted through incentive funding programs such as the BC Online Program Development Fund (OPDF).

Because the scope of reuse and the sustainability of open educational resources as a model of practice in post-secondary education is yet unproven, the BC OPDF participants provided a purposeful sample to investigate the experiences of educators who were provided with a funding incentive to create and share openly licensed course materials and curriculum. The experience of these participants provided a formative sample of open practice in the British Columbia context.

The study required the use of a research methodology, data collection strategy, and interpretation framework that was appropriate for reconciling OER use and reuse opportunities and challenges with the experiences of British Columbia instructors. A qualitative research methodology (Creswell, 2009; Yin, 2009; Lincoln & Guba, 1994; Miles & Huberman, 1985), using a semi-structured interview process was chosen as an

appropriate approach to explore the practices of post-secondary educators because of that methodology's ability to address emergent contexts where pragmatic, grounded, interactive and flexible approaches were required.

Because the use of OER and open development strategies and practices are in a formative state in BC higher education institutions relative to conventional instructional strategies and development practices, understanding the context in which instructors understand and do their work, the communities of practice in which they are situated, and the traditions, rules, and constraints that govern their practices within an institution and post-secondary system, required a research methodology and interpretation framework that could work within the context of professional and institutional activities.

The researcher recruited 21 interview participants (as individuals) for the study from the 25 institutions that make up the British Columbia post-secondary sector. Following a semi-structured interview process, transcripts were coded and themes were generated for analysis, as described in Chapter Four. The results of the analysis are discussed in this chapter.

## **5.1. Structure of the Analysis**

What follows is a discussion of the data and identified themes derived from the research interviews in relation to the following topics:

- The initial research questions that were derived from the Literature Review, and the relationship of the questions to themes identified from the data clustering process
- Themes not evident in the literature review

## **5.2. Discussion of Data in Relation to the Research Questions**

Nine themes were identified within the interview data, during its coding and theme development phases. These were: academic culture, educational practices,

funding support, institutional contexts, instructional design, OER concepts and practices, professional support, quality assurance, and technology factors.

The literature review (Chapter Two) identified seven themes from OER scholarship that were used to create the semi-structured interview guide. The themes were: cultural issues, quality assurance, localization, instructional design, technological determinism, institutional business rules, and policies.

An initial comparison of the themes from the literature review and themes emerging from the qualitative research process revealed that there was some overlap among the two sets of themes, as well as some themes or concepts that had not been detected, or fully explored in the initial review of literature.

Table 6 below provides an overview of themes from the literature and themes that emerged from the data analysis and thematic coding processes for semi-structured interviews. The table offers initial commentary on the overlaps and gaps. Extracts from the data are used in the sections that follow to highlight and discuss findings.

**Table 6. Comparison and commentary on themes detected from the qualitative research process with the themes identified in the review of literature**

Themes derived from the review of literature that were used to guide the semi-structured interview process	Themes derived from the qualitative interview process, data coding and identification of themes	Researcher comments to clarify both sets of themes
Cultural issues	Academic culture	Appear to be largely similar in reference to practices in the academy as an institutional setting
	Educational practices	Refers to educational practices affected, enabled or constrained by OER and open resource models
	Funding support	Referring to funding incentives and support for open practices, often referred to as an enabler and sustainability factor when discussed in the context of policy or institutional business rules
Business rules Policies Localization	Institutional contexts	From the data coding process, institutional contexts seem to encompass business rules and policies. Localization seems to affect programs and is grouped with the institutional context
Instructional design	Instructional design	Appear to be similar
	OER concepts and practices	Referring to core concepts of OER practice, and the need for intentional conversations about open policies, practices and exemplars of open practice.
	Professional support	Referring to support for training and professional development associated with open practices
Quality assurance	Quality assurance	Appear to be similar
Technological determinism	Technology factors	Appear to be similar, but emphasis by participants on “factors,” both positive and negative

Themes emerging from the data and literature reviews are discussed in the sections that follow with excerpts from the transcripts.

### **5.2.1. Academic culture**

There are variations in academic culture across the types of institutions that are representative of the BC higher education system, and as a consequence perceptions of academic culture and its influence on open practices, and the sharing and reuse of OER also present some variations, as illustrated in the excerpts from the transcripts. For example, a college instructor comments:

“I think the time is right though for this kind of thing because faculty by their nature are willing—at least the faculty that I know at my own institution are willing to share. I mean I really benefit from work done by other colleagues from other departments teaching math. So I think there’s a potential here of this thing finally taking off.” (Participant C1)

College instructors are primarily responsible for teaching, and so this instructor saw the potential for OER to become part of what he believed was a sharing culture that had already been established in his department.

A university instructor also saw the potential for sharing of open resources, particularly when there was a good fit with a research collaboration that already had a community of practitioners working together cooperatively.

“I thought the culture from research collaboration and cultural sharing that we do have in soil science nicely transfers, once the information technology opened the educational possibilities to collaborate. So first between my university and then very quickly across other universities, first in BC, and now I can say across Canada people were very receptive to collaborate and join with us.” (Participant RU4)

In this particular case, a set of resources had been created through an OPDF partnership and had been openly licensed using the Creative Commons Attribution ShareAlike license (CC-BY-SA), which meant the resources could be used or repurposed by other academics. These resources had proven useful to other institutions across BC, and eventually across Canada, and worldwide. The key to this success in a

university academic culture was directly related to the research agenda of this faculty member and her colleagues.

Another university faculty member underscored the collegial impetus for collaboration or partnership in universities when he said,

"I think collaboration tends to happen among colleagues that are already colleagues. I have never been involved in a situation where either I or someone else has actually gone looking for an unknown person to collaborate with." (Participant RU1)

and,

"But again, it's not like we go looking for ways to collaborate. It's opportunistic. It's within the family, as it were, within the discipline." (Participant RU1)

and,

"I think that that's the same for materials. Materials are obviously more discipline-specific, but the ways that they are used, which is the stuff that I'm interested in, because the materials are endless, there's no shortage of materials, but the way we package them up, the way we use them I would like to hope are transferable. But again, it's going to need embedded people in there in the appropriate disciplines. You need a physicist to help a physicist and a life science person to help a life scientist." (Participant RU1)

These comments highlight both the opportunity and constraint aspects of OER use within an academic culture, suggesting that personal knowledge of a peer, or working with known peers may have a positive effect on the potential for use of resources created or shared by or with others, as long as there is a colleague support structure within the discipline to assist with resource selection or creation.

Another participant noted the opportunity potential for larger and smaller institutions working together in collaborative initiatives. He stated:

"So you were getting this sort of really interesting opportunity and momentum by pairing up perhaps smaller institutions that may not have the people or the resources to engage in a project on their own, within their own little silo, but they certainly had expertise and certainly willingness to move the ideas forward or projects forward with the help of inter-institutional collaborators. So that's what struck

me at first and it just seemed like a good match for some of the directions at our institution we'd been talking about for ages but didn't have the staffing or didn't have the resources to move through on our own." (Participant RU2)

While this participant's comments extend the opportunity beyond one institution and its faculty, and includes smaller institutions such as colleges and institutes, he characterized this type of partnership to build and share open resources as a "partnership based on skill sets." He stated,

"Well, part of the open process too, like I mentioned about the previously funded projects, the names would also be, of the people at those institutions, were attached. So you could start building a map, because all the process was open, you could build a map in your head of who would be your potential collaborators, not only in skill sets but also in their philosophy, resource development and the ethos of sharing things in the open. You knew if their name was listed there, one, they would have a particular skill set according to as they were listed in different projects, but they'd also approach this project already with the ethos of sharing this openly and inviting open participation." (Participant RU2)

His comments were not dissimilar to the comments of other academics who talked about peer researchers and instructors that they knew within their discipline.

In this case the enablers were demonstrated skills rather than personal knowledge of the players that helped facilitate a partnership structure to build and share open resources.

This participant also went on to emphasize the importance of conversations in further enabling open projects and practices in academic settings. He did not limit himself or his institution to known peers and made a case for modeling open culture and sharing in social spaces to expand opportunities, when he states,

"Yeah, in my collaboration with and projects both within the province, across the country and internationally, usually the genesis of some of these ideas begin at conferences through conversation. So they're not necessarily structured. Through these conversations, potential ideas, potential directions get hashed out on blogs and social spaces and social networks, and then gather momentum. And if they have any promise or potential, they gain a life of their own, because we're talking about these ideas online and in the open where... And just by simply doing that, I think my take on this, it's implied that this project

is open to any and all collaborators, people who are willing to not just attach themselves to the project but actually be actively involved in the development and shaping of it. So up to this point that's how all the projects that I've been involved in have started. Through conversations at conferences that spill into social spaces online." (Participant RU2)

He further emphasized the roots of open practices in the open source software community and compared and contrasted its recognition of peers to the academic traditions. He stated,

"I think in some sectors it's very well known. Obviously, I'll use the software development community as an example... you are judged by the quality of your ideas and your ability to develop a team or a process that can bring those ideas to fruition. So how you receive that or where that recognition comes from isn't as important as the quality of the idea and how useful in the end it is, and what kind of traction it gets across communities." (Participant RU2)

He also offered a potential downside to sharing rooted in the academic traditions,

"I think a lot of it, just from what I experience at this institution, a lot of it comes from instructors not seeing the value added of opening up their process as well as their resource to inter-institutional use. A great deal of work is involved in both the consultation and the creation of some of these resources, and I think generally most instructors see that as giving something away for free, and they don't see some of those reputational pieces they're expecting, which they see right away when they publish in journals, or they publish in some other areas. And by publish, that could be papers, but it could also be resources and textbooks and all the rest of it." (Participant RU2)

He concluded his comments by suggesting an apparent disconnect between openness and sharing within the promotion and tenure systems of institutions.

"I hate to sound like most people are self-serving, because that's not the case, but people really want to move their careers forward, and that all comes down to their teaching dossiers and their tenure and promotion processes. And I think perhaps on a lot of those panels, scholarly activity in open spaces or resources that you did and gave away don't carry a lot of weight for them. So they have to weigh their participation in open experiences and open opportunities, and in the end say, when I'm sitting in front of this panel four or five years from now, how are people going to see this? Will they be looking for publication in the journals that are recognized within my discipline or

will they give this equal weight? How do I show impact?" (Participant RU2)

Another faculty member stated her experience working with a colleague who offered advice about OER in the context of the tenure and promotion system,

"This happened a long time ago and I was just at the beginning, that I should probably stop doing this because I didn't have tenure at the time. She was kind of giving me protective advice, because she's a bit older and at that time she went through the tenure process, and not every institution is open for this kind of stuff." (Participant RU4)

and,

"Especially if you are in a tenure-track position, you have to be careful how you approach all of this because if you put all of your effort in developing these open educational resources, because they go under the label of teaching you might be in trouble. That might be for some institutions. Other institutions are better and they are very supportive, but I would imagine for some of my colleagues who declined that was the main reason." (Participant RU4)

### **5.2.2. Educational Practices**

A theme that was not developed explicitly from the review of literature was the manner in which educational practices could be affected, enabled or constrained by OER and open practice models. The notion of OER use in higher education and the sharing, reuse and remixing of educational resources using open licenses that work with copyright is a relatively new concept, and is less than 15 years old.

One instructor saw OER as providing a vehicle for stimulating change in practice within higher education. She cited Clayton Christensen's (1997) book *The Innovator's Dilemma* and its notion of disruptive moments as fuel to ignite discussions about educational practice among faculty. She stated,

"I mean if you hit the big one, Clayton Christensen's work on disturbing moments is—I honestly think that many faculty don't know, have not yet fully grappled with the changes in how students are learning who've worked intensively with technology, vs. themselves seeing themselves as the font of knowledge and expertise in a classroom, in a formal curriculum sense. So the open education

resources and some other forms of technology are really what Clayton Christensen called disturbing moments.” (Participant UI3)

“I think that will have profound—may have, likely will have, profound implications for how knowledge is constructed and shared, and likely won’t look like the formal, traditional curriculum, as is offered in many of our institutions.” (Participant UI3)

and,

“Yes, the disturbing moment—that whole notion of OER as something that starts and builds up and eventually displaces what is the formal curriculum is something I’m very, very interested in.” (Participant UI3)

A university instructional developer likened the need for changing practices in higher education to contemporary models of agile design. His idea was as follows,

“I like the idea of—and this is just sort of off the top of my head – of rapid development in an open space. Look at Kickstarter as an example. People have a good idea, they articulate the idea well, they’re looking for a coalition of the willing, and they move forward with this coalition and they figure out how to get it done outside the jurisdiction or the realm of higher ed. And it gains enough traction that it becomes attractive, and then it loops back into higher ed. So whether those ideas start with instructors or staff inside the system and loop back, I do think we’re going to see more of that.” (Participant RU2)

A faculty member reflected on her colleagues and a need for leadership and senior management direction to effect changes in practice in academic departments when she described her thoughts in the context of OER,

“And I think just a sense that I don’t have a lot of younger colleagues, so amongst people who haven’t grown up with the Internet or – grown up? The Internet wasn’t really a key part of their PhD studies, for example, when they started teaching, and so they don’t think of it immediately as a place to go to get content. They go to get journal articles or they go to find out about new books, but they don’t go to find course modules or to find learning exercises or approaches.

Well, I think it’s—I mean because it was put to department chair—I mean departments, they’re change averse, right? So there has to be some kind of a bottom line. Like, you must do this by X period of time, coming down from the VP Academic or something in order to get any response, generally.” (Participant RU3)

Another interview participant agreed with the need for leadership, but she also suggested that both top-down and bottom-up leadership needed to be in play when she commented on the *Open Education 2012 Conference* that was held in Vancouver, BC. The conference was an event that primarily attracted practitioners, so BCcampus organized a parallel event for senior leaders such as Vice-Presidents Academic that attracted many participants. The interview participant noted that this combined effort was a positive movement towards highlighting OER in the context of educational practice in higher education, and that more needed to be done to help institutional leaders better understand changing educational practices. She said,

“And so it occurred to me that this movement towards OER certainly needs to work as both a top-down and a bottom-up momentum. The stuff we observed two weeks ago with Open Education I would call that very much a bottom-up. There was huge enthusiasm, huge, as I’m calling it, oephoria—O-E-phoria that I saw even participating at distance as to what was going on but that was pretty much a bottom-up.

However, we’re in a transition period right now where I see the executive group of postsecondary institutions feeling fear, and they’re not sure which horse to get their cart behind and there’s fear coming from a lot of financial pressures, fear from these new models that are emerging that they’re not sure they’re really part of.” (Participant UI2)

An interview participant who was responsible for developing large-scale online courses saw the conversations about OER as an opportunity to engage in discussions about traditional educational practice models and the potential for change. He stated,

“I think one of the strongest aspects of OER has to do with the fact that it just creates a lot of discussion and awareness as to our current model developing and maintaining, and sharing or not sharing content. So I would say more than anything it’s a locus of discussion and dialogue and discourse—and helping us to rethink the way we traditionally develop all this content.” (Participant UI7)

### **5.2.3. Funding Support**

Funding support was not one of the themes derived directly from the literature review. But, it was referenced in the context of sustainability for OER, when business models and policies were referenced in the macro sense of funding an OER program at an institutional level or for an entire higher education system.

In the context of this study, funding support refers more specifically to the incentives provided to faculty and instructors through intentional programs such as the OPDF that were designed to provide an incentive and support for the creation of open educational resources.

In most cases the reactions of faculty, instructors and educational developers to the funding support for OER provided through the OPDF were enthusiastic. For example, here are the reactions of five interview participants to the incentive value of funding support:

“And so to have somebody give me some funding that lets me be on that leading edge and try some different things and see what’s going to work – in my case with community partners—was a natural.” (Participant C1)

“First of all it was available funds for development. Development money is not readily available. So to step into a new world, there was opportunity there. Well, it was a chance to do something different. It’s not that a web-based associative science was unlikely to be approved by my college, but it was unlikely to be funded. And the OPDF as far as I understood it, it was really an opportunity to support innovative ideas. So, even if they sounded a little bit off the wall, if it was a good idea that could benefit the province, it would be considered. So, yeah. And it’s independent funding from our college, which is as you know it gets kind of tied up really fast. So, yeah. I think every time we have applied that’s kind of been the motivator.” (Participant C7)

“Yes. I was looking for a way to create these resources that would help me give my students a better experience or a better learning tools and I learned through that.” (Participant C5)

“What I did really enjoy about hearing about the projects that were going on that BC Campus had also funded; I was thrilled to see how many of them were very much oriented towards, for lack of a better term, for the common good – not just in terms of their format but also had broad applications that had – were responsive obviously to communities or needs...” (Participant RU5)

“Then I heard about this fund that my institution has, this Teaching and Learning Enhancement Fund, and I thought, “Oh, I’ll try this. Let’s see what happens.” Then I got a grant for that idea and I thought, “This is really great. This is what I always wanted to do,” and then one thing led into another.” (Participant RU4)

In most cases referenced from the interview transcripts, the OPDF funding support allowed faculty members and instructors to pursue innovative ideas that would either not have been funded with institutional resources, or may have had to wait on a priority list at an institution for funding. The incentive aspect of the OPDF attracted many more proposals than the scale of funding and necessitated a peer adjudication process to receive funding support. But, in some cases, it was only after winning an OPDF grant that some participants fully understood the requirements for open licensing associated with the funding support.

Comments from faculty and instructors who were OPDF grant winners describe some of the varied discussions that took place at their institutions in the context of OPDF and the licensing requirements for open resources.

“And so open becoming a condition of getting the funding required people to do it, but it generated lots of anxiety and discussion...”  
(Participant UI1)

“So we were building these materials for the courses anyway, when I discovered that there was a possibility of funding available to build publicly available Creative Commons-type license materials. It opened up an opportunity to package these materials in a way that was much less ad hoc, something that would hopefully be usable by a wider range of people.” (Participant RU1)

“Open source, open resources, wow. I can't even put a year to it. More than five years ago. I would say the first time I signed a contract for open resources was BCcampus. Prior to that, I would say maybe seven or eight years, and it was through the BCcampus Open Online Development Fund, having to sign the contract or advise a faculty member to sign the contract with the money that we were getting, the first time I read the full contract. I had to read it myself what that meant and explain it to a faculty member. Maybe a little bit earlier than that, but yeah, I think that was my first experience.” (Participant C3)

“It was information from BC campus that gave us the details about the different license agreements and it was creative commons system that we were pleased to adopt.” (Participant UI6)

“I think actually couched in those terms, but I probably learned about it first through that application. Yeah. I might have been vaguely aware that some things were out there and didn't have copyright

attached, but I wouldn't have known the terms attached to that. Didn't know Creative Commons." (Participant C5)

Within the OPDF incentive funding program, designed to support the creation of open resources, there were varying motivations for gaining access to funding, and a wide range of knowledge about open licensing and its requirements.

A college faculty member summed up the opportunity for open resources and their relationship to funding incentives when she said,

"I think that well I've noticed that when we actually have the time and resources to actually develop some materials as an instructional development team, so subject matter expert, instructional designer, multimedia, librarian, you know all that sort of range of folks, that gives us a much better chance of actually getting it—open resources." (Participant C4)

#### **5.2.4. *Institutional Contexts***

From the data coding process, the institutional context theme seems to encompass both business rules and policies that affect programs, program articulation, materials selection and development, as well as the academic operations of post-secondary institutions. Localization is an instructional design construct that concerns the customization and congruence of instructional materials for a local context, but it seems to affect programs and articulation, as well as policies, and so its data code was grouped within the institutional contexts theme.

Intellectual property and copyright policies are major concerns and costs for institutions in the context of new copyright legislation in Canada. Consideration of open licensing and the training of faculty and staff to understand their obligations when using proprietary and open materials could potentially balance the current focus on copyright. Some examples from interview participants highlight the issues. An academic dean states the need for information and training for faculty to allow them to better understand their options with respect to OER and open licensing:

"There are some guidelines about most intellectual property. What it actually says is that the intellectual property, whatever gets produced by the faculty in the college belongs to the faculty. I suppose that with the proper information faculty can make those materials open or

creative commons with certain attributions, understanding what that means without losing their intellectual property.” (Participant C3)

and,

“But I am an administrator, and so far I announced that the faculty association might have a totally different take on this, and you would need to talk to one of them to see how they would feel about this. Because I am open, I would like to make this a general statement, but they might feel very differently about copyrights or guidelines or policies that they would like to put in place to protect their members...” (Participant C3)

Another interview participant wondered about what role she or her colleagues might need to play in educating their peers about OER and open practices and she wondered aloud who should take on the role of educating faculty and staff,

“So in environments where the faculty own the intellectual property, I don’t know, I mean does that mean that OER evangelists show up at faculty association meetings to talk about copyright and intellectual property? Well probably it does mean that, because I think that there’s a lot of – I won’t say misinformation but a lack of understanding of how – what the future is that is grounded in how the recording industry has behaved, how the publishing industry behaves and now how the academic content community behaves and what that means not historically but as we move forward into the future and that conversation there’s just a lot of misperceptions about it.” (Participant UI2)

A faculty member referenced recent copyright discussions on a national level related to new copyright legislation, as well as challenges to institutions from copyright collectives such as Access Copyright, and she wondered what role OER might play in that context at her institution,

“Recently there was that copyright issue, but that was on a Canadian level. That might be something that would change at least how we approach open learning resources. You need to get all the licenses and agreements that you can use, if you're using photos or graphs or whatnot. But again, that's not something that's imposed by my university. It's across Canada and I think they are fighting the fight.” (Participant RU4)

A university faculty member was already internalizing the implications of new copyright legislation and challenges to institutions from copyright collectives. She noted

her approach to using illustrations or images in curriculum materials and her knowledge of open licensing and Creative Commons,

“I’m very cognizant of copyright stuff. That’s something that we’ve really focused on over the last few years, in terms of—so again, when I share something, or if I use—if I take a figure from somewhere and put it in my notes, I can only do that if it’s open. Right? So when I look for stuff, as we talked about earlier, even if I’m looking for a figure to use in my notes, I tend to either draw it myself, if it’s not in Creative Commons. (Participant UI5)

I don’t—I don’t use things that I’m not allowed to. I’ve always been sort of a stickler for that. But if it’s something that I want to take and use in my notes or show in class, I either draw it myself, or I make sure it’s Creative Commons. So that’s the big one, I think, you have to be aware of.” (Participant UI5)

Another faculty member underscored the apparent risk of using copyright materials without permission and the implications for her institution,

“And sometimes the ones that there are you have to request copyright to use them and I’m always a little bit, I have to say wary, of putting things into my Moodle course that I’m not absolutely certain that I have copyright for and because we are told to be very careful with that.” (Participant C5)

She also highlighted a potential OER issue, the apparent effort it might take to adapt or remix an open resource and localize it for use with her class. She was referencing a kind of pain-for-gain threshold that some instructors may question in the context of using or adapting OER,

“I would look at whether it—as it is it’s useful to my students and it would be work to adapt it. So is it worth it? I would question “Is it worth adapting that order?” I’d just start from scratch myself and say, “This is exactly what I want,” and produce that.” (Participant C5)

She went on to say more about the kind of support that is needed at an institutional level to balance copyright and open licensing concerns and opportunities.

“Yeah, and I wish we had more information on that because it seems to be—well, if you break over it you’re going to responsible and you can get in trouble, but we’re not really giving you very much information. So yeah. I’d love to have more information on that. I’d also love—I guess it’s not possible to have someone actually in charge

of copyright at the college who would just apply for copyright. I realize that's each individual teachers responsibility, but it's time consuming sometimes to do that." (Participant C5)

In one university they are at the very beginning stages of thinking about how to introduce open practices and licensing discussions to staff, even expressing self-doubt about whether to do it at all,

"...the whole notion of open. Yeah. Risk management and change management are confused here. And so to develop something you have to guarantee as little risk as possible, which doesn't exactly encourage a spirit of development.

I was in a meeting just a few months ago with the head of the copyright office. She was interested in doing a little open education, some kind of seminar and her very first question is, "should we do that? Would there be problems with the university if we tried to have that?" The fact is that there was that self-doubt." (Participant RU7)

Another faculty member commented on the prevailing copyright culture in her institution and perceptions of her as an advocate for openness and OER. She stated,

"Well, I think we've been cultured into such a copyright aware workplace for so long, for I don't know. What's it been since that kicked in, in a big way? 50 years, something like that. So, it's almost like when you tell a faculty member about this, some of them are really open to it. They're really keen. They kind of get it. But, there are others who almost feel righteous in informing me. 'Well, it's not right to use somebody else's work without paying for it.' It's almost like I'm the bad guy for suggesting otherwise." (Participant C7)

A university faculty member noted that his institution had provided some support for its approach to copyright and open licensing information for faculty and staff through the library,

"So there are guidelines. There is also in the library a copyright guidelines sheet that faculty can use and follow in any way that they want, and there is training, moderate training about it, but there's nothing really more that we do. I don't perceive that the culture of the college or any policies – we don't have any other policies that would support or detriment any of those things." (Participant C3)

What emerged from the transcript data is a somewhat fragmented approach to copyright information and training across the participants interviewed from the BC higher

education sector. In particular, few instances of a balanced approach to copyright and open licensing were cited.

