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OER Adoption in Higher Education: A Case Study of Stakeholders' Perceptions at a Florida State College

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OER Adoption in Higher Education: A Case Study of Stakeholders' Perceptions at a
Florida State College

by
Rebekah E. Wright

An Applied Dissertation Submitted to the
Abraham S. Fischler College of Education
in Partial Fulfillment of the Requirements
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Approval Page

This applied dissertation was submitted by Rebekah E. Wright under the direction of the persons listed below. It was submitted to the Abraham S. Fischler College of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

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Statement of Original Work

I declare the following:

I have read the Code of Student Conduct and Academic Responsibility as described in the *Student Handbook* of Nova Southeastern University. This applied dissertation represents my original work, except where I have acknowledged the ideas, words, or material of other authors.

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Rebekah Wright
Name

November 8, 2018
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iii

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"Consider it all joy, my brothers and sisters, whenever you face trials of many kinds, because you know that the testing of your faith produces perseverance. Let perseverance finish its work so that you may be mature and complete, not lacking anything" (James 1: 2-4).

Abstract

OER Adoption in Higher Education: A Case Study of Stakeholders' Perceptions at a Florida State College. Rebekah Wright, 2018: Applied Dissertation, Nova Southeastern University, Abraham S. Fischler College of Education. Keywords: open educational resources, open access, higher education, OER adoption, open textbooks

The purpose of this case study was to document stakeholders' perceptions of adopting and integrating OER materials in higher education. Specifically, this study sought to understand the perceptions of institutional faculty, librarians, instructional designers, and students with the adoption and use of OER at a state college in east Florida. Semi-structured interviews were conducted with institutional faculty, librarians, and instructional designers. A survey was distributed to students enrolled in OER integrated courses during the Spring semester. Theoretical perspectives on the adoption and diffusion of OER as an innovation were grounded in Roger's Diffusion of Innovation theory.

An analysis of the data revealed that stakeholder perceptions are a key factor in the rate of adoption and diffusion within the institution. Faculty perceptions of resource quality and time involved to curate the resources proved challenging for OER adoption and integration. Instructional designers perceived the resources as time consuming yet highly accessible. Librarians perceived the resources as beneficial, but a lack of awareness and understanding of licensing rules made adoption and integration challenging. Students perceived the resources as advantageous, above average in quality, and just as effective as traditional textbooks. Despite the challenges presented, stakeholders agreed that access to the resources and the cost savings for students were significant enough to outweigh the time involved to locate, adapt, implement, and utilize the resources.

Table of Contents

Chapter 1: Introduction

Textbooks are and for many decades have been the primary educational resource for students; however, the costs associated with them are causing major affordability problems (Silver, Stevens, & Clow, 2012). Textbook prices have risen sharply, by as much as 82%, in recent years (Allen, 2010; Senack, 2014). The average annual cost of textbooks for an undergraduate college student is $1200 (Senack, 2014). Senack (2014) reported that 65% of college students opted out of purchasing required texts and materials due to high costs, and 94% of those students expressed concerns that their course grades would be affected due to not having the required course materials. Because of the proportion of educational debt incurred by textbooks, institutions and faculty are exploring ways to provide relief to the students who have to carry the costs of education (Hilton, Robinson, Wiley, & Ackerman, 2014).

A wide-scale adoption and institutional implementation of open educational resources (OER) is one initiative that could change the financial outlook for students; however, there has been a slow adoption rate for OERs in higher education (McKerlich, Ives, & McGreal, 2013; Wiley, 2014a). For the purpose of this study, OER is defined as,

teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use 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)

OER adoption rates can be higher in institutions that have stakeholder support. The

relationship between stakeholders and the institution is both significant and valuable; thus, stakeholders are very influential in regard to institutional activities (Avci, Ring, & Mitchell, 2015). Because institutional stakeholders have formal roles in the decision-making process, it is important to examine their perceptions in order to better understand the OER adoption and utilization practices of these individuals. In higher education, stakeholders are administrators, faculty, staff, and students (Avci et al., 2015).

Institutional stakeholders at a state college in east Florida have identified textbook affordability as a pressing issue in higher education and have actively sought solutions to the textbook affordability issue (K. St. Hilaire, personal communication, 2016). The implementation of an OER initiative has been presented as an opportunity for all institutional stakeholders seeking options for textbook replacements. Stakeholder support at the institution is important for successful OER adoption and initiative implementation. Therefore, this case study sought to document faculty, librarian, instructional designer, and student perceptions of OER adoption and utilization at a state college in east Florida.

Statement of the Problem

The problem to be addressed in this study is that, despite potential cost and academic benefits, there has not been a wide-scale adoption of OERs. For 2 years, through the work of the virtual campus, a state college has focused its efforts on textbook affordability solutions. For a year, the institution's librarian has encouraged faculty members to adopt and integrate OERs as a part of a 3-year OER initiative. While it has been very easy to project a number of benefits, including cost savings and improved access to educational content, the institution has not been successful with a wide-scale adoption of OER material.

Background and justification. In 2016, a faculty librarian at a state college in east Florida was awarded an instructional grant to support the institutional adoption of OERs. The purpose of the OER initiative was to provide support to faculty members through workshops and incentives to aid in the adoption of OER materials as a replacement for high-priced textbooks. By 2017, approximately 36 faculty out of a population of 1,147, or 3%, who had adopted and integrated OERs into their curriculum as full textbook replacements. In its second year, the librarian began providing funding to increase OER adoption by faculty in the form of a stipend. Additionally, faculty were invited to participate in a number of OER-focused workshops to help guide them in selecting appropriate OERs. Despite these efforts, the institution has experienced a slow adoption of OERs; it is therefore important to examine stakeholders' perceptions of OER adoption to identify ways to improve the adoption rate within the institution.

As a part of the 3-year initiative, 23 courses are being offered textbook-free. Two of the 23 courses are being taught with the integration of a free, open-content textbook created by Rice University called OpenStax. Rice University reported that, as of 2018, 46 institutional partnerships exist nationwide to support textbook replacement utilizing OpenStax, an open-licensed textbook that started as an open repository for content sharing. Of those partnerships, only two institutions are in the state of Florida (Finkbeiner, 2017; Ruth, 2016). Florida's OER repository, The Orange Grove, currently manages open content for Florida's institutions of higher education. Of the 28 institutions in Florida, 11 allow their resources to remain open for utilization ("Browse Institution Collections," 2016). The state college in east Florida has one resource that has been stated through The Orange Grove.

Florida is not the only state that is experiencing slow adoption of OERs in its institutions of higher education. According to the Scholarly Publishing and Academic Resources Coalition, 28 states have active OER projects ("List of North American OER," 2017). Popular OER providers such as MERLOT and the Open Learning Initiative are also reporting stagnation of repository access, with relatively low numbers of students utilizing the repositories, given the number of enrolled higher education students (Griffiths & Maron, 2016). Because institutions are utilizing OER repositories to support open education, they are also feeling the effects of stagnation. Therefore, the slow adoption of OERs and the impacts of an OER initiative at a state college in Florida require further investigation.

Deficiencies in the evidence. Studies conducted on faculty adoption and integration have primarily focused on student learning outcomes, faculty perceptions, and adoption challenges. While a few studies have examined faculty adoption and integration of OERs, more pragmatic research on faculty perceptions is needed in order to understand the complete value of OERs as an alternative to traditional texts (Ozdemir & Hendricks, 2017). Additionally, there is insufficient understanding of how OER adoption impacts pedagogical practices, which is noted in the literature as a topic for further investigation (Kursun, Cagiltay, & Can, 2014). There is also a lack of knowledge regarding faculty perceptions of OER quality and functionality, which is important for not only understanding adoption patterns, but also to support pedagogical inclusion and systemic use (Kelly, 2014). Rolfe (2012) noted that future research should employ qualitative methodologies, to gather the views of faculty so as to provide a deeper understanding of faculty perceptions of OERs.

Due to the leading role that faculty members play in OER adoption decisions, investigating faculty members' experiences will add to the body of knowledge regarding OER utilization in higher education (Allen & Seaman, 2014). Future research should examine the ways in which faculty are integrating OERs into their curriculum and how they perceive the resources that are being integrated. As Belikov and Bodily (2016) have noted, "the future of OER will likely depend on how it is perceived by individual faculty members" (p. 235). Furthermore, Hilton, Gaudet, Clark, Robinson, and Wiley (2013) noted that understanding the perceptions of faculty provides a rich context in which evaluation of OERs can be constructed in order to improve the materials for future use.

A qualitative study conducted by Petrides, Jimes, Middleton-Detzner, Walling, and Weiss (2011) on faculty and student adoption of an open statistics textbook indicated that cost, quality, content, and usability were the major factors affecting faculty adoption decisions, while quality and ease of use were the drivers for student adoption. Reduced cost was also reported as a major benefit for students and a contributing factor for textbook preference (Petrides et al., 2011). Petrides et al. (2011) suggested future research should focus on engagement levels and institutional support of faculty as they seek to adopt open content resources as well as understanding how user experiences of open textbooks impact student adoption and use. Additionally, a qualitative study conducted by Belikov and Bodily (2016) on the barriers of OER adoption indicated that the majority of OER research utilized self-reported survey data and that future research should consider open-ended interviews with emphasis given to OER barriers such as discoverability, time, and general misunderstanding of the resources. Additionally, exploring ways in which to improve OER acceptance and adoption is suggested as a

future direction (Lindshield & Adhikari, 2013).

Few studies have examined student use and perceptions of OERs. Research suggests that student attitudes towards OERs may be indicative of their decisions to adopt and utilize these materials for class. While there have been general studies conducted on the perceptions of faculty and students exploring awareness, use, and relative quality of OERs (e.g., Allen & Seaman, 2014), additional research on learning outcomes, student perceptions of OER quality, and learning with OER materials is recommended (Hunsicker-Walburn, Guyot, Meier, & Beavers, 2016).

As of 2018, fewer than 10 studies have specifically addressed the adoption and integration of OERs in higher education by additional institutional stakeholders, aside from faculty and students. Librarians and instructional designers also play a critical role in the adoption and integration process; however, there is very little literature to support the importance of librarian and instructional designer's views. The relationships between librarians and instructional designers may serve as a support function to drive faculty-developed OER materials and courses (Massis, 2016). Therefore, this study sought to document the perceptions of librarians and instructional designers in addition to faculty members and students.

Finally, research that considers various subject areas and increased access is recommended (Feldstein, Martin, Hudson, Warren, Hilton, & Wiley, 2012; Hilton, Gaudet, Clark, Robinson, & Wiley, 2013). Inequality exists when all students do not have the same access to course materials (Buczynski, 2007). Literature indicates that a lack of access to educational material in higher education is due to the high cost of textbooks and materials (Buczynski, 2007). More so, instructional efforts are greatly minimized when

learners lack access to required course materials (Buczynski, 2007).

According to Bliss, Hilton, Wiley, and Thanos (2013), OERs increase learning through accessibility and provide significant cost savings to students, thereby improving both access and education on a global scale. Therefore, due to the low costs associated with OERs, using these types of materials could help educational institutions provide free and greater access to education (Hilton, 2016; Murphy, 2013). There is still much research to be done to substantiate these claims and, further, to understand the impacts of OERs on teaching and learning practices. Weller, de los Arcos, Farrow, Pitt, and McAndrew (2015) studied the impact of OERs on teaching and learning. They noted that many of the additional benefits of OERs are under-reported in the OER literature. Aside from costs, the researchers noted that it was important to have immediate access to course materials (Weller et al., 2015).

This case study sought to address the gaps presented in the reviewed literature by examining institutional stakeholders' perceptions of OER adoption and utilization in higher education. More specifically, the researcher examined the perceptions of institutional faculty, librarians, instructional designers, and students on their interactions with OER material at a state college in east Florida.

Audience. This study may benefit institutional stakeholders by providing a targeted view of OER adoption and use in higher education. Faculty members may also benefit from this study and be able to support curriculum changes associated with the implementation of OERs. Instructional designers can benefit from this study by identifying ways to drive collaboration with faculty on course design or redesign with the inclusion of OERs. This study can benefit institutional librarians to be able to provide

support services and repository recommendations for OERs. Finally, students may be able to use the findings from this study to decide if increased access to OER material provides a direct benefit.

Setting of the Study

The study took place at a medium-size state college located in east Florida. Institutional demographic data from 2015-2016 reported that the total student population is 28,890 across six campuses. Of this population, approximately 3,500 are distance learners. The full-time faculty population is 260 and the adjunct faculty population is 887. Approximately 40 faculty members teaching 21 unique courses are participating in the OER initiative at the institution. Five instructional designers assist with the design of the institution's Virtual Campus courses. Additionally, six instructional librarians are teaching library science credit courses with OER materials or supporting the use of OER materials through their roles as librarians.

Researcher's Role

The researcher serves as an office specialist at the state college in east Florida. She is also a member of a number of committees, including a distance learning committee, an online teaching and learning professional learning community, and an OER professional learning community. As the goals of the committees evolved, the focus became providing affordable learning resources to students through faculty integration of open resources. Instructional designers and librarians are now participating in the committees as the institution seeks a wider adoption of open resources. The researcher became interested in the adoption process of OERs and the OER initiative that is in progress at the state college.

Purpose of the Study

The purpose of this case study was to discover stakeholders' perceptions of OER adoption and the integration of OER materials in a medium-sized state college in east Florida. This study sought to document stakeholders' perceptions of adopting and utilizing OER materials in higher education. This study also sought to understand the adoption process as it is perceived through the OER initiative at the institution.

Definition of Terms

Adoption is defined as "a decision to make full use of an innovation as the best course of action available" (Rogers, 2003, p. 177).

Adopter categories are defined as "the classification of members of a social system on the basis of innovativeness" (Rogers, 2003, p. 22).

Complexity is defined as "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers, 2003, p. 257).

Compatibility is "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2003, p. 240).

Creative Commons is a service that allows content creators to label creative work with specific rights and share work freely and legally (Atkins, Brown, & Hammond, 2007).

Observability is "the degree to which the results of an innovation are visible to others" (Rogers, 2003, p. 16).

Open educational resources (OERs) 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" (Atkins, Brown, & Hammond, 2007).

Public domain is a sector housing the works and ideas of individuals that is freely accessible and can be utilized by anyone without the consent of the creator and free of royalties (Lupascu, 2015).

Rate of adoption is defined as "the relative speed with which an innovation is adopted by members of a social system" (Rogers, 2003, p. 23).

Relative advantage is "the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers, 2003, p. 15).

Repositories of OER are "digital databases that house learning content, applications, and tools…accessible to learners and instructors" via the Internet (McGreal, 2011, p. 1)

Social system is "a set of interrelated units that are engaged in joint problem solving to accomplish a common goal" (Rogers, 2003, p. 23).

Trialability is "the degree to which an innovation may be experimented with on a limited basis" (Rogers, 2003, p. 16).

Summary

Textbooks, the primary resources for education, continue to increase in cost, causing an affordability issue that forces some students to make complex financial decisions about their education. Institutional stakeholders such as faculty, librarians, instructional designers, and students are focusing their efforts on finding the best methods and resources to replace costly textbooks. Further investigation is needed to understand how the adoption of OERs may aid in reducing those costs. This case study sought to

document stakeholders' perceptions of adopting and utilizing OER materials at a state

college in east Florida. This study also sought to understand the adoption process as it is

perceived by faculty, librarians, instructional designers, and students through the OER

initiative at the institution. In this chapter, the problem and justification, setting,

researcher's role, purpose, and definitions have been discussed. In Chapter 2, a review of

the literature and the research questions are examined.

Chapter 2: Literature Review

The primary purpose of this literature review was to examine the empirical research that currently exists on OERs and their role in education. Specifically, the literature reviewed was a culmination of the studies that have been conducted on OERs, the quality of the resources, student and faculty perceptions of OERs, the instructional impact of OERs, the role of library support in the adoption process, as well as the impact on learner performance. The primary purpose of this study was to discover stakeholders' perceptions of adopting and utilizing OERs in higher education. Rogers' (2003) diffusion of innovations theory served as the theoretical framework for this study. This literature review was organized into 11 eleven major sections: (a) theoretical framework, (b) adoption and diffusion models, (c) historical underpinnings, (d) faculty adoption of OERs, (e) library support, (f) course design, (g) challenges of OER adoption, (h) licensing, (i) state of research, (j) research questions, and (k) summary.

Theoretical Framework

The theoretical base for this study is Rogers' (2003) diffusion of innovations. Diffusion of innovations theory explains how innovations are adopted and dispersed throughout a social system. Members of a social system communicate about the innovation in stages, exchanging information and eventually adopting the innovation through the acceptance of change agents. Rogers stated that the adoption of a new idea by a system can be very difficult despite apparent advantages. Further, organizations are faced with the challenge of reducing the amount of time that an idea or innovation is adopted and diffused. This case study sought to document faculty, librarian, instructional designer, and student perceptions of the adoption and integration of OER materials at a

state college in east Florida. The theory of diffusion was used as a theoretical lens to understand the process of OER adoption as it exists at the state college in east Florida.

  Diffusion of Innovations. Diffusion is defined as "the process by which (1) an innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system" (Rogers, 2003, p. 11). An innovation must only be "perceived as new by an individual or unit of adoption" to be classified as an innovation and that initial use or discovery have no bearing on the classification of an innovation or on the perception of newness (Rogers, 2003, p. 12). In the context of this study, OERs are classified as innovations, as there is a perceived newness of OER material for the faculty who are adopting and integrating them into the curriculum.

  The characteristics of innovations influence their rate of adoption and, as such, the rate of adoption is not consistent among innovations (Rogers, 2003). There are five attributes or characteristics of innovations that govern the rate of adoption. These attributes are critical in the adoption process, as they are the most influential, accounting for 49 to 87% of variance in the rate of adoption: (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability (Rogers, 2003).

  Relative advantage is the perceived idea that an innovation is superior to past ideas (Rogers, 2003). Compatibility is the perception that an innovation is congruent with the ideals of the social system. If an innovation is not viewed as congruent, the rate of adoption will be very slow (Rogers, 2003). Complexity is the perception of difficulty in using or understanding an innovation. If the social system perceives the innovation as being difficult to use or understand, the rate of adoption will be slow. The trialability of an innovation is the extent to which the innovation can be tested without fully committing

to adoption (Rogers, 2003). Innovations that can be tested without commitment are generally adopted throughout the social system more rapidly. Observability relates to the visualized results as experienced by other members of the social system. If the benefits can be easily realized, the rate of adoption will increase (Rogers, 2003).

Another element in the diffusion process is time, which is reflected in the innovation-decision process. According to Rogers (2003), the innovation-decision process is the "process by which an individual or unit passes through first knowledge of an innovation…to confirmation of the decision" (p. 20). The innovation-decision process ends in the individual or unit either adopting or rejecting the innovation. Therefore, the element of time is a component in the entire diffusion process through its relationship with the innovation-decision process, the innovativeness of an individual or unit, and the rate of adoption (Rogers, 2003).

An individual or unit's innovativeness has five categories of adopters: (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards (Rogers, 2003). These categories classify the members of a social system and relate directly to an innovation's rate of adoption, or the speed of adoption for an innovation (Rogers, 2003). The social system is the fourth element of the diffusion process and is identified by the correlated and engaged units that seek to solve a problem or reach a goal. The social system impacts the diffusion process through the consequences that occur "as a result of adoption or rejection" (Rogers, 2003, p. 38).

A graphical representation of the diffusion adopter categories is observed through a frequency plot that demonstrates an innovation's adoption over a period of time among each adopter category (Rogers, 2003). The bell curve displayed in Figure 1 depicts the

variation that occurs among the members of a social system and the rate at which the members adopt innovations over a period of time.
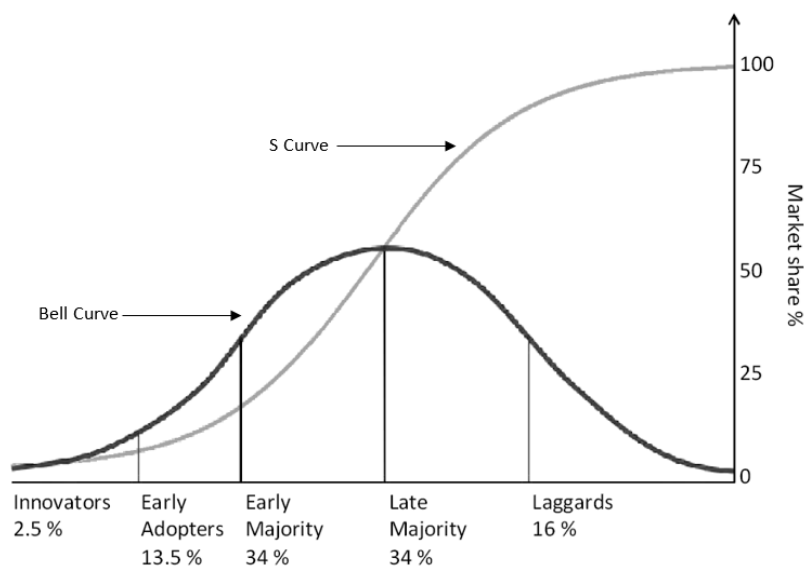
Figure 1. Adopter categories bell curve and s-curve. From "File:Diffusionofideas.svg", by Wikimedia Commons, 2016. Retrieved from https://commons.wikimedia.org/w/index.php?title=File:Diffusion_of_ideas.svg&oldid=223479258

The S-Curve displayed in Figure 1 represents diffusion as characterized by the number of cumulative adopters over a period of time (Rogers, 2003). The rate of distribution can be visualized by a slow adoption at the onset of adoption following an increase, or acceleration, through the midway point and ending in a slower rate at the conclusion of the adoption process (Rogers, 2003).

Adoption and Diffusion Models

While Rogers' theory is the most widely utilized for understanding adoption across disciplines, there are several additional models supported in the literature that examine behavioral change and seek to understand adoption (Straub, 2009). Adoption and diffusion models are complex, which makes finding a single comprehensive model difficult. According to Straub (2009), "there is no one model for understanding the

process in which an individual engages before adopting a new innovation" (p. 626).

When examining adoption and diffusion models, there is an observed overlap among many of the constructs. For example, the *complexity* construct in Rogers' theory (2003) can be closely associated with the *ease of use* variable in the technology acceptance model (TAM) by Davis (1989). Both complexity and ease of use have influence on the behavioral intention to adopt or accept an innovation or technology. Because adoption is a behavioral action, the process of adoption and diffusion is subjective (Straub, 2009). Additionally, it is also because of this behavioral change that a social cognitive perspective can be utilized as a theoretical lens for adoption and diffusion theories (Straub, 2009).

Social Learning Theory. Bandura (1977) discussed how expectations of efficacy and outcomes influence behavior and outcomes. His theory states that if individuals believe that a task can be accomplished, they are more likely to participate in the task. Likewise, an individual's belief about the outcome of the task is guided by his or her perceived expectations (Kelly, 2014). Bandura (1977) noted that the cognitive processes that humans experience has a critical influence on intentions and functions of behavior and that people's perceptions of personal effectiveness guides the types of activities and settings in which they choose to engage. Perceived self-efficacy may regulate how much effort is exerted on a particular task and how long one will persist through a difficult task (Bandura, 1977). The presence of self-efficacy may be an indicator of educational success in terms of persistence and completion. The social learning theory serves as a theoretical framework upon which TAM, theory of reasoned action, and the unified theory of acceptance and use of technology can be built.

Technology Acceptance Model. TAM is utilized for understanding the adoption

of technology, including acceptance and use of innovative technologies (Kelly, 2014).

Figure 2 illustrates TAM, which was developed by Davis in 1989.
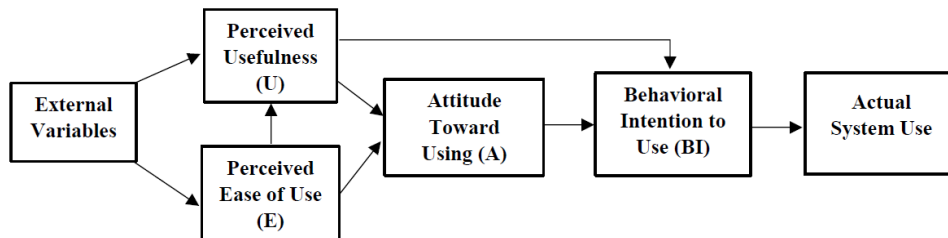
Figure 2. The Technology Acceptance Model. Adapted from "User acceptance of computer technology: A comparison of two," by F. Davis, R. Bagozzi, and P. Warshaw, 1989, *Management Science, 35*(8), p. 985. Copyright 1989 by the Institute of Operations Research and the Management Sciences. Adapted with permission.

TAM examines how perceived usefulness, ease of use, and user acceptance factor

into an individual's willingness to adopt a particular technology. The first variable that

Davis (1989) identifies as a determinant is perceived usefulness, the degree to which a

person believes that the utilization of a particular technology will enhance job

performance. The second variable that Davis identifies as a determinant is perceived ease

of use, "the degree to which a person believes that using a particular system would be

free of effort" (Davis, 1989, p. 320).