Another key part of the institutional context theme was discussion of program development, program and course articulation and their apparent relationships to open practices and the potential for OER use in higher education institutions. British Columbia is generally recognized as having the best-developed and most well-known articulation system in North America.

For 25 years the British Columbia Council on Admissions and Transfer (BCCAT) has coordinated articulation and transfer agreements among BC institutions. The BC articulation system's governance body and its various discipline-based articulation committees meet annually to review programs and courses and to develop or refine articulation agreements. Interview participants described the articulation and transfer system as a trust network that used "collegial trust" as the primary basis for confidence in the system. As such, for many academics the approval of resources and the use of open resources in articulated courses might require discussion within articulation committees, despite notions of academic freedom and the imperative for faculty to choose instructional resources to suit their courses.

Some commentary on the articulation system and articulation committees is highlighted in the comments of interview participants. A college instructor commented on both the opportunity and challenges for innovation and OER in the context of articulation processes,

"I mean that's the key, key piece is that we're really fortunate in this province that—to have a fully articulated curriculum in the post-secondary system. So if we can get the right buy in there from folks – and part of that I think is something that's been missing the last little while is the community of innovator early adopters being supported. And we used to—in the early days we had that but we've also got to avoid being a clique, right?" (Participant C1)

"Yeah. Yeah. I guess the—the silos would be the biggest barriers. That we are all operating sort of independently, even in the articulation process, right? It would be—it might be interesting to do is see if you can get a conference of all the folks who sit in articulation committees to come together. We come together individually in groups; computer studies, math, and so on. At some point it might be

appropriate to get them involved in the OER thing as well.”  
(Participant C1)

A university instructor described a further example of barriers to OER use presented through the articulation process,

“Within departments and disciplines, there are huge, raging discussions about what resources are going to be used in some of their courses, and so it’s just not possible for a person in a – it’s just not possible. It’s very difficult for a person teaching one of those larger courses to make free choice of other online materials.”  
(Participant UI3)

“The curriculum has to be vetted by another group, in most cases, and the typical way that time is spent is on selecting the content, and very little attention is directed to how it might be integrated in a learning experience. Which causes difficulties, so that’s not a business difficulty; it’s more of an operational issue.” (Participant UI3)

A college faculty member offered a further example,

“Well, for example, let’s pick biology because that’s where my background was anyway and they are perhaps the most conservative science for some reason. So, we run a first year biology course and if our faculty member goes to articulation and if he or she chooses the exact same textbook as UBC or UVIC or SFU, then she’s going to feel good about that.

She knows that her course outline is going to have a smooth go. And she’s going to model her topics, and her learning outcomes, and her assessments to fit pretty close to what UBC is doing.” (Participant C7)

Another interview participant saw OER and shared resources as an opportunity in an articulated transfer system to serve a broader population with well-developed courses and resources. She seemed to be talking about OER as a pathway to Massive Online Open Course (MOOC) development.

“I mean I personally believe that in a broader transfer credit world that will emerge over the next 10 years that that Introductory Psychology 100 course does not need to be taught in the Province of British Columbia in 60 different institutional environments. There is no reason why a well-developed one shouldn’t be taught once to many and we can move on and not have the cost base that goes with teaching it in 60 different versions.” (Participant UI)

She offered further opinion to the effect that the opportunity for OER use is not fully embedded within the thinking of institutions or the majority of faculty as yet. The implication is that leadership from senior management would be needed and a direction to consider open resources would need to be outlined in an academic plan to empower faculty who work within the articulation and transfer system,

“So I’ve been involved watching it, frustrated because of the culture of my organizations that they’re not ready for primetime on this, but I continue to be keenly interested in it because I do think there’s a tipping point but it’s not at the faculty level. I mean all of these are part of it, but there’s faculty, there’s institutional, there’s system-wide and system-wide I’m referring to things like transfer credits and that kind of stuff and that there’s so many layers of participation in these kinds of tipping points that we’re just not there yet with the full momentum. We’re certainly there with the early adopters that are so keen, but the fact that our institutions aren’t having conversations and imbedding these ideas in their academic plans says that we’re not there yet.” (Participant UI2)

Another faculty member noted how she and a colleague were taking a proactive approach to introducing a new model of practice, using open labs and open lab resources, to their peers and their discipline’s articulation committee. She noted their approach.

“B, or I, have been—often been to the articulation committee as our representative. So, right from the get-go, we informed them of what we were doing, and we actually surveyed them as part of our project, as well. To demonstrate the need, we did an official survey, much more rigorous than our informal one. And so we just kept telling them what we were doing.

And then later on, when the project was concluding, we also informed them—we did a little presentation at articulation and told them about it. So that again, it wouldn’t come as a surprise to anybody. And they were very, very accepting of what we had done, and very interested as well. It was very positive.

I think first of all, we kept telling them about it from the get-go, so it didn’t come as a surprise later on when we’d done it, which is actually related to some of the stuff that we’ll talk about later on today. But—and I think the second thing was that we approached the design of this lab, such that it was from the learning objectives upward. It wasn’t about just putting something online. It was about looking at the whole experience, stating very clearly at the start what we wanted the students to be able to learn and accomplish at the end, and then

working with it from that direction. So the fact that we could stand up and say this, 'Hey. It's not the same experience. But look at—here's the learning that we're articulating. Here's how we're measuring that learning at the end. It's solid.' We had to be able to say that. That was our goal at the get-go, so we approached it in that manner." (Participant UI5)

In the context of this conversation with a science faculty member, the discussion turned in the direction of localization and the notion of a first year Chemistry open textbook, CC-licensed that could be customized for use in BC post-secondary institutions. This conversation with the faculty member linked articulation, trust, localization and OER,

"And I think it's also very interesting to have that conversation in BC, because we have our provincial articulation. So, in theory, all the first year chemistry courses, for example, 'cause that's the one where there is this real need for a textbook, are supposed to be clean transferrable, lined up. And so I think from a provincial scale, in theory—I say in theory, because the practice is a little bit different. It should be able to have a version of a textbook that's suitable across the province." (Participant UI5)

"I think the reality is that everybody does it a little differently. And we trust each other that it still flows seamlessly, but the focus might be a little bit different. So I think if there was for example, this one chemistry—first year chemistry textbook for BC, the ability to tweak it, or to add stuff in, that's where I see. Right? Here, we're all about mining, 'cause we got mines all around us. So if you could not only take this material and pick the parts of it you want, but if you could add in your own little bits, that, I think, is a really big selling factor, 'cause then in Williams Lake, they've got a—they've got this right next door. Or they've got—in 100 Mile House they've got arsenic in their water. When they could add in something that's locally relevant, and I think that would really improve the buy-in." (Participant UI5)

The conversation with interview participants about the institutional context also touched upon institutional strategy and its points of connection or departure with open practices. One faculty member had this to say about his perceptions of the churn in Canadian universities and the university press about open practices, massive open online courses (MOOCs), and other online learning dynamics,

"But the bigger key for me, and this is where I think institutions are having difficulty. Most of us as educators and researchers, we really are bound to our institutions and to our discipline.

I think institutions see them as a threat to themselves, in the way that—but of course, I—a lot of that just depends on what you—how you view change and transition, and the evolution of thought. I tend to look at it existentially. Things are going to evolve and they're going to take on shape and form, and I tend to try to help co-construct some of that, if not adapt personally.

But I don't think institutions are doing a very good job right now. I think they're in denial, to tell you the truth, especially in Canada. I think the United States is—and Australia in particular, or even Europe, probably making better strides to kind of bring together the explosion of open access learning, and kind of institutional representation—but a lot of it is to leverage it financially, at this point.

I think a lot of that is going on more as a kind of an economic or corporatist drive. And you can see those who've started those, have made them fairly private, and some of them aren't that open.

Open source environments and open education movement require more support, and they require differentiated roles: facilitating roles, support roles, mentor roles, direct instructional roles for technology use. How do you balance that with kind of a mentoring facilitator role of an online teacher, or even co-creator of curriculum?

But the institutions are funny places, because we all know how territorial different groups can be within institutions, and it's just not conducive to interdisciplinary open sharing.

And that means at the administrative level, whether it's recognition, or power, or purpose, or perception, or perception of purpose. I think there's some substantial cultural, and you know, bureaucracies. Those are probably the biggest ones to change their approach to how they engage with each other. 'Cause that's really fundamental to open learning." (Participant RU6)

Other topics highlighted by interview participants were concerned about institutional contexts and their relationship to open practices and OER included references to financial pressures, articulation, the inertia of the current system, and the cost-benefit value of embracing open practices and OER as an institutional strategy.

Some representative quotations, include:

"Well, I have to say in an institutional setting quite honestly either open education would become so respected and that may mean let's say MOOC suddenly becomes standard, that they have credentials that could be transferred between institutions, that the pressures of the

institution—I can only see it as being a financial pressure that would actually move an institution like this to adopt a system like this. They would have to see some benefit to their institution and not just to the community quite honestly.” (Participant RU7)

“I think the public education system could benefit greatly from open education. So, I see more of a benefit for K-12 and many colleges to the open education movement. The university like this one, I think it would be the last sort of blockade to something. I don’t see them moving until there’s a heavy pressure from usually just how many bums are there in the seats. That’s really what drives this university.” (Participant RU7)

“Business policies—I’d have to think about that some more. I mean I keep thinking about sort of the—I mean the thing I deal with mostly is the academic freedom piece and protection of intellectual property. I mean I think you’re most likely to get an OER if you can do a team development approach to instructional development but budgets are shrinking. That’s going to impact that.” (Participant C4)

As counterpoint, some institutions are more actively embracing OER as a cost-benefit strategy that could also be catalyzing changes in practice within the institution,

“The decision—it was actually an administrative decision at that point given the original organizational structure to re-use as much of this OER as possible. In this particular case, there was a really strong interest administratively to avail ourselves of this resource and limit the amount of work that would need to be done on developing new content.” (Participant UI7)

“Well... it was certainly a business decision, in terms of cost savings as well as expeditiousness; it was felt that this could be done a lot more quickly. There was an urgent need to update and improve the program of which these courses would become a part to build our online tourism student numbers. And so, it was felt that we should try to use our – these resources as much as possible. (Participant UI7)

The other part I did want to say was, in terms of the balance, there was not a formal policy but certainly an informal policy that we should and use OER as much as possible in our course development. But I think the overriding factor would weigh towards a business decision.” (Participant UI7)

### **5.2.5. *Instructional Design***

Instructional design practices have been at the heart of OER thinking from the beginning. Some of the early notions included ideas about keeping content and its presentation separated using technical formats (files and file types) that could enable easy reuse and remixing of resources. Learning objects were a part of the early terminology, along with open file formats (non-proprietary file formats) that could be easily opened and edited using standard software programs such as Microsoft Word, Open Office, or graphic editing software like Gimp. Instructional design was seen as a key process in ensuring that customization of resources could be easily realized if content could be kept “clean,” separated from the presentation system of learning management systems (LMS).

The reality, however, is that in most institutions the faculty member or instructor plays the key instructional design role in creating courses and selecting resources, and they are not always supported by a trained instructional designer. It is also true that many faculty members and instructors manage their courses in a learning management system (LMS) and maintain the course themselves. How then, do we bring both instructional design practices and OER into this existing dynamic?

The challenge of bringing OER into existing instructional design and course delivery practices is noted by one university interview participant. He offers an idea about creating “comfort space” for instructors to adapt to emerging opportunities and potential changes in instructional practices,

“...Some of the structures, like, for example, the metaphor or the idea of a textbook needs to be replicated in a digital space with modifications in order to provide sort of a comfort level. And once you’ve accomplished these things, this notion of a resource or a textbook existing in an open space, in a public space, then you can move to other more progressive, more innovative uses of adaptive text and things like that. But I think you need to create a comfort space for many instructors first.” (Participant RU2)

Another university instructor talked about her willingness to participate in open online programs, but recognized a need for training about how to assemble the open pieces and make them fit within learning models that benefitted her students,

“Well, I guess I just feel like there is so much – When you think about online education in particular, which does interest me, because I’ve participated in online learning at the international scale, and I find it to be potentially a very rich and rewarding way to continue to engage in learning as a working person. And I think that there’s just so much content being created every day that really the new – the skills that we as instructors and even researchers need to build upon is not creating the content so much as knowing where to look for the content and knowing how to put it together and make it meaningful to the people that we’re trying to teach.” (Participant RU3)

“Yeah, a lot of it remains to be seen. It seems like it’s in such a – the field is in such a formative stage right now. And a lot of it I think depends on where universities, like mine—I mean if I stay here, then where my employer decides to sit within the sort of spectrum of different approaches to online learning and open access resources.” (Participant RU3)

A college instructor talked about the need for support with localization and the authorship aspects of creating open resources when she said,

“As you know, faculty likes the creative side of publishing as well, of writing their own resources. So, I think if there were – I’m just kind of thinking about it now—resources that were in a more editable format and maybe with prompts for localization or change, that might be better received. And also we need some targeted PD work here for people to know how to use it efficiently.” (Participant C7)

A university instructional developer talked about design from another perspective.

“So one of the issues, I guess, challenges they had and certainly I had, too, was the lifespan of this material and how much of it was able to be reused. And so—but we kind of found a middle ground. We really saw the benefit of using and repurposing the existing materials and not having to start from scratch.” (Participant UI7)

A college dean expressed her commitment to instructional design in the context of open and online resources. She stated,

“I think definitely the Centre has a mind frame that focuses on students learning above and beyond everything. We are now developing what we call the education plan. That will definitely define what practices and instructional approaches the college as a whole will be following.

I believe the Centre does model practices that we believe are more constructivist in nature, more learner-centered, while working with the culture of—I wouldn't say more transmissive, but more apprenticeship-based and more didactic in nature. So we do try to model those practices.

There's a lot of value in the content, but there is a lot of value in the interaction. What we're seeing very open out there, till Coursera came about, was the content, but not the interaction. If we really believe in constructivism, and we really believe that knowledge is created by discussing with others and interacting with others and it's not just in student content, but it's student to student and student to instructor, then the openness is a very valuable resource..." (Participant C3)

A university instructor also emphasized the importance of teaching versus content and the implications for instructional design in the context of OER use. She said,

"So anyway, the teaching piece of it that I think is so important as opposed to the content, I mean they're both important, but they come together and it is important to both interesting content and effective teaching working together for the best in teaching." (Participant UI1)

A university faculty member reinforced the previously cited position on the importance of teaching in an instructional design situation when he stated,

"Perhaps one approach would be to recognize the management and delivery of a pedagogy as well as content, and I put pedagogy first on purpose." (Participant RU1)

The teaching, content and technology interface within the instructional design theme generated a number of opinions from faculty and instructors, including,

"We also did a lot of work—and much more needs to be done—on what we kept on calling teaching and learning with technology—bringing technology right into what we were doing. The context used to be that the Technology Centre exists over here and it's about training, oftentimes, and then there's a separate unit that does something about pedagogy, teaching and learning, but they may not ever interact." (Participant UI3)

"And another direction was moving from the notion of just training for technology use. From a learning perspective—it's not a question of just incorporating technology for its own purpose. How does technology enhance learning? What can you do that you couldn't do without it? How can you work with students in ways that you couldn't work

without that technology? How does it build a stronger learning environment? Really try to offer support for that.” (Participant UI3)

“I think the emphasis on the content is overdone. There are wonderful materials that we can use. It’s “What will be the learning outcomes?” To me, you work those through and then you work backwards from that. That’s the model of curriculum that we worked with forever. It’s the opposite of how most faculty members work at it, because they think you choose the content, and then you sort it out through the weeks of your course, and then you design some assessments that might give you evidence on what people did with those.” (Participant UI3)

In another university situation, instructional developers are actively discussing how to incorporate OER into their future planning and making open development processes more accessible for peers,

“So the work flow—I think work flow is really a key thing to understand..

What I want to do is I want to start taking about all our processes, our—from our instruction design processes, editing, production, IP—all those flow charts, processes, checklists—make them all available openly. And we had a little bit of discussion with – there’s this little group – this interesting little group of instructional designers across Canada associated with the Canadian Virtual University (CVU) talking about that, and they’re very excited about it. And so that – so I think you’re hitting on something there.” (Participant UI7)

The comments from the participants cited in this section highlight the dominant process of teaching as held by many post secondary instructors—that is, content transmission as a primary function in instruction. So, OER development is often seen as starting first with the identification and selection of the content. The actual design of a learning environment may not be given primary consideration or even held as a concept. The interview participants counsel reconsideration of first principles for learning and teaching in the context of the OER opportunity.

### **5.2.6. OER Concepts**

A key theme explored in this research study was the understandings of open practices and open educational resources held by faculty and instructors particularly in

the context of the OPDF, from which they had each received development grants. (This seems to extend from the previous section as well.)

Many experiences and understandings of openness and OER were shared with the researcher during the semi-structured interviews. A sampling of quotations from one interview participant includes the following,

“Murray Goldberg had the spirit of OER even before we were aware of all of those terms. Just because he was willing to share.” (Murray Goldberg was the original developer of WebCT, learning management software that was designed at UBC and made available for educators within the BC higher education system to freely use, before it was sold commercially.” (Participant C1)

“And so why not look at sharing that. So—so yeah, the idea is hopefully other people are going to make use of it and let it grow and develop.” (Participant C1)

“I’ve been involved in open source stuff from way, way back when.” (Participant C1)

“But what I really want is I want it like the learning object kind of thing where I don’t have to take it as they present it, I want each discrete element—that’s where Khan is great. I mean when I get in trouble—when a student emails me and their stuck on, again, fractions for example, I just do a Google K-H-A-N and then the concept and up comes this little video and I send them the link. So you need a classroom where your materials are all there and organized, right?” (Participant C1)

“So that’s the kind of empowering that OER has for you is that it’s not some textbook publisher that’s deciding, right? It’s you and you colleagues who are working right there in the trenches with students can decide what you want to do. And now if you start to expand that to a larger group then that’s—that’s very powerful.” (Participant C1)

Some additional opinions from this college instructor who was about to retire made the case for building up and supporting a colleague network of interested practitioners who would be willing to create and share OER,

“Well, again, I go back to what I said earlier about the whole innovator, early adopter things. I mean so—I think more support of innovator, early adopters at the institutional level and at provincial level and even if we can get Canadian level. And then moving beyond

that, North American and international. Because if you can get the innovator, early adopters collaborating and working together—with some direction, right?” (Participant C1)

“So they’re not just playing in the sandbox but they’re being focused to move it on to the early majority stage, that would be absolutely key. So support for that in all those areas. I think in terms of educating folks. There’s a lot of education that needs to be done around OER because your initial reaction is, “No, this is mine. I created it and I’ll not let you use it.” I think, though, faculties, at least faculty that I know, are willing to share. And so they have – but maybe not necessarily beyond their little group.” (Participant C1)

“So they have—that’s part of the education of starting to see – so buoying the confidence like I’ve done has been really helpful that way because it changes my worldview, right?” (Participant C1)

“I guess the other thing I wanted to say, too, is that when we—a lot of us are going to be disappearing in the next little while, we’re retiring. And I think that as you start to bring in new people, you need to be thinking about what skillset you want folks to have. And that’s always a challenge. But I think to be encouraging folks in this area and that be something that’s seen as an attribute that they need to have. So you’re creating the culture, I guess, that says that OER is good.” (Participant C1)

“So if you could get a place where colleagues could still connect to their community, so don’t limit it that way, right? I mean if it’s true OER, right? Then let’s...” (Participant C1)

Comments about the efficacy of openness and OER were not quite as positive from another college instructor, who talked about her institution’s use of the BC Commons license with in-BC boundaries on sharing. She noted that it was a palatable first step for instructors and developers at her institution,

“But what we were able to do is, we started with the BC Commons license—as opposed to the Creative Commons, we started with the BC Commons license and that I think was alright. It’s going to be just the post secondaries in BC that use this all right. We kind of know what our colleagues that are doing similar courses such as geology around the province or whatever, so I think that was a bit of a stepping stone that faculty could digest.” (Participant UI1)

“It actually was a really hard sell to get that. So it was actually a bit of a stumbling block and initially people just froze at the thought that whatever they created was going to go beyond the walls of their office.

So it was a real work to even get that far so I didn't even attempt to take it further." (Participant UI1)

"Actually the one that we're doing right now is focusing on First Nation storytelling so we're struggling a little bit with this because the whole idea of licensing a story is huge. So I'm actually in some really uncharted water right now, well not uncharted. I'm sure somebody else is out there doing it, but it is a very interesting community discussion." (Participant UI1)

However, the following quotations capture the essence of what OER might provide in the context of public policy meeting instructor and institutional realities,

"...I am... a firm believer that we shouldn't be recreating all the time, and we are putting in money that is coming from taxpayers... that we should be opening this up as widely as possible, with some parameters..." (Participant UI1)

"Right from the beginning, we went through Creative Commons as certification for everything that we did. What makes sense here? These resources are paid for, and there are people who can use them. If we give, then others might give to us. It makes sense." (Participant UI3)

Other examples of positive statements about OER use included,

"...I'm much more amenable to the notion of content being freely accessible, obviously not at the expense of a proper living." (Participant RU1)

"What drew me to that was, just looking at the history of some of the other projects, all the details of past funded projects that were publicly available, and looking at the dynamic, you could see how that collaborative piece and how the outcomes of all of these projects were really benefiting the small and mid-sized universities." (Participant RU2)

"Why did I do it knowingly, that it was going to be open resources? Because I really believe in open resources, because I think that sometimes institutions spend too much money developing things that are already in existence. I've always been a great advocate of reduce, reuse, recycle, and try to find first what's already out there. I come from a tradition of the original Lego learning object theories. We really believe that if you constructed something correctly and took some of the context out it could be repurposed. I wanted to develop something that others could use and not have to worry about it, and I wanted the

fund and people to continue to use it, and I could use what they were developing, too, so a give-and-take on both sides.” (Participant C3)

“This was the first experience, the only experience I’ve had with building something which would have a common copyright kind of arrangement in teaching. And to be honest, we could have handled it better. I mean certainly there have been no hard feelings, no – I don’t think anybody feels put upon. I think that it’s been a good experience for everybody.” (Participant RU3)

“...because for the projects that I led or co-led, we discussed the options and decided that Creative Commons seemed to be the more forward-thinking route to go. And so we wrote the contracts and signed them off as Creative Commons, and I don’t ever remember discussing that with an administrator in terms of what the differences meant, though they signed the contracts.” (Participant UI3)

Other issues related to OER concepts were also revealed during the interview process. In particular issues of finding suitable OER through search mechanisms were highlighted along with the technical overhead required to reuse, remix or localize existing OER.

Some example quotations related to search issues are provided below:

“Oh, finding is a gong show. It takes too much time. To be honest with you, it’s more time consuming to make something that is an appropriate fit, so we spend a lot of time searching, and it’s at the point where it’s ridiculous, really, it’s days of work.” (Participant UI4)

“...it should be so simple, right? Because there’s even those sort of clearing house search tools, like SL (name of developer removed) created, and then there’s the one in the UK. Even when you do searches, stuff doesn’t show up. And then if it’s not visibly... Because when I look at something I want to see that it’s visually appealing and designed as well, and sometimes it doesn’t show up visually appealing in design.” (Participant UI4)

“Again, I’m always going lowest common denominator. So if I can’t Google search something and find it in five minutes, the average person probably isn’t going to do more than that.” (Participant UI4)

“Like even when you look for, there’s a ton of different search engines and you can search just Creative Commons and you can search Google Scholar. There’s all different ways you can do it, but it sometimes still, like if I’m looking for a figure, to find out if anybody’s done a figure about Boyle’s law that demonstrates this that I can use, you get back

a million things. Again, there's so much out there, that things aren't tagged efficiently or categorized." (Participant UI5)

"So, I mean, I think the issues around archiving and searching are going to go and they're going to get bigger. There's more and more and more out there. It's very hard to winnow through it all and find specific, so I think those—I think projects that are trying to catalog them and thematize are probably going to get some substantial interest. So if there's a good search engine that gives me options, and then navigation, that's something I look at." (Participant RU6)

Some example quotations related to reuse, remixing and localization are provided in the excerpts that follow. The first, from a university instructional developer, emphasizes the localization requirements to make an OER remix a high quality resource that will be useful in a local context. He is supportive of the process, but highlights the commitment required to be successful,

"So there'd be a significant amount of retooling involved, and that retooling is not simply a technical task, it's something that really needs to be done with content experts and certain types of professional programs like nursing or community health. It's really hard to get those stakeholders together."

"And due to technical limitations, like within hospitals, I'm surprised at how gated some of those networks are. It's very difficult for certain types of tools to be used or different types of time shifting technologies to be used. So I guess that's my current experience with decontextualizing open resources that are of a high quality but really are only going to be useful if you build on the lived experience of the instructors and students."