Davis (1989) discussed several theoretical perspectives that provide a foundation

for TAM. One perspective of importance is Bandura's work on self-efficacy. Within the

context of TAM, the construct of self-efficacy functions very similarly to perceived ease

of use in terms of behavioral determinants (Davis, 1989). Additionally, perceived

usefulness can be associated with outcome judgment (Bandura, 1977). The work of

Bandura (1977) concerning self-efficacy and behavioral outcomes can be observed in the

theoretical paradigm of social learning theory. TAM is an adaptation of the theory of reasoned action and also takes into account social psychology, specifically, behavioral intention (Al-Adwan, Al-Adwan, & Smedley, 2013).

Theory of Reasoned Action. The theory of reasoned action (TRA) is a social psychology model that acts as a theoretical framework for examining behavior intention (Ajzen & Fishbein, 1980; Davis, Bagozzi, & Warshaw, 1989). As illustrated in Figure 3, the TRA identifies several factors that determine behavioral action and performance.
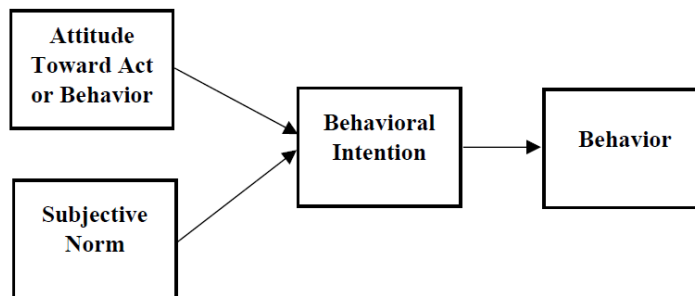
Figure 3. The theory of reasoned action. Adapted from "User acceptance of computer technology: A comparison of two," by F. Davis, R. Bagozzi, and P. Warshaw, 1989, *Management Science, 35*(8), p. 984. Copyright 1989 by the Institute of Operations Research and the Management Sciences. Adapted with permission.

First, behavioral intention is what drives behavioral action and performance. Second, behavioral intention is driven by attitude, or how one feels about carrying out the intended behavior whether positive or negative. Finally, behavioral intention is driven by subjective norm, or how one perceives others to feel about whether an intended action should or should not be carried out (Davis et al., 1989; Fishbein & Azjen, 1975). Broad use of TRA has been observed in a variety of applied research settings as well as theoretical settings and has been supported by empirical research (Davis et al., 1989).

A study conducted by Starovoytova and Arimi (2017) on behavioral intention

towards cheating on exams utilized TRA to examine determinants of cheating,

influences, and norms to predict behavioral intention to cheat on exams at an engineering

school in Africa. TRA was suggested as a best model for this study, as the model could

aid in affecting and predicting behavioral intention toward cheating (Starovoytova &

Arimi, 2017). Another study conducted at three public and private universities in the

United States and Japan examined undergraduate students' intention to participate in

study abroad programs. The study utilized TRA as a conceptual framework to understand

the social influences and attitudes associated with the student's behavioral intention to

enroll in study abroad programs (Wang, Gault, Christ, & Diggin, 2016). TRA was

suggested to be an appropriate model to examine social influences and personal attitudes

as a predictor of intention. Additionally, the model is beneficial in examining cognitive

and affective attitude as well as influences of multiple social groups (Wang et al., 2016).

   Unified Theory of Acceptance and Use of Technology. While TAM is one of

the most widely used models for examining technology utilization and acceptance, there

are some limitations of the model concerning "predictive value," as TAM successfully

predicts user acceptance in only about 30% to 40% of all cases (Oye, Iahad, &

Ab.Rahim, 2014, p. 255). In order to account for external conditions, a modified

extension of TAM was developed to include social and cognitive variables as a way to

predict user acceptance with more reliability (Oye et al., 2014). Many models of

technology acceptance have been developed to aid in predicting user acceptance, some of

which have been predictive of technology acceptance in the classroom. The unified

theory of acceptance and use of technology (UTAUT) model utilizes 32 factors stemming

from the eight existing technology acceptance models (Oye et al., 2014).

UTAUT was developed by Venkatesh, Morris, Davis, and Davis in 2003 as a way to better predict user acceptance of information communication technologies. The extensions include four direct determinants identified as "performance expectancy, effort expectancy, social influence, and facilitating conditions" (Venkatesh et al., 2003, p. 447). Constructs that play a moderating role in the UTAUT model, which are those that help to establish relationships between the four major determinants, are gender, age, experience, and voluntary use (Venkatesh et al., 2003). The final two constructs are those established by TAM: behavioral intention and actual use (Oye et al., 2014).

In academia, faculty resistance to technology utilization in the classroom has been a trend that is causing concern (Oye et al, 2014). TAM may prove to be a useful model in understanding the adoption of OERs, especially in the areas of faculty and student perceptions of usefulness of OERs, faculty perceptions of ease of use of OERs, and overall acceptance of OERs in higher education (Kelly, 2014). TAM was originally intended to explicate actions related to computer utilization but can now be applied to any instance where technology usage and behavior intention needs further investigation (Davis, Bagozzi, & Warshaw, 1989). According to Davis (1989), it is important to understand how perceived usefulness and ease of use may determine user behaviors, including acceptance of technology. Understanding TAM allows an examination of the factors that cause individuals to accept or reject a technological innovation (Davis, 1989). TAM can be applied to the OER movement, specifically, OER initiatives within institutions of higher education.

Historical Underpinnings

In order to understand the historical foundation of open educational resources, a

critical examination of the history of distance education is important. This examination of the history illustrates that concepts and ideas such as open education has been around long before the term "open" was established. While the use of OERs is not restricted to distance education, many faculty members who teach online are choosing to utilize OERs as primary or supplemental resources. It is therefore imperative to understand the role of open educational resources within the historical context of distance education.

History of distance education. The history of distance education can be traced to the development of the correspondence course in 1728 by Caleb Phillipps, who offered to teach the art of shorthand through an exchange of letters (Miller, 2014). Several years later Isaac Pittman began offering shorthand via the penny post as one of the first correspondence type courses (Simonson, Smaldino, & Zvazek, 2015). These offerings allowed people to obtain instruction at a distance at home or work from a teacher (Moore & Kearsley, 2012). Many correspondence type offerings were made possible because of the inexpensive transmission using railroads and the postal service (Moore & Kearsley, 2012). Correspondence schools began emerging in the United States and other countries.

In Britain, language and other vocational courses were developed and offered. In 1873, the first home study school dedicated to women was developed by Anna Ticknor and, in 1892, the first U.S. correspondence schools emerged, with the University of Chicago becoming the first U.S. institution to offer correspondence courses as formal education (Miller, 2014; Moore & Kearsley, 2012). In 1898, Hermods was founded; it grew to be one of the largest and most influential organizations for distance education in the world (Simonson et al., 2015). Between 1941 and 1943, correspondence education began to emerge in the Armed Forces. Led by William Young, the United States Armed

Force Institute offered approximately 200 courses ranging from elementary to vocational subjects (Moore & Kearsley, 2012).

In 1921, the first radio license for the purpose of education was issued to the Latter-Day Saints University. By 1922, radio broadcasting became a means of transmitting educational content and the first "schools of the air" began to foster K-12 education (Moore & Kearsley, 2012, p. 29). The State University of Iowa was the first to pioneer for-credit courses over the air, enrolling 80 students within the first semester (Moore & Kearsley, 2012). Beginning in 1934, educational television was in development. The State University of Iowa began offering a small selection of educational programming and that selection grew tremendously by 1939, with as many as 400 educational broadcasts (Moore & Kearsley, 2012).

In 1953, the option to receive college credit through broadcast television became available and community colleges began participating in television instruction (Miller, 2014; Moore & Kearsley, 2012; Simonson et al., 2015). After World War II, educational programming became more widespread through television broadcasting. Both commercial and non-commercial television stations began broadcasting programming for education. Major commercial stations such as NBC and CBS partnered with institutions and, with the financial contributions of the Ford Foundation, television broadcasting became more widespread. By 1962, there were television stations dedicated to education and in 1967, Congress passed the Public Broadcasting Act, which led to the creation of the Corporation for Public Broadcasting (Moore & Kearsley, 2012).

Satellite technology aided in the dissemination of instructional television programming; however, it took well over two decades to become federally funded

(Simonson et al., 2015). In 1965, a program utilizing telephone-based technology was launched in Wisconsin and by 1968, the first distance education program offering high school diplomas was underway (Miller, 2014). In 1972, all cable television operators were mandated by the Federal Communications Commission to offer at least one educational channel. The educational content offered on these channels, called telecourses, were being broadcast nationwide and, by the late 1970s, telecourses were being offered by the first virtual college. More than 600,000 students were enrolled in telecourses offered by over 1,000 postsecondary institutions during this period.

Fiber optic electronic communications, introduced in 1980, became a popular choice for delivering educational content via live audio and video. One of the first adopters of this electronic communication system was the Iowa Communications Network; as of 2015 it was the largest statewide system for fiber optic communication (Simonson et al., 2015). Beginning in 1980, teleconferencing became a preferred method for interaction between instructors and their students. Audio conferencing was one of the first technologies that allowed two-way communication between instructors and their students. For the first time, learners were able to interact in real time from their homes (Moore & Kearsley, 2012).

The first microcomputers were publicly introduced in late 1970s and a rise in computer-based instruction was attributed to easier access to computers. The rapid growth of distance education can be attributed to the introduction of the Internet in the 1980s when both USENET and BITNET became the first Internet systems. Opportunities for education began to expand due to the ease of access and availability of educational content. By the early 1990s, the Internet had revolutionized distance education with the

introduction of the World Wide Web (Miller, 2014; Moore & Kearsley, 2012). By 1991,

many universities began offering web-based classes and programs entirely online. Today,

distance education covers a wide range of options for learners from a single class to an

entire degree program.

      History of OERs. The history of OERs can be traced to the early 1900s, when

radio and television broadcasting were transmitting educational content for free (Wiley,

2006; Miller, 2014). The OER movement was a revolution much like the Internet and the

distance education movement (Miller, 2014). After the Internet was established and

institutions began offering courses through this platform, instructional designers and

educators began exploring ways in which digital content can be reused for educational

purposes. In 1994, the term "learning object" was introduced, defining the reuse of digital

content for a multitude of educational situations (Wiley, 2006).

      From this, the term "open content" was introduced, defining how the principles of

free and open content were to be developed into the first open content license (Wiley,

2006). In 1999, the University of Tubingen offered the first series of video lectures via

the Internet. In 2001, Creative Commons was founded, releasing a set of licenses to

establish integrity and validity to the open content community (Butcher & Moore, 2015;

Wiley, 2006). One of the most notable developments in the OER movement occurred in

2001, when the Massachusetts Institute of Technology (MIT) announced plans to release

its courses through the use of an open license, as part of the OpenCourseWare initiative.

This would allow the materials being used on its campus for instructional purposes to be

made available to the public for free (Wiley, 2014a). In 2002, 32 courses were released

through that platform (Butcher & Moore, 2015). Following the OpenCourseWare

initiative, the United National Educational, Scientific, and Cultural Organization (UNESCO) held a forum targeting open courseware in higher education for the development of educational resources worldwide. The term open educational resources was adopted by UNESCO in response to the growing number of institutions offering free and open courseware (UNESCO, 2017).

After MIT released its courses in 2002, China joined MIT in an effort to offer educational resources to Chinese universities in a project called China Open Resources for Education (CORE) and, in 2006, Khan Academy began offering educational videos for free to support secondary education (Butcher & Moore, 2015; Wiley, 2006). The next developments in the OER movement stemmed from the Cape Town Open Education Declaration, which provisioned for the global release of free educational material via the Internet. In 2009, the Hewlett Foundation provided funding to the University of Michigan and four African Universities to launch OER Africa, a platform that allowed the distribution of health education at no cost (Butcher & Moore, 2015). In 2010, Stanford University launched a Massive Open Online Course (MOOC), enrolling more than 160,000 learners.

In 2011, the Commonwealth of Learning developed a policy that aids in the expansion and utilization of OERs (Butcher & Moore, 2015). More than 175 universities actively participate in OER initiatives across the globe. While these resources and initiatives have expanded on a global level, the scale of impact on education, specifically distance education, is still unknown (Butcher & Moore, 2015).

Faculty Adoption of OERs

Faculty members, who are the most essential part of course content delivery, are

seeking solutions to the textbook affordability issue (Chismar, 2015). Faculty understand that students who fail to obtain the required course materials are ultimately unsuccessful in class (Chismar, 2015). The adoption and integration of free and openly accessible educational resources may be a process that faculty members can use to address textbook issues; however, there has not been a mainstream adoption of these materials by faculty due to a number of uncertainties and apprehensions with OER adoption and integration (Hilton & Laman, 2012; McKerlich et al., 2013; Stagg, 2014). Faculty are the primary adopters and implementers of OERs inside the classroom, yet many faculty have not adopted OERs because they are largely unaware of how OER implementation may benefit them and their students (Allen & Seaman, 2014).

OERs may contribute to successful delivery of course content, but only if faculty are willing to adopt and integrate them into the curriculum (Bliss et al., 2013). When investigating OER adoption, faculty utilization is an important indicator for understanding all of the benefits as well as the drawbacks that OERs offer (McKerlich et al., 2013). The practice of OER adoption is still maturing; therefore, much of what is understood about motivators and attitudes for adoption is not fully conceptualized (Stagg, 2014). By investigating faculty interactions with OER materials and OER adoption, a "deep understanding of practitioner experiences" may help to encourage wide scale adoption of OERs (Stagg, 2014, p. 154). The cost effectiveness of OERs is seen as a benefit; however, these resources must also demonstrate a sufficient level of quality to meet higher education standards (Allen, 2010). While researchers are confident in the cost effectiveness of these resources, there is still much uncertainty about the quality and efficacy of OERs (Bliss et al., 2013).

Perceptions of quality. Perceptions of OER quality and effectiveness are areas of concern for faculty who are adopting and integrating OERs into the curriculum (Allen & Seaman, 2014). It is critical to recognize both faculty and student perceptions of OER quality, as this may provide a better understanding of how these resources are adopted and utilized in the classroom by students and educators alike (Bliss et al., 2013). Trusted quality is viewed as one of the most important criteria for faculty members who are choosing which instructional resources to utilize in class (Allen & Seaman, 2015). In Tanzania, a study conducted to determine instructor adoption of OERs and intentions to use OERs found that one of the barriers to adoption was difficulty in finding relevant and high quality OERs. Mtebe and Raisamo (2014) reported that instructors experienced difficulty in finding relevant and contextual resources. Additionally, results indicated that instructors had reservations concerning the quality of the OER materials. Some concerns raised included irrelevant material, authenticity, curricular integration, and exhibiting superficial qualities (Mtebe & Raisamo, 2014).

A study conducted in 2011 as a part of Project Kaleidoscope, an open education initiative, indicated that 55% of the surveyed instructors found OERs to be of equal quality to the traditional texts used in previous courses and 35% of the instructors found OERs to be of better quality than traditional texts (Bliss, Hilton, Wiley, & Thanos, 2013). Additionally, 56% of students felt that the quality of OERs was the same or similar to traditional textbooks and 49% of students viewed OERs to be of superior quality (Bliss et al., 2013). It is important to note, however, that although a large majority of the instructors and students had a favorable outlook on OER quality, a statistical analysis of the results was excluded due to the small sample size of the population (Bliss et al.,

2013). Quality and perceptions of quality may be dependent upon knowledge and awareness of OERs. Based on current research, it is clear that there is a perceived lack of quality of OERs by faculty members, which has led to slow adoption and resistance to adoption (Pitt, 2015).

In 2008, data were collected via surveys, focus groups, and interviews regarding the use of an open statistics textbook as a part of a pilot (Petrides, Jimes, Middleton-Detzner, Walling, & Weiss, 2011). As a part of the Community College Open Textbook Project (CCOTP), survey and interview results of faculty members using an open statistics textbook indicated that aside from cost reduction, adoption of OERs was based on quality content and an easy-to-use design (Petrides et al., 2011). In addition, faculty perceptions were influenced by other faculty member recommendations, peer reviews of OERs, and established relationships with OER authors (Ozdemir & Hendricks, 2017). Students, on the other hand, reported that cost was the single most important benefit of open textbooks. Additionally, 65% of students indicated that ease of use was a critical factor in preferences of open textbook utilization (Petrides et al., 2011).

An extension study of the CCOTP was conducted between 2013 and 2015 utilizing the *Collaborative Statistics* and *Introductory Statistics* textbooks at De Anza College (Illowsky, Hilton, Whiting, & Ackerman, 2016). Due to the results from a previous study conducted by Petrides et al. (2011), which indicated that students were more inclined to utilize an open textbook, an examination of student perceptions of the statistics textbooks over a period of time was conducted (Illowsky et al., 2016). A total of 231 responded to the questionnaire. This study utilized frequency of use to measure quality as a construct. Survey results corresponding to the *Collaborative Statistics*

textbook indicated that 66% of the respondents utilized the open textbook at least twice a week, 62% of the respondents found the textbook to be of equal quality to traditional textbooks, and 57% found them to be better in quality (Illowsky et al., 2016). Likewise, survey results corresponding to the *Introductory Statistics* textbook indicated that 70% of the respondents found the textbook to be of equal quality to traditional textbooks and 23% found it to be better in quality (Illowsky et al., 2016).

A study conducted in the California postsecondary education system indicated that faculty found OER materials to be complete, accurate, and of good quality (Ozdemir & Hendricks, 2017). In this study, approximately 50 faculty portfolios were analyzed qualitatively. The faculty members used OERs as a full textbook replacement or as a supplemental resource (Ozdemir & Hendricks, 2017). The data indicated that 44% of faculty were motivated by OER quality, relevancy, up-to-date content, and cost savings (Ozdemir & Hendricks, 2017). However, the amount of detail provided by faculty from the study was not consistent in content or in the number of portfolios submitted for review, which researchers noted led to problems with data analysis (Ozdemir & Hendricks, 2017).

Curriculum and pedagogy. While many aspects of OER utilization have been studied, the curricular impact of OER adoption and integration is still unclear (Hilton, Gaudet, Clark, Robinson, & Wiley, 2013). Studies regarding OER implementation in education have primarily focused on student performance and OER quality; however, another factor worth considering is how faculty members make decisions regarding OER integration into the curriculum. There are insufficient data available regarding faculty use and revision of OER materials to fit into the context of the courses (Ozdemir &

Hendricks, 2017). Additionally, there is a lack of empirical research on faculty perceptions of OER adoption and the pedagogical value of OERs once integrated into the curriculum (Ozdemir & Hendricks, 2017).

At the Open University (United Kingdom) a mixed methods study conducted on the impact of OERs on teaching and learning yielded findings on faculty reflections of pedagogical practices. Results indicated that educators are prompted to reflect on personal practice through the use of OERs (Weller, de los Arcos, Farrow, Pit, & McAndrew, 2015). It was reported that 64.3% of educators felt that their teaching methods were expanded and 59.4% felt that there was more reflection and comparison to other teaching methods. Additionally, 40.3% of educators reported that OERs are being used in order to further develop teaching methods (Weller et al., 2015). Faculty reported that OER exposure had caused them to inquire and learn about new strategies, ideas, or topics. It was also reported that OERs were used to aid faculty in instructional prep and to supplement other instructional material. Additionally, faculty felt that OERs served as a collaboration tool (Weller et al., 2015). Approximately 50% of the total respondents reported that OERs affected expansion of curricula and pedagogical approaches (Weller et al, 2015).

Faculty are the primary decision makers for the adoption of OER materials (Allen & Seaman, 2014). It is therefore important to understand how faculty are integrating OERs into courses. Literature has indicated that while many faculty members report that they are unaware of OERs and some of the major characteristics that define OERs, faculty are still able to integrate them into the curriculum either as supplemental or primary material (Allen & Seaman, 2014).

A study conducted by Babson Research Group (Allen & Seaman, 2014) found that 49% of faculty members were using OERs as supplemental material and 30% were integrating OERs as primary material despite a large number of these faculty members reporting a lack of knowledge of OERs. These findings point to a very specific problem: due to a lack of knowledge or understanding of certain licensing terms, faculty are reporting use of OERs that may not necessarily be classified as OERs, therefore leading to over-reporting of use (Allen & Seaman, 2014). The studies conducted have reported findings that there have been some pedagogical changes to the curriculum or teaching practices after the implementation of OERs. Bliss, Robinson, Hilton, and Wiley (2013) found that 75% of faculty members reported a change in instructional methods, including an increase in assignments and assessments, increases in engagement and class activities, and a decrease in lecture time.

Turkish faculty members who have used OERs reported that one of the main benefits of OERs is the opportunity for collaboration with more experienced faculty (Kursun, Cagiltay, & Can, 2014). Faculty within the California postsecondary education system also indicated that the adoption of OERs allowed for greater collaboration with their faculty peers. Similarly, faculty who participated in the MIT OCW initiative felt that making connections and collaborating with peers enhanced their teaching practices (Kursun et al., 2014; Preston, 2006). In addition, 86% of faculty reported that adopting OERs allowed for a more expansive use of teaching material and delivery of course content and that pedagogical approaches such as video integration, assessment redesign, and material supplementation were changed due to OER adoption (Ozdemir & Hendricks, 2017).

Library Support

Academic libraries have taken a lead role in assisting with the needs of faculty and students through a variety of initiatives, including OER initiatives, in an effort to connect people with resources in the most cost-effective way (Davis, Cochran, Fagerheim, & Thoms, 2016). These initiatives typically address many of the critical aspects of OER adoption in higher education, including open textbook publishing, textbook replacements, and even course redesign with the inclusion of OERs (Walz, 2015). In addition, other wider scale library initiatives, such as those developed by large universities, seek to aid in the tedious process of locating cost-effective materials (Walz, 2015).

In 2014, Utah State University librarians invited faculty members to collaborate on an OER initiative that sought to identify and evaluate OERs for syllabus integration (Davis et al., 2016). Seven faculty members participated in the initiative. The faculty members provided their course syllabi to the USU librarians and together they created goals and objectives for each course. Each faculty member searched for relevant material from a selection of OERs deemed appropriate by the librarians (Davis et al., 2016). The librarians then distributed a survey to the seven faculty members to gather data on the faculty members' experiences with the OER materials, specifically, whether the librarian-provided material was appropriate for their syllabus, whether faculty members experienced course improvements, and suggestions on how librarian support could be improved (Davis et al., 2016).

Of the seven faculty members who participated in the initiative, five completed the survey. Two of these faculty members felt that the OERs provided by the librarians

were useful, two felt that the OERs provided were not useful, and one felt that the material was somewhat useful (Davis et al., 2016). Additionally, two faculty members reported incorporating OER materials into their courses. Qualitative data indicated that while faculty were not sure if using OER materials led to higher student engagement, they were confident that OER materials had some positive benefits for their students (Davis et al., 2016).

Copley Library at the University of San Diego launched an OER initiative in 2014 to measure faculty interest in using OER materials. After numerous failed attempts at recruiting faculty member participation, the library's dean incentivized the initiative, offering a stipend to faculty members for OER integration (Hess, Nann, & Riddle, 2016). The library provided information on licensing and locating appropriate materials. At the end of the semester, the participating faculty members were to submit a report detailing experiences and judging efficacy of the OER material (Hess et al., 2016). While no empirical data were collected for this initiative, the hope was that there would be a broader acceptance of OER material at the University. Details from this study may help collaborating librarians create best practices and implementation strategies for wide-scale OER adoptions in higher education.

California State University San Marcos examined the ability of students to locate material via their institutional repository, ScholarWorks. In 2011, ScholarWorks was developed as a means to distribute the works of CSUSM faculty, staff, and students (Mitchell & Chu, 2014). A survey was conducted to gather data on faculty awareness of library services and their acceptance of OERs. Seventy percent of faculty indicated that they would be willing to use OERs as primary materials in their courses. Additionally,

four percent indicated that they would not be willing to use OERs as primary material and 26% indicated that they were not sure if they would be willing to use OERs as primary material in their courses (Mitchell & Chu, 2014). Faculty were also surveyed about the use of library exhibits in courses: 25% of faculty reported that they had integrated library resources in their courses, 50% reported that they would be open to student use of library exhibits in assignments, and 40% reported that they would likely use exhibits as a part of the coursework (Mitchell & Chu, 2014).

The role of libraries in OER initiatives has been identified in the literature as being of importance. A study conducted by the Centre for Academic Practice & Learning Enhancement in conjunction with the Centre for Educational Technology and Interoperability yielded findings that the library played a critical role in more than half of OER projects either as a leader of the initiative or as a support partner (Bueno-de-la-Fuente, Robertson, & Boon, 2012). The study gathered data from global OER projects using a multi-scaled survey. Of the 57 participant responses analyzed for the study, 36% of respondents identified library contributions as essential, 25% identified library contributions as beneficial, 11% found library contributions non-influential, and 5% found library contributions to have no significance (Bueno-de-la-Fuente et al., 2012). This study therefore concluded that more work is needed to expand knowledge of library services relating to OERs so that librarians are better able to support OER initiatives, offer specialized workshops, and aid in syllabi integration (Bueno-de-la-Fuente et al., 2012).

Through institutional OER initiatives, libraries have a unique opportunity to partner with and build relationships with administrators, faculty, and instructional

designers (Davis et al., 2016). These key employees are also considered stakeholders and can be the best advocates for the adoption of OERs at institutions of higher education (Davis et al., 2016). In addition, it has been noted in the literature that the infrastructure and existing values of libraries make them ideal supporters of OER initiatives, as they are already set up to provide services for publishing, gathering research materials, and access quality educational material (Davis et al., 2016; Massis, 2016; Walz, 2015).

One of the most commonly cited support functions of libraries for OER initiatives is to offer workshops that specifically target the main areas of concern for adoption. Workshops addressing licensing, searching for and locating repositories and resources, and creating OER materials may be helpful in reducing some of the anxiety that faculty members face with OER adoption (Massis, 2016). Academic librarians are continuously seeking methods for implementing OERs in higher education through instruction, training, creating, and providing access to quality open licensed material (Davis et al., 2016).

Course Design

The use of OERs by instructional designers is not widely reported in the literature (Merkel & Cohen, 2015). Despite this, OER literature has identified several models for OER utilization, including one of the most popular models by Wiley called the 4R's model (Merkel & Cohen, 2015). OER use by instructional designers can be conceptualized by examining the interactions between designers and learning objects (Frances & Murphy, 2008). Learning objects have been defined as "any digital resource that can be used to support learning" (Wiley, 2000, p. 6). They are also defined by their characteristics, which include reusability, granularity, accessibility, reliability, and

discoverability (Frances & Murphy, 2008).

Kahle (2008) proposed five principles that can be used to guide the design of open education: designing for access, agency, ownership, participation, and experience (Lane, 2010). In addition, in 2010, McAndrew proposed a framework for OER project development that is both flexible and systemic. The stages include (a) legal copyright release through Creative Commons; (b) practical access to open content; (c) technical development of a suitable environment for open content; (d) pedagogical understanding functional designs; (e) economic creation of sustainable models; and (f) transformative alteration of work and educational practices.

Repositories are useful in providing large amounts of content needed for course design; however, there has been some debate regarding the use of two specific types of OER repositories: institutional supported (Big) and individually created (Little) OER (Merkel & Cohen, 2015). Big OER repositories tend to be of higher quality and primarily used to meet educational objectives. In contrast, little OER repositories tend to be of lower quality and cost and typically do not include specific educational objectives (Merkel & Cohen, 2015).

A study conducted by Merkel and Cohen (2015) on repository utilization by instructional designers and training managers examined the frequency of Big and Little OER repository usage. A questionnaire was distributed to instructional designers and training managers inquiring about their use of internal and external repositories (Merkel & Cohen, 2015). Fifty instructional designers and 29 training managers participated in the study. The study's findings indicated that, of the organizations surveyed, 92% have internal repositories for use. Additionally, 87% of the participants indicated that they

frequently used their organization's internal repositories (Merkel & Cohen, 2015).

The study also examined frequency of use based on Wiley's 4R's framework. The results indicated that revise and remix were the two most popular usage levels, while reuse and redistribution were the least utilized (Merkel & Cohen, 2015). In terms of repository utilization, 49% of the participants indicated that they utilized external (Big) OER repositories. Little OER repositories, being more popular, yielded a multitude of findings concerning usage. YouTube was identified as the most popular repository, with a 96% utilization rate. In addition, 90% of participants identified Google Images as a frequently used repository, 69% of participants reported using Wikipedia, 55% of participants reported using TED repository content, and 11% used Flickr (Merkel & Cohen, 2015).

While the use of specific repositories is largely dependent upon the setting in which the instructional designer works, and the relevance of the materials housed in the repository, all are critical access points for open educational material and provide a means for greater availability and visibility of content (Ferguson, 2017).

Challenges of OER Adoption

Several challenges have been reported in the literature concerning OER adoption and integration. Theoretically, the benefits of OERs are widely known by academics; however, OERs have had a slower-than-normal adoption rate (Atenas, Havemann, & Priego, 2014). Identifying challenges associated with OERs may lead to a higher adoption rate, specifically for faculty members who are looking to adopt and integrate OERs into their curriculums. The most commonly reported challenges include (a) time, (b) quality, (c) discoverability, (d) context/relevance, (e) permissions/licensing, (f)

awareness, (g) training, and (h) sustainability.

Time. The amount of time required to find relevant OER material has long been identified by faculty members as a barrier to adoption and integration (Hassall & Lewis, 2017). A survey administered to instructors and researchers reported that time was a major issue for 67% of the respondents (Kursun, Cagiltay, & Can, 2014; OECD, 2007). In a study conducted through the School of Biology at a university in the UK, 34% of faculty indicted that there was not sufficient time to locate and integrate OER materials into their courses (Hassall & Lewis, 2017). Another study conducted at a university in the UK yielded similar findings. Faculty reported that time is necessary to find adequate and related OER material and that more organization of OER sources and material would be helpful for the integration process (Atenas, Havemann, & Priego, 2014).

Quality. The quality of OERs has come into question many times by faculty members who wish to provide these resources to their students (Belikov & Bodily, 2016). Additionally, questions on both quality and the educational impact of OERs have led to uncertainty among faculty members in the implementation of OERs at institutions of higher education (Hilton & Laman, 2012). When considering OERs, specifically the time it takes to locate materials, the issue of quality resources emerges to the forefront. Quality, however, is not easily defined or measured for many OERs (Clements & Pawlowski, 2012). Due to the rapid growth of OERs, it becomes increasingly difficulty to locate relevant and quality material (Atenas, Havemann, & Priego, 2014). There are a number of repositories and collections that house OER material, but the quality of those materials still remains questionable. Scholars noted that the creation of OER repositories could serve as one initial measure for quality assurance (Atenas, Havemann, & Priego,

2014).

While there is no single measure for OER quality, there are several indicators that can be used to judge the quality of OER material. Atenas, Havemann, and Priego (2014) noted that peer reviews, evaluation tools, featured resources, keywords, metadata, and the inclusion of social media tools can all be used to not only improve the quality of OERs, but also improve the utility of the material. Measures of quality and reliability for open educational resources may be difficult to evaluate by faculty. Although rubrics have been designed to evaluate the quality and educational utility of OERs, faculty members may experience confusion when deciding which rubric to utilize as an evaluation tool (Yuan & Recker, 2015). Because faculty perceptions vary from negative to neutral due to lack of overall awareness of OERs (Allen & Seaman, 2014), faculty should not only possess an awareness of OERs, they also should perceive OERs to be effective and of a trusted quality in order for adoption to occur (Allen & Seaman, 2014; Hilton et al., 2016).

Allen and Seaman (2014) reported that 34% of faculty were unaware of OERs and their characteristics, and therefore, were also unsure of how to judge the quality. Results also indicated that 61.5% of faculty felt that OER materials were of the same quality as traditional materials and 12.1% indicated that OERs were superior to traditional materials (Allen & Seaman, 2014). Additionally, adoption concerns at the BCCampus (Canada) were driven by faculty expressing difficulty with finding high quality resources, with 56.1% of faculty members reporting this concern (Jhangiani, Pitt, Hendricks, Key, & Lalonde, 2016). Results from this study indicated, however, that 59% of respondents felt that the OERs utilized were of equal or better quality than traditional material, while qualitative data indicated that faculty members generally had positive

perceptions of the quality and variation of OERs (Jhangiani et al., 2016). In turn, some faculty members reported difficulty in discovery, negative perceptions of image quality, and negative perceptions about the availability of materials (Jhangiani et al., 2016).

Discoverability. The ability of faculty members to identify and locate OER material remains one of the biggest challenges for OER adoption (Belkov & Bodily, 2016). OER repositories are designed to store learning content in a centralized location for global sharing; however, the functionality of OER repositories is primarily based on metadata, which must be entered in a detailed manner for full searching functionality to occur (Judith & Bull, 2016). In a study conducted by Belkov and Bodily (2016), approximately 17% of faculty indicated that they were unsure of where to find OER material and repositories. Allen and Seaman (2014) reported that 38% of faculty felt that locating OER material was very difficult; likewise, approximately 50 percent of faculty were concerned with the absence of an all-inclusive catalog.

In a study by Rolfe (2012), 38 percent of faculty members indicated that they would like to have access to an institutional repository and 30 percent stated that they would like to have a wider use of external repositories. It takes a fair amount of skill to adequately locate OER material and, despite the numerous OER repositories available for use, there is still some disconnect that exists between faculty members and the resources (Walz, 2015).

Context and relevance. Faculty members have reported difficulty in locating appropriate and context-specific OERs (Belkov & Bodily, 2016). Allen and Seaman (2014) reported that approximately seven percent of faculty members found OER materials to be outdated. Likewise, approximately 19 percent reported that the content

was not relevant to the subject area. It has also been cited that faculty are unable to locate context-specific OER material that will meet learning objectives and fulfill pedagogical practices (Judith & Bull, 2016). Mtebe and Raisamo (2014) reported that faculty felt OER materials were not comprehensive and irrelevant to course context. In addition, while some faculty felt that OER materials were beneficial to pedagogical practices, they raised concerns with the suitability of OER materials as integrated curriculum components (Mtebe & Raisamo, 2014).

Permission and licensing. The awareness of licensing and copyright has also been cited as a barrier to OER adoption. Faculty members are unsure of how to share materials without violating copyright laws (Mtebe & Raisamo, 2014). Forty percent of existing case studies researched for a meta-analysis conducted by Judith and Bull (2016), identified copyright and intellectual property as barriers to OER adoption. Additionally, there is some confusion that exists when a single resource possesses a multi-rights profile, which further complicates the adoption process (Judith & Bull, 2016). While faculty report that they would be willing to share created material, they also express concerns with violating copyright laws, protecting intellectual property rights, and increasing levels of plagiarism (Kursun, Cagiltay, & Can, 2014).

Awareness. Faculty awareness of OERs is another challenge that has been frequently cited in the literature. A study conducted by Hassall and Lewis (2017) at the University of Leeds (United Kingdom) reported that 68 percent of faculty are teaching with the inclusion of OER materials. Additionally, while only one faculty member reported being completely unaware of OERs, all remaining faculty reported being aware of at least one type of resource. This, however, does not translate to a universal awareness

by all faculty members worldwide. Belkov and Bodily (2016) reported that 36.7 percent of faculty were either completely unaware of OERs or required additional information about OERs and 12.8 percent had difficulty understanding OER capabilities.

In Tanzania, studies conducted on OER adoption yielded findings that 22 percent of faculty were either unaware of OERs or lacked the knowledge to access OER materials (Mtebe & Raisamo, 2014). In a study conducted by Rolfe (2012) at De Montfort University, 18 percent of faculty indicated an awareness of OERs. Among the various open access resources, 22 percent of faculty were aware of an internal open access repository and 20 percent were aware of Jorum, a UK repository funded by Jisc (Rolfe, 2012). Even fewer faculty reported awareness of field-specific open resources such as Bioscience and Biomedical image repositories. If there is a lack of awareness of OERs, there will likely be a slower adoption rate for OER materials (Allen & Seaman, 2014). Likewise, understanding the attributes of OERs, such as those that are free compared to open, is also an important factor when examining awareness holistically (Allen & Seaman, 2014).

Training. A survey conducted at the School of Biology at a university in the UK indicated that 14 percent of respondents lacked adequate training for OER use (Hassall & Lewis, 2017). While there were no solutions presented to increase the number of training opportunities for faculty members, researchers suggest that addressing other barriers such as institutional support and awareness of OERs may help to reduce the need for large amounts of training (Hassall & Lewis, 2017). In addition, a wide-scale institutional adoption indicates that key stakeholders, such as administrators, are willing to support OER implementation and thus, there may be an increase in training opportunities for

faculty members driven by greater institutional support (Hassall & Lewis, 2017).

      Sustainability. A successful OER initiative is one that is sustainable. In 2009, Friesen provided a representative list of OER repositories with their initiation dates. The funding for the projects included institutional, governmental, or a combination of the two (Friesen, 2009). With the exception of MERLOT, many of the projects have been discontinued, which leads to a larger problem of the long-term success of these types of resources (Friesen, 2009; Rolfe, 2012). Despite the cost-effectiveness for students, OER adoption is not cost-free for the institutions that implement them (Wiley, Williams, DeMarte, & Hilton, 2016). Costs arising from locating, reviewing, and integrating OERs must be absorbed by adopting faculty or institutions (Wiley et al., 2016).

      Many OERs are funded through philanthropic or governmental sources; however, these funding types are often temporary (Annand, 2015). Researchers suggest that creating a stable, financially independent model could be the best way to ensure the long-term success of OERs (Annand, 2015). One of the key factors in the sustainability of OERs is the production and use of OERs by institutional stakeholders (Rolfe, 2012). Quality and academic support are drivers for the longevity of OERs as well as the sharing of the resources. A number of financial models have been presented in the literature; however, none of the models has been able to successfully predict a self-sustaining income source (Annand, 2015). One model implemented by Tidewater Community College as a part of the Tidewater Z-Degree explored how retained funds through a decrease in drop rates creates a renewable funding source for OER (Wiley et al., 2016). The implementation of the model suggested that a total of $100,000 a year could be retained for the sustainability of OERs at the institution (Wiley et al., 2016). Because of

the nature of OERs, financial sustainability will continue to be a concern for institutions that are considering adoption of OERs. Revenues generated through print sales of OERs or through retained revenue due to student retention may be a viable financial model for the long-term stability of OERs; however, these models must be further tested for longevity and reliability (Wiley et al., 2016). In order to overcome the challenges associated with OER adoption, a deeper understanding of the fundamental core elements of OERs, such as licensing and framework, is important.

Licensing

In order to understand the true nature of OERs, it is important to clearly delineate the term "free." For OERs, free not only relates to the cost but also to the access of the resources (Bissell, 2009). While one of the most commonly defining aspects of OERs is the cost effectiveness of the materials, it is the open license that is the core element of these resources (Bissell, 2009). Licensing, unfortunately, can be very confusing for educators, and not understanding licensing terms may lead to improper use of educational resources and add to the complexity of integrating these types of resources in the curriculum (Bissell, 2009).

Copyright. When considering the field of education, many works are generated through expressions of creativity with the intent of freely sharing works for learner engagement and collaboration (Bissell, 2009). The principles of copyright, however, seem to be in conflict with the fundamental philosophies of education (Bissell, 2009). Copyright licenses protect the works of the owner. If a work has a copyright, permission must be granted to use and distribute it (Welcome to Public Domain, 2017). When a copyright expires or is not renewed, the work may be transferred into public domain

(Welcome to Public Domain, 2017). Original works are protected by copyright as long as the creator is alive--plus 70 years (Walz, 2015). In order to display or reproduce original third-party works in compliance with copyright laws, one of four conditions must be present: (a) the materials must be in the public domain, (b) permission and/or licensing must be obtained, (c) material is covered under fair use; or (d) materials are openly licensed (Walz, 2015).

Faculty members frequently report that one of the major barriers of OER adoption and integration is problems with intellectual property and the complexity of copyright laws (Kursun, Cagiltay, & Can, 2014). Copyright laws and permissions may be complicated; however, if educators are able to understand these licenses, as well as alternative licenses, they will be able to fulfill objectives (Bissell, 2009). One alternative license worth exploration is the Creative Commons license. Many OER initiatives are foundationally derived from open licensing; therefore, understanding the role that Creative Commons plays in the OER movement is important for those in academia, to help facilitate the reuse and distribution of educational materials with greater ease (Walz, 2015).

Creative Commons. Creative Commons is a service that allows content creators to label creative work with specific rights and share work freely and legally (Atkins, Brown, & Hammond, 2007). The purpose of Creative Commons is to allow for sharing, using, and repurposing creative work without limitations of copyrights (Bissell, 2009). Understanding the concepts behind Creative Commons allows for greater collaboration and flexibility within the field of education, specifically for instructors who wish to incorporate educational materials into the curriculum (Bissell, 2009). Under the Creative

Commons license, there are six licensing solutions that control the use of creative works; and these solutions vary in their level of permissiveness or openness (Walz, 2015).

The four major license categories are attribution, non-commercial, share alike, and no derivatives, with the CC BY license being the most permissive (Bissell, 2009; Walz, 2015). Additional licensing terms can be created by combining attribution, non-commercial, share alike, and derivatives with the CC BY license in order to establish an appropriate solution for any specified permission level (Walz, 2015). The permissiveness of the Creative Commons license allows for the integration of the 5R's framework without the limitations of restrictive use (Massis, 2016; Wiley, 2014b).

The 5R's framework. Due to the varying levels of openness as a construct of open educational materials and licensing, a framework establishing reuse can be utilized in order to understand the types of licensing permissions available (Hilton, Wiley, Stein, & Johnson, 2010). Hilton, Wiley, Stein and Johnson (2010) identified the four usage conditions of openness, beginning with the most basic, which allows for the free use and redistribution of all work. The four conditions are reuse, redistribute, revise, and remix (Hilton et al., 2010). The original framework consists of four levels of openness; however, a fifth level—retain—has recently been noted as an addition to the framework.

The most basic usage activity is reuse. This level is most closely related to access and accessibility (Tuomi, 2013). Redistribution allows for the sharing of reproduced material. Revising can be completed as modifications, adaptions, or translations of original works. Remixing occurs when two or more works are joined to create a new resource (Hilton et al., 2010). Within this framework, increasing openness is a function of allowing certain usage conditions to be applied to creative works. Therefore, the least

restrictive usage allows for all four activities to be applied, while the most restrictive usage allows for only one activity, reuse, to be applied (Hilton et al., 2010). The fifth usage activity, retain, was added to the framework by Wiley (2014b), and established to protect the ownership of the content creator.

State of Research

A Babson Survey revealed that two of the most critical aspects of selecting educational resources for faculty members are "proven efficacy" and "trusted quality" (Hilton, n.d.). Approximately 26 empirical studies have examined the efficacy and/or perceptions of open educational resources. The following section provides an overview of the state of research on OERs, including (a) OERs and performance, (b) OERs and completion, and (c) OERs and enrollment.

OER and performance. The literature on OERs and student performance have yielded mostly positive results; however, the results should be interpreted cautiously due to the limitations of the studies (Hilton, n.d.). Researchers have taken great interest in the impact of OERs on educational outcomes; however, it should be noted that these types of outcomes are particularly difficult to measure (Feldstein et al., 2012; Hilton, n.d.). A study conducted by Virginia State University in conjunction with Flat World Knowledge (FEK) reported that students using OER materials earned higher grades than those who were using traditional materials and researchers claim that the progress may be due to the increased access to necessary materials (Feldstein et al., 2012). Access in this study was measured by the number of student registrations over a period of time.

Download patterns were also examined as a variable to measure access. Results indicated an increase in download patters for the FWK material (Feldstein et al., 2012).

While current literature has not been able to establish causality, there has been a recognizable pattern between educational outcomes and the increased access to OERs. This trend indicates that students who have access to and utilize OERs tend to have better course grades and higher course success rates (Gil, Candelas, Jara, Garcia, & Torres, 2013). Results of this study should be interpreted cautiously, as the design of this study was not scientifically rigorous; there was no attempt to randomize the courses or the content being examined (Feldstein et al., 2012). However, the study may still provide some insight into OERs and student outcomes.

Houston Community College conducted a study in the fall semester of 2011 that found that learners who had used an open psychology textbook in class experienced an increase in their course GPA as well as retention rates (Hilton & Laman, 2012). The *Intro to Psychology* textbook, in collaboration with FWK, was implemented as an open alternative to traditional psychology textbooks. Seven faculty members participated in the pilot utilizing the FWK psychology text (Hilton & Laman, 2012). Results indicated that increases in students' GPA, final exam scores, and overall retention rates were observed across the 23 sections. Additionally, it was reported by two instructors that there were significantly large decreases in course withdrawal rates (Hilton & Laman, 2012). Another important aspect to note is the students' perceptions of ease of use for the textbook. The study indicated that 42 percent of the students reported that the textbooks were easy to use, while eight percent reported difficulty in using the book (Hilton & Laman, 2012). It is important to note that despite reported increases, there were limitations present: being conducted at one institution without the use of an experimental design.

At Mercy College, an OER initiative titled Project Kaleidoscope yielded gains in

the areas of performance, course success, and persistence in the treatment courses for reading (Pawlyshyn, Braddlee, Casper, & Miller, 2013). In treatment math courses there was a decrease of 10% in course failure rates after the first semester of implementation and a reported 20.5% increase in the pass rate between fall 2011 and spring 2012 (Pawlyshyn et al., 2013).

The University of California conducted a pilot program using WikiTexts for STEM areas as a part of the Hyperlibrary project (Allen, Guzman-Alvarez, Smith, Gamage, Molinaro, & Larsen, 2015). According to Allen et al. (2015), the ChemWiki is one of the highest-ranking websites, with 55% of total traffic generating from the United States and a total of four million students per month visiting the site. The projection is that the UC Hyperlibrary will eventually replace traditional textbooks (Allen et al., 2015). The ChemWiki was evaluated in spring of 2014 using two chemistry courses at the University of California. One course used the ChemWiki as the only resource for all course components, while the other course used a traditional chemistry text. The results indicated that there were no significant differences among the two courses in terms of assessments for final course grades (Allen et al., 2015). In regards to the individual student achievement gains, there were no superior gains detected among the learners using the ChemWiki in comparison to the learners using the traditional chemistry text (Allen et al., 2015).

As a part of the Kansas State Open/Alternative Resource Project, interviews were conducted with faculty members who were using open resources in their courses. Data were collected during the fall semester of 2014 and results indicated that faculty perceived students to be more responsive and engaged with the open resources

(Delimont, Turtle, Bennett, Adhikari, & Lindshield, 2016). Approximately 62% of faculty indicated that students in courses using open resources performed equally or slightly better than in previous courses and 69% of faculty felt that student learning had also experienced a slight improvement when compared to traditional texts (Delimont et al., 2016). There were no differences reported in student or faculty perceptions of the courses taught with open resources compared to courses taught with traditional texts (Delimont et al., 2016). While the overall response rate was higher than the rates of similar studies, the utilized survey "had not been validated" (Delimont et al., 2016, p. 12). Additionally, the study was only conducted at one institution, which is a delimitation.

Carnegie Mellon's Open Learning Initiative conducted a series of OER effectiveness studies on a statistics course over several semesters from 2005 to 2007 (Lovett, Meyer, & Thille, 2008). During the fall 2005 and spring 2006 semesters, students were invited to participate in a 15-week online statistics course that used an open platform. The study examined scores extracted from in-class exams as an indicator of performance. Learning gains were also measured utilizing a knowledge assessment for statistics called the Comprehensive Assessment for Outcomes (CAOS). This assessment was distributed to the students at the beginning and end of the spring 2006 semester (Lovett et al, 2008). Results from the in-class exam scores indicated that there was no significant difference between the OLI statistics course and the traditional statistics course (Lovett et al., 2008). In contrast, there was a "significant gain in statistical literacy" as well as a relevant gain in scores compared to the national average (Lovett et al., 2008, p. 7).

In the spring 2007 semester, a hybrid accelerated model for the OLI statistics

course was utilized to determine the effectiveness of OERs on student performance. The hybrid model was designed to be completed in 8 weeks, compared to the traditional 15-week design, and allowed two weekly meetings with the instructor. Similar to the spring 2006 semester, students in the OLI statistics group and traditional students were administered the CAOS test. Results indicated that there were no significant differences between students in the accelerated OLI statistics course and the traditional students; however, it should be noted that in the Spring 2007 semester, the students in the accelerated OLI statistics course performed as well as the traditional students and did so in a term that was half as long as the traditional semester (Lovett et al, 2008). There was also a significant increase in learning gains observed in the students in the accelerated OLI statistics course compared to the traditional control group. It should be noted that despite the outcomes presented in this study, the use of in-class exams as a measure of assessment poses validity and reliability issues because these types of exams do not go through a formal assessment process nor are they adequate assessment tools for measuring learning gains (Lovett et al., 2008).

Utilizing Carnegie Mellon's OLI statistics course as a model, a quantitative study at six public institutions was conducted to examine the effectiveness of open courses and to assess the educational outcomes connected with open courses (Bowen, Chingos, Lack, & Nygren, 2012). The researchers found that there were no significant differences between the hybrid OLI statistics group and the traditional group. These results were consistent between the final exam scores, CAOS posttests, and course pass rates. Additionally, it was noted that while the results were "fairly precisely estimated," there were some validity issues present due to the lack of randomization for the instructors

teaching the courses (Bowen et al., 2012, p. 19). Despite this limitation, researchers

suggested that the most noteworthy results indicated that the learning outcomes of the

hybrid students were similar to the outcomes of the traditional students. Additionally, the

hybrid students did not experience a decrease in outcomes through the use of the hybrid

model of learning (Bowen et al., 2012)

As a part of the Affordable Learning Georgia initiative, the University System

issued the state a grant to implement lower-cost alternatives to replace the currently

utilized textbooks (Croteau, 2017). In order to examine pre-and post-textbook

conversions, a study was conducted on a total of 27 courses across 14 institutions within

the state system. Both quantitative and qualitative data were collected during the spring

semester of 2015. Quantitative data were reported on six variables measuring drop, fail,

and withdrawal rates (DFW), completion, number of students receiving grades A-D, final

grades as a percent, final exam scores, and course-specific assessment measures (Croteau,

2017). Additionally, qualitative data were collected via questionnaires, focus groups,

and/or student quotes.