"The lion's share of the work is finding a time when you can get the appropriate stakeholders' content experts together to inform the revisions. The technical piece of making the revisions or update is actually fairly straightforward once you have the necessary feedback from the content experts. Getting the content experts, in this case, in professional programs that I've had experience with, getting them all in a room and having a significant amount of time and frequency is difficult. It always is we'll try to repurpose it, but our timeline and our expectations of when the deliverable period will be is greatly extended." (Participant RU2)

A college dean of instruction expressed her views on remixing and localization processes for OER, and how she makes her decisions. She had clearly thought about OER remix as a workflow from an academic business process perspective.

"What I've been very successful at finding are small pieces. And one of the things that's been very valuable is working in a couple of institutions, when they are developing their things and then going to another institution and it's like, 'Oh, I remember developing that or somebody developing that and we can use it'."

"They have been mostly small, graphics, videos. What else have we reused successfully? ...I just participated in work with the Justice Institute, where there was a manual developed in the United States and we used it in Canada. We needed to change some things, but it was almost a full manual."

"So I've never been in that position that I need to – when I've used something, let's say a rule of thumb I would use is the 80/20 rule. If I save 80 percent and I need to change 20, that's good. But if it's the other way around, I would rather develop it myself and not have to invest that time developing somebody else's..."

"I think we would need to use a lot of criteria. I have to go back to a work that I did almost ten years ago about evaluating a learning object and saying: does this have the right outcomes that I need? Does this have the right feedback that I'm looking for? Is this the right presentation? Does it have the right interface? Is it motivating students in the right way? How much of the context is similar to what I need to do?"

"I wouldn't use only one criteria, but I would use a set of criteria and make sure that I'm spending my time revising something that has a lot of worth and value on its own. Then by adopting the context or whatever the changes need to be, I'm still getting the bang for what I'm looking for and not just the 80/20 rule, which is only a time/cost benefit, but a pedagogical value of the element to see if it's worth saving or having it the way it is and adapting it, and not worth creating something new and much better quality." (Participant C3)

Some interview participants spoke from the perspective of operating large course development and delivery departments in universities and institutes. A director of a teaching and learning centre responsible for course development support offered this view,

"I didn't have an environment that was willing to engage in a deep discussion of Open Educational Resources, and so I had to pick my battles. And in that particular case the battle I had to fight was turning out 250 course redesigns a year, and so this little element of reuse was more of an annoyance than an opportunity." (Participant UI2)

A dean responsible for a similar course development operating unit in an institute offered a very direct and pragmatic approach to deciding about her criteria for reuse,

“Remixing, I mean, well... No, licensing, I mean honestly I don’t care about licensing; I just want to know whether I can use it or not. So the nuances and the debates around Creative Commons and all that, I could care less. At the end of the day it’s really like, ‘Is it open? Can I use it or can’t I?’ I think reuse is like, you have to go to the lowest common denominator, which is cut and paste.” (Participant UI4)

A college instructor offered another pragmatic perspective on reuse and about the difficulty of finding suitable images for re-purposing or editing. She noted,

“I’ve had to re-create all of my diagrams pretty much unless they were exactly what I wanted. And with a book, you want it to be somewhat consistent in look. And so that can be difficult.” (Participant C6)

“If you’re looking for diagrams—some diagrams have a certain structure and other diagrams are slightly different—do you re-create them all? Very time consuming. Like I did a lot for my database design and lots and lots of time involved in that. It’s detail work, right? Very basic tools. I use Google. I copy and paste what’s there. I sometimes use screenshots.” (Participant C6)

“If we could have pieces on the Internet that we could pull out. But, then who’s going to hold that library? The Internet’s the library; it’s just not very well organized. Some stuff is on the floor, some is pinned to the wall [laughter].” (Participant C6)

### **5.2.7. Professional Support**

Another theme explored in this research was the requirement for professional support associated with OER concepts, copyright and licensing, software tools and techniques for faculty and instructors.

For many instructors interviewed there was no formal training associated with their introduction to OER. Their experiences are described in the examples that follow.

“Trial by fire. I just dropped into it. I had the wonderful opportunity to be asked to be the administrative lead for a newly evolving online team and I just dug in there and learned as I went. My first sort of experience of anything that was sort of open was the investigation that we led, I led it, with five other institutions around looking at Moodle as an opportunity for the BC wide system through funding and BC

campus provided. That just was sort of interesting in the sense of openness, of something open source. So then into open resources it was just being involved with what's coming up. I had a team of people that were really savvy and were watching all kinds of things and would bring things to my attention." (Participant UI1)

"No, I've not taken any training. I have gone to a couple of conferences and different things and read online, but no I haven't taken any classroom work." (Participant UI1)

Another interview participant described her experience with learning about OER through being involved in an OPDF project.

"Open source, open resources, wow. I can't even put a year to it. More than five years ago. I would say the first time I signed a contract for open resources was BCcampus. Prior to that, I would say maybe seven or eight years, and it was through the BCcampus Open Online Development Fund, having to sign the contract or advise a faculty member to sign the contract with the money that we were getting, the first time I read the full contract. I had to read it myself what that meant and explain it to a faculty member. Maybe a little bit earlier than that, but yeah, I think that was my first experience." (Participant C3)

"I just find that I've followed Brian Lamb's blog for a long time. I went to the Open Knowledge website that UBC has. I read Creative Commons, trying to understand what the differences are with copyrights when I was trying to teach a course on the use of technology for education, talking to people, reading the fine print on contracts that were open source, and the continuous learning." (Participant C3)

A university faculty member had a similar experience by learning about OER through immersion in an OPDF project. She recalled,

"I'm pretty sure that it was through the OPDF program. I think that we had in mind something and we didn't know if it would be online. Our initial vision was of a series of blended professional development workshops that would be partially offered on site in different communities across the province, and then with the gaps filled in from an online platform. And that was learning mostly from the experience of Royal Roads, from our collaborator from Royal Roads, which is more engaged in those kinds of – not the professional development so much, but blended learning kind of approaches." (Participant RU3)

"And then just a search for sources of support for this kind of a thing led to the OPDF. So we stuck on that language, and we said, 'Huh,

okay, what does that mean?' And we said, 'That sounds fine to us'." (Participant RU3)

Other interview participants took some formal training on open educational resources and open practices. A university faculty member and instructional developer related his experience about learning about OER.

"I first learned about the notion of open educational resources when I was a principal at a high school. I lived in China for five years, and when I moved back to Canada I took a job as a principal in a Northern BC high school, and I soon became a vice principal of the Distributed Learning School at the time in BC when the DL element of the province's offering was diversifying quickly. At the time there was a unit – I think they're still around – called Open School BC. And something that soon evolved after that called Learn Now BC." (Participant RU2)

It's all been done through my own professional development activities as a faculty member here and working with the Centre for Teaching, Learning and Technology (CTLT). So it's all been through professional development." (Participant RU2)

Another pathway to learning about open practices and OER concepts was provided through colleague networks and local meetings and workshops. A university faculty member described one pathway to learning about OER concepts,

"We had people surrounding us who had a high degree of knowledge of technology, and we often had sharing sessions where they would – we had meetings where they each shared something that was really innovative, neat, whatever. Sometimes that was the most important part of the meeting, as far as I was concerned. – So you'd pick up on what they were working with, or what was really – what they'd found that was absolutely incredible, or whatever, just through that sharing, and start some synergies through that kind of a process." (Participant UI3)

"But I don't remember seeing any courses, and I may not have – I probably missed them initially, thinking back to, say, five, ten years ago. Now there are many courses, and then sometimes you just can't make them fit. You know, you can't add more. And I seem to think I had enough people around me who had some sense of what was going on." (Participant UI3)

According to some interview participants a shift to openness and OER use in post-secondary institutions will require senior management support for strategic actions. They outlined their views in example quotations that follow.

"I think if you really wanted to shift an organization to orient more towards Open, I think it'd have to be multi-strategic. I mean I think you'd have to have – you'd have to have signals from the top. I think you'd have to develop policy around it. I think you'd have to build in some incentives for faculty to go in that direction, 'cause at the moment from what I can see there's no consequences for or rewards for lowering student price or you know what students have to pay. I think it'd have to be integrated into the training. I think you'd have to come at it from many different directions. I mean I think you're talking about a culture shift. I think it'd have to come from senior management that look at OER first before and a policy in the direction of eliminating course packs. I mean 'cause I think that's sort of symptomatic or symbolic of the attitudes of the culture, and so I think if you took that piece and tried to shift it, it would least – it would cause some discussion." (Participant C4)

"So there has to be something else. Either deans or heads of departments have to be fully supportive of this kind of stuff, so that they put a little note when you are going for promotion that this is valued between the faculty, and that these people have been encouraged and that they did a good job, assuming that they did a good job in terms of developing this." (Participant RU4)

"So, we did have a project launch here, and it was pretty successful. We had the associate VP and Deans and Chairs, and others who were aware of the project and aware of the workshops, and the showcases that kind of led to the project being developed. And again, our purpose there was just to create profile, and try to get people thinking more about it." (Participant RU6)

A university faculty member found a way to bring focus and credibility to her work with open resources by winning recognition through an awards program that also supported her tenure application. She set an example on campus for the potential of using open resources for teaching and professional growth.

"What did figure in and I was aware of that are awards. So I kind of stumbled in the first award. I got an award because somebody thought what I was doing was innovative and I got one award. Then we found ways of applying for other awards as a team. So I had several of them on my CV, either for me personally or for my team, when I applied for tenure."

"So having awards on your tenure application, CV, was really valued by my institution. The simple list of, "I developed all of these resources," didn't count for much, but awards, especially because some of them were Canadian or international, that stood for something."

"So if you can find a way, I guess, to put the value on something that you are developing which is new and different from what your institution already has in its policy, that might be the way to go, to kind of make it count. It's not enough just to innovate. You also have to bring that innovation, I guess, through policies into the existing assessment wherever you are." (Participant RU4)

Professional support through targeted marketing, training and information campaigns associated with open practices, open licensing and OER were ideas mentioned by a number of interview participants. Some examples follow.

"Well, I'm interested in the fact of where maybe pockets, maybe even here in BC, of departments, faculties, etc. are really utilizing these and having great success. So again, I don't know that I'm close enough, but I'm not even sort of seeing that showcase. Then when we look and we say okay places like MIT or wherever are doing these amazing things, well really how is that playing out? What really is the story there?" (Participant UI1)

"I mean, there are sectors and there are groups within BC that are steadfast advocates of that approach, but if we saw from our political leadership, so from our Ministry of Advanced Ed, and I think also the Ministry of Education in the K to 12 sector, certainly in the high school, certainly some meaningful examples would speak to instructors certainly of undergraduate programs, of there's more than one way to gain profile and reputation as a researcher and as an educator." (Participant RU2)

"There could be some actually compelling stories that could be assembled. And when I say stories, there are all sorts of methods, I guess you could say. Methods that would take advantage of narrative and different types of narrative that can be built in online spaces. I think that could grab attention. And I'm not necessarily saying that some agency or group should become a producer of viral videos, but I think that it would really help if there were a few anyway." (Participant RU2)

"And I think there are lots of stories about how open online experience in educational experiences can be a significant part of personalized learning but I didn't see those. And I thought it could have started there, and certainly there are stories in higher-ed within Western

Canada that could be celebrated, but I think in order to gain real traction with the public, you need to have administrators in senior positions in the government sharing those stories and using them as part of the press releases.” (Participant RU2)

“So I think if they saw some of those reputational pieces being amplified, some of the participation in open experiences, whether that be textbooks or whether that be resources or scholarly activity, it would go a long way in moving that piece forward.” (Participant RU2)

Some interview participants made the case for targeted, discipline-based training about open practices and open educational resources. There was also a suggestion of working with articulation committees. Some example quotations from interview participants provided further thoughts on the need for training.

“I think I was aware of Creative Commons, but really it was our experience with BCcampus that really made us understand the value of it. So it was being required by BCcampus to put it out there, for me. Really hit it home how important that was. So yeah, it was.” (Participant UI5)

“... we learned it on the fly. We didn’t know. I mean, BCcampus told us stuff, and again, I just became more and more aware what to look for. Right? And, how to use these things. I think, again, there’s so much material out there, and there is this philosophy of sharing these days, but it can be still hard if you’re looking for something in a particular area, it can be still hard to find it. Right?” (Participant UI5)

“So I think training about sharable resources and how to find them in just the general sense, and how to use them, and what you can and can’t do, is useful. I also think in the future, if there were more discipline-targeted things, it would be—it would probably be a really good way to get buy in. And I don’t mean just chemistry. How about science? How about arts? How about law? That would be a really good way to get people to be excited and interested.” (Participant UI5)

“I think just a lot of educators aren’t aware of how to find material. When something is licensed under Creative Commons, what does that mean? And also, if you take it and you add to it, if you modify it, that you have a responsibility to put it back. I think that’s something people don’t know. They really don’t, because a lot of times if you’re looking for something, you’re doing it at the last minute. You’re trying to find something you can share for your students, so you think, ‘Hey. That figure would be really good if it was paired with that.’ Well, you should tell other people that that would be really good if it was paired with that.” (Participant UI5)

A university instructor emphasized the idea of working with provincial curriculum groups.

"I mean I think it's probably an interesting place to look at faculty needs provincially as curriculum groups. So that's just something that comes to mind, and again I'm a little bit removed from all this but that seems to me a place where if there was a fairly easy, self explanatory step one-step two, let's play with this kind of approach, that introducing it to people in those areas with their colleagues sitting around, they're looking at curriculum from a provincial perspective, that maybe that would be a start." (Participant UI1)

Another university instructor and department coordinator commented on the potential interest in an OER training program for his discipline group.

"...instructors that are writing texts—and there are a few in our discipline that are putting together course materials – it think the opposite would be true. There would probably be strong interest. I think more instructors are interested are just interested in clear, concise summaries of licensing and copyright requirements: 'Hey, this is what you can do. This is what we encourage you to do. These are the things you have to guard against. Here's where you might be over the line.' (the *Reader's Digest* summary rather than the detailed information in a workshop setting.) (Participant UI6)

But, an organization like BCcampus and or others have a real responsibility I think these days to support colleges and universities (and the instructors and students) to know where the information is and know how best to use the online learning environment. I'm sure you're doing that in many ways. That's a broad statement, but I certainly know from the perspective where I'm coming from that an agency that is seen to be neutral, and that is seen to be a specialist in the area, and is respected in terms of its coordination and support role, can make a big difference." (Participant UI6)

### **5.2.8. Quality Assurance**

Quality assurance has been highlighted in the literature as a potential issue associated with OER adoption and use. Participants in this research study also expressed their thoughts about quality, and quality assurance frameworks, and their role facilitating the use of OER by post-secondary programs and instructors.

Interview participants noted that quality assurance (Q/A) is a factor in the potential for OER use, but for many instructors the process for evaluating OER should

follow accepted practices in the academy, with both individual professional reviews and peer review of content and resources as a part of the Q/A process.

“So I think what’s – what happens at my own college is that we have regular math meetings and we get together and we talk about what’s working and what’s not working and that’s sort of our quality assurance thing is peer to peer, colleague to colleague.

“That it’s going to be, if in the development stage that it’s going to be something that meets the actual apparent needs of whatever the subject matter the faculty are trying to develop. So in other words, if it’s to the exact audience of the content that it’s used that it’s actually going to be something that will contribute and be of value.”  
(Participant UI1)

In the case of multi-institutional projects that were a part of the OPDF project some issues arose with respect the standards of rigour across the participants involved in the project. A faculty member who was a project lead commented on her expectations for quality assurance when resources were created.

“Well, peer review was probably done informally in that each instructor would confer with other members in the department. So what I generally was doing, I wasn’t looking at it so much from a content perspective as more academic rigour, and also looking at what we submitted to BCcampus. If I was to pick out this course, what would I need in order to be able to at least have a good shot of putting it on – you know, offering it? So for example, I insisted the faculty provide grading rubrics, for example, for all the assignments. You know, the assignments were very explicit as to what they wanted. Not that that couldn’t be changed, but some of them I found came up with this kind of vague, “Well, we’ll sort of do this.” Well, okay; well, what does “this” look like? And again, just looked more from a consistency perspective; I just, again, felt that if it was an upper level courses, then the learning outcomes needed to be higher level, so did the assignments—that type of thing. So that’s where I probably put a lot of my energy. Mine was more from the academic aspect, not the content, as much.” (Participant C2)

The project leader quoted above also had strong feelings about a need for high expectations and a quality assurance framework for publicly funded projects. Her frustration is evident in the quotes that follow.

“I just felt that the level of academic rigour in courses literally went from A to Z. There was I’d say three instructors who developed courses, knew exactly how to structure them. The learning outcomes

were very explicit. They were higher level. The assignments and so on correlated with that. The learning outcomes were integrated into various activities that were within the course. Others I thought, 'This looks more like a first year course,' so then it would be going back and back and back to the instructor saying, 'No, this isn't good enough. This isn't third level.'" (Participant C2)

"I mean I found it interesting that BCcampus also trusted, if you like, that we were going to do a quality job. I found it was interesting that there weren't any further checks and balances, I guess, as to the quality of what was being put out there for the money, and it's public money, so there needs to be accountability." (Participant C2)

"I often hear from faculty "academic freedom." And so whether people feel that they shouldn't be pigeonholed into a certain structure—I don't know, actually. My background is working in health care, so I'm very used to working from a quality assurance perspective of having standards, of having criteria, outlined expectations." (Participant C2)

Following the thread on design quality in the building of open resources locally, a participant provided her thoughts about using existing open resources. She believed that available resources from an institution where instructional design was a focus and a core value would make her selection and evaluation process more straightforward. Knowing the instructional design capabilities of the organization offering OER resources gave her confidence about the quality of the resources being offered.

"And then the HR courses from Athabasca, and the reason the reason the HR courses from Athabasca are so good for us is because they've been designed. They're not a bunch of crap with some lectures. There's been an instructional designer who's looked at them and built those, and they're perfect, because they've been designed. Because getting the content is like, whatever, but getting designed content is like a win." (Participant UI4)

In referencing existing open resources available on the Internet, an academic dean noted that peer review and close professional scrutiny should be a part of an intentional Q/A process when instructors and institutions choose to use or remix available open resources. Her thoughts included the use of formal review processes and software tools and, she referenced a tool that she had designed with other researchers for a previous learning object project.

"Now one of the things that is happening is there is so much open and so much out there it's making it even harder to decide what's good

and what's bad. So if I have to go and decide which of the open things I'm going to use, I have to have a lot of critical analysis and sometimes it might take me more time than sometimes developing myself, if I don't really know what I'm looking for.

"Of course, again, I would go back to my LORI instrument (Nesbitt, Belfer & Leacock, 2003). If somebody came and reviewed those things and told me, 'This is the top-notch,' then I wouldn't have to do those reviews, and I wouldn't have to check all those things out, and knowing who's writing them, right, critically analyzing them."

"It's almost like a peer review. You need a peer review of those materials. We started with learning objects, and people that come and review a learning object and say, 'Five for context and six for accessibility and ten for interactivity.' So when I see 100 of them I know I can verify the top five. I don't have to go again through the 100 of them." (Participant C3)

This participant also referenced the opportunities of using Web 2.0 social tools to make peer review of open education resources materials somewhat more accessible than the technical system LORI that she referenced from her research work.

"Well, I think that if they can have it for learning objects, I mean some cases we're smaller and maybe the same size as many of the things that are open right now. They don't have it right now. Web 2.0 tools are amazing and you can do a like and a poke and the dislike very easily, and you can say, 'I like this.' That could be very valuable. Star-rating system. Yeah, Web 2.0 could be a great tool, right. The key about the rating system, I need more like an Amazon, not just peer review." (Participant C3)

A university faculty member noted that the quality criterion is of paramount importance in academic institutions, especially in a system in which program and course articulation matters so much. And as such quality assurance may present a high barrier for OER to clear, given the implications across an articulated academic system.

"They would need to see the quality of some of those OER resources. They would need to know that others in other provinces, states, are accessing some of those and enhancing the quality of the learning.

"My sense is that faculty members are very strongly committed to the quality of their teaching, but they sometimes don't know all of the options that are available for them."

"The quality criterion is huge as well, but, in fact, it can be repressive for change, because the articulation system assumes that English 120 or whatever will be taught this way, with these resources, oftentimes, for the next five or seven or ten years. So that's a tension; that's a problem." (Participant UI3)

This is an important point. Should the use of OERs lead to a homogenization of the post-secondary system, a process in which institutions and departments or programs lose their identities?

A university teaching and learning centre leader talked about how her team approached resource selection and some of her perceptions of the established practices in the institution. For instance, she referred to the common perception that proprietary publisher-created materials would be of higher quality.

"All right, so the reuse of the educational resources. So part of this is tied up with copyright issues. So it'd be nice to say everybody just automatically goes to Creative Commons, does a search, da-da-dah, but that's not how it really works. They really start – and I'm thinking about both my SMEs (Subject Matter Experts) and my instructional designers. They start with stuff that's in the proprietary domain because there's a perception real or not that they're easier to find and they're higher quality. " (Participant UI2)

Other faculty members talked about quality in terms of sustainability. Many interesting and useful resources exist on the Internet, but some are fleeting. OER resources on the Internet exist for periods of time and then disappear for no apparent reasons, as one faculty member talked about when she outlined the quality assurance risk associated with linking to apparently useful open resources that are sometimes gone when students choose to use them.

"In other words, if I'm going to put something out on my website, and say, 'In this two weeks, you go do this. 'Cause then we're going to talk about it.' I have to know that it's going exist. So knowing—there's a lot of stuff that's there one day, and gone the next, and some heart-breaking that it's gone, because it was really, really good. That's the nature of the beast when you're finding educational content that has been just put out there by an individual." (Participant UI5)

She went on to note a potential remedy to this situation, the creation and maintenance of curated collections of open resources.

"A lot of times, that's the kind of stuff that I find. Sometimes it's downloadable, but not always. A lot of times it's something that's out there on the web, and you're using it. The best ones are the ones that, again, are supported by an institute, or an educational institution or something like BCcampus. You know, they're there. They're not just me and my—from my campus sticking it out there. They're part of a collection. Those are the ones that tend to stick around more."  
(Participant UI5)

An extension to the discussion of curated collections of open resources included a suggestion of the role of professional communities of practice in helping to identify and curate resources from a quality assurance perspective. A college instructor described the problem associated with Internet-based open resources, and she also outlined a potential solution.

"I guess sometimes I have concerns about the sheer numbers of – I always say to my students, 'You have to be' – in ESL now there's such a plethora of stuff out there of materials out there and then at the click of a button and for my students and even to a certain extent for myself, it's finding the quality products, the quality stuff, and I say, 'Be very careful.'"

"And a lot of my students—they will use resources, and it just happened to be the first page that they clicked on Google and it's 'Ask about ESL.com' or whatever and the quality is terrible. There are mistakes in it. So those are some concerns I guess. I don't know if this is relevant, but it would be quality control, I guess, is a concern for me for all these open resources that they have gone through some kind of process that actually looked at how worthy they are."

"Well, I would like to think, I guess, from people in the field, from people that I trust, from other institutions that I trust have looked at something. So this is where I guess it might – again, it would be useful to have best practices, groups perhaps that would get together and look at what is out there and what is good and what is absolute rubbish 'cause there's a lot of stuff out there that you really don't want to touch, but it takes time to sift through it. "This is good. This is not good." (Participant C5)

A university faculty member extended the idea of a quality assurance framework around online and open resources, but he also offered a cautionary opinion about imposing too many restrictions or policies on the work of academics who were still trying to figure out how to best work in the online space, and he worried about the actual benefit of imposing Q/A structures or policies.

"Faculty, departments. They're still really trying to figure out how they're going to fit in and how they're going to move forward with that. Some of them are just taking the stance that, 'We're going to make it mandatory that every program have an online component, but without any quality assurance.' And you've got other programs that are saying, 'We're going to do what we need to do.'"

"The only policies I can see of being of value would be the ones that would be to maintain a level of quality in the resources; manufacturing some kind of authoritative shell or framework around this kind of resource. I honestly can't see many of the practical benefits for it. I can see more things going wrong." (Participant RU7)

Another participant had a position on policies and their relationship to quality assurance, again indicating that the use of OER is in a formative state and that this is a transition period for higher education in which many questions will be asked about how we choose or build resources and the role that OER can potentially play.

"I think policies in terms of what kind of content we put in to our course, what extent do we look for—I think basically policy saying that we want to minimize the use of proprietary resources and maximize the use of open resources. And the problem there is that there are a lot of very good quality proprietary resources. Accounting textbooks that offer exam banks, well, I haven't yet seen OER that would offer that level of quality." (Participant UI7)

He went on to say that in his organization, convincing instructional designers to select open resources to support a course will take negotiation.

"That's very correct. I think you rephrased it very well. So I would agree that it's a positioning and branding question in terms of the perceived quality of the resources."