The statistical analysis concluded that datasets were normally distributed and of

equal variance (Croteau, 2017). A paired samples *t*-test indicated that there was no

significant difference between pre-and post- textbook transformations, which supports the

efficacy of OER utilization compared to traditional textbooks and materials (Croteau,

2017). Additionally, qualitative data indicated that approximately 80% of learners

perceived OERs to be of good quality and had neutral or positive perceptions of their

learning experiences with OER material (Croteau, 2017). While the results of this study

indicated that OERs can be used without negatively impacting student learning, there are

some limitations to note. The sample size for the study was very large overall; however, inconsistent reporting across variables caused a reduction in sample size. There were also inconsistencies in the type of data collected across the participant groups in both the quantitative and qualitative data (Croteau, 2017).

OERs and enrollment. Student enrollment is a primary predictor of degree completion; therefore, it is important to study the impact of OERs on student enrollment (Fischer, Hilton, Robinson & Wiley, 2015). There is a limited amount of literature regarding the impact of OERs on enrollment. One study conducted by Fischer, Hilton, Robinson, and Wiley (2015) found that students who were enrolled in courses using OERs took more credits per semester than students who were not enrolled in courses using OERs. This result was also observed in the following semester of the study. More research is needed on this aspect of OER impact so that institutions may be able to use the findings to aid in increasing enrollment and graduating students within a reasonable timeframe.

OERs and completion. For the purpose of this literature review, completion is defined and measured by the completion of a course as observed by a decrease in course withdrawals. A study conducted by Virginia State University reported that students using OER materials had lower withdrawal rates than those who were using traditional materials (Feldstein et al., 2012). Although many of the studies that have been conducted have failed to establish causality between OERs and completion, there have been statistical inferences that indicate a positive correlation between these two variables. One study reported not only an increase in learner achievement and knowledge but also a decrease in course withdrawal rates (Gil et al., 2013). In a study conducted in the

California postsecondary education system, 55% of faculty indicated that the impact of OERs on student learning and retention either remained the same or experienced a slight improvement. These gains were measured by examining exam and assignment scores and overall course grades (Ozdemir & Hendricks, 2017). These improvements were attributed to accessibility through technology, increased engagement, course redesigns, and content relevancy. Sixteen percent of faculty reported improvements in retention by as much as 2% and 12% reported no change (Ozdemir & Hendricks, 2017).

Similarly, a study conducted at Tidewater Community College reported that students using OER in their courses tended to perform better overall, having higher drop rates, withdrawal rates, and a C grade or higher at the end of the course (Hilton, Fischer, Wiley, & Williams, 2016). Another study conducted by Fischer et al. (2015), reported that there was no pattern of significance across the 15 courses involved; however, students in the Biology treatment "had a significantly higher completion rate," while students in the Business treatment showed a decrease in withdrawal rates (p. 105).

Research Questions

The research questions for this study were designed to document the perceptions of higher education stakeholders, including faculty, librarians, instructional designers, and students with OER materials as integrated curriculum components within college-level courses. The following questions guided this study:

Central research question. What are stakeholders' perceptions of OER adoption and the utilization of OER materials in higher education?

Four subquestions assisted in answering the central research question.

1. What are faculty members' perceptions of OER adoption and the integration of

OER materials in higher education?

     2. What are instructional designers' perceptions of course design and development with the inclusion of OER materials?

     3. What are librarians' perceptions of support functions for the adoption and integration of OERs in higher education?

     4. What are student perceptions of the use of OERs in their higher education coursework?

Summary

     Chapter 2 presented the literature on OERs, the theoretical framework, and research questions that guided the study. The literature reviewed for this study identified gaps that require further exploration concerning OERs. This identification is important as researchers attempt to investigate OERs as replacements to traditional and costly textbooks and supplemental materials. While the majority of the research has touched on critical areas of importance such as faculty adoption, sustainability, quality, and achievement, more conclusive research is needed to evaluate the overall impact of these resources as they are adopted in higher education. Additionally, few studies have investigated stakeholder experiences with OER adoption. Examining the literature on OERs is important in understanding the role that these resources play in education, specifically, faculty experiences, librarian support, curriculum integration, and student experiences. Chapter 3 discusses the methodology and data collection procedures utilized for this study.

Chapter 3: Methodology

The purpose of this case study was to discover stakeholders' perceptions of OER adoption and the integration of OER materials in a medium-sized state college in east Florida. Specifically, this study sought to understand faculty, librarian, instructional designer, and student perceptions of OER adoption and utilization in faculty curriculum, course design and development, classroom pedagogy, and librarian services. This study also sought to discover how the OER adoption and integration process is observed and perceived by the specified stakeholders as part of a continuing OER initiative at the state college.

This case study was guided by the following central research question.

1. What are stakeholders' perceptions of OER adoption and the utilization of OER materials in higher education?

The following subquestions assisted in gaining a deeper understanding of stakeholders' perceptions of OER adoption and integration.

1. What are faculty members' perceptions of OER adoption and the integration of OER materials in higher education?

2. What are instructional designers' perceptions of course design and development with the inclusion of OER materials?

3. What are librarians' perceptions of support functions for the adoption and integration of OERs in higher education?

4. What are student perceptions of the use of OERs in their higher education coursework?

In this chapter, a discussion of the following areas is presented: (a) participants, (b) data collection instruments, (c) research design, (c) data collection procedures, (e) data analysis procedures, and (f) potential study limitations.

Participants

The population for this study included (a) faculty members employed at institutions of higher education that are currently incorporating OER materials into their courses, (b) librarians employed at institutions of higher education who are currently teaching with or supporting OER integration, (c) instructional designers employed at institutions of higher education who are currently designing courses with the inclusion of OER materials, and (d) students enrolled at institutions of higher education. Participants in the research study included (a) faculty who taught courses with OER materials during the Spring semester of 2018, (b) librarians who have taught with or supported OER integration, (c) instructional designers who have designed courses with the inclusion of OER materials, and (d) students who were enrolled in one or more OER inclusive courses during the Spring semester of 2018.

Faculty target population demographics. The ages of the faculty range from 25-60 years. The gender of the faculty is comprised of 56% males and 44% females. Additionally, 72% are full-time faculty and 28% are part-time adjunct faculty. The OER faculty participants all teach undergraduate courses; of those courses, 71% are Associate courses and 29% are Bachelor courses.

Librarian target population demographics. The ages of the librarians range from 25-40 years. The gender of the librarians is comprised of 17% males and 83% females. All of the librarians teach undergraduate library sciences courses using OERs as

the primary instructional resource.

   Instructional designer target population demographics. The ages of the instructional designers range from 20-45. The gender of the instructional designers is comprised of 40% males and 60% females. All of the instructional designers have designed at least one course using OERs as a supplemental resource or as a complete textbook replacement.

   Student target population demographics. The ages of the students range from 18-60. The gender of the student target population is comprised of 36% males and 64% females. All of the students were enrolled in one or more OER integrated courses during the Spring 2018 semester.

   The sample. The sample included seven faculty members who have taught one or more of the 21 OER integrated courses, three faculty librarians who have taught with OER material or who actively support the use of OERs, four instructional designers who have designed at least one course with the inclusion of OERs, and 126 students who were enrolled in at least one OER-integrated course at a medium-sized state college in east Florida.

   Sampling procedures. The researcher used a purposeful, maximal variation sampling strategy. Creswell (2013; 2015) stated that purposeful sampling is used in qualitative research in order to best understand the central phenomenon. Purposeful sampling is an intentional selection of certain individuals or groups who all display a certain characteristic (Creswell, 2015). Maximal variation sampling is used when several viewpoints within the same characteristic are examined (Creswell, 2013). Yin (2014) stated that a case study is intended to understand the complexity of a particular

phenomenon from multiple perspectives. The researcher recruited all eligible participants (i.e., all faculty members who were teaching in one of the identified 21 OER integrated courses, all faculty librarians who have taught with OER material or who were directly involved with the OER initiative, and all instructional designers who have designed courses with OERs). The sample included those participants that agreed to participate in the study and was comprised of seven faculty members, four instructional designers, three librarians and 126 students. For the purpose of this study, the researcher sought to understand OER adoption as a single case and document the experiences of multiple stakeholders: faculty, librarians, instructional designers, and students at a state college in east Florida.

Instruments

Creswell (2015) stated that in qualitative research, the researcher should use a specially designed data collection instrument, called a protocol or guide. Specifically, for interviews and observations it is important to have a structured process to conduct the interview, take notes, and preserve the quality of the collected data (Creswell, 2015). A protocol increases the reliability of a case study and aids in guiding the researcher in data collection (Yin, 2014). Additionally, in order to strengthen the evidence for a case study, multiple forms of data should be collected (Yin, 2014). This case study used several data sources, including a *Faculty Interview Guide*, an *Instructional Designer Interview Guide*, a *Librarian Interview Guide*, and an *OER Student Survey*.

Development. The faculty interview guide (Appendix A) was a modification of the interview guide created by Sessions (2014) as part of her dissertation, which sought to understand faculty members' experiences with integrating mobile devices into a teacher

education program. The questions were targeted towards the integration of a technological tool by faculty members in higher education. The instructional designer interview guide (Appendix B) was a modification of the interview protocol created by Lease (2016) as part of her dissertation, which sought to understand instructional designers' experiences with the adoption of free interactive learning objects. The researcher received permission from Lease to use and modify the instrument as appropriate for the study.

The librarian interview guide (Appendix C) was also developed as a modification of the interview guide created by Sessions (2014). The researcher received permission from Sessions to use and modify the instrument as appropriate for the study. The OER student perception survey (Appendix D) was a modification of the student survey created by Rowell (2015) as a part of her dissertation, which sought to analyze the factors influential to students' perceptions of OERs. The researcher received permission from Rowell to use and modify the instrument as appropriate for the study. As a part of the modification process, all of the instruments were reviewed by an expert panel and pilot tested prior to data collection to ensure content validity.

The expert panel consisted of one faculty librarian from the research site who currently instructs with and promotes the adoption of OERs at the institution, one faculty from the University System of Georgia who has participated in a statewide OER initiative, one associate professor from a private institution in Florida who has extensive experience in survey development, and one professor emeritus from a private institution in Florida who has extensive experience in distance education. The panel reviewed the interview questions for content validity and provided recommendations for changes to the

instrument. After the panel provided recommendations to the researcher, the instruments were modified accordingly. The researcher conducted a pilot test using one faculty member, one instructional designer, one librarian, and eight students.

Pilot. The pilot test was conducted as an additional validity measure to ensure that the participants would have a complete understanding of the interview questions (Creswell, 2008). The pilot test interviews were conducted face-to-face. After the conclusion of the pilot interviews, the researcher inquired about the clarity of the questions asked and made adjustments based on the pilot recommendations. The student survey was distributed in electronic formation via a link, which was emailed to a group of learners who were currently or had previously been enrolled in an OER integrated course.

Recommendations. The pilot interviews were conducted face-to-face with one faculty member, one librarian, and one instructional designer. The faculty member recommendations included (a) defining OERs before the interview commences, (b) including a date for the start of the OER initiative, (c) breaking up Question 2 into a main question and a sub-question, (d) including the term "in instructional practices" for Question 3, (e) including the term "in the design of your course" for Question 13, and (f) including the term "before and after" in Question 14. The librarian recommendations included (a) adding the terms, "documents, images, video" to Question 4 and (b) removing the words "and managing" from Question 9. The instructional designer had no recommendations for changes.

The student survey was distributed in an electronic format via a link. The students were asked to time how long the survey took to complete and they were given a set of questions to address. The students recommended one grammar correction and no

additional changes. All students completed the survey in 5 minutes. All students

responded that (a) the instructions were clear and easy to understand, (b) none of the

questions were confusing or hard to understand, (c) the directions on how to respond

were clearly stated, (d) the response choices were mutually exclusive and exhaustive, (e)

there was no difficulty in answering the questions, (f) the questions were presented in a

logical order, and (g) that their privacy was respected and protected.

   Changes to instruments. After the researcher concluded the pilot testing, changes

to the instruments were made based on the recommendations. All changes were made to

the faculty protocol based on the recommendations. All changes were made to the

librarian protocol based on the recommendations. No changes were made to the

instructional designer protocol. The grammar error was fixed in the student survey based

on the recommendations. All four instruments were sent to the expert panel for review

and approval. All panel members approved the research instruments. One panel member

provided considerations regarding instructors who may not adopt OERs because of the

nature of the course; however, this consideration is not applicable to the study because all

participants were actively participating in the OER initiative, hence they had already

adopted OERs.

Procedures

   Design. The researcher employed a qualitative, embedded single-case study

design for this research study. Qualitative research is most appropriate when discovering

why or how something is occurring, when the researcher is seeking to explore a specific

topic, when an in-depth and detailed view is required, and when participant perspectives

and experiences are explored (Creswell, 2013). A case study is described as one that

"presents an in-depth understanding of the case" (Creswell, 2013, p. 98). Yin (2014) suggested that a case study design is most appropriate when investigating a phenomenon in detail within a real-world context and when multiple sources of evidence or multiple variables are present. Likewise, a detailed account of a studied phenomenon is best presented through a case study (Merriam, 1998). An embedded, single case design is suitable when analyzing multiple units within the context of a single case (Yin, 2009). For this study, the researcher analyzed four units; faculty, instructional designers, librarians, and students within the context of the OER initiative at a state college in east Florida.

This study was aligned with case study research as it sought to understand the in-depth experiences of institutional stakeholders with the adoption of OERs as a part of an initiative. In education, many case studies focus on innovative programs and practices (Merriam, 1998). This case study focused on OERs as an innovation and the use of OERs in various subsystems within higher education as an innovative practice. Creswell (2013) also described the instrumental case study as one whose intent is to "understand a specific issue, problem, or concern" (p. 98). Within this context, this study sought to gather data from faculty members, librarians, instructional designers, and students about their personal experiences with OER adoption and integration, as well as the benefits and barriers expressed by these individuals. Therefore, the researcher conducted semi-structured (focused), face-to-face interviews in conjunction with a survey in order to gather and triangulate the participant data (Shosha, 2012).

Data collection procedures. Prior to conducting interviews, the researcher gained approval from the Institutional Review Board (IRB) at Nova Southeastern

University as well as the research site's IRB. A review was required in order to ensure the researcher is fully protecting the participants involved in the study. Once the researcher gained approval, an informed consent form was distributed to all participants along with the participant recruitment letter via email. All faculty members who were teaching in one of the identified 21 OER integrated courses were asked to participate in the study. Additionally, faculty librarians who have taught with OER material or who were directly involved with the OER initiative, all instructional designers who have designed courses with OERs, and any student who was enrolled in one of the identified 21 OER integrated courses was also invited to participate. The consent form introduced the researcher, provided the purpose for the study, and expectations for the study.

Interviews. Faculty, instructional designer, and librarian participants were asked to read and sign the informed consent form before scheduling interview times. Upon completion of the consent form, the participant emailed the form to the researcher. After the researcher received the consent form, the participants were emailed a link to access an interview scheduling page, which allowed the participant to schedule a convenient interview time.

After each of the participants signed the consent form and selected an interview date and time, a confirmation email was sent to the participants, including the interview time and the researcher's contact information. The researcher sent a reminder to the participants on the day before the scheduled interview. After the interviews were scheduled, the interviews commenced. The face-to-face interviews were conducted in a reserved location at the state college.

Before the interviews began, the researcher informed the participants of the

purpose of the study and that the interview would be recorded as outlined in the Faculty, Instructional Designer, and Librarian Interview Guides. The researcher explained each recording method and the purpose of the multiple recordings. The researcher also explained that a transcription service would be used and that the transcripts would be sent directly to the transcription company through the App. Following each of the interview guides, the researcher asked the participants if they had questions and answered any questions that arose. The researcher then began the interview process. The interviews were anticipated to last approximately 45 minutes; however, most interviews took between 20 to 40 minutes.

As part of the data collection process, interview responses were recorded with an iPhone and an iPad using the Rev app. The interview audio recordings were then sent directly to Rev transcription service, using the Rev app. The researcher also utilized the Interview Guides to take notes as each interview was conducted. The researcher compared the handwritten notes, the audio recording transcriptions, and the audio recordings to ensure validity, accuracy, and consistency among the sources. For additional security, the interview audio recordings were verified against the transcripts using headphones in the researcher's home office.

Member checking. The transcripts were provided to each participant via email to ensure that experience descriptions were not influenced by the researcher's bias and that the factual accounts of the participants were reflected (Creswell, 2013). Each participant was given 1 week to review the transcript for accuracy and completeness. The researcher requested that the participants confirm the accuracy of the transcript via email. The participants were asked to email transcript changes to the researcher and reference the

specific areas within the transcript. The following changes were referenced. Librarian one

noted a spelling error in one of the librarian's names. The researcher removed the names

of the librarians for confidentiality. Faculty six noted that the acronym for the CEEDAR

center was incorrect. The researcher corrected the acronym accordingly. No other

changes were referenced from the remaining participants and all participants verified the

accuracy of the transcripts.

 Student surveys. The participation letter and the OER student survey link was

emailed to all student participants through the school email account. The survey

responses were housed on the survey development website. The survey was anticipated to

take approximately 5-10 minutes to complete and the average survey completion time

was 4 minutes 31 seconds.

 Data analysis. For the purpose of this study, extensive narrative data were

collected and analyzed in order to extract themes and to truly capture the essence of the

participants' perceptions in the study (Creswell, 2008). In qualitative research, it is

recommended to code data during and after the interview as a part of the cyclic analytic

process (Saldana, 2013). The researcher used this specific cyclical procedure to

concurrently collect and analyze the data as presented by the participants and to discover

specific ideas and themes that arise in the collection and analysis process (Creswell,

2008).

 The researcher used Saldana's (2016) coding recommendations for analyzing

qualitative data. To begin the coding and analysis process, the researcher read through

each interview transcript twice. On the second read through, the researcher highlighted

and coded in the margins of the transcript. The researcher then used the codes to form

meaning, create, categorize, and cluster emerging themes. The researcher used structural

codes to aid in forming the emergent themes. Next, the researcher integrated the results

into an expressive description of participants' experiences. The researcher then used the

findings to construct a description of the phenomenon of interest.

The researcher used in vivo coding and structural coding as first cycle coding

methods. Structural coding is most appropriate when "semi-structured data-gathering

protocols are used" and to relate participant responses to specific research questions

(Saldana, 2013, p. 84). Because the researcher coded interview transcripts, structural and

in vivo coding allowed the researcher to conduct detailed coding and analysis. The

researcher then used focused coding, as a second cycle coding, to reorganize and

condense first cycle coding themes (Saldana, 2013). Due to the large number of

interviews performed, the researcher used manual coding for all faculty interview

transcripts, and the remaining coding and analysis was performed using a computer

assisted qualitative data analysis software (CAQDAS) program called Quirkos (Saldana,

2013). It should be noted that the computer software was used as an organizational tool

and that the researcher was responsible for manually coding, categorizing, and theming

all data (Creswell, 2013).

Anonymity. The researcher removed all identifying information and assigned

each faculty member, instructional designer, and librarian a unique coded identifier (e.g.,

F1, L1, ID1, etc.) in order to protect the confidentiality of the participants (Creswell,

2008). All consent forms were placed in a sealed envelope and kept in a keyed safe.

Audio recordings were transferred to a high capacity storage device. Recordings were

removed from the device after transfer. All transcription data files were saved on a high-

capacity storage device. Files from the CAQDAS program were transferred from a password-protected laptop and saved on a high-capacity storage device. Paper copies of the Interview Guides with marginal notes were placed in a sealed envelope. The storage devices and the sealed envelopes were placed in a keyed safe located at the researcher's residence. All raw data will be kept for a minimum of 3 years, after which, data will be disposed of appropriately.

Trustworthiness. Creswell (2013) illustrated that in qualitative research, standards of quality and evaluation must be considered in order to determine validity and reliability of the collected data. There are many criteria or strategies that can be used by qualitative researchers to properly validate research. For this study, the researcher used "rich, thick description" and "member checking" as two validation strategies (Creswell, 2013, p. 252). In addition, the researcher ensured accurate transcription by cross checking the transcription against the audio recording and the handwritten notes. The instruments used in this study, faculty, instructional designer, and librarian interview guides, were tested for content validity through an expert panel review and a pilot test was conducted as an additional measure of validity.

Summary

This qualitative, embedded single-case study was designed to address the central research question and the sub-questions by collecting data from four groups of identified institutional stakeholders. Faculty, librarians, and instructional designers were interviewed, and students given a survey to document their perceptions of OER adoption and integration as part of an initiative at a state college in east Florida. The data collected from the interviews were transcribed and coded, and a portion of the survey data was

analyzed using CAQDAS. The findings will serve to inform the stakeholders and

institutional decision-makers about OER adoption and integration within the context of

the OER initiative at the state college in east Florida.

Chapter 4: Findings

In Chapter 3, the research design, data collection, and data analysis procedures were discussed. For this case study, interviews and an electronic survey were used to collect both quantitative and qualitative data. There were four cases used in this study: Faculty, librarians, instructional designers, and students; all participants were participating in an OER initiative at a state college in Florida. Interviews conducted with faculty, librarians, and instructional designers about their perceptions were transcribed, coded, analyzed in order to answer Research Subquestions 1-3. Data collected from responses on the OER Student Survey were used to answer Research Subquestion 4. The researcher then merged the findings into a comprehensive analysis, which was used to answer the central research question.

In this chapter, findings from the interview transcripts and survey will be presented. The chapter will also provide the (a) study overview, (b) stakeholder demographic descriptions, (c) description of the analytic process, (d) results for Research Subquestion 1-3, (e) demographics of survey participants, (f) results for Subquestion 4, and (g) emergent themes for Subquestion 4.

Study Overview

The purpose of this case study was to discover stakeholders' perceptions of OER adoption and the integration of OER materials in a medium-sized state college in east Florida. Specifically, this study sought to understand faculty, librarian, instructional designer, and student perceptions of OER adoption and utilization in faculty curriculum, course design and development, classroom pedagogy, and librarian support services. Additionally, this study sought to discover how the OER adoption and integration process

was observed and perceived by the specified stakeholders as part of a continuing OER initiative at the state college. This case study was guided by the following central research question.

1. What are stakeholders' perceptions of OER adoption and the utilization of OER materials in higher education?

The following subquestions will assist in gaining a deeper understanding of stakeholders' perceptions of OER adoption and integration.

1. What are faculty members' perceptions of OER adoption and the integration of OER materials in higher education?

2. What are instructional designers' perceptions of course design and development with the inclusion of OER materials?

3. What are librarians' perceptions of support functions for the adoption and integration of OERs in higher education?

4. What are student perceptions of the use of OERs in their higher education coursework?

Stakeholder Demographic Description

The following description is a representation of the interview participants in their roles as stakeholders at the research site. To maintain confidentiality of the participants, a unique coded identifier was assigned during the interview process and the same code is used to identify each participant in the description. This description provides a context for the views and experiences of the stakeholders participating in the OER initiative at the research site.

Faculty one. Faculty one has been employed at the research site for 15 years. He holds a Bachelor of Science degree in Criminal Justice and Law Enforcement Administration from Park University and a Master of Arts degree in Criminal Justice and Law Enforcement Administration from Chapman University. At the research site, he teaches criminal justice courses and he serves as the chair for the Criminal Justice Department. He is a former detective of the Port St. Lucie Police Department and a former criminal investigator for the U.S. Marines. At the research site, he has led the entire department in adopting OERs, leading them to the creation of an entire textbook free Associates degree program.

Faculty two. Faculty two has been employed at the research site for 2 years. She holds a Bachelor of Arts in Literature, a Master of Arts in Composition, Language, and Rhetoric, and is currently pursuing a Doctoral degree in Higher Education. At the research site, she teaches ENC0015, ENC0025, ENC1101, ENC1102, and LIT1000, all with the incorporation of OERs. She previously held faculty positions at Eastern Florida State College, Anne Arundel Community College, Chesapeake College, and Wor-Wic Community College. She uses OERs in five of her courses and she indicated that OERs are a responsible alternative to course textbooks. She also uses OERs to reduce the financial burden that comes with purchasing traditional textbooks. She indicated that the content of OERs is comparable to that found in traditional textbooks and she has successfully found ways to incorporate works of literature into her courses and use them to replace textbook content.

Faculty three. Faculty three has been employed at the research site for 11 years as both an adjunct and full-time professor. She is also a public defense investigator for

the 19th Judicial Circuit Courts. She holds a Bachelor of Arts degree in Forensic

Psychology from Florida Institute of Technology, a Master of Science degree in Criminal

Justice, a Master of Human Services in Child Protection, and a Doctor of Philosophy

degree in Criminal Justice from Nova Southeastern University. She indicated that

learning should happen outside of the classroom and she encourages this by using real

life scenarios and other hands on learning opportunities for her students. She is currently

using OERs to support the department initiative to reduce the cost of textbooks and

materials for learners at the research site.

Faculty four. Faculty four has been employed at the research site for 4 years as

an academic facilitator. Before this period, she was employed as a faculty member at

Florida Atlantic University where she taught both face-to-face and online courses. At the

research site, she primarily teaches face-to-face courses, however, she has also taught in

online formats. Her position at the research site was established primarily to assist with

the implementation of Quality Matters (QM) and the adoption of OERs within the

Criminal Justice department. Her work with OERs, including the development of full

OER courses, is a main component of her work at the institution.