"But for instructional designers, too, there's a certain point where they feel very unhappy about including an open resource, even though overall it might be – it'll carry the point that you're trying to make, do the job that you want it do. And that's something that I think maybe needs to possibly change over time, because you're not going to find OER that are perfect. Very rarely will that happen. So that's something I think will take some thinking." (Participant UI7)

### **5.2.9. Technology Factors**

Using the literature review as a reference point, technological determinism was a theme explored with the interview participants. However, technological determinism did not seem to appear in many of the interview responses, and in fact most of the responses from interview participants had to do with the use of learning management systems and factors that either enabled or inhibited their use. In addition, there was discussion of innovation sandboxes, technical infrastructure that could be used by faculty to explore new technologies in a learning context. Some interview participants mentioned digital libraries (repositories) of open resources as a component of technical infrastructure associated with OER. Another issue raised was privacy, and in particular privacy issues associated with technical services and the ability of BC faculty to use free or open Internet services (“cloud services”) with their students if those cloud services were hosted on servers that were outside Canada, and especially in the United States.

Some examples of technical factors, and some that interrelate, are noted in the examples that follow in quotations from transcripts of interviews. The first deals with the need for an “innovation sandbox,” a separate experimental space where instructors can design and test new applications, but also raises the issue of privacy as a related factor. This particular college instructor has been using an experimental cloud-based Internet service supporting open source software and OER mathematics resources, but was unsure about using it with his students and colleagues because the server resided outside of Canada.

“Privacy is an issue. So if we could—if you guys could find a little bit of room on a server somewhere at BCcampus and then—to allow the innovators, early adopters to play a bit and learn it, and we in turn can start to connect with our colleagues and say, ‘Hey look at this, this is really cool. Look what we can do; we can take stuff that you’ve already created in a few moments it will be here. And there are people around the world who are collaborating on it’.” (Participant C1)

“Yeah. In the beginning I was told I was definitely not allowed to use Facebook, and yet it wasn’t only a few months later that we had a conference at our college where they brought in an expert and guess what he was advocating for us? So the college is confused about all of this Patriot Act stuff and everything. But the whole nature of OER is it doesn’t stop at borders, right?” (Participant C1)

A number of interview participants raised the issue of the need for clarity about privacy matters in a BC context, with some seeing it as confusing and potentially a barrier to OER use, and others seeing an opportunity both for creative solutions as well as a learning opportunity with students about online identity matters. The following quoted extracts present some examples, with the first stating the problem clearly, and asking whether privacy legislation runs counter to open practices, and then providing an example of keeping open materials separate from any personally identifiable information.

"I think it's the student data piece that you know there's a privacy legislation. The requirement legally to protect that data seems to me – I haven't thought about this deeply but it seems to run counter to open.

"Just in terms of I mean we get... outside parties that want to look at a course for completely legitimate reasons and I have to say well, no, right. [laughter] I'm going have to pull the content out and put it somewhere so you can look at it because you know you have to protect student data and so that's a barrier." (Participant C4)

Other interview participants took different approaches. One suggested that there were some workarounds to privacy issues that faculty were using, but that no explicit policy yet existed on campus with respect to privacy in using open source course delivery software or related open resources. One workaround using pseudonyms was cited.

"...with regards to open courses that may happen in *WordPress*, their instructors are aware of FIPPA rules with regard to student identity online, and instructors are encouraged to foster constructive student practices with regards to presenting themselves online. I know a couple of cases where instructors have encouraged students to use pseudonyms that will be known within the class but not necessarily known by the public. So those types of conversations go on and sort of practices, but no policies." (Participant RU2)

A college faculty member talked about open resources for professional development and her institution's use of cloud services as an innovation.

"I do believe that if we talk about faculty development materials, I'll answer the question in terms of usage of materials that have been created outside the college and used here. I think our use of the e-mail system, that it's in the cloud in the United States shows a little bit in the way of how progressive (our college) is in terms of openness to

the cloud and sharing open resources not just among Canadian creative commons, but U.S. creative commons. So we've moved a long way in (our college) to make ourselves a little bit more open to some of those ideas, I would say, and maybe to being a little bit easier for us than some more structured universities or colleges." – Participant C3

At one university an interview participant commented that moving the OER agenda forward would be difficult. He compared the effort it had taken to get some measure of cloud-based service available on the campus, in light of privacy legislation and related it to the effort that would be needed to move the OER opportunity ahead as well, he reckoned it would take a "monumental" effort.

"And it's taken us just two years to navigate the quagmire of FIPPA, where we finally got to the point where we can get a statement from our privacy office to say, "You can use Cloud Technologies under these circumstances." It took us two years of just pushing, and pushing, and pushing. So, to me it almost seems that the open education movement—and I kind of see it as a movement.

"It has a real social background to it. It seems almost monumental in this environment. This particular university has a very small town mentality about education, and some of the evolutions that's going on in the education world haven't really touched here..." (Participant RU7)

While this participant's comments about OER and barriers to use were indirectly related to privacy and technical issues, the comparison itself demonstrates that faculty members, instructors and staff are dealing with many intersecting issues simultaneously as they come to terms with the practices, technical structures, and the policies that may be required to operate large-scale online learning programs and services.

Interview participants also mentioned digital libraries of open resources, often called repositories, in the context of technological factors that affect OER use. BCcampus has operated the *Shareable Online Learning Repository (SOL\*R)* since 2003. It is the digital library that hosts all open resources that were produced by projects that received funds from the OPDF. The idea of SOL\*R was to host all open resources created in BC so that faculty and instructors could search for openly licensed materials to use in their existing course/s or when planning a new course.

A college instructor cited the ideal associated with OER repositories as a technological structure that could enable widespread sharing and improvement of open educational resources.

“The support for Adult Learning is quite distributed so it was an understanding that the resources that we created would be available in a repository, that the organizations could take them and use them and improve them and that sharing would take place, and I think what really appealed to me was the potential building of capacity like that on the ground.”

“You know I don’t know if I can actually pinpoint when I became aware of Open Resources, because before working as a literacy coordinator I had worked in online learning and so had gone through – I can’t remember what timeframe it was—you know a lot of discussion around repositories and sharing and you know revision and improvements, so I mean when was Merlot? (MERLOT, 2013) When did that kind of start up?” (Participant C4)

A university participant cited an example of OER reuse in action and what the development team tried to achieve with resources taken from the SOL\*R repository.

“My involvement took place over about the past year and a half and had to do with the—with an event management program in the tourism discipline. And it—actually what it involved was taking five courses that had already been developed through the OPDF and taking them out of the repository and updating them for currency and repurposing and focusing them.”

“We try to use – develop appropriate types of media where – whether it’s video or animations or other types of media that will enhance the comprehensibility or the usability of the content.” (Participant UI7)

However, other participants noted that even though a repository exists, this does not mean that instructors will use it to search for resources or ideas.

“I honestly don’t know. I’d never heard of SOL\*R as an instructor beforehand. I know even when we went online back in, what, 2011, with 14 of our courses, no one ever kind of directed me to say, ‘Hey, have a look and see if there’s something else there.’ I think it might almost involve somebody going from campus to campus, and actually more like a show-and-tell, telling people what it is, what’s there. Because I know there’s a huge databank there; I actually had somebody else look through it for me, initially, and say, ‘Look, here’s a couple of courses I think where probably the template looks good.’ I

mean I just found it overwhelming, particularly coming in as somebody brand new, not even knowing about this.” (Participant C2)

“I don’t think we utilized the repository, nor do I think is it probably provincially utilized anywhere near as it could be.” (Participant UI1)

A university faculty member stated that it would be better to push OER ideas and resources to instructors, rather than waiting for them to search and find them.

“It’s a matter of pushing to the instructor, because the instructors haven’t got the resources to pull, to go out and search. I mean even repositories like MERLOT, I know they are there. I’m on their newsletters. Do I go out and search and browse? No. I’m not prone to doing that, even though I know that that’s possibly the way to go.” (Participant RU1)

He went on to relate the search-and-find strategy associated with OER repositories to peer review and collegial trust issues, quality assurance, and issues of workload and effort.

“There is one resource that I know of that’s very, very attractive, but it’s a little bit more on the electrical engineering side, and that’s the *Connexions* out of Rice University, which I know has a very high guaranteed quality. I think that might be one of the aspects. When you’re out searching in sort of an Internet style of thinking, the likelihood of landing luckily on high-quality materials that you trust immediately, because you know the author or because of a reference list that you can recognize or something, likely it is not good enough. Professors just aren’t in that sort of searching mode. They’re in the building and get on with it so that I can get on to my next job type of mode.” (Participant RU1)

One participant noted the role of librarians in her institution to provide lists of repositories that faculty and instructors could use to search for OER.

“And we use the librarian to help us identify repositories and that sort of thing. So I wouldn’t say that’s it institution-wide yet, but it’s been in effect for a couple of years. We have a library page that lists all the open access repositories and that sort of thing that might be relevant to us.” (Participant UI4)

Another university participant spoke about the results of OER searches during his K-12 experience in trying to find useful OER to integrate with courses, and how he updated his knowledge to suit his new situation at a research university.

"And there was a vast collection of resources that had real no – they had no taxonomy - and it was really hard to find resources, and once they were found there was really no system in place to arrange these and share them openly within the province. And to my knowledge, there's still no way to contextualize resources that's vetted by the province that I know of. I've been out of the K-12 sector for a little while."

"But that's how it started, and when I started working for UNBC I started digging around for analogous type of systems in the higher-ed and discovered BCcampus and SOL\*R and just started following the tendrils as I moved along." (Participant RU2)

Other interview participants did use repositories as part of their OER discovery strategy. A college participant was very clear about her strategy of using OER repositories first, because if successful she would not need to write for permission or pay to license resources.

"So my approach for instructional development has not changed. It's just that now I search first other repositories. In the past, I would just search the Web. Now I go to the open repositories first, so I don't even need to write the e-mail for the copyrights. Then if I don't find it, I have to go to the Web and then write the e-mail for copyrights or special requests." (Participant C3)

A university instructional dean spoke about the need at her institution to capitalize on a repository design that could suit the needs of the institution and its staff. She cited a need to sort, store and make accessible media resources in a repository that functioned more like a digital asset management system (DAM), but a system that could also provide for agility and a straightforward and practical user experience.

"We're trying to get a digital asset management system, but where the barrier is with that, because we have like thousands and thousands of terabytes of data of videos, for example, like of all the simulation videos for the last 20 years. So just that alone, the video management is huge."

"But the library is working on a repository kind of system. But it's going to be very much library tagged and library implemented and we have a need almost for more like a folksonomy type of an asset system for other areas of the institution, because yes it's a huge problem, huge. We don't really have a very good management of that at all, of resources."

"I think it would suit the needs of groups in the institution, because it's more – well, it's faster, speed matters. Like it can't be this big laborious meta-tagging process. Three fields max that's it, because that's sort of how people work. And at the end of the day people don't even file their own Word documents, so how are you going to get them to do lots of repository stuff?" (Participant UI4)

A university faculty member commented on her experience with repositories and aside from highlighting somewhat of a mismatch between the level of resources she needed, she also highlighted other technological factors associated with converting from the original resources to a technical format that suited her needs for the learning management system she used.

"And I have looked at the repository. And I haven't found anything else that's particularly useful to me yet in the SOL\*R.... Probably the barrier there – Well, I think a lot of the courses are sort of entry-level courses, and I teach mostly graduate courses. But the other thing is just it's the technological thing. It's the fact that converting them for use by different learning technologies and systems is not as streamlined as I think it needs to be for me to sort of see that as something that I can grab and use, like I could other materials." (Participant RU3)

A university faculty member made the point about a need for discipline-specific repositories and the evolution in thinking that he and his colleagues had been undertaking over the past number of years because they are heavily dependent on Internet-accessible resources in their particular domain of practice.

"But, in essence our job is creating a repository that works. I guess the challenge is defining open resources and everyone will have a slightly different perspective there. But, obviously for the last 10 or 15 years as we've used the Internet more regularly in our working world, there's just been the realization that great learning resources are out there and many have been placed on the Internet so that people can see them, and find them, and use them (and again, in the loosely-defined public domain). And so I've been aware in the this role for the last six years since we started (our database) that there's huge opportunity for finding useful industry-specific resources and putting them together and letting people know about where they are. I think there continues to be a lot of untapped potential to develop and promote a single repository of resources for any given discipline." (Participant UI6)

A university faculty member continued this line of thinking about the creation and maintenance of discipline-specific repositories and lists. He said,

“I used to be using MERLOT quite a bit. And that was very useful. And the different professional groups have lists that I’ll go to. Calico (footnote) used to be a good one. They still are. They have all sorts of lists of tools, as well as research, or even resources that are open access. And mention the *TAPoR* project - good list of tools there. My colleague here just built a wonderful open access repository of reviews of open source and open access sites.” (Participant RU6)

A college faculty member commented that she thought that professional development repositories were a need, but that there already existed many good OER repositories for instructional resources, and she cited a few that she knew. She said,

“And there’s a lot of these professional development courses that you can take, but what would be nice is if there were pieces like I want to take this one, like a library. I want to learn this. I want to learn that. I want to learn that. So, that you would go somewhere and there are webinars or videos and you would just pull it and say, ‘I need to learn this.’ That would be really, really nice – like a library. ... but I mean we have our own SOL\*R repository here in British Columbia, and Washington State has its open course library, and California is building one, The University of Minnesota has one, MIT’s got one.” (Participant C6)

A university participant commented on expansion of the OER repository idea to include collections of open textbooks, including the open textbook program for British Columbia that was announced in October 2012. He suggested that another level of technology infrastructure would be needed for the province and its post-secondary institutions to make use of open resources like open textbooks. He said a project of this scale would require “industrial strength tools.”

“And so that does mean some form of infrastructure. Now whether that needs to be here or – I know this is controversial now, but *Flat World Knowledge* (Flat World Knowledge, 2013) or some other existing publisher, peer review, formatting, printing... platforms that are – and infrastructure that are already in place, and processes that are already established. I think that makes it much more promising.”

“Of course the challenge there is then you start – it’s hard to do that without becoming proprietary. And I know there are open source tools; *WordPress* and others have publishing platforms. Are they ready for

something like this? I don't know yet, but a project of this scale needs industrial strength tools." (Participant UI7)

The use of industrial strength tools has been demonstrated in post-secondary institutions through their adoption of learning management systems (LMS) as a key component of their online learning management and delivery systems for courses. Interview participants were asked about their views on LMSs and their relation and interaction with OER and open pedagogical practices.

One college instructor commented on the changing landscape for LMS use on his campus that had recently migrated from one LMS to another and the effect the move had on his workload and the resources he used for his courses. He said,

"And at that point I was just not willing to convert it, yet again, into a third – and by this time I was starting to get a little bit jaundiced with learning management systems."

"Students were having a hard time getting logged in, the materials were presented in a very sort of sequential approach that didn't allow for that pretesting that I was talking about – guided pre-test, we remediate, we post-test to see that things have been fixed and finally there's even a final where most of their grade comes from. And none of that seemed to be possible in this particular format." (Participant C1)

He then started looking outside the LMS for open resources that could be used with his class and provide links to his students for tutorials from Khan Academy (Khan Academy, 2013)

"But what I really want is I want it like the learning object kind of thing where I don't have to take it as they present it, I want each discrete element – that's where Khan is great. I mean when I get in trouble – when a student emails me and their stuck on, again, fractions for example, I just do a Google K-H-A-N and then the concept and up comes this little video and I send them the link. So you need a classroom where your materials are all there and organized, right?" (Participant C1)

What this participant seemed to be looking for was an LMS that could more effectively integrate OER and allow him to structure his course and lessons in a framework that reflected the pedagogy he had in mind, rather than a framework that was

limited by the structure of the LMS his institution had prescribed for faculty and instructors to use.

Not all instructors interviewed shared similar views on the utility of the LMS in the context of OER, even in the face of changing platforms. A university faculty member provided his perspectives on LMS changes and LMS qualities.

"We've just shifted (the institution) over to the Connect LMS system, and everybody hates it just as much as they hated WebCT Vista not because it doesn't work, but because they have to learn it. It's like the way I felt when I had to shift from using WordPerfect to using Microsoft Word. "I hate it." Well of course I don't really hate it, but I just hate having to do it. So there is all of that overhead from an instructor's point of view.

"I definitely think they are enabling. They make it possible. Without them, we couldn't even think this way. I mean a textbook is even more constraining and we've used them for 100 years."

"But no, they are very much enabling because the content can be updated today for my class that I have at 3:00 today, and I'm going to be doing that, tweaking the questions, enabling or disabling questions that I'm interested in for this term. Next term I might use a different set. We do have to learn to use them, but they unquestionably make it possible." (Participant RU1)

He went on to say that he had hoped that his university had chosen an open source system, because like OER the ability to customize the features of an open LMS would be enabling for the university community.

"I would have very much preferred to see (the institution) go the *Moodle* route, the open source, because I strongly felt that (the institution) had an opportunity to really be leaders in adjusting the way learning management systems operate, if they had access to an open source system which could be operated in a closed and private way by the procedures that have been developed by the Moodle people, if they had been around. I'm talking about being able to add adjustments to the way the students and the instructors interact with the system... I wouldn't have that opportunity with *Blackboard*, but if we had a crew of *Moodle* experts, if we had used our institutions resources to build expertise in the development of these tools instead of paying some commercial outfit, I would have been much more excited about the possibilities of moving forward. As it is, we're stuck in this kind of a step function pattern here. We're stuck with *Blackboard*, and when that evolves we'll have to learn how it evolves,

but we're catching up instead of innovating and pushing the boundaries." (Participant RU1)

Another university participant commented on how open practices were supported in the LMS structures employed at his institution and both the implications and benefits of conducting some educational practices in the open.

"On the open content management system we use *WordPress* for some content development and to develop student learning experiences, and then we use an LMS that has features like the ability to do online tests, they have an online grade book reporting feature and some of those pieces. But there's a real split."

"It's implied that anything that happens within *WordPress* is potentially going to be reused in other institutions. Like somebody could lift it and borrow it without asking, and that's fine. And anything that happens within our Learning Management System is going to be only used once in a semester for a given body of students and will probably never surface again." (Participant RU2)

A college participant believed there was no real effect on OER use related to the LMS that was being used in her institution. She saw the open source LMS that was being used as a technology platform that could handle OER as well as proprietary resources, but she also noted that some licensors of copyright materials worried about the security associated with the LMS. In this case the college participant's remarks suggested that the LMS had some negative consequences on resource handling, but not especially for OER.

"No, I don't think so. Moodle is a very open source management system. I believe that because it's open source everybody can use it. I think it was harder at the beginning with copyright. The people, when you are asking for copyright, really wanted to know that it was a secure system. So the learning management system or where you put that information was a support or detrimental to the copyright that you were asking for and the cost that somebody would put into it."

"Maybe I'm looking at open source too narrowly or how I would use them, but the system that we have allows us to link to whatever we want and to add whatever we want. So I don't exactly see how it could be creating some challenges or more opportunities because of that, but maybe I'm not fully understanding the question." (Participant C3)

The LMS an institution had chosen seemed to have some bearing on interoperability and the flexibility to move content in and out or draw upon multimedia resources. As one university faculty member reported,

“So the interoperability of learning platforms is still a challenge, I think. And (my institution) is, for the moment, using WebCT which is a very kind of Web 1.0 based system. It’s not particularly friendly to swapping in new content and to drawing upon different kinds of multimedia resources. I’ve had trouble.” (Participant RU3)

This faculty member also reported that the LMS had affected her attempt to use an open pedagogy that invited students from outside the institution to participate in course activities. She said,

“And making good use of the fact that it is online so we can get people participating who are far away and otherwise would be unable – it would be cost prohibitive to bring somebody in from Australia. But actually, when it’s online, we can get their participation in a real time and really productive way. But the way in which (my institution) has set up *WebCT* at least makes it difficult for that to happen. So it needs to have more of a direct interface with the Internet and with outside people who are not registered in the course for credit.” (Participant RU3)

She went on to advocate for an open approach to the service mission for her university in reference to massive open online courses (MOOCs) and the opportunity to reach a global audience for the university through open practices.

“And it’s interesting... that the target clients of these MOOC products like *Coursera* are some – are the elite universities. These are not the second tier or the struggling universities. So it kind of sets up a really interesting set of dynamics where the universities that, in the current financial environment in Canada and the United States and England, too, they’re the ones that are feeling like online education is a new kind of way to meet financial requirements and a way to sort of boost budgets when nothing else will. And yet the universities that are being relatively privileged by this current environment are going to start giving them away.” (Participant RU3)

“So... where does that leave universities like (my institution) in terms of creating new financially beneficial online options? I think it means that we need to rethink our strategy, actually. Not that it’s impossible to have both, because students will still want credit. Some students... I think that there is a humanitarian argument to be made for offering resources, education, offering learning opportunities. That builds up

the constituency of people who will eventually want university degrees, right?" (Participant RU3)

A university faculty member associated the open practice inherent in MOOCs as a form of democratization. She said,

"Democratization. I mean clearly that's one of the things. It's opening up possibilities for people who would have had either no or little opportunity, or no willingness to do a campus course, but through the MOOCs, most are—well, they're all offered online. And also clearly cross-border—you know, people accessing them from iPhones in Africa or Europe. We're working with a university in Ghana, and their cell phone is their most used resource for educational materials, which is not how it's viewed here."

"I think there are tremendous values in MOOCs. All of the questions about institutions wanting now to turn them into money-makers; institutions wanting to register the students. They want credit, which means somebody has to decide how you assess 16,000 learners, or however many there were in the massive MOOC that was offered. Do we want to do that? Is that the point of it, or is the idea opening up – education – and then people make choices to go on in a more traditional university environment." (Participant UI3)

This faculty member brought the discussion of LMS back to the fore as she transitioned her comments from MOOCs to LMS migration angst.

"Well, can it? I guess that's why you see these huge wholesale movements of an institution from one LMS to another, and it may not be any better where they've moved, but it's caused a huge amount of effort to move the courses from one LMS to another LMS, and help faculty understand what the differences were, and all the rest of that. I don't know the answers to that. I guess the MOOCs might do that, in terms of offering less rigidity in how online learning is managed."

"Yeah. I know it caused huge amounts of angst. We had Moodle, and then it was moving to another LMS – But every time that happened, I would argue rather than treating it as a major change, identify what is common across both of the learning management systems; identify what people can carry from one to the other, so it's not so frightening. And then just teach what's really different; you know, just clarify the applications that are really different." (Participant UI3)

Her point was that there are few real differences between LMS systems, and educators should consider what features actually needed to be in an online learning environment. Her argument was for lightweight and transparent systems.

“Also, I don’t know if they (LMS) were the best learning environments. It just got too complicated in most cases. It needs that prioritization process of what needs to be there – what’s critical – and not throw everything at it. What is a clean, really elegantly designed space for learning? And only start adding in the rest of the stuff if it’s needed by that course or that kind of learning. It seems to me that you want to get that as a transparent operation so you can get at the learning.”  
(Participant UI3)

Many of the interview participants talked about their experience in using LMSs and they ranged across the issues and benefits cited in the excerpts quoted from selected interview participants. In some cases, participants saw technologies such as LMSs and repositories as systems chosen or implemented by their institutions, and in that sense their comments could be considered commentary on technological determinism. In other cases, faculty and instructors were actively seeking open and alternative solutions through pursuit of innovation sandbox systems, the use of open source software systems like *WordPress* that were within their control to select and use features for themselves. The issue may be as much about how well administrations share decision-making and communicate with faculty as with the characteristics or features of the systems themselves.

Only a few of the interview participants saw technological factors or systems such as LMSs as barriers to their use of OER, and cited privacy and interoperability issues between technical file formats and systems as some of the inhibitors. If anything, the workload issues with LMS adoption and use, and complexities of migration between systems were the dominant technological factors more generally inhibiting experimentation in the online learning space.

### **5.3. Summary**

Table 7 that follows summarizes themes identified from the transcripts and the literature, as well as emergent themes embedded within coded interviews that may

represent new directions or influences on OER adoption and use for the participants interviewed during this study.

**Table 7. Themes identified from the transcripts and the literature, as well as emergent themes revealed through cluster analysis**

Themes derived from the review of literature that were used to guide the semi-structured interview process	Themes derived from the qualitative interview process, data coding and identification of themes	Emergent themes from the discussion of interview data revealed through cluster analysis and thematic grouping
Cultural issues	Academic culture	Collegial trust, especially as it applies to articulation and transfer Collegial trust as it applies to opportunities for peer to peer collaboration
	Educational practices	
	Funding support	Matching funding with partners holding complementary skill sets. That is, using skill sets as a criterion in the grant process
Business rules Policies Localization	Institutional contexts	Accreditation, articulation and transfer. BC has a well-developed articulation and transfer system. It plays a significant role in educational resource selection and use in BC
Instructional design	Instructional design	
	OER concepts and practices	Globalization and new models of practice such as the OER university (OERu) and MOOCs
	Professional support	Marketing OER ideas and values as well as providing intentional training
Quality assurance	Quality assurance	Quality assurance frameworks – referring to the need and desire for quality rubrics for use in OER development processes
Technological determinism	Technology factors	“Sandboxes” and experimental development areas that invite faculty and instructors to experiment with OER

Chapter 6 that follows examines the data in relation to the research questions and seeks to find meaning using the Activity Theory analysis framework.

## **6. Summary and Synthesis of Findings**

Open educational resources (OER) are a recent innovation in post-secondary education. During the 11 years since the announcement of the MIT Open Courseware project in 2002, post-secondary instructors and institutions have become increasingly familiar with the affordances of open content licenses and specifically with the “4Rs” as described by Wiley (2010): the right to reuse, revise, remix and redistribute educational content, using Creative Commons licenses. But the use of OERs in higher education is certainly not a mainstream phenomenon.

This chapter seeks to draw meaning from the data that was collected, coded and reduced for analysis during the course of a study that investigated how individuals in universities and colleges reconciled OER use in the contexts of their educational practices.

The study used a qualitative methodology with phenomenological interviews to gather data from a participant group of 21 educators comprised of faculty members, instructors and instructional developers who had participated as grant recipients in the BCcampus Online Program Development Fund (OPDF). Each of the participants had received grant funds as part of a project that required curriculum materials to be available for reuse using open licenses. The study and its interpretation, therefore, is limited to the experiences of a sample of participants who have worked with open educational resources and licenses in the British Columbia higher education context.

Because of the formative nature of OER use, and open development strategies and practices in BC higher education institutions, the study also sought to explore and understand the contexts in which instructors did their work, the communities of practice in which they were situated, and the tools, traditions, rules and relationships that influenced their practices within the BC post-secondary system.

This chapter outlines the researcher's summary, synthesis and reflections about the data collected and analyzed during the study, and seeks to make meaning of the findings, as well as considering their significance in the BC post-secondary academic context. Finally, the chapter makes suggestions for further research as well as recommendations for policy and training to address the potential growth and refinement of OER practices by faculty and instructors in British Columbia post-secondary settings.

## **6.1. Structure of the Analysis**

What follows is the researcher's interpretation of the data in the context of themes derived from the research interviews, and in relation to the following organizers:

- The initial research questions that were derived from the literature review
- Themes not evident in the literature review that were identified from the interviews and refined during the data clustering process
- Consideration of the data and emergent themes in the context of an Activity Theory framework for analysis

## **6.2. Analysis of Data in Relation to the Research Questions**

The data from this study were intended to address and answer the primary research question, specifically:

*How are faculty and instructors currently implementing OER to support teaching and learning needs within post-secondary educational institutions?*

In addition to the primary research question, seven sub-questions that incorporated themes from the review of literature helped provide the initial structure for the questions for the interview process and subsequent thematic analysis. They were:

*What understandings of “open” practices and open educational resources do faculty and instructors currently hold?*

*What issues of organizational culture are associated with collaboration and sharing of OER among faculty?*

*What quality assurance processes and issues affect the adoption and use of open resources?*

*What practices and issues are entailed in the adaptation of open curriculum materials (OER) or use in specific localized contexts in post secondary institutional settings and programs?*

*What instructional design and development practices and issues are associated with OER development and implementation?*

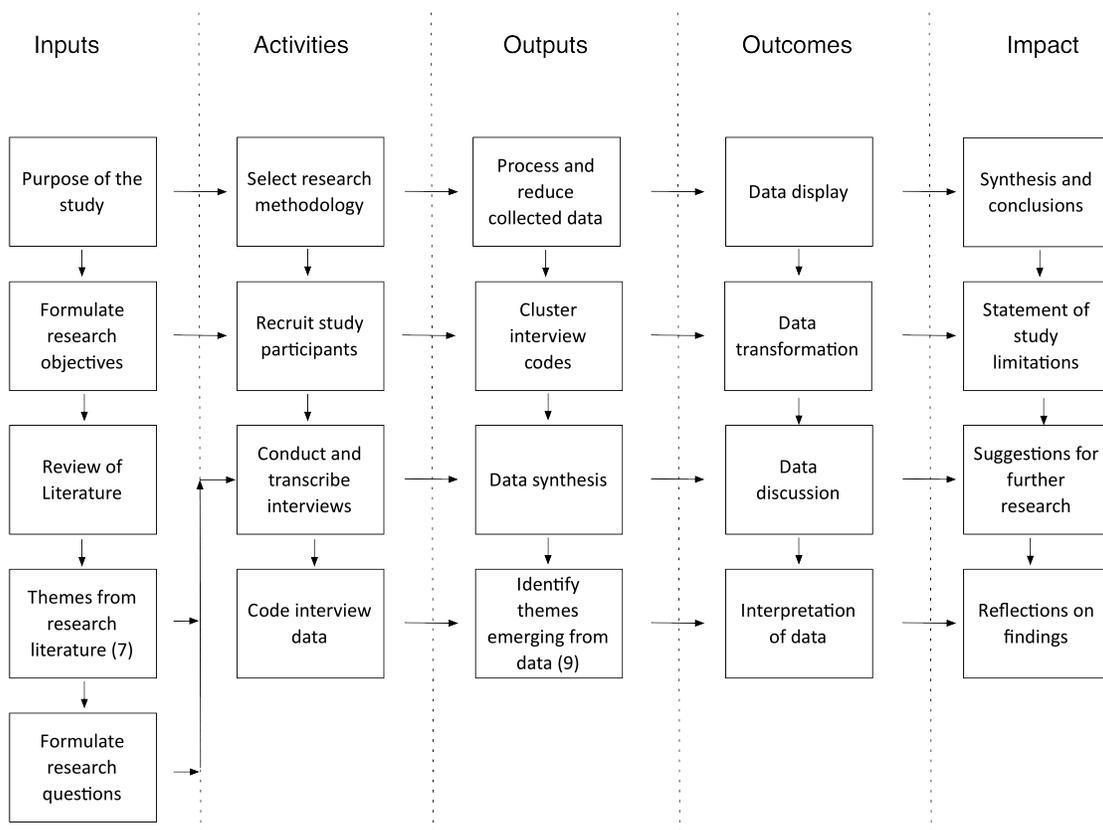
*To what degree does technological determinism, including established technical infrastructures and related practices, affect the potential for OER use in institutional settings?*

*What business rules and policies have been shown to directly affect OER opportunities?*

### **6.3. Logic Model for the Study Used in the Analysis Process**

The logic model for the study is illustrated in Figure 4 below. It outlines the flow of activities for the study, beginning with the initial identification of the research problem and review of the literature, and then moves to the core activities associated with the development of research questions and data collection from recruited participants. It also illustrates the coding and processing of the interview data, the interpretation of the data, and finally the synthesis of findings, conclusions and reflections provided by the researcher.

## Logic Model for the Study



**Figure 4.** *Logic model for the study*

Incorporating an innovation such as OER into existing educational practices and the culture of the academy was a challenge identified in the research literature. The seven themes that were identified initially were used to create semi-structured interview questions. The seven themes included: academic culture, quality assurance, localization requirements, instructional design processes, technological determinism, business models and institutional policies.

In the course of the data reduction process and in the context of participant interviews, the themes were re-categorized to better describe what the interviewer actually recorded and themes generated from the coding process. The themes and their attributes were relabelled and redefined, as outlined in Table 6, in Chapter 5.

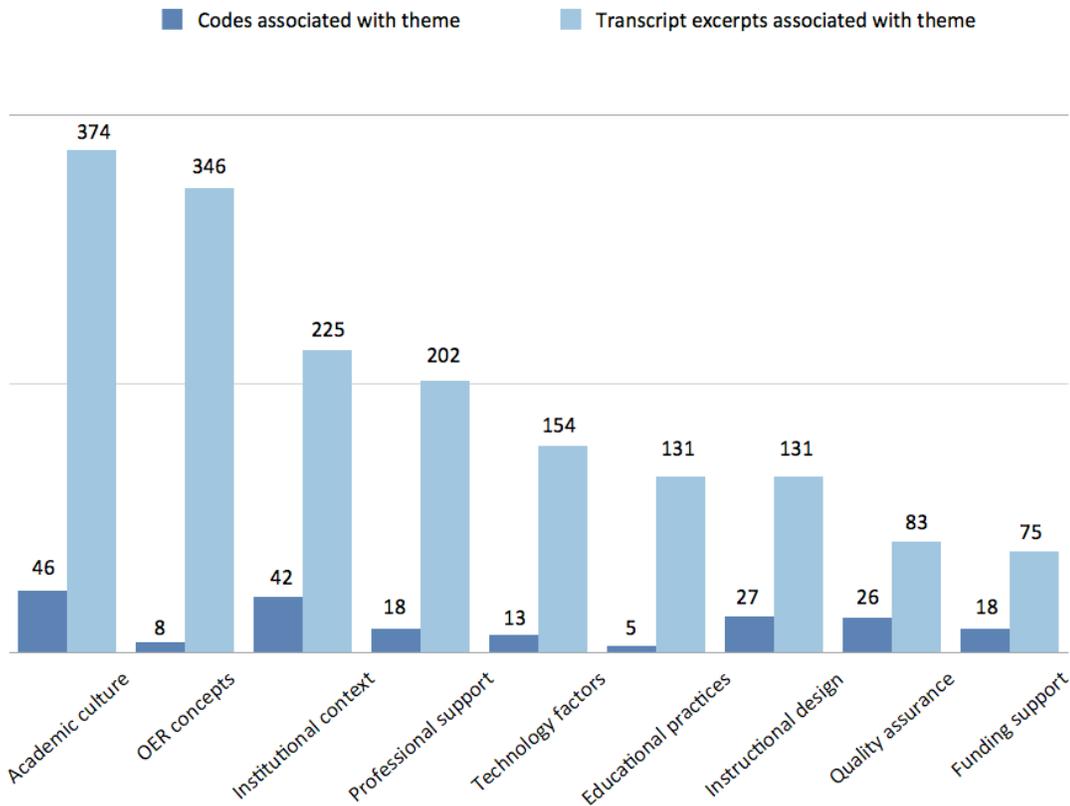
In total, nine themes were identified within the interview data during the coding and theme development phases. These were: academic culture, educational practices, funding support, institutional contexts, instructional design, OER concepts and practices, professional support, quality assurance, and technology factors.

The summary data associated with all themes identified from the clustering of raw data codes produced Figure 5 that follows and shows the distribution of codes and frequency with which themes based on clustered code families were associated with transcript excerpts. This data was derived from the clustering process using the ATLAS.ti software and was illustrated in Figure 3, in Chapter Four and outlined in detail in Appendix G.

Figure 5 below shows the frequency distribution of codes grouped within the nine themes and the aggregate number of transcript excerpts associated with those themes. The figure graphically highlights the themes that were the dominant discussion threads most frequently cited by the interview participants in response to the research questions.

While funding support provided by the OPDF for online curriculum development to produce open-licensed instructional materials was the primary stimulus that attracted faculty and instructors to the OPDF, the funding support theme did not resonate as prominently in interview data as did themes such as academic culture, OER concepts, institutional contexts, and professional support.

It would appear then from the data that a subset of four themes were the primary factors influencing the positioning of OER within the educational practices of the study participants.



**Figure 5.** *Frequency distribution of transcript excerpts associated with themes and codes from the interview data*

## 6.4. Answering the Research Questions in the Context of the Dominant Themes

In answering the primary research question about how faculty and instructors were implementing OER to support teaching and learning needs within post-secondary educational institutions, participants reported successes tempered by individual challenges, as well as challenges that were institutional or systemic in nature. Figure 4 conveys a vivid overall picture of the nine emergent themes and the apparent forces that influence the adoption and use of open educational resources.

Perhaps not surprisingly, academic culture was the theme cited most frequently. Academic culture references the dominant practices of the academy associated with the participants in the study. Research university participants work within a culture that primarily rewards research through its tenure and promotion processes. Participants from the newer BC teaching universities work in settings where research is becoming a larger part of their work lives, but where teaching remains the primary component of the legislated institutional mission. College participants on the other hand work in settings where teaching is the dominant academic focus.

OER creation and use was a new concept for most of the participants in the study. Rather than the ideals of open content, it was the opportunity for innovation and curriculum development support offered by the BCcampus Online Program Development Fund (OPDF) that brought the participants face to face with OER concepts, as well as the grant requirement for open licensing the new content, using either the BC Commons or Creative Commons licensing schemes. In essence, participants who applied for OPDF grants did so pragmatically, from a desire to engage in curriculum development to address local needs or as a potential innovation opportunity, rather than having a theoretical or ideological commitment to OER development. The OER outputs of the process were a collateral benefit not a primary driver.

For all the participants in this study the OPDF itself was the primary stimulus for them to consider an open approach to licensing instructional content as OER, and this isn't surprising given that open licensing of materials developed under the OPDF was a requirement of the grant. Although some of the participants were familiar with open source software, none was actively using open content. For some, even after winning an OPDF grant, the reality of the licensing requirements caused anxious conversations with colleagues, staff and administrators who were more familiar with proprietary approaches to content creation and licensing. This finding gives weight to the notion that OER *per se* does not have solid roots in academic culture. Curriculum development is still a very "craft-like" individualistic or institutionally situated activity. The idea of sharing curriculum materials (educational resources) is still rather foreign—at least in an officially endorsed sense. This finding provides us with a glimpse into something about the culture or social environment of university teaching—it is largely a solitary or solo activity and this

characteristic also applies to curriculum development, at least in the granular, classroom-student-teacher dynamic relationship.

The idea of intellectual property being vested with the faculty, instructors or developers, while requiring an open license was new, and presented challenges that required further discussions and explanations at their institutions in the context of existing practices, policies and academic cultures. It would seem that for the participants involved in the OPDF, their mental models incorporated course and resource material development products as “intellectual property” in a closed or proprietary sense rather than in an openly accessible (open source) or Creative Commons sense. It could be considered ironic in this instance for academics, especially in the sciences and social sciences, who are expected to publish their research in open, peer-reviewed journals. Publishing research is a standard for professional accountability and has high status in terms of academic career paths. However, the work that these same academics do, in terms of their own curriculum development and instructional materials design, is largely “closely” or “privately” held. The question arising from this finding is whether this sort of instructional design work is seen as being idiosyncratic and personalized, with academics viewing the OER and Creative Commons trends as an attempt to “standardize” or hold accountable, their normal instructional practices.

#### **6.4.1. Academic Culture**

Academic culture is often characterized by the drive to create new knowledge. For young faculty members striving to build their reputations in the academic community, creating new knowledge and demonstrating a high regard for intellectual property are primary tenets of the academic world. Citing the intellectual (IP) property of others as well as creating one’s own are core practices of the academy. Creating new knowledge and IP are also closely associated with the tenure and promotion practices in universities.

In this context, OERs represented a twist in the tenure and promotion practices of university academic culture. Some faculty members interviewed had demonstrated how their teaching and research could be linked in interesting ways using OER. The example of a university faculty member who won teaching awards for her work both

institutionally and nationally conveys a clear message that an academic reputation can be built in new ways, including open resource development practices and specifically through making high quality teaching materials available for reuse within a research network, as well as globally, using Creative Commons (CC) licenses. In this way, OER provided this faculty member with a new way to express intellectual productivity by distributing instructional materials widely, providing rights for reuse, remixing and redistribution, and as a consequence enhancing her reputation as both a researcher and teacher.

For instructors in college settings the primary mission is teaching, and there is an existing history of collaboration among some instructors in colleges sharing instructional content among departments and across institutions. For these instructors, OER were seen as a natural extension of an existing practice of collaborating with peers, often through articulation committees that reviewed course materials and syllabi with a view to facilitating articulation and transfer for students across the college and university sectors. But even within this existing practice, the OPDF and OER concepts presented new challenges to the conventional practices of reviewing and adopting resources.

The academic culture revealed in interviews with college instructors pointed out a clear need for a validation of OER within articulation committees, to ensure congruence with existing course syllabi, as well as alignment with quality assurance processes in use. In particular, the academic culture of colleges could be interpreted as deferential with respect to universities in the articulation process, especially with university-transfer courses. Keeping the best interests of their students in mind, college instructors would find it challenging to recommend an OER for university transfer courses, unless there was agreement with the university members of the articulation committee that the OER resource would be acceptable and meet transfer requirements. In effect, universities exercise significant control over curriculum development and instructional design in the colleges, especially for courses that transfer to universities. What is not clear from the study's findings is how "granular" or detailed the university influence is. For example, do the university members on the articulation committees in Biology, for example, exercise their control at the level of course goals and outcomes or does their influence extend to specifics of curriculum such as learning activities and experiences. If so, then anyone

wishing to develop an OER will have to face review of those specifics by the articulation committees—possibly an inhibitor for some.

The nature of articulation and transfer processes and their effects on the potential for the use of OER in the BC post-secondary system was considered by the researcher to be a significant finding of this study. British Columbia has a well-known and well-established system of articulation committees. A number of the interview participants referenced the need for articulation committees to become familiar with OER and their properties. Getting buy-in from articulation committees to review and approve specific OER was seen as a key requirement for the mainstreaming of OER (and by extension open textbooks), as resources that could be considered equivalent to existing publisher-supplied instructional resources currently in use in most courses.

One teaching university participant cited her approach to familiarizing a science articulation committee to a new open resource that she and a colleague had created. They took a deliberate approach to presenting the new material as a pilot program and acquainted the articulation committee with it at an early stage of development. They also conducted an evaluation of the pilot program and presented their findings to the articulation committee. By scaffolding a process for establishing the validity for the new OER in their discipline these teaching university faculty members formalized their interaction with the articulation committee. They demonstrated the potential value of OER science resources through an approach that used a pedagogical research component, that also supported their academic goals for teaching and research. Their model serves as a potential practice example for other faculty members and instructors who wish to validate OER for foundation courses that might need approval or support from articulation committees. A similar process might work for college instructors or trades instructors who need articulation committee support for their use of OER in courses that form a part of articulation agreements.

Other interview participants highlighted their discussions with academic departments and articulation committees, pointing out both the need to acquaint these committees with OER concepts as well as to demonstrate the academic quality of OER materials, or both, in the various disciplines represented in the post-secondary sector.

Other participants pointed to a similar need to acquaint senior academic administrators with the attributes and qualities of OER.

#### **6.4.2. OER Concepts and Practices**

A frequently represented theme within the interview data was OER concepts (and practices). It was not a surprise to the researcher that the grant funding of the OPDF program drew many applicants, the majority of whom had no experience with the concepts of OER or the development and implementation processes that would be required to implement open resources in their own practices within institutions or departments. The OPDF was conceived as an incentive program designed to maximize a government investment in online programs and courses by encouraging collaboration and the reuse and re-engineering (remixing) of OER to suit the specific needs of instructors, and their courses or programs. In a sense, the OPDF was a targeted campaign to introduce an educational innovation with an incentive. It was successful in attracting participation, and over its 10 years of operation, the BC Ministry of Advanced Education (AVED) targeted \$10M to the OPDF. More recently, AVED has invested an initial \$1M in an open textbook program for British Columbia higher education.

For some interview participants the spirit of openness was seen as a wonderful value to communicate through the creation and distribution of resources that colleagues and students could freely use. In a few cases, open source software and the ability to freely reuse and share software code, was a helpful analogy that enabled instructors to better understand the OER concept. They saw OER as providing the potential for colleagues to build and improve instructional content together, and to exercise a greater degree of control than they could with closed proprietary publisher-created resources. For these instructors, the OER was a part of a new movement that was emerging within higher education for which they shared some affinity. And, they were willing to participate in OER development processes where there was formalized sharing and the “ownership” and maintenance of resources was distributed across a colleague network.

For others the OPDF was a first tentative experience in the OER domain. One faculty member called the BC Commons license “a palatable first step” that faculty could digest. Although the BC Commons license was not a fully open license (it was limited to

reuse within the BC post-secondary sector), the BC Commons license could more readily be understood by faculty members, who would likely hold the view that government-funded instructional resources could (or should) be available to other institutions within the BC post-secondary sector.

Others were more direct in their support of the OER concept, while recognizing that it might be a “hard sell” with their colleagues who were unfamiliar with OER. In one case, a faculty member used the BC taxpayer as her authority, stating, “...we shouldn’t be recreating all the time, and we are putting in money that is coming from taxpayers... we should be opening this up as widely as possible, with some parameters...” (Participant UI1). Others were also wholly supportive of the OER concept, citing their personal beliefs in openness as a concept. One instructor said, “Why did I do it knowingly, that it was going to be open resources? Because I really believe in open resources, because I think that sometimes institutions spend too much money developing things that are already in existence. I’ve always been a great advocate of reduce, reuse, recycle, and try to find first what’s already out there.” (Participant C3)

The spirit of OER and the concepts embodied within open resources were largely acceptable notions to the interview participants, even those whose grounding in OER principles came after they had been awarded an OER grant. One interview participant summed up the sentiment succinctly along with a clear caveat when he stated, “...I’m much more amenable to the notion of content being freely accessible, obviously not at the expense of a proper living.” (Participant RU1). He was referencing the need to compensate faculty and instructors who create OER.

While the OER concept resonated with interview participants, implementing OER practices was where issues arose. OER concepts began to be problematic for instructors at the point where the key concepts of OER and the reality of their use intersected. Many participants commented on the apparent high pain-for-gain threshold associated with putting OER concepts into practice. That is, the amount of work required to localize an existing OER resource was often seen to require too much effort.

They also offered their suggestions to remediate issues. Key issues highlighted by participants are reflected in the following transcript excerpts that included:

Searching and finding OER (“...finding is a gong show.”)

Storing and curating OER (“...The Internet’s the library; it’s just not very well organized. Some stuff is on the floor, some is pinned to the wall.”)

Tools, resources and effort required for reusing and remixing OER (“I would use the 80/20 rule. If I save 80 percent and I need to change 20, that's good. But if it's the other way around, I would rather develop it myself and not have to invest that time developing somebody else's...”).

The comments from participants on the practical efficacy of OER concepts were tempered by the implications of their critiques, such as raising the need to provide training for instructors in the use of common search strategies and trusted repositories of OER content.

The use of the *Google* custom search features to find OER and/or Creative Commons licensed content is a strategy that BCcampus has already implemented, but one that requires further evaluation to determine its optimal value for the recruitment and training of faculty and instructors who would like to use OER. Like the Internet itself, there is as yet no viable OER search tool that reliably finds and presents high quality open resources from digital storage locations across the globe. At best, specific collections, such as Khan Academy, MERLOT, and CK12 do exist, as well as others that target specific educator populations. The need for a well-supported, federated search mechanism tied to peer review or other evaluation mechanisms that could insure high quality search results remains a pressing need in the OER world.

In the course of the interviews, study participants recommended their own strategies about search and resource evaluation. One in particular was associated with the potential value of the creation and maintenance of thematic, curated collections of OER resources for specific disciplines. In the context of this study and its findings about the importance of course articulation, curated collections could be closely associated with the responsibilities of articulation committees as *de-facto* arbiters of resources that are used in the post-secondary courses that are the backbone of the BC articulation and transfer system. While libraries and librarians might play a role in cataloguing and storing

vetted open resources for download and use, it would seem appropriate to consider articulation committees and their members as a point of focus for evaluating potential OER and promoting them with peers and colleagues.

What would remain to be solved is a strategy for finding OER resources and making them available for review. A model of how this expansion might occur could be seen in the explosive growth of computer and mobile applications (APPS). Companies such as Apple and Google are exercising some control over operational and design standards, but when it comes to conceptual quality, they take a less apparent role. What does happen can be seen in the large number of user reviews of APPS. While it may take more time and a more focused review format to evaluate an OER in terms of learning outcomes, delegating the evaluation process to the potential and intended users might be more feasible than explicitly assigning that role to articulation committees.

### **6.4.3. *Institutional contexts***

Interview participants cited articulation and transfer in discussions about OER concepts and practices in the context of institutions, reinforcing the importance of this factor and its centrality to a more mainstream implementation of OER in the BC higher education system; however, it was not the only institutional context issue cited.

Clarity about the relationship between copyright and open licensing was described as a need in discussions of institutional contexts. Many participants mentioned the risk-averse nature of academic administrators when it came to issues of copyright and licensing. Bringing OER into the policy mix further complicated understandings at the institutional level and left open the potential for variations across the post-secondary system in the interpretation of copyright and its relationship to open licenses.

Many concerns were raised about the use of copyright materials for teaching and learning, despite revisions to the *Canadian Copyright Act* in 2012, coupled with recent Supreme Court of Canada decisions about the principle of “fair dealing.” The new Act and the Supreme Court’s clarification of fair dealing provisions for the use of copyright materials have allowed higher education instructors greater opportunities to freely use selections from copyright materials in their teaching. More information and training,

along with an online clearinghouse of accurate information about copyright and fair dealing, emerge as pressing needs in the BC higher education system. Should this information be replicated at each post-secondary institution, or would it be more efficient for one higher education agency to provide and maintain a single authoritative instance of the information? This is a question that AVED, BCcampus and system partners in BC higher education will need to consider.

Further, it would seem that more information about OER and clarity about the affordances of Creative Commons licensing could also be provided in a clearinghouse function provided by a central higher education agency. Accurate information about open licenses could offer a viable and balanced alternative to copyright materials, while reducing angst about copyright for faculty, instructors and instructional development staff.

#### **6.4.4. Professional Support**

The need for training, tools and techniques to better support and implement OER alternatives to proprietary materials also emerged from the research data. Many participants stated that they learned about OER during the process of developing OPDF-funded materials. Many were also self-trained or learned about OER together with peers or other colleagues informally, or in workshops or training sessions. The difficulties associated with repurposing and remixing resources developed by others argued directly for training, tools and techniques that could add efficiency to OER adoption and adaptation processes.