Faculty five. Faculty five has been teaching in the School of Education at the

research site since 2009. She holds a Ph.D. in Education with a specialization in Special

Education from the University of Central Florida. Joining the research site during the first

semester of graduates from the Bachelor of Education program, she has helped lay the

foundation for the program and internship experience. While teaching a wide variety of

upper division Exceptional Student Education methods and strategies courses, she has

been able to move to OERs for the lower division Introduction to Special Education

(EEX2010) course, which lays the foundation for all of the other courses. Using authentic resources from the Florida Department of Education and CPALMS standards for planning lessons, students have a better grasp on current state legislation, co-teaching, and adapting materials to meet the needs of their students once they become educators. Some additional OERs that have been implemented in faculty five's courses include IRIS star legacy modules, Individualized Educational Plan (IEP) modules, and video case studies.

Faculty six. Faculty six has worked at the research site for 7 years. She has worked for the State of Florida for 17 years, 8 of which were focused on public health preparedness. She has developed and maintained emergency plans at the state, regional, county, and local levels. She has also designed activities to test the efficiency of emergency response plans. She has trained individuals in Federal Emergency Management Agency (FEMA) approved classes for many years. She has also worked in law enforcement, mental health, social services, and public health fields, which has allowed her to compliment her instructional practices at the institution. Her focus is on the utilization of OERs that are used by professionals currently working in the field of emergency management, emergency planning, and disaster response. She utilizes OERs as a primary resource because they allow her students to have access to current and relevant information that they need as they enter the field.

Faculty seven. Faculty seven has worked at the research site for 4 years, where she serves as Program Director and Faculty in the Healthcare Management program. She has over 40 years of healthcare leadership experience. She holds a Doctoral degree in Public Health from Walden University, a Master's degree in Health Administration, and a

Bachelor's degree in Community Health Education and Psychology from Central Michigan University. She has developed and executed strategic preparedness initiatives for the Ohio Department of Health and worked to enable policymakers, community leaders, and stakeholders to understand scientific principles underlying key workforce development issues to build capabilities and expand capacity. She has published a number of books and peer-reviewed journal articles and is a former member of the *Journal of Homeland Security and Emergency Management* editorial board. Her journey in the adoption of OERs began in 2014, when she inherited a textbook for a course. Dissatisfied with the content, she began supplementing with OERs, eventually replacing the required textbook altogether in 2017.

Instructional designer one. Instructional designer one has worked at the research site for 2 years. She holds a Master of Science degree in Instructional Systems and a Doctor of Philosophy degree in Instructional Systems and Learning Technologies from Florida State University. In her role as an instructional designer, she has collaborated with faculty members to design robust online courses and instructional materials, coordinated and managed course building projects with staff developers, and utilized learning analytics to help guide instructional redesign. She has also conducted research and promoted initiatives and best practices for the Virtual Campus, including the OER initiative. She has participated in various presentations and poster sessions for the Association for Educational Communications and Technology (AECT) on topics including: Design and Evaluation of an Innovative Tool for Identifying Research Funding Opportunities, Supporting Faculty Efforts to Obtain Research Funding, and Live and Learn: Informal Learning Among Instructional Design and Technology Students. Her co-

authored article titled, "Supporting faculty efforts to obtain research funding: Successful practices and lessons learned," was published in *The Journal of Faculty Development* in September 2015. Her prior experience includes working as a consultant, a graduate research assistant, an editor, a graduate teaching assistant, a learning services intern, and a production intern.

Instructional designer two. Instructional designer two has worked at the research site for 5 years. She holds a Master of Science degree in Instructional Systems from Florida State University. In her role as an instructional designer, she has worked with institutional faculty to design online courses. She has also researched and promoted the use of OERs in virtual campus courses, and she has collaborated on workshops and presentations with the institutional research librarian who has an endowed teaching chair devoted to the advancement of OERs at the research site. Her prior experience includes internships and part time work for the Florida Department of Health and the State Board of Administration.

Instructional designer three. Instructional designer three has worked at the research site for 6 years. During his employment at the research site, he served as an instructional designer, a coordinator of instructional design and development, and a director of instructional design and development. He has worked on various projects and courses, which requires the design and development of content that promotes the use of mobile technologies. Currently, he serves as the QM institutional representative and coordinates internal and external reviews for the institution's online courses. He has experience collaborating with faculty members for the successful implementation of online and blended courses within the Blackboard learning management system (LMS).

He and his instructional design team have worked with faculty to design courses using OERs to create textbook-free courses.

Instructional designer four. Instructional designer four has worked at the research site for 12 years. She holds a Master of Arts degree in Information and Learning Technologies from University of Colorado Denver and she is currently pursuing a Doctoral degree in Instructional Systems Technology at Indiana University. She began her career as an English as a Foreign Language (EFL) instructor in Brazil, where she taught for 10 years. In 2006, she was hired by the research site as a Curriculum Developer/Trainer in the Adult English as a Second Language (ESOL) department. In 2013, she began her work as an instructional designer. In her role as an instructional designer, she works with faculty as subject matter experts (SMEs) to design online courses at the research site. She is certified by QM in blended learning and as a peer reviewer. She also has experience with faculty training, teaching, web design, online course design and development, teacher training, and curriculum development. In 2008, she began working with OERs by adopting and launching an eLearning option for ESOL students who had no transportation to attend school. She currently works very closely with faculty to design courses using OERs to create textbook-free courses.

Librarian one. Librarian one has worked at the research site for 6 years. She currently serves as the Emerging Technologies Librarian and Associate Professor at the institution. She holds a Bachelor of Arts degree in Mass Communications and a Master of Arts in Library and Information Sciences from the University of South Florida. She is currently enrolled in the Texts and Technology Doctoral program at the University of Central Florida. She serves on the OER subcommittee for the Virtual Campus and has

presented to faculty and students about the incorporation of OERs in a variety of courses. She also presented on the Southern Archivists Conference Panel discussion about "Open-Source, Open-Access Digital Archives in the Sunshine: A Review of Current Initiatives in Florida's Public Universities." Her other experience includes co-writing and implementing an IMLS Sparks! ignition grant and providing research assistance and written narrative for the US Department of Education (USDOE) Upward Bound program grant application. She has also served as project staff on the STEM Video Game Challenge Grant and the grant funded American Archive Inventory Project.

Librarian two. Librarian two has been working at the research site for 1 year. She holds a Master of Arts in Library and Information Science and a Master of Education in Learning Design and Technology from Purdue University. She has been working in academic libraries for 6 years, with a shift towards instructional design and librarianship occurring in 2014. Her focus is on instruction, reference services, and faculty and community outreach. She has also worked with faculty to connect them with OERs and she continues to work collaboratively with other librarians to develop and promote the use of OERs in courses at the research site. Her hope is that the use of OERs in courses at the institution will help to reduce the costs associated with traditional textbooks for students and faculty.

Librarian three. Librarian three has been working at the research site as a reference librarian/instructor for 3 years. She holds a Master of Science in Library and Information Studies from Florida State University. She interned for the Atlanta-Fulton Public Library System and she also served as a graduate assistant for Florida State University's library school office. She was employed as a Computer Services Librarian

for Bruton Memorial Library in Plant City, Florida, after which, she transferred to Argosy University in Tampa, Florida where she worked as the Learning Resources Specialist. In her current role, she is the sole librarian for 1 of the 4 branch locations for the research site. Her duties include collection development, library instruction for classes, outreach, reference help for students, citation help, and creating learning objects. She also teaches an information literacy course in both online and blended formats, which are taught without the use of a textbook. She has created OER materials, she promotes the use of OERs to faculty at the research site and provides support to faculty by locating and recommending OER related resources and materials.

Description of the Analytic Process

The researcher coded the interview data using an analytic process consisting of several coding cycles. In the first coding cycle, in vivo coding was used. In vivo coding was most appropriate for this study, as the researcher wanted to "prioritize and honor the participant's voice" (Saldana, 2016, p. 106). The codes were verbatim representations of the actual language used by the participants. A second coding cycle was conducted, and categories were created based on the identified codes from the first cycle. Themes were extracted using categories and associations from the interview protocols.

Faculty transcripts. The researcher used in vivo coding for the first cycle to manually code the faculty interview transcripts. The researcher then recoded the data using a CAQDAS program. In the second cycle, codes were combined into categories that were associated with the faculty interview protocol. Finally, themes were extracted from the combined categories for the analysis process. The CAQDAS program was used to recode, categorize, thematize, and organize the data.

Instructional designer and librarian transcripts. The instructional designer and librarian transcripts were coded using in vivo coding for the first cycle. In the second cycle, codes were combined into categories that were associated with the instructional designer and librarian interview protocols. Finally, themes were extracted from the combined categories for the analysis process. The CAQDAS program was used to code, categorize, thematize, and organize the data.

Student survey data. The student survey was comprised of two distinct sections: a quantitative set of questions organized into a Likert scale grid, and qualitative section with two open-ended questions. The researcher analyzed the quantitative data using descriptive statistics. Demographics were collected, and the results are presented in Table 1. Qualitative data from the open-ended questions were coded using in vivo coding for the first cycle, codes were then categorized in a second cycle, and finally themes were extracted from the categories (Saldana, 2016). All coding was conducted using a CAQDAS program.

Results for Research Subquestion 1

What are faculty members' perceptions of OER adoption and the integration of OER materials in higher education?

Codes, categories, and themes. There was a total of 279 codes, which were combined into 20 categories (Appendix E). Eight themes emerged from categories and codes, identified based on faculty responses to the interview questions. The emergent themes are: (1) faculty perceptions of OER quality, (2) time investment and work involved to adopt and integrate OERs, (3) OER selection and characteristics, (4) faculty perceptions of OERs compared to traditional textbooks, (5) challenges associated with

OER adoption and integration, (6) perceived advantages of OER adoption and integration, (7) pedagogy, use, and experiences and (8) faculty recommendations for future adoption and integration.

  Faculty perceptions of OER quality. The faculty members discussed the quality of OERs in terms of how factual, organized, and accurate the materials were. Regarding quality, faculty member one questioned, "Am I getting the same type of quality that you can get by grabbing a textbook and reading? If that was what I was looking for..." Faculty four stated, "Okay, sure. I use a variety of resources or types of resources when I'm designing the courses, anywhere from academic articles, which are peer reviewed, so they're generally higher quality." She elaborated, "I have tons of government sites, like .gov sites, so those are generally higher quality."

  She continued, "…some private research firms, like Pew does some stuff. I cannot think of any of the other organizations right now, but they just do independent research that's also very, very high quality." Regarding how factual the material is, faculty one stated, "In other words, I get it, but then I can change it to be factual." He elaborated, "So I guess what it is, is that I can look at most of it and determine facts are correct." Regarding accuracy, faculty one stated, "I would have to look for three or four different sources of information on that to verify the information that way. That's the accuracy." He also stated, "So I have to constantly be reading to look for the most current up-to-date material." He continued,

    OERs, like anything else we find anywhere for some reason we pick up a textbook and we believe it's been vetted. When you're using OERs, you have to do the vetting. You have to determine, is that correct information or not?

Faculty three stated, "As far as video, I use a different medium from things like the TED Talks, things that we could actually go back and look up and verify, as well as mainstream media" She continued, "…that's a learning curve for me. At what point do I make sure I absolutely am checking the validity and the curren[cy] and everything in the course?"

Regarding the currency and relevancy of OERs, faculty one stated, "Up-to-date, you have to be cautious. Anytime you're going in there you have to look at dates that they utilize, when it was written." Faculty two indicated, "I feel like the materials that I use online or that I get are up to date, with some of the literature pieces it is just simply the piece and so there's not anything to be updated." She elaborated, "It lets me, particularly with ENC 1101, it lets me infuse current topics that students find relevant instead of very dated pieces that they are very disconnected from." She continued, "…in ENC 1101, the whole entire course is all about current events." She elaborated,

> The currency of the topics that we would be able to cover, and also to eliminate, what I perceive to be a very unnecessary burden for a lot of the students. The textbooks are ridiculously I think expensive, and for a lot of them they just are not able to purchase it.

She also mentioned, "Often times, again particularly with ENC 1101, I will intentionally, a lot of what I get is topical information or reports of current events." Faculty three stated,

> I'm very strict considering I am, like I said, the baccalaureate professor and I teach research, so I try and have a majority of my stuff within 5 years or less if it is academic. Even though I know 10 years is acceptable, I really want it much more

current than that.

Faculty four stated,

> I just think it forces you to be more creative and up to date, because these OERs
>
> are changing rapidly. I mean, textbooks were as well. Every year or so, they'd
>
> have a new update, but the OERs change rapidly. Criminal justice changes
>
> rapidly, so it forces you to be creative and stay up to date with all of those
>
> changes if you're going to use OERs in the classroom.

> Faculty five stated, "…and things like that is more current, changes that are

happening in legislation annually. You know, they get to see that versus the static

information from a text book." Faculty six stated, "The other reason is it's updated. It's

what practitioners are currently using. So that's the biggest thing." Faculty seven stated,

> I will give you an example, using something like the Centers for Disease Control,
>
> that we know that their site is very reliable and it's going to be current. Providing
>
> a link to their research site made sense, because there was going to be the
>
> longevity there.

She continued,

> They're seeing that the sources are more current than the book. I'll give you an
>
> example, there are two or three of our classes that had something in the text book
>
> about the Affordable Care Act, being in health care management. It was obsolete
>
> by the time the book was written. It is evolving so quickly.

She further stated, "We have more accurate and current information. We've gone pretty

much textbook free." She also stated, "There are several sites that are germane to

healthcare and when you go to the sites it also cross-references additional resources." She

further elaborated,

> That's why I ... really like these Centers for Disease Control, the American
>
> Hospital Association. Different sites, American College of Healthcare Executives.
>
> Those really static sites that we know, and they are so germane to our discipline.
>
> We reference those a lot.

She then stated,

> I think the other thing, is really looking at the source; does it end in [.edu]; [.gov];
>
> [.org]? Now Wikipedia is not a great source or People magazine. Just how I tell
>
> my students well I have to model the way in the level of material that I am giving
>
> them.

Regarding efficacy, faculty two stated, "…it's not about stepping down and using OERs, I feel …it doesn't lower the standards, the expectations, any of those kind of things. If they can learn just as effectively, why not?" Faculty seven stated,

> In looking at all the information you had to sort of funnel it all down and I found
>
> one source, Benchmark Communications. They've done a lot of work with
>
> *Psychology Today* and the *Harvard Business Review*. A lot of efficacy there.

Faculty one discussed the organization of OERs. He stated, "Organization, no. That's what we're attempting to do when we get the OER material is to bring it in and organize it for the students, making it usable for them." He continued, "So the organization isn't always as neat and clean as a textbook would be. That again, is what we work on as organizing it for the students."

The faculty members also discussed how well written the OER materials are. Faculty one stated, "Again, if you're getting the information, if I'm getting it from a good

source then it typically is pretty well written." Faculty four stated, "Then every once in a while, a Times article will be great and well written." She continued,

> Yes, OpenStax. I used some of their sociology ones and maybe their political science ones. Those have been pretty well written, and they update them pretty continuously. I feel like there's always an update going on to the pages. It's very high quality, actually.

> ***Time investment and work involved to adopt and integrate OERs.*** The faculty members mentioned time, extra work, and maintenance as considerations for OER adoption and integration. Faculty one stated the following about OERs, "I'll spend a lot of time reading and researching myself." He also stated, "If we stick around long enough then hope we can carry it over into our bachelor's [program], but it's a lot of maintenance." He continued, "It's not like a new edition the textbook where it's, Oh, it's here, now put it in. We have to create that new edition for each class. So, the maintenance becomes another issue for us." He also stated, "In retrospect, I guess I'm semi-ashamed to say, I think I might not have done it if I would have known how much work it was going to be from the get go." He elaborated, "It's constant work and after you write them you still have to go back and readdress them to keep them current." He continued,

> It is more work, just the bottom line. It's more work for the instructor. When you start, even after you go out, you get all your material, you've done everything, you put your course together that course still requires you to work. The disadvantage is the work.

Faculty one also discussed the time commitment. He stated, "Probably the worst time in the world to ask me that because I'm behind in two of them right now and not even a little

bit behind in one of them, a lot behind." He elaborated,

> Now my day typically is a 10-hour day instead of an 8-hour [day], but the time
> invested to write 1 course for OERs easily would take 3 months from beginning to
> end as far as collecting the material, putting it together, creating it to where it's a
> quality course.

He further noted, "It's a huge time investment. I'd say if I were to break it down weekly I
would say I've got to work at least 5 hours a week on it, on developing a course." He then
reiterated, "Be careful on the things that will consume your time." Faculty two stated,

> Initially it took a little while only because I was unfamiliar with what I could use
> from a copyright standpoint and those kinds of things and where to look, now it
> takes me no longer to embed the link when I'm setting up my course than to do…
> anything else.

Faculty three stated, "There's a lot of work on the front end, but then later on it's not so
hard at that point." In addition, she stated, "So, it requires time, or it requires to me to go
record and make my own OER material." She elaborated,

> The biggest drawback is, say, when we find a link to a video or a link to an
> article, that it may only be there for 6 months or a year. And then, I'm not
> constantly checking the links, so then all of sudden I get 30 messages from
> students [saying], "I can't do this because I can't find..." So, I need to build it into
> my budget time that I'm going to have to check these and realize I'm going to
> have to update videos periodically.

She also mentioned, "I'd say the investment upfront, it's pretty intensive. Your entire
course needs to be redesigned and re-laid out. Everything from, what are your outcomes?

All the way to, how are you going to find material that covers those outcomes?" Further, she stated,

> …and then also realizing that I can't get complacent because things do move and change. So, it's not like I'm going to build the class once and it's going to stay that way for 5 years. It's going to need maintenance.

Faculty four stated, "The drawbacks I'll start with, since they're pretty easy. It's just time consuming." She elaborated,

> Not only time …you have to be creative as well…but it's really just the time. You almost have to redesign the whole entire class. Rather than getting a textbook and branching off from there, you're just given these learning objectives, and you have to find everything that represents these learning objectives rather than having one textbook focal point. It's just a lot more time consuming.

She continued, "Once you get focused on it, the time investment, I can't quantify it in hours, per se, but it is additional work on top of teaching, and grading, and your other workload." Faculty five stated, "So, I feel like with the OER's you have to really be constantly updating your instructions, maybe, to keep up with the changes that the OER's are experiencing or whatever. How they're being updated, then you have to ...update." She elaborated,

> So, I feel like, to stay current, you're constantly doing that anyway, but when you go in and you're trying to replace content in the textbook, I would say ... Just this one that I just did this past year was probably ... I don't know, it probably took me 10 to 15 hours, maybe.

Further, she indicated,

But it's an upfront one and then the maintenance, you know, I think constantly having to work ahead of the students and click on the links and making sure that it's smooth, I could do a better job at that. That I think is ... Once you do that work up front, then that should be less time.

She continued,

The other thing is, I noticed with this switch, our quizzes mirrored what was in the textbook and not necessarily everything that was in the OER's. So ... it's almost like you're redesigning the course when you're doing it, not just making that switch from textbook to OERs.

She also stated,

So, you really have to go through each assignment ... It's not just from the chapter, but really, deeper than that. And really redesign the course, I think, around the OER's, but then to do that and have the OER's link broken or something, then you're constantly updating it.

Faculty six indicated, "It does create more work. But I'm okay with that." She continued, "I started having other people come up to me and say, 'You know when you do that, it's a lot more work. If you just pick the book, it's not as hard.' It's more than a book."

She continued, "It will take me 16-20 [hours] to QM it, using OERs. But again, it's worth it, if the students are getting the correct information and getting the correct message and getting the practical application as part of that." Faculty seven stated, "It is on the front-end a lot more research on my part to look for these sources, but you could also … when you find a really good source, build the curriculum around it." She also stated,

I mean, the PDF would be more static, or you know, to meet some of the

requirements of our ADA students to have it in different formats with captions

and without, so even though you have a source you still have to tweak it a little bit

to make it work.

She also stated,

Well, on one or two occasions there was a site that I thought might have been

good but then we lost it. It wasn't up there. It's like where did that go? And you

have to kind of look for either a replacement or really search to find something

comparable.

In addition, she stated,

You have to spend some time with it and you have to see ... that's one thing about

the QM format is that everything does have to align. It has to align with the

objectives and the assessments. If you are introducing yet another concept, you

have to check the alignment. It does take time for that.

She continued, "Some of the disadvantages, its time consuming to find those great

sources and you can't just stick in a video because it's cute. It really has to be

meaningful." Faculty seven also discussed the longevity in some of the OERs used. She

stated, "Some of the drawbacks…you have to sometimes really look for a site and discern

if it's a good site and going to have longevity." She continued, "I think just making sure

that they're going to stand the test of time. That there's enough meat in that site. That

even if they add to it, that the core messaging is there."

    OER selection and characteristics. The faculty members discussed the types of

OERs frequently used in courses and how the OERs were located. Faculty one stated,

What we do is we'll use government webpages. A very good example is in our intro to criminal justice course. There's one module that we take them to and it talks about community policing.

Faculty two stated, "I have found…I believe it's through Khan Academy…some YouTube videos that the students found real helpful that explain the grammatical terms." She continued, "The one particular website they actually are going through and doing things on a chalkboard or whatever as they're talking about what it is that they're doing. The students have found those helpful." She also stated,

I use some grammar practice things that the students can use, grammar bites. I have introduced them to a couple of support resources that they can use; Grammarly, Recite Works, a couple of those kinds of things, so that they can focus more on the task at hand.

She continued, "We use newspaper articles, journal articles, things like that when we are critiquing somebody else's critique." Faculty three indicated, "We use a lot of academic, empirical research, literature, academic journals or articles." She continued, "…mainstream media, as well as documentaries, and things like that."

Faculty four stated,

…for some of the other classes, instead of just presenting the academic article, I'll make a video talking about the article that's freely available on YouTube…talking about the main points in the article, what you should be getting from this article, so stuff like that.

She also stated, "I've made lectures I suppose…or talks more like it…about certain subjects and had the virtual campus then create a YouTube video for that." She

continued, "…tons of images, like pictographs..."

Faculty five stated, "…because I'm preparing teachers I try to use a lot of federal resources." She elaborated, "…so to be able to take them to the state Florida DOE website and have them see and read the actual definitions and things that are more current, changes that are happening in legislation annually." She continued, "So, for example, UF has the big CEEDAR center now… and through there they're putting out a bunch of resources for other faculty for teacher preparation." She also stated, "I also use case studies ... that have been developed at other colleges and universities through grants." She elaborated,

> USF has a whole database of teaching cases and…they're all on ethical principles
> and practices. They'll give an ethical scenario based on true, real experiences and
> then we have to decide…or the students…I lead them through it, which ethical
> code of conduct was broken and what the teacher could have done instead.

She also stated, "I mentioned the Iris modules out of Vanderbilt ... They have them in different categories like classroom management, behavior management, teaching strategies, transition…" She continued, "…there's some IEP modules that I use that our state has developed through different resources, it's called FDLRS… things like that." Faculty six mentioned, "There are a variety of documents I get from federal websites, and state and county websites." She continued,

> So, government documents, are government documents... one of the things that
> Federal Emergency Management Agency says is, if you're going to teach our
> stuff, you have to teach it all. You can't just teach the pieces you believe in."

She also stated,

We have something called Emergency Management Institute through FEMA, and

it's a higher education website …the topics and the classes and the information are

all developed for a variety of topics because FEMA really wants the correct

information getting out there.

Faculty seven stated, "Well, definitely videos. I created some Podcasts, for instance, the

one section where they always were stumped with this class and we went through two

books on it, was deciding on your methodology for the research." She also stated, "I

actually wrote to Benchmark and there were two publications that were articles that I

wanted to use, and I was given permission from them."

Regarding locating OERs, faculty one stated, "We go on the Internet, we search,

we explore. As we find those that are going to fit our needs, we highlight them and then

put them together in the right order..." He continued, "We've used the library. They are

very helpful in findings things for us. They…found a textbook that we were selling in the

bookstore, free, in our e-book collection that the library had." Faculty two reiterated the

use of the library. She stated, "In so far as different search engines or things of that

nature…to find the information. The librarians have been wonderful." She elaborated,

I was having some difficulty finding the resources for the students and the

librarians stepped right up and said, send me the information, I will work on it and

I will send you some different sources that your students can use.

Faculty three stated, "…I am using our librarians here when I need some academic stuff."

She continued, "It's simply sitting down and outlining what our learning outcomes are,

and then ... Simply googling to see what resources are out there, and then it's just a lot of

research and prep time."

Faculty four stated, "I worked with the libraries and the library..." Faculty five discussed utilizing listservs for resources and materials. She stated, "I'm part of the Council for Exceptional Children which is a professional organization for my discipline and we have a Florida chapter. I'm on the listserv for the state, so I get research-based practices." She also stated, "And also doing my own research, of course." The faculty members also stated details about the characteristics of OERs. Some common characteristics that emerged were discoverability, access, complexity, and simplicity.

Regarding complexity and simplicity, Faculty one stated, "Wow. I guess I never really sat down and said, okay, in order to make it quality it has to be complex, or I didn't sit down and tell anybody, we need to keep this simple." Faculty two stated, "…for me, the OERs, they are simple, but they allow me to present what turn[s] into complex ideas by getting the students to understand how to critically think through what it is that they're being presented with."

Faculty three also mentioned, "I don't really weigh how complex or simple it is. I'm actually looking at what the quality is." Faculty four stated, I try to use a range of complexity and simplicity, which I think textbooks in general do. They're a range of lower level objectives and high-level objectives. It's just almost like mirroring that." She continued, "The OER materials themselves had a range of complexity. Then the way that we presented them also did as well." Faculty five mentioned,

> …to look at your simplicity part of the question, like the Iris modules, for
> example, are all laid out the same way. So, once the student goes into one, I work
> them through the process and then they complete six within a course. So then that
> barrier of not being able to navigate it goes away.