Recommendations from interview participants included the development of targeted marketing and training programs about OER use that would be designed specifically for administrators, or instructors in academic discipline groups who might have an affinity for working together and sharing the outputs of development from the outset.

Many of the recommendations made by participants pointed directly to the need for an intentional training and support program for OER use and development that could be organized by an agency such as BCcampus that has both the mandate and expertise

to do so. In the early days of the OPDF, BCcampus provided training targeted specifically at grant recipients. The research data supports the need for a broader approach to marketing and training about OER directed to all members of the higher education community.

#### **6.4.5. *Technology factors***

The goal of one research question was to investigate the degree to which technological determinism affected the use of OER by instructors. The question was, “To what degree does technological determinism, including established technical infrastructures and related practices, affect the potential for OER use in institutional settings?”

The interview data suggests that faculty and instructors assume that some technology decisions will be made for them, especially with respect to the choice of technology tools, and in particular about the selection of the learning management system (LMS) to be used at their institutions. In that sense, they acknowledged that a degree of deterministic practice would influence their choices. It seemed that the faculty and instructors often did not feel as if they had an active voice in the selection of educational technologies by their institutional decision-makers. These decisions represented a form of technological determinism in that the technologies selected were offered to them as a singular choice.

However, rather than treating the technology chosen by their institution as a deterministic barrier to success, most interview participants took a pragmatic approach, innovating and adapting their practice to best utilize the technology available to them. In essence instructors, faculty members and instructional developers interviewed in this study took a pragmatic approach to their views of the primary technology system at their disposal, the LMS. They engaged in democratic rationalization, organizing and adapting to use an available technology (Feenberg, 2004), and practiced local improvisations and micro-interactional processes as characterized by Suchman (2002) and Spinuzzi (2003), finding ways to use existing technology system that supported their practice and by extension the needs of their students.

A few participants lamented the closed nature of the LMS provided by their institution for their use, viewing the system as preventing them from establishing online educational designs that better met their needs and those of their students. But there was no real indication present in the data that the deterministic nature of technology decisions impeded the use of OER by the educators interviewed as part of this study.

What was missing for some participants was the ability to take control of the online teaching environment in ways that allowed them to experiment more actively. There were issues raised with respect to privacy legislation that prevented experimentation with cloud-based Internet services. There were concerns about their ability to use available OER software systems with their students because they were web-based systems, located on US servers and subject to *Patriot Act* oversight, counter to BC privacy legislation and BC privacy regulations concerning online software systems.

Technological determinism exists to a degree in BC higher education institutions, but for the most part participants interviewed in this study had either rationalized this determinism as beyond their control, or they were actively improvising with their colleagues to suit their actual needs, congruent with the principles of democratic rationalization and situated learning practices. They were going along, to get along.

#### **6.4.6. Educational Practices**

Educational practice may be the theme from the research data that signaled some “proto-pathways” forward for OER in the context of teaching and learning. Participants were asked whether and how OER would affect their own or their colleagues’ educational practices in their classrooms and with their students. Most of the responses were concerned with the formative nature of OER practices and the types of discussions that were being triggered as faculty and instructors considered their fit within their practices.

Some interview participants relished the tension created by OER on campuses, comparing it to the “disruptive moments” concept put forward by Christensen (2011), and seeing OER as causing lots of discussion at department meetings and workshops.

Others liked the OER development process because of its ability to bring together teams of like-minded individuals to adapt or develop OER to suit emergent needs. One participant compared OER creation to notions of agile development and new design processes such as those represented by the *Kickstarter.com* system that supports independent product designs.

Response to technological innovation in higher education can sometimes be characterized as using a new tool to support conventional practices, when technology might be better used to fuel innovation and new approaches to teaching and learning (OECD, 2012). Some interview participants in this study saw OER as the kind of disruption that could challenge conventional assumptions about how learning and teaching in higher education were organized and how materials were developed or acquired. In other words, OERs could be seen as the seed stock for innovation and change.

However, the responses from interview participants may also reflect something about the users and developers of OER—perhaps they are “outliers” or champions of change and innovation and so they see OER as another lever in a larger campaign for change. In this context there have also been interesting trends such as technologists leaving the “system” and becoming entrepreneurs (such as the early MOOC champions from Stanford University) and bringing change from outside the system rather than from within.

#### **6.4.7. *Instructional Design***

Instructional design (ID) has been a dominant theme in OER discussions from the outset. Many developers have struggled with the ID issues associated with OER creation, such as keeping instructional content and its presentation in an LMS separate throughout the content lifecycle. If the expectations for OER use are that segments of content including text, images, audio and video can be freely shared and reused, this expectation has implications for how media are created and stored and made available in editable formats.

For many of the participants in this study, ID remained an issue of finding, reusing and localizing open resources that might require considerable effort for their adaptations to be effectively used in a new context. Training and tools to make these processes much easier to accomplish are required. As interview participants noted for now, reusing OER in new contexts is a labour intensive process, requiring media skills as well as technical skills to extract usable media from existing formats for editing and redeployment. Some participants believed that it might be more effective to create new open resources from scratch than attempt to repurpose someone else's design and content, while others were focused on reuse as an intentional strategy.

If reuse and remixing were not shown to be viable processes, creating new OER constantly would be counter to the implied OER value proposition. If there continued to be serious obstacles to adaptation and re-purposing of OER then faculty might well choose to simply develop their own resources "from scratch." Of course, these new resources might not be developed as potential OER—as is the case now with many of the materials and resources developed by faculty in colleges and universities. Undoubtedly better tools will emerge to make finding OER, and their remixing and redistribution, much more convivial processes than is the current reality. However, for now this issue remains as a barrier to OER localization.

Discussions with some interview participants about instructional design moved beyond the technical aspects of design towards the pedagogical, where questions of designing for learner interactions and learning outcomes superseded the use of available content. As some participants noted, OER discussions to date have primarily focused on content, whereas the fertile ground for discussion may be better focused on the actual design aspects of instruction, adding content or resources as final steps, after consideration of how students will interact with peers and instructors. The instructional design theme surfaced on both sides of the OER promise, offering a new way to look at the design of instruction, as well as exploring new tools and techniques to help localize and shape OER content.

However, a primary focus of OER development has been on content rather than process. One driver has been the economic cost to students of purchasing textbook revisions that occur with frequency, thus forcing students to buy new texts to satisfy

course requirements. Many proponents of OER point to the efficacy of open textbooks or open content resources that could be prescribed by instructors for students to use freely on mobile devices or tablets, or as low-cost print-on-demand textbook resources. Another value proposed by OER proponents is the instructional innovation potential of using OER resources, allowing instructors opportunities to approach topics in new ways and to continually keep media and text resources current, or localize OER to suit regional or national cultural contexts.

#### **6.4.8. *Quality Assurance***

Interview participants recommended that there should be a quality assurance requirement for both OER development and use. Participants recommended a requirement for individual instructors to undertake a quality review of OER resources they use in their classrooms, as well as for instructors to participate in established practices in the academy such as peer review for resources that may be used beyond more than a single classroom. It is a general assumption that professional educators do evaluate instructional resources for accuracy and appropriateness for their course and students. However, not all disciplinary experts may be experts in instructional design or learning environments. How then do we reconcile OER evaluation and use in a more formal manner?

One interview participant was surprised that BCcampus had not prescribed a rigorous quality assurance process for the products of the OPDF, and instead supported an academic freedom approach that allowed developers and their institutions to be the arbiters of quality.

Other interview participants recommended that quality assurance frameworks or review processes be considered for system-wide use—quality assurance systems that could outline desirable criteria that all open resources should embody. Others suggested quality-rating systems, rating platforms, and social media style environments where reviews and quality ratings could be shared as user reviews. Some participants extended the quality assurance process to encompass curated collections of OER resources supported by academic discipline communities, much like the suggestion

noted previously about the potential for articulation committee structures to support OER reviews.

In general the participants believed that a rigorous quality assurance process for OER would have a twofold effect: building confidence in the creation and use of open resources, and helping to assure their sustainability through building a user community who might maintain or improve the resources over time.

#### **6.4.9. Funding Support**

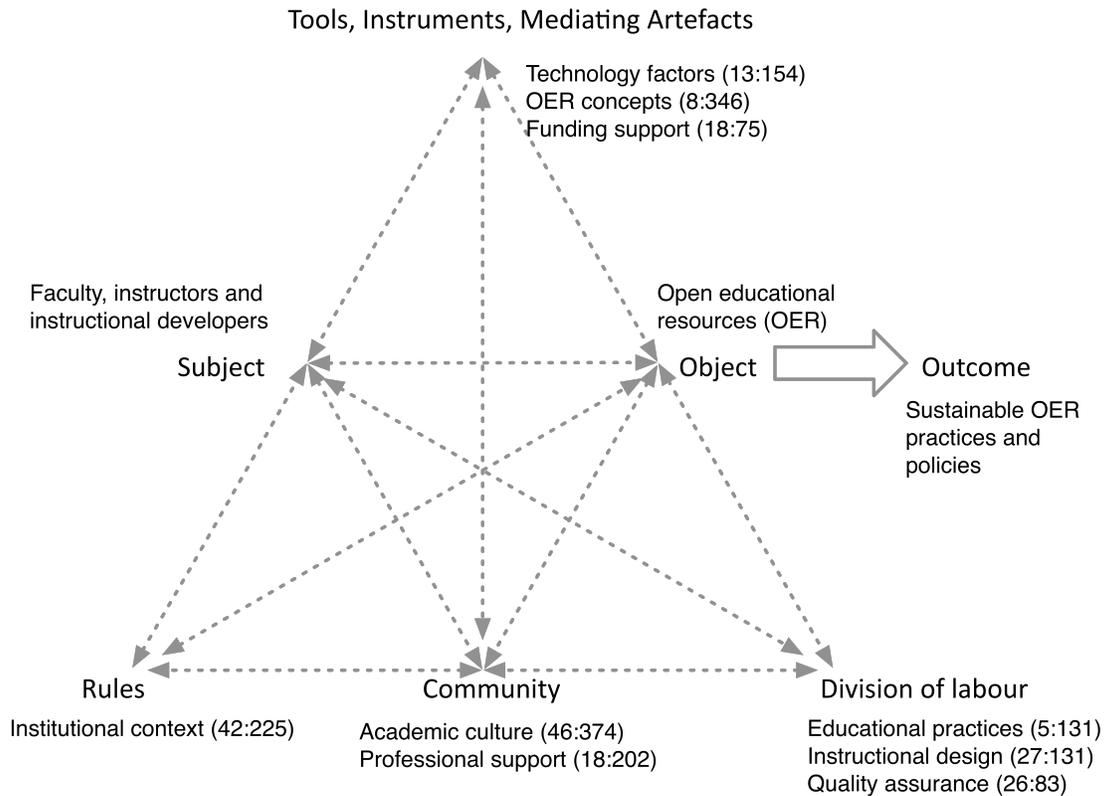
Funding support emerged from the participant interview data as an important incentive that fueled enthusiasm for the OPDF and provided an outlet for innovation that many faculty members and instructors embraced. Over the past 10 years there have been very few opportunities within the BC higher education system for educators to receive grant funding for curriculum and content development. The OPDF has been the foremost example of an open call for proposals to develop OER materials. In reports to worldwide audiences (OECD, 2007) the OPDF has been cited as an example of a taxpayer-funded OER development program.

The OPDF provided the stimulus for creative designs by teams of educators as well as the opportunity to establish open thinking and OER as a facet of the BC higher education system. Educators took tentative first steps with OER through the OPDF and increasingly supported and anticipated the OPDF on an annual basis. The catalytic effect of OER creation and licensing through the OPDF has become the foundation for the most recent initiative supported by the BC government, the creation of open textbooks for high enrolment first and second year programs. Interview participants cited the current open textbook program initiative in BC as another opportunity to extend open practices to students more directly as beneficiaries of the value of OER.

What remains an issue is the sustainability of taxpayer-funded OER development programs. With the strategic change in focus in BC to an open textbook program where positive economic impacts for students (by saving them money) can be projected, an important first step towards ongoing government support and sustainability for OER may be anticipated.

## 6.5. Viewing the Data from an Activity Theory Perspective

Figure 6 below maps the study themes to the Activity Theory (AT) triangle and provides a graphic representation of the data.



**Figure 6. Study themes mapped to the Activity Theory triangle**

Each of the themes identified from the study data has been placed on the AT triangle with the number of codes and transcript excerpts for each theme indicated by the numbers in parentheses (number of codes: number of transcript excerpts) beside the labels in Figure 6.

What this graphic reveals is the apparent magnitude of each factor that interacts within the OPDF activity system that was designed to incent faculty and instructors to create and use open educational resources, with the goal of establishing sustainable OER practices in the BC higher education sector. The AT diagram may also underscore the formative nature of OER practices situated within the realities of higher education in

British Columbia, with each factor associated with the AT triangle showing considerable “weight” in the context of the number of transcript excerpts associated with each vertex and other associated AT factors.

In AT terms, “contradictions” occur when a new activity is introduced into a system. They are process “rubs” that cause friction in the activity system. Internal, “primary contradictions” result in “aggravated secondary contradictions where some old element collides with a new one...” (Engeström 2001).

The primary contradiction in AT terms within the OPDF activity system is related to the newness of OER as a practice. While the opportunities of OER development and use were apparent to many of the study participants, much work remains in establishing baseline knowledge of the potential of OER and their value propositions for all faculty and instructors, as well as for educational administrators. The challenge may be less for students who are already seeing the value in OER as represented through freely available open textbooks that have been designed by some of the study’s participants.

There is also work to be done to build knowledge about the relationship between copyright and open licenses, as well as to provide a clearinghouse of copyright and OER information that is up-to-date and authoritative, thereby reducing the anxiety felt by some participants in this study about using open resources and the legalities entailed in doing so.

A secondary contradiction emerges from the strength of the existing academic culture and its communities of practice within academic discipline groups such as articulation committees and the course transfer system in BC. The current system of discipline and program articulation committees represents a means of fostering the development and use of OER by providing a system of quality control and assurance that would be credible and accepted within the current academic culture. Here there is a tension between accreditation based on the quality of content, versus accreditation based on a demand for conformity in course design and approaches to learning and instruction. While instructors might agree that every first year biology program should have common features and meet common instructional outcomes (even demonstrated outcomes) there could be many paths to the same destination.

Many interview participants pointed to the importance of the articulation system in supporting collegial trust that extended beyond the instructors to the course syllabi and resources used in the core courses accredited by the transfer system. This contradiction in AT terms suggests that articulation may be an incentive and a way forward for OER development, but it might also be a barrier to innovation.

A third force requiring attention within the OPDF activity system encompasses educational practices, design strategies and quality assurance processes. These systems will also require attention and an intentional approach to training and support in order to validate the potential of OER against conventional or established practices, as pointed out by interview participants. Because OER are new to most practitioners, formalizing their use with support systems for instructional design and quality assurance could establish confidence in using OER, with the knowledge that OER are a good fit with other professional practices in the academy.

## **6.6. Conclusion and Recommendations**

Through this study, the researcher has gleaned insights from 21 practitioners who agreed to participate in phenomenological interviews related to OER creation and use as a part of the BCcampus Online Program Development Fund (OPDF). The fund was developed as an incentive mechanism for faculty and instructors to explore sustainable content development practices afforded by OER principles and open content licenses.

What the researcher has learned through the study is that the implementation of OER practices within the BC higher education system will require ongoing attention to specific facets of a complex educational ecosystem and the forces that are at play within it. It is not enough to offer an incentive to spur changes in practice within higher education, especially with OER. It will take a deeper understanding of the relationships between technology tools, rules and policies, instructional development functions, and the communities of practice that underpin course development, curriculum articulation and course delivery.

Fullan's *The Six Secrets of Change* (2008) may be instructive in this context. It highlights how organizations can prevent self-destructive habits from thwarting initiatives. Further, in *The Challenge of Change* (Fullan, 2009), he highlights how complex adaptive change "stimulates resistance because it challenges people's habits, beliefs and values. It asks them to take a loss, experience uncertainty, and...to question and perhaps redefine aspects of their identity, it also challenges their sense of competence..." (p. 107). These are cautions to be noted and carefully considered when planning further implementation of OER programs.

For OER to become mainstream in the British Columbia higher education sector would require a multi-faceted approach to ongoing implementation that would include promotion of OER concepts, attributes and value propositions at all levels: with administrators, department chairs, instructors and students within institutions, as well as with articulation committees on a system-wide basis. It would require intentional and targeted training programs for individuals and discipline-specific groups to move beyond a small cadre of early adopters associated with OPDF. It would require better tools for search and storage, and support for communities of practice that are willing to evaluate and curate quality assured digital OER collections. It will also require a strategic approach to disseminating OER knowledge across the BC post-secondary system, networking practitioners, and supporting further OER innovation—a key finding for the researcher, who has a system-wide responsibility to lead the OER and open textbook programs funded by the BC Ministry of Advanced Education.

While this study points out the successes and new knowledge about OER that the OPDF has generated within the BC higher education sector, it also underscores the formative nature of OER as an innovation among practitioners. There is traction and notable achievement, but there remains considerable terrain to be explored and mapped before OER use could be considered to be on a path towards sustainability in the British Columbia higher education system.

## **6.7. Limitations of the Study**

It is important for the researcher to comment on the limitations of this study and his place in the OER community in British Columbia's higher education. As Executive Director of BCcampus, I am responsible for the implementation of programs such as the Online Program Development Fund (OPDF) and more recently the BC Open Textbook Program, both of which are BC government-funded initiatives designed to provide incentives for innovation in the higher education sector.

A majority of the interview participants knew of my role at BCcampus and I had previously met 11 of the participants in the course of my professional duties. A few did not know me at all, and in total 10 participants met me for the first time during the interview processes. All of the participants were fully informed about the purpose of the study and my role as a researcher within it, through their receipt of the participant recruitment letter, a study description document and the consent form they all signed. These study participants represented 21 of the 144 projects funded through the OPDF between 2003 and 2012.

Each of the study participants was generous with her/his time and provided welcome contributions to the study during the phenomenological interview process. The researcher benefitted from a large interview data store provided by participants for transcription and analysis. Participants did not seem to hold back and their candor produced a rich data set from which to investigate themes associated with the research literature and research questions, as well as emergent themes that surfaced through the interview process.

The participants were considered a sample of convenience by the interviewer and he considered this sampling process appropriate for the formative nature of the innovation being studied. In view of its qualitative nature, this study is not meant to make general claims: rather it uses the projects studied to illuminate the current state of knowledge about the development and use of OERs in post-secondary institutional contexts in British Columbia.

## 6.8. Researcher Reflections on the Study

As I reflect on the study I have conducted, and the analysis of data I have recently undertaken and reported, I am struck by the complexity of the higher education ecosystem and the pathways that an innovation must traverse in order to approach mainstream adoption within “the system.” We are 10 years and \$10M down the road to OER adoption in BC and it feels like we are only now reaching the “tipping point” (Gladwell, 2000).

I am also mindful of Christensen’s observations from his book *Disrupting Class* (2009), wherein he highlights the point that innovative technologies are sometimes homogenized and usurped by the larger, often threatened, but more powerful, dominant organization. He claims that “investment dollars are always more likely to go toward next-generation sustaining innovations instead of disruptive ones” (p. 60) and that “organizations cannot naturally disrupt themselves” (p. 75). Christensen quotes Maurice Maeterlinck, Belgian Nobel Laureate, “At every crossway on the road that leads to the future each progressive spirit is opposed by a thousand men appointed to guard the past.” (p. 112).

Even when funding incentives are provided there is no guarantee the innovation being funded will be adopted or will attain any measurable level of sustainability as a practice within the system. However, if we look to stimuli from outside the system, with massively open online course (MOOCs) as an example, we see much wider discussion of a disruptive innovation occurring in a much shorter span of time. Is it that MOOCs challenge the fundamental structure and organization of higher education and are somewhat beyond the control of the academic power structures, while OER fall squarely within the purview and control of faculty, instructors, deans and directors, copyright offices, and the apparently significant influence of articulation committees? Would OER be as much of a threat to the higher education system as MOOCs and compel wider discussion of OER concepts if the reference to “open” in the MOOC acronym was actually about open in the 4Rs sense (Wiley, 2010), and not just reference open as meaning freely accessible, but not necessarily open as in OER?

What the study provides for the researcher, who is both pragmatic and a risk-taker, is confirmation of a hunch about the complexity of in-system innovation in the context of the OER implementation. To move forward will require a two-pronged approach to OER implementation.

One approach to OER implementation by necessity will require a highly refined set of processes to insure that government funding for OER is well managed, marketed, trained for, supported and evaluated. The alternative approach will require the continued support of outliers and system leaders who see OER not simply as a content strategy but as a catalytic agent that can be used to fuel innovation that encompasses fundamental questions about pedagogy, the power structures of the academy and the manner in which access to knowledge is provided, shared and evaluated.

The two-pronged approach may actually play out in BC starting in 2013-14 with the implementation of the BC Open Textbook Program as a successor to the OPDF, and the launch of the OERu (Open Education Resource Foundation, 2013), an alternative pathway to a post-secondary credential using OER, that is supported by BCcampus, Kwantlen Polytechnic University and Thompson Rivers University.

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## **Appendices**

## Appendix A.

### Recruitment E-mail Sent to Prospective Study Participants

From: David Porter [REDACTED]  
Subject: Invitation to participate in an OER research study  
Date: 2 October, 2012 11:16:52 AM PDT

Colleagues...

My name is David Porter and I am conducting a research study as part of my thesis requirement for the doctoral degree (Ed.D.) in the Faculty of Education at the Simon Fraser University under the supervision of Dr. Milton McClaren.

I would like to invite you to participate in a research study associated with the use of open educational resources (OER) in British Columbia post-secondary institutional settings. A general description of the study is provided below. Attached is copy of a letter outlining the study and study detail document describing its scope. If you are interested in participating in the study, I will formalize the process through a direct recruitment letter and informed consent package.

I believe that because you have been closely involved with the development of open teaching and learning resources through your involvement with the BCcampus Online Program Development Fund (OPDF), you are well suited to speak to the various issues associated with open educational resource development, adoption and reuse, and I would greatly appreciate your contribution to this research project.

#### **General overview of the study:**

Over the past ten years, foundations and governments worldwide have been providing grants for the development of open educational resources (OER): learning materials that can be used, revised, and redistributed for personal, professional, or institutional use under the provisions of a copyright license that affords reuse rights. It has been proposed that OER have the potential to reduce instructional development costs, build communities of knowledge practitioners and make educational materials more accessible to learners by leveraging the reuse provisions of open licenses. The purpose of this study, therefore, is to investigate the strategies and practices of instructors from the post secondary system in British Columbia (BC) in order to explore the role of open educational resources in their work.

The study seeks to determine the factors that affect instructor adoption and development of OER and/or their engagement in contributing to the general pool of available OER. The study will also address a general gap in work-based research in academic settings that relates to a need for new instructional development practices that specifically address emergent opportunities such as those afforded by the open software and course movements and OER generally. The investigation will contribute to an understanding of how open practices and OER are being implemented by instructors in post-secondary institutions.

Again I would very much value your participation the proposed research study.

You may follow up with me directly at [REDACTED] or by telephone at [REDACTED], and I will respond to you promptly with additional information.

d.

--

**David Porter** Executive Director

**BCcampus** | connect.collaborate.innovate.  
200-555 Seymour Street | Vancouver BC V6B 3H6  
[REDACTED] [www.bccampus.ca](http://www.bccampus.ca)

## Appendix B.

### Study Detail Document Sent to All Prospective Participants

An Examination of the Practices of Instructors Using Open Educational Resources (OER)  
in British Columbia's Post Secondary Education System



#### STUDY DETAIL DOCUMENT

**Study title:** **An Examination of the Practices of Instructors Using Open Educational Resources (OER) in British Columbia's Post Secondary Education System**

**Project Number:** 2012s0530

**Principle Researcher:** David Porter (812900751)  
Ed.D. Candidate  
Faculty of Education  
Simon Fraser University  
[REDACTED]

**Supervisor:** Dr. Milton McClaren  
Faculty of Education  
Simon Fraser University  
[REDACTED]

An Examination of the Practices of Instructors Using Open Educational Resources (OER)  
in British Columbia's Post Secondary Education System

### **Purpose and goals of the study**

The proposed study will investigate the role of open educational resources (OER) in the work of post-secondary instructors in British Columbia.

### **Focus of the study**

An aim of this study is to assess the current state of knowledge about the development and use of open educational resources (OER) in post-secondary institutional contexts in British Columbia, with a focus on describing current practices of instructors. The study seeks to determine the factors that affect instructor adoption and development of OER and instructors' engagement in contributing to the general pool of available OER.

While there is a growing body of literature on OER development and implementation practices, there appears to be a gap in addressing specific issues of implementation of OER from the perspective of front-line actors - instructors in post-secondary settings where the potential for OER use is situated. This study will address the instructors' understandings of the implications for sharing and reuse of OER, the technical skills and practices required for proficiency with these resources, and the business and policy implications for OER use.

The study will also examine a more general gap in work-based research that relates to a potential need for new instructional development practices to specifically address emergent opportunities that may be afforded by the open software and course movements in general and OER specifically. The investigation will contribute to an understanding of how open practices and OER are being implemented by post-secondary instructors.

A further goal of this research is to generate knowledge that can support decision-making and policy development about OER development and implementation practices in post secondary settings.

### **Participant group**

The participants in the proposed study will be post-secondary instructors who have received grants through the BCcampus Online Program Development Fund (OPDF).

BCcampus is a publicly funded organization that sponsors the development of open educational resources through its Online Program Development Fund (OPDF). The annual OPDF call for proposals emphasizes collaborations and partnerships among instructors for the development of online learning resources. Development is focused on giving students access to online programs that will help them complete degrees, diplomas and certificates. All BCcampus OPDF projects produce open educational resources that are available for free sharing and reuse among educators from BC's

An Examination of the Practices of Instructors Using Open Educational Resources (OER) in British Columbia's Post Secondary Education System

public post secondary system. As projects complete their development cycle, they are licensed for sharing and reuse, and then uploaded to the BCcampus Shareable Online Learning Resources repository (SOL\*R).

The potential research participants have been funded to design or develop programs and courses in which instructional materials were created as open educational resources (OER) through the OPDF.

### **Recruitment of participant group**

The researcher is the Executive Director of BCcampus, the BC post-secondary agency that manages the OPDF. Express written permission to conduct the proposed research has been sought from the Chief Information Officer (CIO) of BCcampus. Interview participants will be recruited initially by an email from the researcher sent to them directly, or to their team leaders if they were a part of an OPDF collaborative development group. . The email will be generated from the database of projects managed by BCcampus and will explain the purposes of the research, describe the research processes, outline consent and confidentiality arrangements, and detail the requirements of participants. The email will invite the involvement of instructors in the research project as participants.

No permission will be sought from organizations that employ the research participants nor will their participation in the research have any relationship to their career evaluations or progress assessments at their employing institutions. Further, participation in the proposed research will form no part of any evaluation of future applications to the OPDF by participants. These conditions will be made clear to participants in the consent form that they will receive prior to the interviews. A maximum of 15 participants will be recruited from the pool of nearly 150 instructors who have participated in the OPDF.

The project information for participants will indicate that research interviews will take approximately 1-1.5 hours. The researcher will meet with participants at a private office at their institutional locations, or at a mutually agreeable private location for the interview. At the time of the interviews he will provide a consent form in print copy that participants can sign physically. Participants will also be provided with a copy of the consent form for their records.

Interviews will be digitally recorded only with the participants' permissions. The recorded interviews will be transcribed verbatim to provide a database for analysis. Prior to analysis, a copy of the interview will be provided to the participant for checking and any modifications. This will allow an opportunity for the participants to withdraw or revise any part of the interview that they may not want to have included in the research database. Participating individuals, their institutions and/or departments/programs in the study will only be identified using pseudonyms.

An Examination of the Practices of Instructors Using Open Educational Resources (OER)  
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### **Benefits and risks**

The proposed research is intended to contribute findings that can enable the development of a decision-support model for post-secondary education instructors who contemplate the use of open educational resources as an element of teaching and learning programs. The study will also seek to inform policy development for open educational resources by governments that fund the development and implementation of curriculum materials in post-secondary institutions.

There are no known or anticipated risks to participants in this study.

### **Confidentiality**

Confidentiality will be assured to all participants in this study. All interview transcripts, interviewer notes and digital audio files will be stored in password-controlled folders on a computer hard drive kept at the researcher's home. Participant names, institution names and other identifying information will be kept in a secured folder on the researcher's computer, separate from the transcripts. Permission for participation will be sought directly from post-secondary instructors who have participated in the OPDF program.

Archives of raw data and audio recordings collected during this study will be transferred to a USB storage device and will be retained for **two years** in a locked cabinet in the investigator's office to which only the principal researcher associated with this project will have access.

Consent will be obtained from all participants in writing. Each participant will receive an information package outlining the study and the confidentiality arrangements, with a consent form to be returned to the researcher, as well as a copy for their records. A project information letter will also be sent to the participants' institutions/programs as a courtesy, indicating the purposes of the research and the protection of identity for subjects and participating institutions/programs.

During the interviews participants will be asked to respond as individuals and not as official representatives of institutional programs or policies.

# Appendix C.

## Interview Guide for the Study

Study title: An Examination of the Practices of Instructors Using Open Educational Resources (OER) in British Columbia's Post Secondary Education System



### Semi-Structured Interview Guide

#### The Primary Research Question:

- How are instructors in British Columbia's post secondary system currently implementing Open Education Resources (OER) to support teaching and learning.

The primary research question is aimed at developing an understanding of the background knowledge of faculty and instructors about OER, and the efficacy of OER practices for instructors and their students. It will also establish the extent to which the study participants are engaged in practices related to the development and use of OER and the open source and open course movements in general.

#### Guiding Questions

- Why did you choose to submit a proposal to the BCcampus OPDF?
- What compelled you to choose an open approach to developing or adopting curriculum resources?
- How would you describe your current collaborations with peers in the development of instructional resources, and under what conditions or agreements do you work?
- How do you see OER as potentially contributing to enhancing or changing your instructional development practices or those of your peers?

The guiding questions are not specific questions to be answered, but rather, they are suggested topics for the commencement of the study as being the most productive to generate data relevant to the central area of interest. As participants raise topics and issues they will be allowed to pursue them.

#### The Sub-Questions

Seven questions from a general list of questions outlined in the researcher's proposal have been grouped into three sub-questions for the purpose of providing a contextual conversation starter with which to conduct the semi-structured interviews and probe all 7 themes.

##### Sub-Question 1

- When educational resources that have been developed in another department or institution are selected for use by another institution or program it may be found that some amount of revision has to be made to make the resource suitable for the new context. In your adoption of OER have you found it necessary to make some revisions or adaptations to the resources? How do you typically decide about this and what approaches do you use in making the revisions?

This sub-question of the study aims to explore themes identified in the review of the literature. Guiding questions will probe experiences associated with the themes.

Study title: An Examination of the Practices of Instructors Using Open Educational Resources (OER) in British Columbia's Post Secondary Education System

**Guiding Questions**

- What instructional design and development practices or processes do you employ?
- Have there been any instructional development issues associated with OER development or use, and if so what are the nature of those issues or challenges?
- Does your institution or program use a particular Learning Management System (LMS)? How does LMS technology affect your use of OER for course development and delivery?
- In your experience, what business rules and policies affect OER use in your course, department or institution? For example, does your institution or program/department have a specific budget line item set aside for the acquisition or development/adaptation of OER, and if not how does curriculum development get funded?

**Sub-Question 2**

- What conditions, methods or models of practice can contribute to greater use of OER by faculty and instructors in post-secondary settings?

This sub-question is aimed at eliciting practical recommendations that begin to describe (or propose) conditions and methods to support greater use and reuse of open resources in post-secondary institutional contexts.

**Guiding Questions**

- How did you learn about OER? What approaches did you take in order to incorporate the use of OER in your course or program?
- Have you been provided with training and support in the use of OER? Have you initiated your own professional development in the use of OER? Do you have recommendations to make with regard to training about OER use?

**Sub-Question 3**

- In your view, are there particular organizational policies and practices that can contribute to the wider use of OER as components of an organizational teaching and learning strategy?

This sub-question question is aimed at eliciting policy recommendations from an individual participant's perspective that could contribute to wider use of OER as a mainstream practice in higher education institutions.

**Guiding Questions**

- What opportunities, barriers, issues or concerns have you faced in exploring, developing, adopting or using open educational resources in your practice?
- In your experience, how are the issues and concerns dealt with in practice?
- What policy recommendations, based on your experiences, would you make that might foster the use of OER as a component of supported mainstream practice in your department or institution?
- Do you think that your recommendations would be generally applicable to other settings or organizations, or are they specific to your context?

## Appendix D.

### Example of Para-phrasing a Research Question

*Interviewer:* So say a little bit about the definition of “open” in your context then. What *constitutes* a really valuable open resource to your organization?

*Participant\_UI7:* I think the one that’s clear – that’s reliably – you can not be sure, but to the extent possible reliably clear of copyright – any copyright restrictions where you have to redo certain pieces of it or have questions about the content, that it’s in a flexible format \_\_\_ to be repurposed that where it –another example would be where it’s not too much based on let’s say lecture, video lectures and things like that.

Because unless the content was developed by the – and delivered by the instructor with a wider audience in mind, there’s going to be all kinds of references to things like the quiz you had last week or individual conversations with students and things like that, which when students are paying for a course, our sense is – because if the one – the one sense is that we can just put it in there with some provisos. But on the other hand, you feel like the students may well feel – and this would be a good question to ask them -- that they’re just being delivered repackaged second hand – inferior material.

Now if small components like that are included at let’s say senior-level courses, students are going to understand it. But if a large part of the course is based on materials like that that have to keep having excuses made for it, it might carry the impression that it was borrowed rather than specifically intended or focused specifically for them, we’d have a concern about what that perception might be.

*Interviewer:* So you’re talking really about branding there and the sort of persona of the institution and its positioning to students as a quality provider of education resources. Am I correct?

*Participant\_UI7:* That’s very correct. I think you rephrased it very well. So I would agree that it’s a positioning and branding question in terms of the quality of the *perceived* quality of the resources.

And these may be very, very good resources. But for instructional designers, too, there’s a certain point where they feel very unhappy about including an open resource, even though overall it might be – it’ll carry the point that you’re trying to make, do the job that you want it do. And that’s something that I think maybe needs to possibly change over time, because you’re not going to find OER that are perfect. Very rarely will that happen. So that’s something I think will take some thinking.

## Appendix E.

### Alphabetical list and definition of the initial data codes

Codes: Code Book: Start Codes: EdD1: Porter

Tuesday, March 26, 2013  
12:05 PM



#### Codes: Code Book

Number of Codes: 203, commented: 203

Code Info	Comment	Author
academic culture	■ Referring to the culture evident in the academy and its differences within disciplines	Super
academic freedom	■ Referring to the principle that academics are free to choose materials, teach courses or conduct research in ways that they determine best suits their need	Super
accreditation	■ Referring to the notion of proving credit for courses and learning	Super
activist agenda	■ Referring to the feelings of activism in some academic communities, such as the literacy community	Super
adoption chasm	■ Referring to the gap between early adopters (innovators) and mainstream faculty and instructors	Super
age and experience	■ Referring to age and experience as factors for OER adoption (buy-in)	Super
agility	■ Referring to the notion of moving forward innovations on an agile pace	Super
articulation committees	■ Referring to the discipline committees of faculty and instructors who agree on course content and articulation specifications	Super
articulation issues	■ Referring to the processes that enable articulation of courses, especially issues inherent in the articulation system	Super
articulation silos	■ Referring to the separate discipline groups of the articulation system, and issues arising from the apparent "silos"	Super
articulation system	■ Referring to policies, committees and faculty who participate in articulation meetings to insure that courses are consistent for students and that course credit for students can be transferred from one institution to another	Super

<b>attribution</b>	<ul style="list-style-type: none"> <li>■ Referring to a citation, attribution or acknowledgment of the original developer when an OER is used or remixed</li> </ul>	Super
<b>barriers to collaboration across institutions</b>	<ul style="list-style-type: none"> <li>■ Referring to the perception of barriers to collaboration across institutions</li> </ul>	Super
<b>barriers to innovation</b>	<ul style="list-style-type: none"> <li>■ Referring to the perception of lack of support for innovation or being an early adopter</li> </ul>	Super
<b>barriers to OER use, development or reuse</b>	<ul style="list-style-type: none"> <li>■ Referring to factors that would inhibit looking for, using or redeveloping existing OER</li> </ul>	Super
<b>barriers to open licensing</b>	<ul style="list-style-type: none"> <li>■ Referring to cultural, academic or other reasons that might inhibit open licensing or a willingness to share for reuse</li> </ul>	Super
<b>barriers to repository use</b>	<ul style="list-style-type: none"> <li>■ Referring to technical or other barriers that inhibit the use of an OER repository</li> </ul>	Super
<b>BC Commons license</b>	<ul style="list-style-type: none"> <li>■ A license for reuse and sharing that applies only to British Columbia higher education institutions</li> </ul>	Super
<b>BCcampus</b>	<ul style="list-style-type: none"> <li>■ Referring to the BC provincial online learning service agency</li> </ul>	Super
<b>bureaucratization</b>	<ul style="list-style-type: none"> <li>■ Referring to making instructional systems and services overly formal and beyond the control of individual faculty members and instructors</li> </ul>	Super
<b>buy-in from colleagues</b>	<ul style="list-style-type: none"> <li>■ Referring to collaboration with colleagues towards a common understanding</li> </ul>	Super
<b>case-based learning</b>	<ul style="list-style-type: none"> <li>■ Referring to instructional design that uses case studies as a learning strategy</li> </ul>	Super
<b>champions</b>	<ul style="list-style-type: none"> <li>■ Referring to exemplary educational models, practitioners or leaders</li> </ul>	Super
<b>change behaviour</b>	<ul style="list-style-type: none"> <li>■ Referring to changing behaviours</li> </ul>	Super
<b>change or improve educational practices</b>	<ul style="list-style-type: none"> <li>■ Referring to programs that focus on improving educational practices of instructors or institutions</li> </ul>	Super
<b>closed technical format</b>	<ul style="list-style-type: none"> <li>■ Referring to files and resources that are rendered in un-editable or difficult-to-edit technical formats</li> </ul>	Super
<b>collaboration</b>	<ul style="list-style-type: none"> <li>■ Referring to working with colleagues, departments or institutions that share a common perspective</li> </ul>	Super

<b>collaboration for professional development</b>	■ Referring to collaborations that support professional development	Super
<b>collaboration for shared services</b>	■ Referring to collaborations among institutions to reduce costs for all	Super
<b>collaboration issues</b>	■ Referring to factors that affect the ability to collaborate	Super
<b>collaboration time issues</b>	■ Referring to the time commitment issues related to developing collaborative projects	Super
<b>collaboration vs. competition</b>	■ Referring to the perceived and/or actual competition between institutions that might inhibit collaborative practices	Super
<b>collaboration within the department or discipline</b>	■ Referring to collaborations that occur among colleagues within disciplines	Super
<b>collaborations as opportunistic</b>	■ Referring to collaborations happening based on need or opportunity, not as a proposition	Super
<b>collaborations based on research opportunities</b>	■ Referring to research as a factor motivating collaboration	Super
<b>collaborations that are unstructured</b>	■ Referring to collaborations that are emergent and initially seen as unstructured	Super
<b>collaborative development strategy</b>	■ Referring to a need for a formal collaborative development strategy and processes	Super
<b>collegial trust</b>	■ Referring to the trusted relationship between colleagues	Super
<b>community feeling and culture</b>	■ Referring to the community-focused nature of the institution	Super
<b>community partnerships</b>	■ Partnering with communities, such as colleagues or a defined community such as a First Nations community	Super
<b>connectivism</b>	■ Referring to the connectivist theories of George Siemens and Stephen Downes	Super
<b>content and teaching working together</b>	■ Referring to the synergistic relationship between good content and good teaching practices	Super
<b>contextual credibility</b>	■ Referring to ability to engage credibility with colleagues within a discipline or institution	Super
<b>copyright issues</b>	■ Referring to copyright issues in the academy	Super

<b>cost of prior learning assessment and recognition (PLAR)</b>	■ Referring to the time and/or human resource costs associated with PLAR	Super
<b>cost-benefit analysis</b>	■ Referring to the need to evaluate the costs and benefits of programs or practices	Super
<b>creating online courses</b>	■ Referring to the creation and implementation of online courses	Super
<b>Creative Commons license</b>	■ Referring to Creative Commons licenses that allow reuse of curriculum materials	Super
<b>critical thinking</b>	■ Referring to the importance of engagement with content at the level of critical thinking, not just memorization	Super
<b>culture of sharing</b>	■ Referring to a willingness to share resources at a cultural level	Super
<b>customization need</b>	■ Referring to the desire for faculty-based control or customization of the online learning environment	Super
<b>democratization</b>	■ Referring to opening up access to education and instructional resources	Super
<b>departmental silos</b>	■ Referring to the apparent "silos" that exist among departments in post-secondary institutions	Super
<b>development timelines</b>	■ Referring to the timelines and project plans required to complete a curriculum project	Super
<b>disruptive moments</b>	■ Christensen's notion of innovation causing organizational disruption	Super
<b>early adopters</b>	■ Referring to persons who are the first to try out new practices or technologies	Super
<b>expanding options for learning</b>	■ Referring to program resources that expand learning options for students	Super
<b>faculty and student relationships</b>	■ Referring to the academic relationship between students and faculty members	Super
<b>faculty to student ratio</b>	■ Referring to the ratio of faculty to students	Super
<b>First Nations</b>	■ Referring to aboriginal groups in Canada and British Columbia	Super
<b>flipped classroom model</b>	■ Referring to the notion of having students engage with content outside the classroom and to use the classroom for engage with instructors about concepts	Super

<b>formalizing partnership agreements</b>	<ul style="list-style-type: none"> <li>■ Referring to a requirement for formalized agreements stipulating what each partner will contribute, develop, or receive</li> </ul>	Super
<b>funding incentive</b>	<ul style="list-style-type: none"> <li>■ Referring to funding that can be used to underwrite new programs, practices or technologies</li> </ul>	Super
<b>fusion of innovations</b>	<ul style="list-style-type: none"> <li>■ Referring to the process whereby innovations move from early adoption to more mainstream acceptance</li> </ul>	Super
<b>importance of an efficient workflow</b>	<ul style="list-style-type: none"> <li>■ Referring to a need for efficiency in the processes associated with OER search, use, reuse and remixing</li> </ul>	Super
<b>importance of conversations</b>	<ul style="list-style-type: none"> <li>■ Referring to the informal networking that occurs with colleagues and potential collaborators face-to-face, online, or at conferences and workshops</li> </ul>	Super
<b>incentives</b>	<ul style="list-style-type: none"> <li>■ Referring to incentives offered to faculty or instructors for participation or training in new practices</li> </ul>	Super
<b>incentives for training</b>	<ul style="list-style-type: none"> <li>■ Referring to training incentives</li> </ul>	Super
<b>independent research</b>	<ul style="list-style-type: none"> <li>■ Referring to research conducted or sponsored by individuals, free of corporate interests</li> </ul>	Super
<b>influence of publishers</b>	<ul style="list-style-type: none"> <li>■ Referring to the practices of publishers in their interactions with instructors</li> </ul>	Super
<b>innovation</b>	<ul style="list-style-type: none"> <li>■ Referring to a new practice or technology in use</li> </ul>	Super
<b>innovation sandbox</b>	<ul style="list-style-type: none"> <li>■ A "sandbox," - meaning a place where innovative technologies and practices can be tried out in a supported, risk-free environment</li> </ul>	Super
<b>institutional business rules</b>	<ul style="list-style-type: none"> <li>■ Referring to institutional business rules or practices that govern educational programs</li> </ul>	Super
<b>institutional collective agreement</b>	<ul style="list-style-type: none"> <li>■ Referring to the negotiated agreements between institutions and unions</li> </ul>	Super
<b>institutional copyright guidelines</b>	<ul style="list-style-type: none"> <li>■ Referring to institutional guidelines for the use of copyright materials in instructional resources</li> </ul>	Super
<b>institutional fear</b>	<ul style="list-style-type: none"> <li>■ Referring to fear and reticence about participating in innovative projects</li> </ul>	Super
<b>institutional policies</b>	<ul style="list-style-type: none"> <li>■ Referring to institutional policies that govern educational practices</li> </ul>	Super

<b>institutional reputation</b>	<ul style="list-style-type: none"> <li>■ Referring to the reputation of the institution for its research, teaching or service</li> </ul>	Super
<b>institutional service agenda</b>	<ul style="list-style-type: none"> <li>■ Referring to the institutional need to demonstrate public service, as well as research and teaching excellence</li> </ul>	Super
<b>institutional strategy</b>	<ul style="list-style-type: none"> <li>■ Referring to the institution's strategic direction as a clear message for staff and instructors</li> </ul>	Super
<b>institutional training programs</b>	<ul style="list-style-type: none"> <li>■ Referring to workshops and training programs provided to instructors by the institution</li> </ul>	Super
<b>instructional design</b>	<ul style="list-style-type: none"> <li>■ Referring to the instructional design process</li> </ul>	Super
<b>instructor control of online environment</b>	<ul style="list-style-type: none"> <li>■ Referring to instructors running (cloud-based or open source) online instructional software under their own control</li> </ul>	Super
<b>intellectual property</b>	<ul style="list-style-type: none"> <li>■ Referring to the ownership of a work by an author or creator</li> </ul>	Super
<b>intentional partnerships</b>	<ul style="list-style-type: none"> <li>■ Referring to the practice of promoting intentional partnerships</li> </ul>	Super
<b>inter-professional education</b>	<ul style="list-style-type: none"> <li>■ Referring to instructional programs that integrate multiple disciplines</li> </ul>	Super
<b>issues related to funding for courses and sections</b>	<ul style="list-style-type: none"> <li>■ Referring to institutional funding issues that might affect which courses are offered</li> </ul>	Super
<b>issues with finding useful OER resources</b>	<ul style="list-style-type: none"> <li>■ Referring to issues associated with finding and using OER resources</li> </ul>	Super
<b>issues with grassroots innovation processes</b>	<ul style="list-style-type: none"> <li>■ Referring to the apparent difficulties associated with grassroots innovation processes</li> </ul>	Super
<b>job security</b>	<ul style="list-style-type: none"> <li>■ Referring to insuring job security, including the ownership of intellectual property as a personal and professional asset</li> </ul>	Super
<b>Khan Academy</b>	<ul style="list-style-type: none"> <li>■ Referring to short (&lt; 20 minute) web-based videos produced by Khan Academy for math and science tutorials</li> </ul>	Super
<b>kindred spirits</b>	<ul style="list-style-type: none"> <li>■ Referring to colleagues who shared a common perspective</li> </ul>	Super
<b>learning about open concepts and practices</b>	<ul style="list-style-type: none"> <li>■ Referring to how the institution, its faculty or staff learn/ed about open concepts and practices</li> </ul>	Super

<b>learning communities</b>	■ Referring to collegial communities of practitioners who meet to discuss learning and teaching practices	Super
<b>learning curve</b>	■ Referring to the effort and work required to do something new or innovative for the first time.	Super
<b>learning objects</b>	■ Referring to the use of granular learning materials to achieve instructional outcomes	Super
<b>licensing costs for existing courseware</b>	■ Referring to the practice of licensing and paying for existing courseware from publishers or other post-secondary institutions	Super
<b>literacy</b>	■ Referring to communications and literacy	Super
<b>LMS issues</b>	■ Referring to issues with use or design of learning management systems	Super
<b>LMS use</b>	■ Referring the learning management system in use at the institution	Super
<b>localization</b>	■ Referring to the instructional design principle associated with providing local cultural and social context to instructional materials or teaching practices	Super
<b>maintaining currency</b>	■ Referring to the changes that take place in technology subjects requiring instructors to maintain currency	Super
<b>making a difference</b>	■ Referring to a contribution to positive change	Super
<b>mentorship</b>	■ Referring to working with colleagues to teach them to use new technologies or new instructional practices	Super
<b>mobile learning</b>	■ Referring to the use of mobile devices to deliver or reference curriculum materials	Super
<b>modelling good teaching practice</b>	■ Referring to the use of exemplary models and examples of good teaching practice	Super
<b>MOOC</b>	■ Referring to massive open online courses (MOOC). "Open" in this context refers to openly available and free, but not necessarily open for reuse.	Super
<b>mutual benefits</b>	■ Referring to the mutual benefits that can emerge from partnerships, however they are created	Super

<b>need for change</b>	<ul style="list-style-type: none"> <li>Referring to new data, dynamics and realities that highlight or argue for changes in practices</li> </ul>	Super
<b>need for leadership</b>	<ul style="list-style-type: none"> <li>Referring to individuals who can lead academic groups in new or innovative directions</li> </ul>	Super
<b>need for Ministry recognition and support</b>	<ul style="list-style-type: none"> <li>Referring to the need for visible support for OER from the Ministry of Advanced Education</li> </ul>	Super
<b>need for multi-level OER marketing to all levels within an organization</b>	<ul style="list-style-type: none"> <li>Referring to the need for targeted marketing messages and programs for all levels within institutions: administration, faculty, staff</li> </ul>	Super
<b>need for OER marketing</b>	<ul style="list-style-type: none"> <li>Referring to a need to advertise and market the value propositions associated with OER and open resource repositories</li> </ul>	Super
<b>need for OER supplementary materials</b>	<ul style="list-style-type: none"> <li>Referring to a new for supplementary materials such as text banks, quizzes and slides to support OER and open textbooks</li> </ul>	Super
<b>need for OER training</b>	<ul style="list-style-type: none"> <li>Referring to the need for training about openness, OER and sharing</li> </ul>	Super
<b>need for senior management recognition and support</b>	<ul style="list-style-type: none"> <li>Referring to the need for support for open practices and OER from senior management</li> </ul>	Super
<b>need for targeted discipline-based training</b>	<ul style="list-style-type: none"> <li>Referring to the need to target training to specific disciplines</li> </ul>	Super
<b>need for targeted marketing to faculty and instructors</b>	<ul style="list-style-type: none"> <li>Referring to the practice of publishers who send complimentary texts and textbook information to faculty and instructors</li> </ul>	Super
<b>need to collaborate</b>	<ul style="list-style-type: none"> <li>Referring to barriers to collaboration</li> </ul>	Super
<b>OER</b>	<ul style="list-style-type: none"> <li>Referring to open educational resources (OER)</li> </ul>	Super
<b>OER and assessment</b>	<ul style="list-style-type: none"> <li>Referring to the process requirements for assessing student achievement in an open access or OER situation</li> </ul>	Super
<b>OER and bookstores</b>	<ul style="list-style-type: none"> <li>Referring to the apparent loss of revenues for bookstores from open textbooks and/or OER adoption at an institution</li> </ul>	Super
<b>OER and instructor flexibility</b>	<ul style="list-style-type: none"> <li>Referring to the ability of instructors to reuse and remix OER to suit their needs</li> </ul>	Super