Faculty seven stated, "I think, sometimes the complexity is taking that particular course objective off-track a little bit." Regarding the open nature of OERs, faculty two stated,

> All of the pieces I use are available in the public domain and so it's just a matter
> of tailoring the assignment description, providing them with examples of what I
> expect out of them. I don't see the need for the textbook in either one of those
> courses.

She continued, "I made sure I got it through creative commons or on the open web." Faculty four stated, "Most are freely available online." She elaborated,

> Obviously, the .gov sources are freely accessed by anyone. The OpenStax is
> freely accessed by anyone, YouTube, freely accessed. I think I made a TED-Ed
> video, freely accessed by anybody. That type of thing, anybody with Internet
> access can get onto it.

She also mentioned,

> We want our students to have access to courses, so eliminating that cost could be
> a way that they can get greater access and maybe leads to course completion at
> first and then to degree completion eventually. Cost savings would be a big one
> for your students, so you want students to graduate.

> ***Faculty perceptions of OERs compared to traditional textbooks.*** The faculty
members discussed OERs compared to traditional textbooks. Faculty one stated, "We have not been very successful in finding a textbook that meets our needs that is [an] OER." Faculty two stated, "I think sometimes the textbooks are just a security blanket for instructors." She continued, "…[OER] gives the students more possibilities to explore different things, find out what more people think about a particular topic and to evaluate a

larger conversation than they would within the limited aspect of just the textbook." She continued,

> I also believe that you don't need a textbook to teach composition. If you've taught it enough and you provide students with the information that as an instructor you should already know, as well as examples at each stage of the process of what you want their finished product to look like. The textbook is not necessary.

She elaborated,

> …I think in some instances the textbook is appropriate for the students, but I think a lot of times when it comes to composition, when it comes to literature, there's too many really great things out there to have to force a student to purchase a textbook.

She further discussed, "For me it's a lot easier to search the Internet than it is to keep on flipping through a textbook." Faculty four stated, "Using textbooks…it's more rigidly structured…and not in a bad way. Textbooks are fine. You just have to be a bit more open to different types of assessments..."

Faculty five stated, "The books that had previously been selected…they were not appropriate, really, for the subject." Faculty six stated, "…some of the books that were developed by academics were presenting information that was outdated or was just inappropriate with emergency response. It's no longer considered best practices, and it should never have been in the book." She continued,

> I use a terrorism book, and I think it's twofold. The terrorism book, it makes my life a lot easier [be]cause the book [is] there; they give you the quizzes …but I don't think the students get as much from it as they do when I'm using OER's

because they're getting…an academic view rather than a real-world view.

She also stated, "That kind of dumbfounded me because I thought, well the books aren't accurate. There's three books on this topic; I've read all three of them, and all three of them have some big flaws in them." Further, she noted,

> I think it has to be utilized [be]cause again, all the books right now for many of the classes out there that I teach, there's some huge inaccuracies in them, and I just don't want to use them, so students get a wrong picture.

Faculty seven stated,

> I was kind of stuck with that book for the first semester and then I kept looking for a better book, found a book, replaced it, and yet the students were still stuck because research was definitely more detailed than what our students needed. So, rather than look for yet another textbook that didn't do what I needed it to do, I decided to look into OERs.

She continued, "In some respects, you have to be more on your toes. Because it is the real world and it's definitely more alive than just a textbook." She also mentioned, "I think if you have [a] textbook…the easy thing to do is to say Okay, there [are] 15 chapters, there [are] 15 weeks, let's just run it. It really [disables] creativity."

The faculty members also discussed the tactile nature of textbooks and text material compared to OERs. Faculty three stated,

> People don't like change. So just taking that book out of their hand…they can't highlight it. They probably didn't crack it open and read it in the first place, but the fact that now they can't do it kind of freaks them out.

Faculty four stated, "…some people might like that textbook in their hands, so you [have]

to combat that." Faculty five stated, "Not being able to have that textbook sometimes is hard for our nontraditional students who like to have something to highlight..." She continued, "So, you find some that print out everything and then put it all in a notebook and then highlight it and then that's fine, too." Faculty seven stated, "I've been a big reader my whole life. I love the tactile nature of looking at a book and holding a book when I'm reading it."

Challenges associated with OER adoption and integration. The faculty members discussed some of the challenges, barriers, and drawbacks associated with OER adoption and integration. Faculty one noted, "First would be negativism from others…peers…asking me, why are you doing that? They have taken a very negative approach to it." Some of the faculty members mentioned that creating or modifying the material sometimes proved challenging. Faculty one stated, "The very difficult ones typically lead into self-creation to where you have to create it yourself." He continued, "In a few situations or cases I may have to modify the information…when you bring it into the classroom is where you make some changes."

He stated, "You can find information, but it doesn't always cover exactly what you're looking for, so then there's modification [needed] or for one topic you may send them [to] four or five different areas to get the totality of it." He also stated, "I'm working on one class now that unfortunately requires a lot of creation…" Another area of concern was the quality of the OERs. Faculty four stated, "A potential drawback would be people might not think the resources are as high of quality as a textbook."

Faculty one discussed how difficult the process was. He stated, "I thought it was going to be easier than what it was." He elaborated, "It is probably one of the most

difficult things I've had to do here at the college. The managing people, managing course load, everything else is pretty easy." Further, he indicated that some of the students also experienced difficulty. He noted,

> The student's difficulty [is] in some of the material…saying they don't know how ... Then sometimes…they say, I didn't sign up for an online course, so why am I going online? Well, that's part of what we do in any class...

He also stated, "Because of the way we have …the students get it in the Blackboard shell…I know we like to stay the students are technology savvy, but they are not." He continued, "We also wanted to… forc[e] the student to go use different modes of technology." Faculty five mentioned student difficulties. She stated, "So I think now…the disadvantage…of having all their notes electronic and things like that, I think has been difficult."

The faculty members identified adoption and integration of OERs by adjuncts as being somewhat of a challenge. Faculty one stated, "I['ve] got barriers with adjuncts. After we develop this and share with adjuncts, some adjuncts…are not willing ... I actually had one tell me, "Nope, I'll teach a course that doesn't have [OERs] developed, but not one that [does]."

He elaborated,

> … I may have put it together but now I've got adjuncts teaching it too. The adjuncts are the ones that I have to work with the most to get them to understand you just are not going to step in here and open up this course and run it. You have to go and do these things too.

Faculty four stated,

The main disadvantage that I've seen so far…all the adjuncts are teaching our

classes. We can make some adjustments to the courses, but there's no textbooks.

I've seen a little bit of pushback from some adjuncts, just because they're not

familiar with it yet... they don't know where to locate their resources. Some of the

technology's not familiar. It's almost like they have to learn the class too before

they can teach it. That would be one of the obstacles.

She continued, "Pushback from adjuncts hasn't been that big of a deal. Mostly, it's just

them getting used to it, so it's just them acquiring the new courses [and] the knowledge

that come with it." Faculty seven stated, "What's interesting as I talked to my adjuncts

and work with them, [is that] they really see it too. They say, wow, we didn't realize we

could do this…"

Faculty six discussed the difficulty in adopting and integrating OERs. She said,

"There's some [OERs] that don't have any of that, so that's when it becomes more

difficult [be]cause I have to develop the support document[s] to try and make it make

sense for the student, to break it down". She continued, "I think it is more difficult to do

more OERs. But I think in what I do, I think it has to happen." She also stated,

The drawbacks is [sic] that it's not already done in the format that you need for

students. It would be great if everything came with a document, a PowerPoint, an

assignment, and a test. Just like it does when you use the books.

Faculty six also discussed challenges associated with proper citations. She stated,

I'm always concerned, [be]cause I'm always trying to make sure I provide correct

citations for information. The last thing I want to do is plagiarize anything, even

though FEMA's like it's free; take it; use it. I still want students [to] understand

this isn't me talking; this isn't me doing this; this is what they say you need.

Faculty two discussed challenges with adoption. She stated, "When I first started doing it, it was a little bit of a challenge, but I think it's just like anything else, that the more that you do it the better you get at it." She continued, "when I very first started doing it, it was a little bit challenging to just know where to go and all of the rules..." Faculty three stated,

> sometimes when I'm looking for specific or very current…like a movement that might be going on right now. There may not be an open resource at this point in time that would be empirical or academic. That's been a little bit of a hindrance.

Faculty four stated,

> It's a challenge. I'm one of those weirdos who likes to do quizzes or play word games. It really excites me to have that challenge. If you feel like your classes are stale, you can inject them with some life, I suppose.

Faculty five discussed,

> I have had some challenges, especially this semester, with the assessment center because when they go to take their quizzes, or they take their final there, if it's designed to be an open note ... So, it's frustrating, you know?

Some of the faculty mentioned finding material and the amount of material available as a challenge. Faculty two stated, "The only barrier…is making decisions about the absolute wealth of information that is out there, because it has steadily been increasing."

Faculty five reiterated, "I think, sometimes the information can be overwhelming. The amount of information, and then also, for the students to know what parts that they need to pay attention to." Faculty seven stated, "Well, it is somewhat challenging to find

exactly what you want. But… I have found you can cobble together two or three pieces of information on a continuum to make your point."

Perceived advantages of OER adoption and integration. The faculty members discussed the perceived advantages of OERs. Faculty one stated, "You're learning things. So, getting individuals to understand there's flexibility. I like that in it for myself, it makes the class more interesting and more fun." Faculty two stated, "…obviously I think it benefits the students not only from a financial perspective, students are much more technologically savvy than I was when I went to school, I think it's a medium that they're used to."

Faculty three stated,

> I thought it would give me a lot more freedom of choice to present things the way I want to present them, be a little more outside the box, [and] to be able to go to the things that younger people prefer to do.

Faculty five stated, "I also think that ease of use and currency are the main benefits." The faculty also discussed cost savings associated with OERs. Faculty one stated, "We wanted to save students money, [so] I said, don't buy a book." He elaborated, "…I do know that when we added up the cost savings for the textbook, it was $133,000 for the students just in those six classes in the spring." He continued, "You feel good about it, but then you hear the students telling you, thank you that I didn't have to buy a book." He also stated, "…the students will look at the material. If they don't there's no cost to them either way."

Faculty two stated, "…the first semester that I was here I had a student in one of the courses I was teaching, [fall] behind because he could not afford the cost of the

textbook." She also stated, "…to eliminate what I perceive to be a very unnecessary burden for a lot of the students. The textbooks are ridiculously…expensive, and for a lot of them they are not able to purchase it."

Faculty three stated, "The cost of text material is extremely burdensome on my students. The professor that had my position before me actually had four textbooks per course, and it was just too much of a burden for my students." She continued, "The benefits are that actually, on average, I think we're saving students somewhere between $200-$300 a course for textbooks. Fortunately, with the school that I'm teaching at, that $300 almost covers the cost of another class." She further stated, "Students can either complete their degree on time or a little faster than expected because they're not having to worry about textbook costs." She also stated,

> If I look at nothing other than the money alone, I think our department saved, in the two years that he's been doing this, roughly...six figures. For our students. I would have been happy if…they saved 10 grand. But it wasn't. It was a huge amount of money, and I was shocked. So, if for nothing else, I would consider adopting it simply for the cost savings.

Faculty four stated, "Well, cost savings I think would be the biggest one." She continued, "I think we saved last semester for six classes $130,000 for students, which is phenomenal." She also stated,

> We want our students to have access to courses, so eliminating that cost could be a way that they can get greater access and maybe leads to course completion at first and then to degree completion eventually. Cost savings would be a big one for your students, so you want students to graduate.

Faculty four also stated,

> It was really nice to see that we saved students some money. That was a very
> positive thing, because I know our student body here, they have real life stuff that
> comes up. Any little bit of help in the financial department is always a very
> positive thing. That's a feel-good moment there when you're saving money.

Faculty five stated, "we have a wide variety of teachers who take the course and because it's state wide, they're all over the place. The logistics of the textbook and the cost of the textbook was often a barrier for the students." She continued, "So, again, I think the benefits are financial for the students." Faculty six stated,

> Not only is it financially better for the students, I think if you're using it correctly,
> I think it's overall better for them, for all the reasons I previously mentioned. It
> helps them during the job interview; it helps them in the real world. I'm not saying
> anything's wrong with academics, but sometimes it's just, you gotta look at what's
> best for the student.

Faculty seven stated, "I mean if they don't have to spend $400.00 on a book, they really appreciate it. We are saving students money." She continued, "…He was so excited, and I think he had $400.00 or something and he said, Oh, good I am going to be able to get all my text books for all next semester. It didn't even cover one." Faculty seven also mentioned, "I think we talked a bit about one of the advantages is the cost, to the student's perspective. That's a driver that's out there and we have to acknowledge." The faculty also described the process of adopting and integrating OERs as rewarding. Faculty one stated, "…However, the reward outweighs the negatives that we've had along the way." He continued, "The advantage is…the work being rewarding because you've

accomplished something." He also stated, "…it's been the most rewarding thing we did as a department and for myself [sic]." Faculty seven reiterated, "…once you get over that initial work and hurdle there's a lot of rewards on the other side."

The faculty members said that OERs provide a real-world view for students which was a benefit. Faculty three stated, "…whether it's The Simpsons or the new Rosanne Show, or Will and Grace, whatever it happens to be…my classes are theoretical-based, so it allows them to see what real people are talking about." Faculty six stated, "The terrorism book, it makes my life a lot easier 'cause the book's there; they give you the quizzes and stuff like that, but I don't think the students get as much from it as they do when I'm using OER's because they're getting this view of it, but that's an academic view rather than a real-world view." She continued, "students get a real picture of what it's like and not [what] the book says." She elaborated,

> Not only is it financially better for the students, if you're using it correctly, it's overall better for them. It helps them during the job interview; it helps them in the real world… it's practical information I'm giving the students. So, I like using OER, so that they get the real-world information, and they're hearing from people who are doing the job right now.

The faculty members also mentioned ease of use as an advantage. Faculty two stated, "…but instead of having to sift through a textbook to find the information, it is so much easier to locate a particular concept, whether it's a writing strategy or something technical, it's much easier to find it online." She continued, "The librarians are so eager to help you, it's easier to use OERs than it is the textbook." She further stated,

> A lot of the sources I have found, they give you the basics and some suggestions

and so it makes [it] very easy to make adaptations to fit the needs of your

students, the teaching style…They're easy to use…After I started using them, it

has been an easy transition.

She continued,

It doesn't take a lot of effort and I think that for them to understand how [easy] it

is to find the different pieces that they would [want to] use out there in the open

domain, I think it's a lot easier than a lot of folks think that it is.

Faculty four stated, "…for the papers, it just made it easier. It just makes it more

streamlined, that's all." Faculty five stated,

I think ease of use for the students…everything [is] located in one place. They do

have to click out of the course, but if they don't have the textbook it's not a barrier

anymore. Where before it was a huge barrier for us.

Faculty six stated, "So, it's a very high-level document, but they have 3 or 4 support

documents that go with it, that make it easier for student[s] to understand. So those are

great." Faculty seven stated,

…you're really able to have just a variety of [media] in your class. In the

communication class I even had them watch Ted Talks, which is somebody else

talking besides me. They are getting a really good example of…how you put

together a really good presentation.

Student satisfaction and enjoyment was observed by the faculty members using OERs.

Faculty one stated, "They do the exercise[s] and the feedback we get is just outstanding

because what the students will talk about is, I didn't really understand it, but once I did

that scenario I clearly understood what it was." Faculty three stated, "…and the students

enjoy it. They absolutely enjoy it." She elaborated,

> …by the third week, they had listened to the entire year and a half. I've never had to yell at my students to stop working ahead in my life... and then they're discussing it. I've never had students so excited about something that they just worked 6 months ahead.

Faculty four mentioned,

> The feedback I got from students ... when I did that course in 2015…I did a survey after it. They had pretty positive feedback too. They seemed to appreciate the OERs. Hearing those kinds of things is nice, and it makes it worthwhile I suppose.

Faculty five stated,

> I think a lot of the students have enjoyed it. Just having the OERs and not having the textbook. I have had quite a few [students] who want the textbook still. So, I don't think that we're there yet, especially in my field.

Faculty six stated, "…It always goes back to the students; if it's advantageous to the student, then I need to do it."

Pedagogy, use, and experiences. The faculty members discussed how the adoption and integration of OER affected pedagogical practices and overall experiences with OERs. Some faculty mentioned that creation, modification, or adaption of OERs was a part of their pedagogical practices. Faculty one stated,

> If somebody writes an article, let's say it's very worthy, it's good, but it misstates…or it's geared toward the state of Texas and not Florida. What I can do is, I can use the material for their explanation. But then I'll add in mine and say,

now, in state of Florida this is how the law applies. So, I have to lay it out for them.

He also stated, "sometimes I have to teach them how to go get the material, how to use this, teach them not to be afraid of making mistakes." Faculty two stated, "I have looked over other lesson plans that other folks have provided and modified them to my teaching style and the objective for that particular task…" She continued,

> I liked the concept that was being presented…I found some really great websites that actually provide an entire course… [but sometimes] the schedule [or] the pace didn't work. Either it was too fast, or it was too slow, so I combined a couple of the concepts…

She also stated, "I would make changes, and I change things every semester anyway." She also mentioned, "…even though we discuss the concepts in class and they practice in class, by having the visual that's narrated, they can and many of them do, watch the videos again outside of class." Faculty three stated,

> I've had to adapt. Especially, let's say if I saw a documentary that might not have been made by a big production company. I needed to have them close[d] captioned or something like that. Whether I had to take the initiative, or we had to get an intern here to actually sit down and type it all out, I had to adapt it for everybody.

Faculty four stated, "I would create a lot of them. In my program right now, I've written some stuff that directly relates to what our students are learning. I'll just integrate that into the classrooms." She elaborated,

> For the images, I actually create them myself on Photoshop. I'll just take some

sort of resource…[that] has some really great information that can be condensed

to like 10 points. I'll just go on Photoshop, and I'll make a simple design, so

students can easily see what I'm trying to get them to see.

She continued, "I did one speech live to an audience. I had to rerecord and put images with that, just making it…more permanent. Format[ting] and making it easily accessible to students." Faculty five stated, "I'll adapt things that I do in class to incorporate what they're doing online. I might adapt a face-to-face ... or blended activity to incorporate a video that they watched." She continued, "It's easier to just create my own if I can't find exactly what I'm looking for." She also stated, "I've created a scavenger hunt through our Cpalms website, which is all the standards for what teachers use in the state of Florida for K12." She elaborated, "I have them going to certain parts of the website because it can be overwhelming if you just send them to this website and find this information."

Faculty six stated,

I have them look at the vulnerability populations within their communities. And

that's something they go to Florida charts to get, and then they can see, and then I

have them take that information and tell me what that means; interpret it for

emergency management.

She also mentioned, "I find at times ... I have to give it additional information because…they use their terms, their language."

The faculty discussed collaboration and information sharing in the context of pedagogy and experiences. Faculty one stated, "We will share information…it's public domain. So, we share as much as we can with the hopes that they're sharing with us too." He continued, "I have to go off of experiences with others out here to share." Faculty two

stated, "I also have particular authors or creators…their perspective seems to line up very well with mine, so I'm always interested in, what [they] are…doing. That information sharing thing, I have found very helpful." She continued, "I also think too that the more instructors that opt to go in that direction that there's information sharing amongst the instructors…the different resources and things that they have found." Faculty three stated, "I'm still learning. I'm still looking for different sources...OERs could be so many things, and I don't necessarily know what they are. So, reaching out to other people who do, so that I can learn."

Faculty six discussed integration of OERs. She stated, "I take the information and then integrate it by having students read it; have the assignments based upon it; have quizzes developed upon it." She also stated, "It's still their information; I haven't changed it, but I put it in a PowerPoint with some pictures, and then I do an overlay of voice to make it make more sense."

The faculty members also discussed creativity and flexibility. Faculty one stated, "You [have] to be flexible. You have to be very flexible because sending them somewhere to do the work is one thing but then we have to discuss it inside [the classroom]." He also stated, "I enjoy the flexibility of the class." Faculty two mentioned, "I think the benefit [is] the flexibility it allows, that I'm not having to lug around a 15-pound textbook." She continued, "I think the flexibility in addressing the needs of the students, the OERs allow to be able to do it both ways [sic]. They're relieved to not get stuck with the textbook." She also stated, "It also allows some versatility to take one particular piece of literature and show it the way it was originally created."

Faculty four stated, "I also like a challenge, and I thought it would be something

different, an innovative, creative way to design a class." She continued, "I think you just have to be a bit more flexible." She also stated, "You have to be creative as well. You have to think outside the box, which is also a benefit, in my opinion." She reiterated,

> It forces you to be creative, which could be seen as a drawback, but I think it's a positive thing. It's not stale. It's [fresher]. It makes you more excited to find new resources. It just forces you outside of that box that you were in.

Faculty six stated, "I think it also gives me a little opportunity to have a little more fun…I can take the information and put it into context and maybe use an assignment for it." She continued, "I think I have a little more freedom to be creative and to do things that the students find a little more interesting."

Faculty two discussed OERs in instructional practice. She stated, "it's a good way for me to gather information about instructional practices so that I'm not doing the same thing all the time…Am I taking the students as far as they can go when it comes to a particular piece that we're discussing?" She also stated, I use their feedback to make adjustments in the way that I teach the following semester." Faculty three stated,

> I'm not afraid to try something new, so if it fails, we're just going to adopt a new one. And it won't be just, did the students get it and [are they] able to work with it? It also needs to be on my end; Am I able to actually see are they getting it? Am I actually able to assess them?

In addition, the faculty members stated how they used OERs in their curriculum. She stated,

> One of the things I did [was] where we used to read about a criminal case that happened. The students were like, "Okay." It's reading. It was time consuming.

They didn't have time for it. So instead, I gave them a podcast that followed. It's

actually 18 months of an investigation. Each week, they were assigned to listen to

two, 25-30-minute episodes.

Faculty four stated, "Just because it made sense instructionally for a student to just be

able to go click on a link for a video rather than to have to listen to me give a speech…"

She also stated, "Once I have those resources, I make the big picture and then present

them to the students in a palatable way."

Faculty five stated, "…and then through that co-teaching model, I was able to

start being able to engage the students in videos." She continued, "They go through a

series of steps within each module, there's videos, there's an assessment at the end, and I

incorporate those assessment questions from the modules into my classes." She also

discussed,

So, if I have a blended class then we'll discuss the assessment questions when

they come to class for the face-to-face portion, so it holds them accountable for

viewing the information on their own, but then also I'll pull back up the videos

and we'll discuss them in class.

Faculty six stated,

I will develop support documents to help students to understand it, or I may take

the information, for HSEEP like Homeland Secure Exercise Evaluation Program.

It's a 76-page document … I take that document and develop about 16

PowerPoints that breaks down that information for the students.

Faculty seven stated, "Well, in the preparation…in putting together the curriculum.

Knowing that it was going to be a QM class, we really looked at sources that were going

to be stable." She elaborated,

> In building that QM curriculum, one of the things that we did change was we used
> more resources, [institutional] resources. There is a great link with the library
> [that says], how do you search for topics? How do you build an annotated
> bibliography? That was already there …very well laid out, easy to understand, so
> just providing that link to students…that was like a whole section that was
> covered.

She continued by stating,

> Last year I built a whole new course, a communications course. This is something
> that was very important to our program because we build the entire curriculum on
> the Competences of the American College of Healthcare Executives.
> Communication was one of the competencies and we didn't even have a course on
> that.

The faculty also identified using OERs for learning styles as a part of pedagogical
practices. Faculty two stated, "…oftentimes there's a visual to go with it, which is [a]
different way that students learn. It helps me address the different learning styles that our
students come to us with." She elaborated,

> As long as you don't change the message, it's okay to change the way that it's
> delivered and if that better suits the way that they learn and things that they're
> familiar with, then we need to offer them that option.

Faculty three stated, "Just as much as ... the teacher needs to realize that they learn in a
different manner and they enjoy spending their time in a different manner. Take that into
consideration and bring that into the classroom." Faculty seven stated,

I know my students each learn differently. Some like the website and wouldn't

leave the website and others want a hard copy of it. Rather than downloading that

whole website, I made some screen shots of it, so they could see how to navigate

it.

Faculty recommendations for future adoption and integration. The faculty

members provided recommendations for other faculty who may be interested in adopting

and integrating OERs in their curriculums. Faculty two recommended, "I would just

suggest that they replace some of what they're doing and find things that are readily

available out there." She also stated, "I think that there needs to be some clarity and some

much-improved conversation about the approaches to teaching the different courses."

Faculty three recommended, "I would absolutely say, everybody should try it. I wouldn't

necessarily say, go full course right away, but I would start to experiment a little bit."

Faculty six recommended, "If there's good OER information out there…and you find it to

be good, you find it to be accurate, you find it to be comprehensive, use it."

Faculty seven recommended,

I would say the number one recommendation to another teacher that is thinking

about doing it is to talk to somebody that is already doing it and see what [their

experience was]. What was the work? What was the reward? How do their

students react to it?

The faculty members also recommended that other faculty should think about why they

want to adopt and integrate OERs into their curricula. Faculty two stated, "I would

suggest that you really think about why you want students to do this particular thing. Do

you really have to have the textbook to do it?" Faculty seven stated, "I would ask them to

really think about why they are going down that road. Is it because they are dissatisfied with their current text and curriculum?" She elaborated,

> They have to really think about why they are doing it. There has to be benefits on all sides. It's not just to…make it easy for them to just throw out a bunch of OERs... and think they are done.

> Faculty described OERs as high-quality resources that generally were easy to locate, but difficult to integrate due to amount of time and work involved in curating the resources. Despite this, they perceived OERs as beneficial to adopt and integrate due to the cost savings they provide.

Results for Research Subquestion 2

What are instructional designers' perceptions of course design and development with the inclusion of OER materials?

Codes, categories, and emergent themes. There was a total of 225 codes, which were combined into 13 categories (Appendix F). Six themes emerged from categories and codes, identified based on instructional designer's responses to the interview questions: (a) experiences and perceptions of OER adoption; (b) challenges associated with OER adoption and integration; (c) perceived advantages of OER adoption and integration; (d) locating, selecting, implementing, and evaluating OER for course design; (e) identified characteristics of OER; and (f) overall experiences and recommendations for future adoption and integration.

Experiences and perceptions of OER adoption. The instructional designers stated their initial perceptions and experiences with OERs. Most designers had prior exposure to OERs through professional or educational means. Instructional designer one stated,

As an instructional designer, I came to [the institution]…in October of 2016...

Through graduate school, I think I was exposed a little bit to OERs and how to

utilize open resources and course design, but really doing that has been here in the

last year and a half. I have seen how other instructional designers have worked

with their faculty members to do that, and I've also observed how with my faculty

members.

She continued, "So, it's really been a lot of hands-on learning, working with instructional

designers who are doing this, and faculty members who are doing this." Designer one

also discussed prior experience with OERs. She stated, "While I was a graduate student at

Florida State, in the instructional systems learning technologies program… one of the

themes was open education. And so, kind of to model that…everything was open."

She elaborated,

Our texts that we were reading were open texts. The[re] were online blogs [and]

articles that we could access freely online. We had different tools and software

that were all free to access. They were all web-based software, and so she was

able to model the OERs, how to integrate for us as budding instructional

designers, by doing so within the course.

Designer two stated her experiences with OERs. She stated, "I wasn't really aware of it

before I came here. You might look something up and find something that's open and so

you're able to read all of it, but I wasn't intentionally seeking out OERs." Designer three

stated his experiences with OERs. He stated,

We did develop a math MOOC previously here. I was on a grant for that, and the

MOOC had no textbook, no instructor, but there were videos that were created

here at the college by instructors teaching [math] concepts. And then, within those

modules, we would link to outside textbooks that were OERs, and that way, it's

offered for free to students here in developmental ed.

Designer four stated her experiences with OERs. She stated,

…that's my role as it is. The virtual campus is in education, training, and design

services. When they buy into a good idea for the students and it makes a

difference for them, then they start developing content based on OERs.

She also stated

I completed a graduate certificate at FSU and I did have a couple of classes that

were textbook-free at FSU. And now I'm pursuing a terminal degree with [the]

University of Indiana. A lot of their classes are textbook-free. So, as a student I've

had the experience with OERs too.

The instructional designers also described their roles and experiences with adoption and

integration. Designer two discussed, "I would say that initially it was very resistant, even

bringing up the topic to faculty members." She continued, "When I stared, this was four

years ago, you opened up MERLOT and you see this repository of online resources that

are open. I didn't think that the response to that was very good." She also stated, "There

was some distrust from faculty, and they didn't think that the resources were very good or

what they needed."

Faculty four stated, "So as much as we can talk about content, which is not really

our domain as designers, we just help faculty with strategies and navigation organization,

design, even tools for them to use for students to submit their assignments." She

continued, "…our motivation comes because the state of Florida, they get together, and

they are concerned in Tallahassee with textbook affordability." She further indicated, "we do have a campaign for educating our faculty on the possibility of offering students courses that are text free."

Finally, the designers described in what ways their practices have changed for the adoption and integration of OERs. Designer one stated, "You know what, I have to say I don't think I've changed my practices to accommodate OERs, I think looking at OERs has given me more options." She elaborated, "Learning more about them has given me more freedom, and it's kind of opened up more options for me." She added, "So it's not that my practices have changed, learning more about OERs and what the licenses allow me to do and don't allow me to do, that has helped me make progress with my projects." Designer two stated, "I don't pick the content source, that's the instructor." She added,

> It's kind of reactive in those cases like going through and seeing what's going to
> be a problem and then trying to come up with solutions or an alternative that has a
> better license or something like that or even something that's not accessible.

She also stated, "I think in the future it would be helpful to come up with maybe some best practices for when we introduce a subject... When's the appropriate time and the appropriate way that people will be most receptive." Designer three stated,

> I don't think our practices have changed because we're still looking at alignment,
> making sure that the content is aligned with the objectives, and then, of course,
> the assessments align. So, I don't think it changes the way we develop our courses
> or design our courses because of the material that's being used.

He added, "We've been tasked with promoting the use of OERs, so we will try to offer alternatives..." Designer four stated,

I had to start implementing this strategy because of the publishers. The strategy is

very simple. I try to put in the course components there, but in terms of writing

the description of these course activities, course assignments, I don't mention

anything about, for example, OpenStax page…OpenStax chapter…

She elaborated, "Because when something changes I don't need to change all this

verbiage in the course, I just change one document in the course, which is called the

schedule of activities." She added, "And that makes us proactive because if the resources

you are using change…you don't need to overhaul the course." She continued, "that was

the change that I adopted to be prepared because when you use open resources they might

change more often, they are [livelier] than even a book edition that might take one or two

years to change."

    Challenges associated with OER adoption and integration. The designers also

stated their perceptions of the challenges associated with OER adoption. Designer one

stated the following, "…on the front end it's very time consuming to find content that I

trust. It is time consuming to create content. It's time consuming to modify content."

Designer two stated similar sentiments. She stated, "I would say mainly that it's a time

concern, because they have to find them, they have to vet them. If they want to adapt

them that's also going to take time."

    Designer three reiterated, "The biggest drawback with faculties is the time it takes

to locate those resources, vet them by their department, ensure that they're providing

enough rigor and meeting the objectives from the course." He also mentioned, "The

disadvantage[s] being… sometimes the quality of the material is not there, and the time

involved to find material that will equate [to] what's being offered by a publisher."

Designer four focused on the challenges involved with integrating OERs in specific content areas. She stated, "…we don't have an open resource for teaching online math in the sense that students can produce all the symbols and graphs."

She also mentioned, "Then another disadvantage would be lack of training." She further stated, "…it takes readiness from who's developing content. The subject matter expert. It takes readiness also from who's teaching, because sometimes you develop the content, but the other 19 people are going to teach, and they are not ready for that."

Perceived advantages of OER adoption and integration. The designers discussed the perceived advantages of OERs for the course design process. Designer one discussed several advantages. She stated, "the output is often so superior that that return on investment is worth it." She also stated, "…you can really tailor some of these materials to exactly what you need it to be." She continued, "And then there's the whole textbook affordability push. A lot of these options are at lesser cost to students." She then elaborated,

> I don't like to say that everything is free, 'cause of course you have these open
>
> materials, but there's the upfront costs, like you have to have a computer, you
>
> have to have Internet. So, I don't like to say, "Oh, well they're free." Well, the
>
> materials themselves, yeah, are free, but in order to use them, you have to have
>
> something. So, I like to bring that to the forefront.

She also stated, "It can really catapult a module if it again gets the students to where they need to be able to perform." Designer two stated, "It's exciting because there are additional things that you can do with it. It's something that you're allowed to edit and adapt." She continued, "I would say that it's nice because it's something that they're not

going to need to replace their book in three years or two years or one year." She also

stated, "If they have something that's open, they can use it however they want and it's

theirs to maintain and keep." She further mentioned, "You can edit in whatever way

works for you. It's customizable and there's less limitations when it comes to things being

out of your control."

Designer three stated, "…just to make sure that all the materials stay fresh, and

are current, and that's the beauty of the OERs. It's not just a textbook that they're just

repurposing every year." He also mentioned, "I think most faculty members will want to

save their students money, so that's a major advantage they look at." Designer four stated,

"It really pushes them to graduation when they have fewer expenses. They have

immediate access to information. They can start devouring that information from the

moment they login." She continued, "Textbook free and they have access…There are

several things that benefit the student for graduation."

Locating, selecting, implementing, and evaluating OERs for course design. The

instructional designers described their experiences with locating, selecting,

implementing, and evaluating OERs. Designer one stated the following regarding

locating OERs, "Initially, I was very surprised at the time that it takes to conduct your

searches for finding these types of resources ..." She elaborated, "… because you can

search OER commons and all of these different databases and repositories for materials

and resources, but once you get into it, sometimes [the content] will [need vetting]...

[because]…I'm not a subject matter expert."

She added,

I definitely wish I had more time to spend, whether searching or creating. That

would be optimal, [be]cause I know as a designer, I could learn a lot more [about]

how can I do this better…faster. But in terms of adoption and into the courses,

there's a learning curve…

She also stated, "I'm chatting with the librarians a lot. I try to educate myself on how to

search, where to search, what to look for." She stated the following details regarding

obtaining OERs for course design, "I will go to some of those bigger repository databases

and I'll just throw out search terms and see…" She elaborated on repositories,

"Sometimes MERLOT has lesson plans, and you can rate the resources that are uploaded.

I don't always rely on that one, but I do like it because they have whole lesson plan

packages." Designer two stated the following, "I would say time. We have a pretty short

design cycle…People come to us, and they usually have resources in mind." She added,

"It does take time to find and vet materials and similarly, if you're going to be

repurposing them, the more time that you have to work with it the better it will be." She

also mentioned,

… a partnership with the librarians because they're the ones who can tell them a

lot more about what those licenses mean, where to look, and they can help them

look and come up with some alternatives or tell them if things that they've found

will work.

She then stated details regarding obtaining OERs for course design. She stated, "The first

place I was looking was the [institution's] OER lib guide and that's been really helpful...

because the broader database[s] are in there…" She also mentioned, "A couple times I

was dipping into Google advanced search. If I couldn't find it in there…I was looking for

open textbooks…" Designer three also stated details regarding obtaining OERs for course

design. He stated, "the subject-matter experts. They're the ones that are doing the research and finding materials that align with the objectives they're trying to teach." He also stated, "I know one of our designers will find some TED Talk videos or something like that."

He continued, "I think that probably depends on the context of the area you're looking at." He followed up by sharing, "One of our designers on the team was able to find material just going to the Homeland Security website, United States Homeland Security. She went there and found some materials, and of course they had been updated." He also discussed the following, "We're working on a tax course. So, with that, we'll be going to IRS.gov to find materials. There's a lot of things about doing a tax return right there on the website, free to use and distribute."

Designer four stated the following details regarding obtaining OERs for course design, "We tried to do a partnership with the librarians." She continued, "I usually refer them to … the learning resources people because they are researchers and they can find anything for you. Also, they are experts in OERs and copyright, which is a plus." She then stated, "they may even create a lib guide based on the OERs for your subject matter, which makes [it] much easier for our subject matter [expert]s to select what the best resources are."

The designers discussed their experiences and perceptions of the discoverability of OERs. Designer one stated the following details, "It's tricky. I am still struggling with getting very familiar and skillful at conducting those searches." She continued, "I can do a lot of the searching, and do some preliminary reviews and vetting, but I was very surprised at how time consuming it is." She then stated, "…but regarding the

discoverability, I'm drawn to a lot of the…larger repositories, like the OER commons."

She continued, "…going to those larger repositories and databases, I'm more successful. I

like MERLOT, I like the Orange Grove."

She then stated, "It is tricky though…I understand why faculty members would be

hesitant to engage in the searching." She also stated, "…you find something, but it's not

quite perfect…and you've already put in an hour and a half of searching…I'm also gonna

[sic] have to modify…too much time. It's a big undertaking." Designer two stated the

following details about the discoverability of OERs, "You can go on a search for things

and find a lot. Again, it's making sure that the materials are what the instructor needs and

that it's up to their standards and everything."

She also mentioned, "I usually go in by keywords for an assignment." She added,

"there's the public library of science that has a whole bunch of resources available." She

elaborated, "For sciences and other things like that there's a whole bunch of government

grant stuff that has been accumulated. Math…they want to have practice and they want

things that are graded…That's hard to find." She then added, "…if it's English or Biology

or Social Studies or something like that, there's a load of resources." She continued, "I

can look and see, oh, this license will allow you to do this, this and this. The resources

here are accessible or not."

She also mentioned, "I think if you're looking in the right database, in the right

area, you'd be surprised, there's a ton of stuff out there." Designer three stated the

following, "I'd say for the most part, it's pretty easy." He continued, "…every once in a

while, you'll find a topic that someone's teaching that['s] difficult to find a resource." He

then added, "We'll send them some links or an article that we've downloaded. And

typically, we'll work with the librarians, too. They're willing to help out finding those resources." He then stated, "I would say finding the materials is not difficult. It takes a little time, and sometimes the first thing you find isn't always the best."

Designer four stated the following details, "There are several portals and that makes it easier to find things." She added, "The difficulty was in the beginning. I thought that, for example, MERLOT would have everything for me, and then I started digging. That was not the case. So, it is time consuming." She also stated,

> You will find them, but then once you find them it's a matter of which ones are best for my audience, and which ones will have the licenses that will let me do what I want to do with the resource. So that's the difficulty…finding what fits your audience best, but also that has the license that will let you adapt and take ownership of that resource, not only in a link...It is time consuming to find…curate…select them.

The designers discussed their experiences with selecting OER material. Designer one stated the following,

> …of course, we need these materials to be accurate, so we need to be able to trust the content, whether it be like an online textbook, whether it be a video. Whatever this learning object is, we need to make sure that it's accurate.

She also mentioned,

> …if you want to have that educational experience provided through OERs…let's make sure that we are selecting these materials that meet the learner's needs. It can be a video…it can be a text, if that gets the students to performing those outcomes.

Designer two stated, "It's hard because I'm not a subject matter expert. I can't say on the face of it…this is the topic that you wanted…that's why you have subject matter experts." She also added, "I would say that copyright is a…mess and that we could all use a bit more training in it so that we know how to use things correctly, fairly…" Designer three stated, "we're not involved in the selection process as much as the subject matter expert is because they're the content expert." The designers discussed experiences with the implementation of OERs. Designer one stated the following,

> …having the control to use those learning objects the way that best meets the students' needs is also extremely important. What are the course objectives? What are the students going to need to be able to perform? How can these materials get them there?

Designer two stated the following,

> Working with designers can help when they're talking about the possibility of adapting the materials…We have licenses for software and we can make interactive presentations, or we could work with the video team. We can see how things will integrate with Blackboard.

She mentioned, "…also, accessibility. Especially when we're coming into formatting documents, linking to webpages, looking at videos that might not have captioning." She further stated, "if it's a class that's going to be taught by multiple people, possibly running a pilot." She added,

> For our master model and for anyone who's running their own class, you've got to take a little bit of ownership of your material and a sense of ownership so that when things need to be changed, that someone is there to change it.

She continued, "…with fair use, if somebody's linking to a website or a video they need to update it every year. That's why we have a curriculum maintenance process." Designer three stated the following details about implementing OERs, "…it needs to be an initiative by the institution. I think it needs to be institutionally blessed, that, this is something we really would like you to proceed and move forward with, from an administrative level on down…" He elaborated,

> it's hard to argue when they say the publishers pay all these content experts to build these materials. Everything's there for me to use. I don't have to find it. I don't have the time to find it and locate it and make sure it's appropriate to use and then have it institutionally blessed.

He added, "I think eventually that makes the hurdles or obstacles that we have in the design process much easier, showing that there is support… to make it more prevalent throughout this institution." Faculty four stated the following, "But one issue is always for us: copyright. Is this faculty really complying with the license?" She added,

> The bigger of them too is now ADA compliance. This is a major concern since the law has come up on ADA for online content. We need to present everything ADA compliant upfront... instead of accommodating. It's the same issue whether you use OERs or a publisher.

The designers discussed evaluation methods for a successful OER. Designer one stated the following details, "I think if it allows the faculty member to provide a learning experience that is unique and robust, that's a successful resource." She elaborated,

> You can pull up…this OER…and if you're not allowed to do anything with it except present it…sure the content may be really useful and up to date and

snazzy, but if the faculty member can only use it in one way, it's very limiting...

She added,

> You can take a Power Point and pull that content and throw it up into a blog post,
> or vice versa...You can take the content and really make it what you need it to be
> for your students, and you can have your students utilize it.

Designer two stated the following, "The factors that I think would be important to measure would be… are students dropping out at a different rate in the OER version versus the regular version? At what point are they dropping out?"

She added, "…students might be willing to stay in a class longer if they had access to all the materials from day one…Are students completing the class? What are their grades?" She continued, "It would be interesting to see…how much time each student is spending in the class. That would possibly be a reflection of how much they're interacting with the content." She stated, "I'm certain…that the more time the student spends in the class, the better their grades will be, the more likely they are to pass the class." She added,

> I would say success for completion versus dropping out, grades, time spent in
> class...are they doing all the assignments...satisfaction. I'd probably do a
> survey…Did they actually like it or find it helpful versus the traditional class
> where they had to buy the book?

Designer three stated the following details regarding evaluation of OERs,

> We're still in the infant stages for this evaluation process. I ran a report with the
> dean a few weeks ago...Some of the courses had shown some great gains, and
> some of them not so much; it wasn't a dramatic decrease in student-achievement

levels, but it wasn't where we would hope it would've been.

He added, "I don't think the data at this point really is mature enough to indicate whether it's had a positive impact or not." He also indicated,

> I know we've seen a huge amount, over $350,000, in textbook savings just this academic year, which really lends itself to other areas of the college. Students can afford to take classes because they don't have to pay for the textbook. They're [going to] complete their degree faster...with this initiative, we're hoping to see students be able to walk in and graduate within 2 years for their AA or 4 years for the bachelor's degree.

He added,

> …there was a college called Tidewater Community College…and the stats that stood out to me was they saved between $1 million and $1.5 million in textbook fees for their students, their enrollment went up, and they had a half-a-million dollars in additional tuition fees because students were able to take more courses.

Designer four stated her perceptions on OER evaluation. She stated,

> there are two ways that we received the data that they have been successful. One was… textbook affordability. I work with criminal justice. The chairperson really ran a study this semester for six classes…that are textbook-free. From his calculations, there were 686 students who benefited from those courses. The savings were over $100,000.

She elaborated,

> …this means that as a student, if you don't need to pay that $180 for that book, that's almost a third of our tuition. That could mean that now I can stretch and

take an extra class and graduate sooner. This is one way from data…textbook

affordability, retention, and outcomes.

She then added, "…the second way that we got information is from students' responses

to course evaluation surveys." She elaborated,

…that's very meaningful because students were saying, I love these courses that

are textbook-free. They have access to them the first minute they enter the online

class…so they don't feel lost for 2 weeks waiting for their book to arrive. That

might even influence them whether to withdraw or not from the class.

She continued, "Because if you're getting lost for 2 weeks you might have to make a

decision to leave that class before you fail"

Identified characteristics of OERs. The instructional designers identified specific

characteristics of OERs including quality, complexity, and simplicity. They first

discussed the types of OERs that are used in course design. Designer one stated,

When I'm looking for my faculty members…oftentimes what people post and

make accessible in various repositories are PDF articles. They're PDF PowerPoint

slides. They are still PowerPoints. There's a lot of videos that people have made,

videos that are PowerPoint slides with the voiceovers.

She continued, "I found a lot of open textbooks, whether it be a website, and it's all

HTML, it can [be] a PDF you can download…The sky is the limit in terms of what

media." She also stated, "…looking at educational theory, I like to provide information

and content in a variety of means…Podcasts are really cool too." Designer one also

stated, "Through the library, those librarians have that lib guide, and so I have that

bookmarked, but then I also have the OER Commons." Designer two stated, "It's mainly

been readings, videos ... There's been a few instances where there were these interactive presentations." She continued, "It's mainly been webpages, articles, videos...reusable assignment design…infographics…"

Designer three stated, "…[one instructor] found a textbook the other day that was Creative Commons open-to-share, free licensing and reproducing, so we're using that in the course. His goal was to obviously make the [course] textbook free [and] cut down on costs for students." He also stated, "I think the obvious choice is…to link out to websites or specific videos." He continued, "…education courses use a product called IRIS modules…that are related to UDL. The modules are really well done. They incorporate video, text, graphics, [and] PDFs that you can download."

He elaborated, "they use these modules, and they're free. They get updated from time to time. We have to change the links." He also stated, "the [OpenStax] textbook is being used; part of the assessments that came with that OpenStax are being used; but presentations were modified." He added, "it's primarily links to articles and videos and... more of what's the current trend." Designer four stated the following, "… public domain. There are government websites that offer a lot of training material, educational material, and being public domain by default you can use it for educational purposes…Typically, the favorite one by our faculty is OpenStax."

Regarding the quality of OERs, designer one stated, "I'll go through and I'll say, oh, this looks really great, and then I'll present that to the faculty member. And they're like…this looks like it was written by a kindergartner." She continued, "…the content had to go through one of our subject matter experts, my faculty members, so they are able to vet those materials for the content." She also mentioned, "Sometimes it's not even that

difficult. Sometimes they're misspelling words, and the punctuation is completely wrong…from the starting point, I don't trust that resource." She further stated, "…there's a lot of different levels of quality…" She also indicated,

> But the organization…if it's a website, if it's a blog, if it's a PDF, if it's a PowerPoint, you can kind of gauge if this looks like a quality product…It doesn't have to be the most-fancy end product, but you do want to have something that is professional looking.

She continued, "…if it passes muster on my first round of evaluation, then I will pass it along to the faculty members to review, and then usually if they have pushback, it really is about the content." Designer two stated,

> We have had a bit of a time getting materials for this literature class. The readings for this class are all well past copyrights. They're all older. As they're international and centuries old, some of them, it does come down to translations and that is something that had to be read by the instructor, basically line for line, to make sure that it was accurate.

She continued, "…making sure that something like that is accurate…since that was out of copyright we can reproduce and reuse it in any way we want." She also stated, "…there's several initiatives where they're doing evaluations and peer reviews of content and making repositories like that." Designer three stated,

> We do look at the content, but as far as the selection goes, that falls on the subject-matter expert, and we rely on their expertise to make sure that the materials that are provided for the course are appropriately aligned with whatever the objectives are.

He reiterated, "We look at the materials. We make sure that they're in ADA compliance, that they're legible." Designer four stated, "One traditional example is OpenStax, and OpenStax is very organized. You can find most of the license for OpenStax texts [which] means their materials are adaptable, so you can completely customize to your audience's needs." She also mentioned, "…when you go through resources that have credibility…here between virtual campus and the librarians, then we have access to these good resources. Orange Grove, OpenStax." She further stated,

> When you use resources that have credibility, then we don't need to worry as
>
> much about organization or how current the content is. OpenStax usually has
>
> updates, and you can choose to change your course according to the updates.

She continued, "It depends a lot on if the faculty and the staff…know how to curate these resources and select them, how credible they are."

The designers also discussed complexity and simplicity of OERs for course design. Designer one stated, "I think [it] is dictated by the level of the student." She elaborated,

> If you have a higher-level student who's about to graduate, you need to have
>
> materials that are on that student's level. If you have students who are just starting
>
> statistics, you're [going to] need a beginner. In terms of content that's pretty
>
> straightforward.

She also stated, "In terms of ease of use and accessibility, yeah that definitely needs to be taken into account." She elaborated,

> Lumen Learning has taken that open textbook that's this huge, really ugly PDF ...
>
> You can search it, but it's just a straight PDF file. Lumen Learning has

transformed that PDF file's content into this pretty easy to navigate website, and

so the table of contents is all clickable.

She continued, "For the user, that interface is much simpler in terms of use. I think in

looking at the user experience, it was [simpler] for the user. It was one click, scroll, and

read." She added,

I have used that Lumen Learning open textbook website that's based on the

original PDF file, because within our Blackboard LMS, I can link out to the

specific sections, rather than uploading sections of a PDF…It was more direct for

the learners. So, in that aspect, it's a more elaborate OER.

Designer two stated the following, "It's something where the complexity of it needs to be

reflected on classes that we're not considering them OER classes." She added,

"Understanding fair use and copyright... Selecting content, OERs or getting subscription

to a service ... Or buying a textbook is something we should know." Designer three

stated,

We actually had an economics class a few years ago that had an OER that was

very complex. It had hundreds of files, hundreds of videos, transcripts. The

department had a difficult time because it was just an abundance of resources.

That's where an OER being complex would negatively influence using it.

He then stated the following regarding simplicity of OERs,

…Maybe it's three textbooks that are OpenStax different versions or different

companies and you pull different chapters from there. Maybe it's…some websites,

some journal articles, videos, Ted Talks. I find that the courses that use those

resources are actually much faster to design and develop because it doesn't require

as many people to vet this material.

Designer four stated the following about the complexity and simplicity of OERs,

In my opinion, what happens is that right now OERs… it's easier to adopt OERs

in the humanities subjects such as sociology, psychology, religion, history,

literature. It's much easier. Even law. Because these are concepts that you can do

a lot with.