<b>OER and open textbooks as student value proposition</b>	<ul style="list-style-type: none"> <li>■ Referring to the value proposition for students regarding open textbooks and lowering educational costs</li> </ul>	Super
<b>OER and redefining textbooks and digital resources</b>	<ul style="list-style-type: none"> <li>■ Referring to the potential to redefine conventional terms such as "textbook."</li> </ul>	Super
<b>OER as public good</b>	<ul style="list-style-type: none"> <li>■ Referring to the notion that taxpayer-funded resources should be openly available</li> </ul>	Super
<b>OER confidence</b>	<ul style="list-style-type: none"> <li>■ Referring to the need for education and training to "buoy confidence" in OER</li> </ul>	Super
<b>OER culture</b>	<ul style="list-style-type: none"> <li>■ Referring to attributes and skills needed to build an OER culture</li> </ul>	Super
<b>OER development issues</b>	<ul style="list-style-type: none"> <li>■ Referring to the skills needed to create OER that can be used easily in multiple educational contexts</li> </ul>	Super
<b>OER frustration</b>	<ul style="list-style-type: none"> <li>■ Referring to a sense of frustration when resources labeled "open" are either technically locked and/or not easily reused</li> </ul>	Super
<b>OER global citizenship opportunity</b>	<ul style="list-style-type: none"> <li>■ Referring to the opportunity to provide free resources for self-study on a global basis</li> </ul>	Super
<b>OER growth issues</b>	<ul style="list-style-type: none"> <li>■ Referring to the growth issues that can arise with a successful open project</li> </ul>	Super
<b>OER role for libraries and librarians</b>	<ul style="list-style-type: none"> <li>■ Referring to the library as a potential locus for open and OER activities</li> </ul>	Super
<b>OER search issues</b>	<ul style="list-style-type: none"> <li>■ Referring to the apparent difficulty in finding appropriate OER for specific use cases</li> </ul>	Super
<b>OER strategy</b>	<ul style="list-style-type: none"> <li>■ Referring to a strategic approach to developing OER</li> </ul>	Super
<b>OER student use opportunity</b>	<ul style="list-style-type: none"> <li>■ Referring to the opportunity for students to find value in OER for their own learning</li> </ul>	Super
<b>OER technical formats</b>	<ul style="list-style-type: none"> <li>■ Referring to the technical formats in which curriculum resources are rendered, from very open to very closed proprietary formats</li> </ul>	Super
<b>OER use and reuse issues</b>	<ul style="list-style-type: none"> <li>■ Referring to the issues associated with finding and evaluating resources for use in teaching</li> </ul>	Super
<b>OER value proposition</b>	<ul style="list-style-type: none"> <li>■ Referring to the perceived value of OER practices</li> </ul>	Super
<b>OERu</b>	<ul style="list-style-type: none"> <li>■ Referring to the Open Educational Resource University (OERu) model</li> </ul>	Super

<b>online case study models</b>	<ul style="list-style-type: none"> <li>■ Referring to the practice of providing case studies in courses for students to discuss online</li> </ul>	Super
<b>online feedback for students</b>	<ul style="list-style-type: none"> <li>■ Referring to the practice of giving personalized feedback for online students</li> </ul>	Super
<b>online learning</b>	<ul style="list-style-type: none"> <li>■ Referring to the online learning programs within an institution</li> </ul>	Super
<b>online learning rubrics</b>	<ul style="list-style-type: none"> <li>■ Referring to the practice of providing grading rubrics for courses to students in advance of assignments.</li> </ul>	Super
<b>Online Program Development Fund (OPDF)</b>	<ul style="list-style-type: none"> <li>■ Referring to the online program development fund (OPDF) managed by BCCampus on behalf of the Ministry of Advanced Education, Innovation and Technology</li> </ul>	Super
<b>open badges</b>	<ul style="list-style-type: none"> <li>■ Referring to the Mozilla Open Badges project</li> </ul>	Super
<b>open knowledge</b>	<ul style="list-style-type: none"> <li>■ Referring to the principles of openness in all aspects of education</li> </ul>	Super
<b>open source</b>	<ul style="list-style-type: none"> <li>■ Referring to openly licensed computer software</li> </ul>	Super
<b>open textbook infrastructure requirements</b>	<ul style="list-style-type: none"> <li>■ Referring to a need to have robust technical infrastructure to support open textbook production and publishing</li> </ul>	Super
<b>optimization</b>	<ul style="list-style-type: none"> <li>■ Referring to optimal conditions for learning or teaching, or the effort put into developing an instructional resource</li> </ul>	Super
<b>partnerships based on skill sets</b>	<ul style="list-style-type: none"> <li>■ Referring to partnerships driven by the skill sets available among collaborators</li> </ul>	Super
<b>partnership agreement templates</b>	<ul style="list-style-type: none"> <li>■ Referring to formal templates for partnership agreements</li> </ul>	Super
<b>partnership and consortium agreements</b>	<ul style="list-style-type: none"> <li>■ Referring to agreements between post-secondary institutions to jointly develop and/or deliver programs</li> </ul>	Super
<b>partnerships based on collegial relationships</b>	<ul style="list-style-type: none"> <li>■ Referring to peer-to-peer relationships that may happen independent of the institution</li> </ul>	Super
<b>partnerships with publishers</b>	<ul style="list-style-type: none"> <li>■ Referring to partnering with the textbook industry for technical assistance</li> </ul>	Super
<b>part-time faculty issues</b>	<ul style="list-style-type: none"> <li>■ Referring to part-time faculty and their engagement with training and development processes</li> </ul>	Super

<b>peer-to-peer quality assurance</b>	<ul style="list-style-type: none"> <li>Referring to meetings with colleagues to insure materials are of high quality for students</li> </ul>	Super
<b>perception of innovation</b>	<ul style="list-style-type: none"> <li>Referring to difference of perspectives between innovators and mainstream practitioners</li> </ul>	Super
<b>prior learning assessment and recognition (PLAR)</b>	<ul style="list-style-type: none"> <li>Referring to the process of evaluating and accrediting prior learning, work experience and self-directed study</li> </ul>	Super
<b>privacy concerns</b>	<ul style="list-style-type: none"> <li>Referring to BC's freedom of information and privacy legislation as a barrier to instructors who wish to use Internet "cloud services" such as social media or learning management systems</li> </ul>	Super
<b>problem-based learning (PBL)</b>	<ul style="list-style-type: none"> <li>Referring to problem-based learning (PBL) as an instructional strategy</li> </ul>	Super
<b>professional development</b>	<ul style="list-style-type: none"> <li>Referring to self-directed professional learning undertaken by faculty and instructors</li> </ul>	Super
<b>program advisory committee</b>	<ul style="list-style-type: none"> <li>Referring to community-based input into program development and quality assurance</li> </ul>	Super
<b>program development process</b>	<ul style="list-style-type: none"> <li>Referring to how programs are identified and faculty are selected to develop them</li> </ul>	Super
<b>program sustainability</b>	<ul style="list-style-type: none"> <li>Referring to keeping an educational resource, program or degree viable and sustainable</li> </ul>	Super
<b>project management</b>	<ul style="list-style-type: none"> <li>Referring to the structural and organizational requirements to complete an OER project development process</li> </ul>	Super
<b>public conversation</b>	<ul style="list-style-type: none"> <li>Referring to making educational innovation initiatives part of the public conversation</li> </ul>	Super
<b>quality assurance</b>	<ul style="list-style-type: none"> <li>Referring to a process that insures that curriculum materials observe a high standard of rigour and are rendered in acceptable technical formats</li> </ul>	Super
<b>quality assurance framework</b>	<ul style="list-style-type: none"> <li>Referring to the need for a quality assurance Q/A framework or exemplary models of practice template to help assess the quality of OER</li> </ul>	Super
<b>rapid development processes</b>	<ul style="list-style-type: none"> <li>referring to innovative rapid development processes such as the Kickstarter process</li> </ul>	Super

<b>recognition through awards for teaching and development</b>	■ Referring to recognition for tenure and promotion through teaching and content development	Super
<b>recognition through openness</b>	■ Referring to the reputation, recognition and value an individual accrues through open communities	Super
<b>recognition through promotion and tenure</b>	■ Referring to the reputational value received by faculty through tenure and promotion	Super
<b>reinvention</b>	■ Referring to the personal process of taking on new ideas or new responsibilities	Super
<b>reliability</b>	■ Referring to the reliability of web-based resources, their license, their quality and their continuing availability	Super
<b>repository</b>	■ Referring to a database collection of digital resources	Super
<b>repository use issues</b>	■ Referring to issues associated with finding and using open resources from repositories	Super
<b>reputation system</b>	■ Referring to systems that rated resources, developers and reviewers	Super
<b>reuse</b>	■ Referring to the reuse and development of existing curriculum resources	Super
<b>reuse and remix issues</b>	■ Referring to the effort required to reuse or remix existing OER	Super
<b>reuse criteria</b>	■ Referring to criteria used to determine whether to reuse or remix an existing OER, or create something new	Super
<b>reuse search before funding</b>	■ Referring to creating a requirement to research a repository for existing open resources before granting funds for development	Super
<b>role of academics in research institutions</b>	■ Referring to the research role that is considered the primary duty of academics in a research institution	Super
<b>role of teaching assistants (TAs)</b>	■ Referring to the role of teaching assistants in course development and delivery	Super
<b>scaffolding processes</b>	■ Referring to a need to build knowledge incrementally through providing supporting structures or processes	Super
<b>sharing</b>	■ Referring to sharing curriculum resources	Super

<b>social networking</b>	■ Referring to Internet tools that can be used to create and maintain a social network	Super
<b>SOL*R</b>	■ Referring to the BCcampus OER repository that houses both BC Commons and Creative Commons licensed open resources	Super
<b>spirit of OER</b>	■ Referring to the willingness to share, use, reuse or remix OER	Super
<b>student advocacy and activism</b>	■ Referring to students speaking out in support of OER, open textbooks and open practices	Super
<b>student costs for printing resources</b>	■ Referring to the costs to students of printing resources provided by instructors.	Super
<b>student need for textbooks</b>	■ Referring to the need expressed by students for textbooks to reference and study in technical subjects such as Chemistry	Super
<b>student-centred development</b>	■ Referring to instructional design practices that are student-centred	Super
<b>student-created content</b>	■ Referring to content created by students that can become part of the curriculum	Super
<b>supporting risk-taking</b>	■ Referring to a need to scaffold new practices to mitigate risk	Super
<b>teaching and learning centres</b>	■ Referring to institutional departments or centres concerned with improving teaching and learning practices	Super
<b>team-based process</b>	■ Referring to instructional development processes that involve a team-based approach	Super
<b>time as an OER use, reuse, development issue</b>	■ Referring to an emphasis on time as an OER development issue	Super
<b>total cost of ownership</b>	■ Referring to the all-in costs associated with development and implementation processes for educational projects	Super
<b>unwilling to share</b>	■ Referring to a lack of willingness to share source documents or curriculum resources	Super
<b>values</b>	■ Referring to personal values	Super
<b>video and media resources</b>	■ Referring to video and multimedia resources such as YouTube, Vimeo and Ted Talks	Super
<b>willingness to share</b>	■ Referring to a willingness to share curriculum resources	Super

## Appendix F.

### Frequency analysis of data codes

Code Manager [HU: EdD1]: Porter

Tuesday, March 26, 2013  
12:45 PM

#### Code Manager : Grounded Code Frequency

Name	Grounded	Author
instructional design~	71	Super
OER value proposition~	55	Super
spirit of OER~	53	Super
funding incentive~	50	Super
change or improve educational practices~	48	Super
need for OER training~	43	Super
need for OER marketing~	43	Super
program development process~	41	Super
LMS use~	40	Super
LMS issues~	37	Super
OER and open textbooks as student value proposition~	33	Super
collegial trust~	30	Super
quality assurance framework~	30	Super
quality assurance~	30	Super
learning about open concepts and practices~	30	Super
academic culture~	29	Super
institutional strategy~	26	Super
localization~	26	Super

willingness to share~	26 Super
partnerships based on collegial relationships~	25 Super
Creative Commons license~	24 Super
articulation committees~	23 Super
barriers to OER use, development or reuse~	23 Super
institutional policies~	23 Super
need for senior management recognition and support~	22 Super
innovation~	22 Super
student-centred development~	22 Super
OER use and reuse issues~	21 Super
collaborations as opportunistic~	21 Super
repository~	21 Super
institutional business rules~	21 Super
program sustainability~	20 Super
intellectual property~	18 Super
collaboration~	18 Super
copyright issues~	18 Super
learning communities~	18 Super
recognition through promotion and tenure~	18 Super
reuse and remix issues~	17 Super
professional development~	17 Super

contextual credibility~	16 Super
MOOC~	16 Super
online learning~	16 Super
community partnerships~	15 Super
OER search issues~	15 Super
collaborations based on research opportunities~	15 Super
scaffolding processes~	15 Super
mentorship~	14 Super
OER role for libraries and librarians~	14 Super
institutional collective agreement~	14 Super
open source~	13 Super
video and media resources~	13 Super
OER confidence~	13 Super
importance of conversations~	13 Super
recognition through openness~	13 Super
unwilling to share~	12 Super
Online Program Development Fund (OPDF)~	12 Super
community feeling and culture~	12 Super
collaboration vs. competition~	12 Super
instructor control of online environment~	12 Super
partnerships based on skill sets~	11 Super

academic freedom~	11 Super
privacy concerns~	11 Super
articulation system~	11 Super
BCcampus~	10 Super
need for leadership~	10 Super
collaboration within the department or discipline~	10 Super
collaborative development strategy~	10 Super
partnership and consortium agreements~	10 Super
collaboration for professional development~	9 Super
repository use issues~	8 Super
reuse~	8 Super
learning objects~	8 Super
need for targeted discipline-based training~	7 Super
collaboration for shared services~	7 Super
mutual benefits~	7 Super
change behaviour~	7 Super
role of academics in research institutions~	7 Super
institutional copyright guidelines~	7 Super
reuse criteria~	7 Super
institutional reputation~	7 Super
cost-benefit analysis~	7 Super

barriers to repository use~	6 Super
values~	6 Super
content and teaching working together~	6 Super
collaboration issues~	6 Super
teaching and learning centres~	6 Super
flipped classroom model~	6 Super
customization need~	6 Super
prior learning assessment and recognition (PLAR)~	6 Super
OER~	6 Super
barriers to innovation~	6 Super
optimization~	6 Super
reputation system~	6 Super
age and experience~	6 Super
OER global citizenship opportunity~	6 Super
OER development issues~	6 Super
student-created content~	5 Super
faculty and student relationships~	5 Super
OER and redefining textbooks and digital resources~	5 Super
accreditation~	5 Super
OER culture~	5 Super
BC Commons license~	5 Super

OER student use opportunity~	5 Super
influence of publishers~	5 Super
peer-to-peer quality assurance~	5 Super
OERu~	4 Super
OER technical formats~	4 Super
team-based process~	4 Super
project management~	4 Super
expanding options for learning~	4 Super
modelling good teaching practice~	4 Super
activist agenda~	4 Super
disruptive moments~	4 Super
departmental silos~	4 Super
reuse search before funding~	4 Super
barriers to collaboration across institutions~	4 Super
OER and assessment~	4 Super
early adopters~	3 Super
OER growth issues~	3 Super
agility~	3 Super
online learning rubrics~	3 Super
articulation silos~	3 Super
institutional fear~	3 Super

development timelines~	3 Super
social networking~	3 Super
need for OER supplementary materials~	3 Super
buy-in from colleagues~	3 Super
rapid development processes~	3 Super
need for targeted marketing to faculty and instructors~	3 Super
issues related to funding for courses and sections~	3 Super
partnerships with publishers~	3 Super
reliability~	3 Super
supporting risk-taking~	3 Super
inter-professional education~	3 Super
intentional partnerships~	3 Super
democratization~	2 Super
collaboration time issues~	2 Super
recognition through awards for teaching and development~	2 Super
open knowledge~	2 Super
creating online courses~	2 Super
connectivism~	2 Super
partnership agreement templates~	2 Super
perception of innovation~	2 Super
culture of sharing~	2 Super

adoption chasm~	2 Super
program advisory committee~	2 Super
collaborations that are unstructured~	2 Super
attribution~	2 Super
bureaucratization~	2 Super
licensing costs for existing courseware~	2 Super
kindred spirits~	2 Super
issues with finding useful OER resources~	2 Super
issues with grassroots innovation processes~	2 Super
job security~	2 Super
SOL*R~	2 Super
need for multi-level OER marketing to all levels within an organization~	2 Super
sharing~	2 Super
barriers to open licensing~	2 Super
student advocacy and activism~	2 Super
OER and instructor flexibility~	2 Super
mobile learning~	2 Super
articulation issues~	2 Super
importance of an efficient workflow~	2 Super
champions~	2 Super
time as an OER use, reuse, development issue~	2 Super

closed technical format~	2 Super
First Nations~	2 Super
open badges~	2 Super
institutional training programs~	2 Super
student need for textbooks~	2 Super
OER frustration~	2 Super
case-based learning~	2 Super
incentives for training~	2 Super
independent research~	2 Super
innovation sandbox~	2 Super
online case study models~	1 Super
online feedback for students~	1 Super
open textbook infrastructure requirements~	1 Super
OER strategy~	1 Super
need to collaborate~	1 Super
OER and bookstores~	1 Super
OER as public good~	1 Super
role of teaching assistants (TAs)~	1 Super
student costs for printing resources~	1 Super
total cost of ownership~	1 Super
reinvention~	1 Super

part-time faculty issues~	1 Super
problem-based learning (PBL)~	1 Super
public conversation~	1 Super
fusion of innovations~	1 Super
incentives~	1 Super
institutional service agenda~	1 Super
formalizing partnership agreements~	1 Super
cost of prior learning assessment and recognition (PLAR)~	1 Super
critical thinking~	1 Super
faculty to student ratio~	1 Super
making a difference~	1 Super
need for change~	1 Super
need for Ministry recognition and support~	1 Super
maintaining currency~	1 Super
Khan Academy~	1 Super
learning curve~	1 Super
literacy~	1 Super

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## Appendix G.

### Clustered Code Families from Atlas.ti reports

#### Code Families

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HU: EdD1\_Clustered  
File: [C:\Documents and Settings\Administrator\My Documents\Scientific Software\ATLAS.ti\...\EdD1\_Clustered.hpr7]  
Edited by: Super  
Date/Time: 2013-06-30 18:15:36

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#### Code Family: Academic culture

Created: 2013-06-30 15:02:35 (Super)

Codes (46): [academic culture] [academic freedom] [adoption chasm] [barriers to collaboration across institutions] [barriers to innovation] [barriers to OER use, development or reuse] [buy-in from colleagues] [collaboration] [collaboration for professional development] [collaboration for shared services] [collaboration issues] [collaboration time issues] [collaboration vs. competition] [collaboration within the department or discipline] [collaborations as opportunistic] [collaborations based on research opportunities] [collaborations that are unstructured] [collaborative development strategy] [collegial trust] [community feeling and culture] [community partnerships] [contextual credibility] [culture of sharing] [faculty and student relationships] [First Nations] [formalizing partnership agreements] [importance of conversations] [independent research] [influence of publishers] [intellectual property] [intentional partnerships] [job security] [kindred spirits] [mutual benefits] [need to collaborate] [partnerships based on skill sets] [partnership agreement templates] [partnership and consortium agreements] [partnerships based on collegial relationships] [partnerships with publishers] [recognition through promotion and tenure] [role of academics in research institutions] [role of teaching assistants (TAs)] [unwilling to share] [values] [willingness to share]  
Quotation(s): 374

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#### Code Family: Educational practices

Created: 2013-06-30 15:39:06 (Super)

Codes (26): [activist agenda] [age and experience] [agility] [case-based learning] [change behaviour] [change or improve educational practices] [connectivism] [critical thinking] [disruptive moments] [early adopters] [flipped classroom model] [fusion of innovations] [innovation] [innovation sandbox] [institutional fear] [inter-professional education] [issues with grassroots innovation processes] [learning curve] [maintaining currency] [making a difference] [need for change] [need for leadership] [online case study models] [problem-based learning (PBL)] [rapid development processes] [reinvention]  
Quotation(s): 131

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#### Code Family: Funding support

Created: 2013-06-30 15:36:41 (Super)

Codes (8): [BCcampus] [funding incentive] [incentives] [incentives for training] [need for Ministry recognition and support] [Online Program Development Fund (OPDF)] [reuse search before funding] [SOL\*R]  
Quotation(s): 75

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#### Code Family: Institutional contexts

Created: 2013-06-30 15:30:58 (Super)

Codes (27): [accreditation] [articulation committees] [articulation issues] [articulation silos] [articulation system] [barriers to collaboration across institutions] [barriers to innovation] [barriers to OER use, development or reuse] [barriers to open licensing] [barriers to repository use] [cost-benefit analysis] [cost of prior learning assessment and recognition (PLAR)] [departmental silos] [faculty to student ratio] [institutional business rules] [institutional collective agreement] [institutional copyright guidelines] [institutional fear] [institutional policies] [institutional reputation] [institutional service agenda] [institutional strategy] [institutional training programs] [issues related to funding for courses and sections] [part-time faculty issues] [prior learning assessment and recognition (PLAR)] [program development process]  
Quotation(s): 225

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#### Code Family: Instructional design

Created: 2013-06-30 15:24:39 (Super)

Codes (18): [content and teaching working together] [creating online courses] [customization need] [development timelines] [expanding options for learning] [importance of an efficient workflow] [instructor control of online environment] [literacy] [localization] [need for OER supplementary materials] [online feedback for students] [online learning] [online learning rubrics] [optimization] [project management] [scaffolding processes] [student-centred]

development] [team-based process]  
Quotation(s): 131

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Code Family: OER concepts

Created: 2013-06-30 15:18:38 (Super)

Codes (42): [BC Commons license] [copyright issues] [Creative Commons license] [democratization] [Khan Academy] [learning objects] [OER] [OER and assessment] [OER and bookstores] [OER and instructor flexibility] [OER and open textbooks as student value proposition] [OER and redefining textbooks and digital resources] [OER as public good] [OER confidence] [OER culture] [OER development issues] [OER frustration] [OER global citizenship opportunity] [OER growth issues] [OER role for libraries and librarians] [OER search issues] [OER strategy] [OER student use opportunity] [OER technical formats] [OER use and reuse issues] [OER value proposition] [OERu] [open badges] [open knowledge] [open source] [recognition through openness] [reliability] [reuse] [reuse and remix issues] [reuse criteria] [sharing] [spirit of OER] [student-created content] [student advocacy and activism] [student need for textbooks] [time as an OER use, reuse, development issue] [total cost of ownership]

Quotation(s): 346

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Code Family: Professional support

Created: 2013-06-30 15:49:02 (Super)

Codes (18): [bureaucratization] [champions] [learning about open concepts and practices] [learning communities] [mentorship] [modelling good teaching practice] [need for multi-level OER marketing to all levels within an organization] [need for OER marketing] [need for OER training] [need for senior management recognition and support] [need for targeted discipline-based training] [need for targeted marketing to faculty and instructors] [OER confidence] [professional development] [recognition through awards for teaching and development] [social networking] [supporting risk-taking] [teaching and learning centres]

Quotation(s): 202

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Code Family: Quality assurance

Created: 2013-06-30 15:15:31 (Super)

Codes (5): [peer-to-peer quality assurance] [program advisory committee] [program sustainability] [quality assurance] [quality assurance framework]

Quotation(s): 83

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Code Family: Technology factors

Created: 2013-06-30 15:45:53 (Super)

Codes (13): [closed technical format] [LMS issues] [LMS use] [mobile learning] [MOOC] [open textbook infrastructure requirements] [perception of innovation] [privacy concerns] [public conversation] [repository] [repository use issues] [reputation system] [video and media resources]

Quotation(s): 154

# Appendix H.

## Detailed Sections of the Cluster Map