She added,

…the major difficulty would be with … math and all sciences. Because of the

symbols, and you need a software anyway to teach online, which is a third party.

It can be a nightmare designing assignments that can be submitted by the student,

considering you need all the symbols.

Overall experiences and recommendations for future adoption and integration.

The instructional designers discussed their overall experiences designing with OERs and

provided recommendations for other designers who may be interested in integrating

OERs in their course designs. Instructional designer one stated, "I would say really the

best experience[s] I had were working with my faculty members." She elaborated on her

experience with a current faculty member. She stated,

…seeing her work, being so intimate with the storyboards, being so intimate with

how we're building out these courses in our LMS, that has been probably one of

the most beneficial experiences in terms of how to utilize and integrate

OERs…watching how she just takes hold of this content and makes it what she

needs it to be for her students.

She also added, "…now, I feel more confident and knowledgeable enough for some of

my new faculty members who don't have this background…I've already seen how other designers and faculty have done it." Designer two stated the following details about her experiences with OER adoption, "It's a very big sell to have something textbook free, but I feel a lot more confident substituting a resource that I think is going to be a problem and that's something that I'm looking forward to."

She added, "We still want to promote it and make people more aware, but it's gone from the point where people are skeptical... all the way to people approaching me and saying this [is] what we want to do..." She also mentioned, "I think on a wider level it's an important conversation to have with departments; that level of buy-in is important if they're going to be switching a resource." Designer three stated, "Currently, the Virtual Campus has 22 classes that are using OERs whether it's textbook-free or ... some of them are using OpenStax." He continued, "The fact that we will eventually have an entire degree OER is tremendous, I think." He then added,

> We're finding that some of these textbooks here that are being offered for classes
>
> are as much as the tuition. We're trying to find ways and strategies, whether it's
>
> not using publisher resources or maybe there's a textbook that they can customize.

He also stated, "I've had a positive experience with it. Every once in a while, we'll have some faculty that give pushback." Designer four stated the following details about her overall experiences with OER adoption, "I would say OERs is a land of opportunities because a lot of people are talking about it, but they are not [adopting] 100%. They [adopt] as a supplemental resource." She added, "…there are many opportunities out there. It's fun, innovative. And you can make a big difference."

The designers also provided recommendations and advice for other instructional

designers who are considering adopting and integrating OERs. Designer one

recommended, "I would say just jump in. I was not hesitant at first, but the hesitation

grew when I saw what [an] enormous task it was." She elaborated,

> When you start searching…this is a lot more than I was expecting it to be. But I
>
> trudged forward, and I've definitely learned a lot in the last few months, and
>
> there's a learning curve, [but] I feel much more confident in my searching.

She added, "So my advice would be, don't be scared, just jump in. You can be so creative

with some of this stuff, and you're not limited by whatever is presented to you." She

continued, "If those licenses allow you to modify and rework whatever that object is, do

it. Don't be scared. You can definitely be very creative and very innovative."

Designer two made the following recommendations, "We need to have

conversations with faculty about fair use and copyright. We need to have these

conversations early." She also stated, "There are other folks who have done this process

before who are valuable resources…Leverage the people who've done it before…use our

relationships that we have with the librarians…." She continued, "Coalition of the

willing. Get department buy in. Leverage relationships with the librarians and your

instructional designers." She added,

> Open doesn't mean free. There's more to this consideration than cost savings. We
>
> want to save costs for students. That's a very high priority, but I think it's also
>
> coming up with long term content needs solutions and I think it empowers our
>
> faculty to create quality resources that they need.

She also added, "If you don't want to reinvent the wheel, there's probably a lot of stuff out

there that you can repurpose in a way that works for you." She also stated, "Cost

concerns are important, but the cost is also coming from the work that you're doing…"

Designer three discussed the following advices and recommendations for OER adoption and integration, He stated, "Attend some conferences, professional development, reach out to other IDs in the field that are working with OERs, talk to their librarians because they're [going to] be a great resource for locating those materials." He added,

> …realize it's [going to] take time. It's not something you can jump in and say the whole college is [going to] go to in 2 years. We've been working on this for over 3 or 4 years now, and it takes time to implement.

He elaborated and added, "…when we talk about something reaching that tipping point…I think this institution in the next year or two could be reaching that tipping point, and then we'll see others getting on board. So, it just takes time." He also indicated,

> It's exciting times and in the next year or two, we're gettin[g] close to reaching that point where a lot of [th]em are just [going to] say…let's take the plunge. It's worth it in the long run...There are some positive numbers for the data, but long-term, another year or two, once the data matures, we can really conduct more analysis to make sure that this is a trend.

Designer four stated the following advice and recommendations for OER adoption, "Have partnerships with your library, because they are researchers and they can point out the best researchers for certain subjects." She added, "…professional development. Try to get into webinars about OERs, trainings, go to conferences and look for those sessions on OERs, copyright, ADA compliance."

Instructional designers described OERs as challenging to search for and locate.

They discussed the time involved to find OERs and to create or modify them. The OERs

integrated by instructional designers were perceived as being quality resources; however,

this largely depended on the credibility of the source. The cost effectiveness of the

resources was also noted by the designers as a benefit to adoption and integration.

Results for Research Subquestion 3

What are librarians' perceptions of support functions for the adoption and

integration of OERs in higher education.

Codes, categories, and emergent themes. There was a total of 136 codes which

were combined into 15 categories (Appendix G). There were seven themes that emerged

from categories and codes, identified based on librarian responses to the interview

questions: (a) perceptions of librarian roles at the institution; (b) perceived advantages of

OER adoption and integration; (c) challenges associated with OER adoption and

integration; (d) experiences with locating, selecting, and implementing OERs; (e)

identified characteristics of OERs; (f) evaluation methods for OERs; and (g) overall

experiences and recommendations.

Perceptions of librarian roles at the institution. The librarians interviewed all

had varying experiences with OERs, some prior to the initiative at the institution and

some after. Librarian one stated, "I started here in 2012. When I first started, our director,

and our colleagues [had] been interested in creating OERs and helping faculty integrate

OERs into their courses." The librarians discussed their roles at the institution and how

those roles dealt specifically with OERs. Librarian one spoke about the creation of OER

material in her role. She stated, "In my role as a librarian I create OERs specifically for

information literacy resources. How to access specific types of materials [and] how to

identify sources that faculty can then integrate into their courses."

Librarian two described her role as such, "My primary role in OERs has been as a person who is helping faculty adopt OERs by finding resources, or alternatively, helping people understand what an OER is versus something they just find online and assume is an OER." The librarians also discussed how they assist faculty with the adoption and integration of OERs in their courses through various methods. Librarian one stated, "In 2013, [I] did my first presentation on OERs. We presented to a group of faculty members and explained the definition of OERs, and how faculty members may be able to find them in institutional or statewide repositories."

Librarian three mentioned, "…I've gone for some presentations to kind of show people about it, like in the Institute for Academic Excellence." In addition, she stated, "I will also assist faculty in finding OERs that they can implement and integrate into their courses." Librarian one also noted that as instructors, they use open content for instruction. She explained,

> The libraries do teach two courses and we have no textbook for either of those so, as instructors we don't use a textbook, we use all OER content. But, then as a librarian trying to support other faculty, I've not worked with anyone who has gone forward with adopting it yet.

Librarian three described her experience with converting courses to OER integrated courses for faculty. She mentioned,

> …we're working right now on kind of converting what one of the English instructors had in their syllabus to OERs, so going through everything that we can find online as far as other existing open textbooks. Finding pieces that match the

pieces that she needs and so, we're putting it together and we're [going to] get it to her and hope that she likes it and will adopt it.

The librarians also discussed changes in practice occurring to support the adoption and integration of OERs. Librarian one stated, "…changing the way that we talk to faculty members about OERs." She elaborated, "when I work on them, I try to give them specific point of need resources. So, if a faculty member needs something about evaluating resources, I can either create or find something for them." She continued, "The librarians and instructional designers have all been working on creating workshops [so] they can really assist faculty members with OER integration." Librarian two discussed the importance of advocacy. She stated,

…because the advocacy component was so much more important at that point in time. And so, advocacy in that place has been the biggest portion of my professional practice changes, because I've been wanting to make sure that they realize there are multiple ways to go about establishing an OER in the classroom.

Librarian three stated, "Presentations and then selling it, pitching it, marketing it to instructors. Since we don't really teach but those two courses we really need buy-in by the instructional faculty." She elaborated,

we've been kind of trying to encourage it with mostly the presentations I would say. And then, with this project the idea is to create something that matches an existing syllabus. The instructor can see…it's just as good. The quality is just as good, but it doesn't cost $96.54.

Perceived advantages of OER adoption and integration. The most commonly reported advantage by the librarians was accessibility of information. Librarian one

illustrated this by stating,

> The fact that OERs imply that information is freely accessible to anyone that
> accesses our LibGuides. So, even though our main push is to create information
> for students, faculty, and staff, our LibGuides are used worldwide by anyone that
> can find it online.

She elaborated by stating, "If a LibGuide is accessible and available for a specific subject area or concept, if we place that on our LibGuide then anyone can access it at any time. Libraries love freely available information." She continued, "If it's licensed in a way that would involve remixing or transformation, we would be able to post that OER directly on that LibGuide page so we wouldn't have to link out." Librarian one also described how subscription fees can limit access to content after a certain time period. She stated,

> Something I do also like about OERs as an advantage, is that there's not
> subscription fees, and if it's information that's created freely online, we're not
> putting our students into these proprietary systems. So, something like EBSCO is
> a fantastic resource, but if you don't work in academia you will not have access to
> that after that time period. So that's definitely a disadvantage of traditional
> resources, and an advantage of OERs.

She also indicated, "…as compared to something like a nontraditional OER, or something that we subscribe to within the databases, that information might still be, in some way, in flux. So, will we still have that subscription?" Librarian three described cost savings as an advantage. She stated, "For me, the inherent glee in bypassing the overwhelming cost of publications was a motivator." She elaborated as such, "Obviously, the price issue is a big motivator. Even with databases, those aren't free to us so anything that is free is nice."

Librarian two discussed that adaptability and openness was an advantage to OERs. She stated,

> They are plentiful and because of the open nature of materials found, they are adaptable so that I can change them to meet the needs of our students. Resources that I find at another institution may not be appropriate, but may have foundational or secondary skills that I need our students to know for the purposes of whatever it is I'm teaching.

Librarian three spoke about the capability of OERs. She noted, "If it was truly OERs and public domain, … then we could even host it ourselves which would be really nice because that would avoid the broken link conundrum that we get in." Sharing of content was also mentioned by librarian two. She noted, "… the eagerness for people to share their materials out has been generally well received. People are receptive to sharing. I think that people aren't as possessive of information as people may assume. That has been an advantage as well."

Challenges associated with OER adoption and integration. The librarians discussed the challenges of OER adoption including disadvantages and barriers. Concerns surfaced regarding the currency of OER materials. Librarian one stated, "the information, if it was created several years ago, might become out of date, and we might have to update it in some way, which is a time concern." Likewise, librarian three expressed similar concerns by stating, "…we find that even with our subscription services, just because an article is in JSTOR this year doesn't mean we won't lose access in the future, so that's a concern whether you're using open or not." The librarians felt that potentially losing access to the resources and material could pose a problem. Librarian

one discussed the following sentiment,

> We have a lot of great OER resources that have plagiarism tutorials, which are
> awesome. But if at any point, that content creator decides to take that off the web,
> that content's license implies that they are allowed to do with it whatever they
> want, and then we'd just have to create a new one or find it at a different location.

Librarian one listed linking out as a disadvantage by stating, "…if it's one of the link-out
OERs, we don't have control about that webspace." The issue of copyright was also a
concern for the librarians. Librarian three stated,

> …depending on the situation, we may or may not have …the copyright issue ...
> We have to be really careful with that. As librarians, we're kind of the keeper of
> copyright rules so we definitely have to lead by example and not accidentally or
> purposefully, which would be very bad…to mess with those laws.

Likewise, librarian one mentioned that,

> copyright... how is the information usable? Is that an open license where you're
> able to use and remix it? If the information is mostly what we need but maybe not
> exactly what we need, can we edit or remix it? In general, I really think that's the
> most important aspect of implementing OERs for library resource. Are we able to
> use it in a license in that way?

Librarian three again stated similar views by expressing that,

> …a barrier is the copyright thing ... We want to even include readings that aren't
> in the public domain and then it's like how do you do that? We can't write our
> own stories and there are these existing short stories, poems, [and] readings that
> they want to use.

Librarian two mentioned that there were some limitations of the content management

platform, LibGuides, which they used to host content. She stated,

> LibGuides [is] not a fairly complex platform. You can only host certain types of
>
> information, and you can only embed certain types of information. Because it's
>
> not a fairly complex platform, the disadvantage is certainly that you find yourself
>
> incapable of doing these really beautiful complex modules that require HTML5,
>
> for instance.

She further elaborated on this by stating,

> You have these wonderful OERs out there that because there's not necessarily a
>
> host platform associated with them, it might be something you can download, and
>
> you're supposed to upload on your own servers. You can't do it within the context
>
> of what LibGuides offers.

Librarian two commented on how the limitations of the content management platform

may be affected by some of the more complex OERs. She stated, "the barriers that are

inherent in some of the platforms that the libraries use is one of those things that makes it

difficult." She elaborated by stating,

> Essentially…th[ere] is this great resource I really want to use. I'd like to use it in
>
> this form. I can adapt it, but I can't adapt it to a platform that's similar to that one,
>
> because there's no way for me to host it. That's been probably my biggest trial as
>
> far as adapting OERs to LibGuides…I think it's just one of those things that
>
> LibGuides has to catch up on.

This poses a disadvantage to the learner, according to librarian two, because, "the

ultimate result of that is that you're losing the modular style of learning that's been

developed very well for some of these great tutorials."

Librarian two also noted it is challenging to share out some information given the limitations of certain platforms that host OER content. She noted, "From my own personal experience, I, personally, cannot effectively share these other mechanisms because I don't have a way to show them." Additionally, librarian two mentioned, "Alternatively, some things that I've built, I can't share out because I don't have a method or mechanism to do that. That has been an issue that I have faced in my own professional life." She elaborated by indicating that, "This is a universal issue, I think, that probably librarians everywhere are running into …I have this really cool thing and I would really like to share it out, and I just don't know how to do it." The librarians indicated not being content experts creates a barrier for them when working with faculty who are attempting to adopt OER material. Librarian three stated,

> Well, it is a lot of work and we're not the subject experts ... The instructional
> faculty in that discipline are, so really, we can guide them, and we can show them
> how great it is to do this rather than a textbook. But we really need their expertise
> to make sure it's the right thing and really as subject experts, they could write
> their own textbooks if they wanted to. So, the fact that we can't do that for them,
> is kind of a barrier.

She elaborated by stating, "I think probably the subject expertise area of it is the biggest challenge." She also describes how labor intensive the process can be for faculty to adopt OERs material. She stated,

> …it's so much work for them to do. They could just get the book from the
> publisher and in some cases, it even comes with the other resources like

PowerPoints and online stuff they can use for testing. It is kind of hard to compete

with that premade, ready-to-go kind of content.

Librarian one stated,

…they actually went through the entire process and included things like timelines,

too, so people could actually understand a little bit better why this information

was incredibly difficult to make. They had to find licenses for 16 or 17 different

medieval texts, and the content expert, that faculty member, had to translate

several of them for himself because they were not available in free form.

Another concern brought up by the librarians was the time investment involved with

finding, creating and/or modifying OER materials. Librarian one stated, "… the time

consumed with actually creating OERs. If we're creating OERs, we have to make sure

that we have the script if it's a video. We have to lay it out if it's a visual or a text

resource." She further elaborated on the time issue by explaining,

…also just the time to find OERs as well. Especially since there's no really great

OER repository, then we have to do all sorts of different searching on all sorts of

different platforms. If we're trying to find OERs, how much time is it going to

take to create, or actually find that resource?

Librarian one also explained that one of the challenges concerning OER material is that

some faculty falsely believe that there is an open and free resource available for every

subject and topic. She explained:

When we help faculty members, sometimes the expectation is that every OER is

already available, and so there's a free version of everything that they might want,

which is definitely not the case. And if it is the case, they're very hard to find as

well. We either need to take the time to create it, which would be a very involved

process, or we would need to find something similar that might not fill all of the

needs of that specific learning outcome or assessment.

The librarians also discussed understanding and awareness as a challenge to OER

adoption and integration. Librarian one mentioned,

A lack of understanding by some [faculty] about how much time and effort it will

take to create, or find, an OER resource [is a challenge]. The librarians have done

a fair amount of research and engagement with OERs over the entire time I've

been here. When we say, implementing OER resources within a course, it's going

to take selection time, or creation time. Then reviewing time, and then editing

time, to make sure that resource is a quality resource to include within a class.

Librarian two stated,

Florida has their own version of an OER database where you have these

repositories of information that people can search. I think those are great, but

again it comes down to knowledge. If people don't know they exist, then it's going

to be an inherent barrier.

She elaborated on awareness and adoption of OER materials by stating,

Awareness…going back to the individual component of the barrier to access. As a

librarian, when talking about things like open journals, there's a lot of distrust of

them too. Even though they have rigorous peer review standards in place, there's

still a mentality shift that hasn't happened in higher education as a whole to make

them truly widely adopted.

Librarian two also stated,

A lot of times people think of OERs, and they think of certain areas. [There are] certain types of resources that are OERs, and it's not necessarily as expansive a mindset. If I say OERs, someone might think textbook or might think video or image. [There are] other ways that you can have an OER, and you can incorporate it…and it's effective, and there's an assessment already built into it…But because of the bounds of understanding of what an OER entails, you could be missing out on a whole section to adapt.

She continues by noting,

…but you can do more than that, you just have to be willing to put the effort in. That to me is the perfect indicator of the lack of awareness and the lack of understanding of how broad and how much depth there is to OERs, but people only see it on the surface.

Librarian two then details how advocacy plays a role in educating about OERs. She stated, "A lack of understanding, that's where the advocacy thing comes back in. The understanding that this is not information that's poor just because it's free, right? Because it's not truly free, it's just open. There's a difference." She also spoke about access, awareness, and adoption. She expressed,

…and then the barriers of access [are] just a lack of understanding on how to actually find the material. We can talk about OERs forever, and if people don't understand that there's a different approach to finding this information, then I'm not sure it's something that can be easily adopted.

Locating, selecting, and implementing OERs. The librarians stated information regarding locating OERs, including discoverability, selecting OERs, and implementing

OERs. They were first asked to discuss the types of OERs used. Librarian one stated, "We include all different types of media." Librarian two stated, "Images are a big one that I use, particularly infographics, because they give a visual component to students who are maybe a distance learner that you might not get, and videos." Librarian one also spoke about images and videos by stating, "If they're images, we try to make sure that they either have alt text, or they're readable by screen reader." She also mentioned, "Oftentimes we'll create videos for specific competencies within a class, and create texts that are relating to those, and then link to other resources that we find on the web."

Librarian three also mentioned the use of videos as an OER. She stated, "The LIS 2004 course …we used a lot of YouTube videos and things created really by other librarians across the country and in Canada too, that had a creative commons license on them." Librarian one discussed linking out to OER material. She stated, "I use a lot of linking for OERs. By linking, you're giving credit back to the individual who developed it, and also helping them build use, which I think is important." Librarian two stated, "I occasionally will use some PDFs or documents that I find." Librarian three reiterated by stating,

> I would say mostly it's PDF's, documents, we try to focus on what was in the public domain. There are government agencies like NASA that have really nice photos that are in the public domain. So, we've shown that at some of the presentations.

The librarians then discussed how they obtain the OERs that are used in the LibGuides. Librarian one stated, "We create them. So oftentimes I create a lot of infographics that we can then embed into the LibGuides." She also stated, "…and then we also search the

Internet to find credible resources that are Creative Commons licensed. If they're

accessible for use." Librarian three echoed by stating, "…really just looking for them

online. There are banks of things you can always check there. I keep mentioning

OpenStax but that's one that if you know it exists, you can check there first." The

librarians also indicated using Google to obtain their OERs.

Librarian one stated, "I usually perform Google searches." Librarian two

indicated, "I generally will do an advance search through Google with usage rights, just

because I know resources that I already like, so I might do a site limit." She elaborated on

this by stating,

> Within Google Advanced Search, you can do a colon period and then a domain
>
> name. I could search OpenStax, for instance, from Google, or I could search
>
> something like other people's LibGuides from Google too. That, for me, is one
>
> way that I'll find OERs. I'll do a document search on Google.

Librarian three reiterated by stating, "…just searching…I started with a Google search of

OER English composition to see where that takes me." Librarian one identified the

repositories as a source of OER material. She stated, "I will try to use things like

institutional repositories or something like The Orange Grove." Librarian three echoed by

stating,

> …and then you'll find jackpots of things. I found another librarian somewhere had
>
> a big whole LibGuide full of great links and each of those had more links, so it
>
> was just kind of like it opened up all these different places to look.

Librarian two stated,

> I don't do as much searching in like MERLOT, which is one of the big ones, but

that's just because a lot of the times, what I'm looking for, I know I can find. I

already have an idea of where I want to go get it. I'll just kind of limit to those

areas.

The librarians also discussed their experiences with discoverability, the ease or difficulty

in locating material, of OERs. Librarian one stated,

It's always a toss-up with what we can find and how we can find it. Even though

there are great OERs online, I've found that statewide repositories are okay, but

they don't have the search functions of something like Google.

She further elaborated by stating, "…and Google's ability to search by content license is a

good start, but then it's either overwhelming or the information might be cataloged

incorrectly, and the quality might be as high as we would want it to be." She continued,

"So usually I just do a very specific search and try to find individual artifacts or resources

on individual websites instead of searching something like a repository, because I usually

get better results that way." Librarian two also discussed the discoverability of OERs.

She stated,

It can be problematic, because as a librarian you have to be very conscientious of

the ethics component of information use. For me, it's been something that I'm very

conscientious about, because I want to make sure I'm upholding the licensing that

I'm using.

Librarian two also stated, "Finding content has been not hard, but perhaps time

consuming, particularly in trying to find content that's not a series of links, but more of a

developed research guide."

She also stated, "Because there are resources out there, you don't have to

necessarily recreate the wheel every single time you add content to a LibGuide."

Librarian two also discussed finding materials that others have created. She stated, "You can have a video that was created by another library, but you have to be careful to make sure you … get permission. If it's Creative Common share, what are the attributions in it?" Further, she mentioned,

> It can be hard, but I think [there's] an abundance of caution. I think you could do it equally as easily and not care as much, but I also think that you can run into some serious personal ethical issues if you do it that way.

Librarian three also discussed discoverability of OER material. She stated,

> So, the things that are not true OERs that we use, that's pretty easy because we have the discovery tools through the library, so if I want to showcase books or articles or eBooks, I can just look for them in the catalog and we have ways of linking there.

She elaborated by stating, "When it comes to finding things that would be appropriate to replace a textbook, that's a little trickier just because there doesn't seem to be any kind of essential repository for that sort of thing."

She also indicated that, "It just takes looking and trying different places to find it. So, it's not quite as simple; there's not one master thing to check." The librarians discussed selecting, locating, and implementing OERs. Librarian one stated, "It's important to consider how hard it might be if we're looking for subject-specific resources too. How hard it might be for a faculty member to find, or implement, that information themselves." Librarian two indicated,

> I think of it first from a usability standpoint. If I find something…and I cannot

adapt it or modify it in anyway [or] it's a design that I don't think will either be

appropriate for our students. Perhaps it's not accessible. Then that's kind of like

the first factor.

Librarian two also discussed selecting OER material. She stated,

If it's something I can't modify, I can't use it any further than that. It's not going to

meet the needs of our students, then it's something that I have to discredit.

She elaborated by stating, "Obviously accuracy and thoroughness are something that you

have to take into account. It would have to meet the thoroughness of accuracy of

information." She also mentioned functionality as an important factor when selecting

OER material. She stated, "Design goes with usability. You can have something usable

but not pretty. It doesn't necessarily have to be…attention-grabbing …It has to be

functional." Librarian three discussed OER material and authority. She stated,

The authority of it is a big thing. Making sure that the instructor that we're

suggesting it to and the students can feel sure that it was created by an expert on

the topic. How closely it matches the course and what they're looking for to

replace the textbook.

She also mentioned, "We have to consider "is it really an open, copyright kind of issue."

Identified characteristics of OERs. The librarians discussed specific

characteristics of OERs such as quality, licensing, complexity and simplicity. Regarding

the quality of OER materials, librarian one stated, "As we add information to LibGuides,

LibGuides is our online content management system, we use our information literacy

criteria to ensure that it's quality content." Further, she indicated, "So we make sure that

information is up-to-date within that specific field. That, [the] information has been

created, and that we understand any level of bias that is within that material." She

elaborated, "Of course a lot of information has some level of bias within it. We make sure

that it is an understandable level, and that it is clearly indicated on the LibGuide, if we

use it in that way." She also stated,

> We also try to use information ethically. So, as we're using OERs, we make sure
>
> that information is accessible to linking. If that information is copyrighted and
>
> there's specific rules that copyright holder has placed on the website, we are
>
> always aware of those rules.

She further elaborated by stating,

> We also make sure that information is created by experts. We'll usually do some
>
> type of background search to make sure that it's created by a credible author, or a
>
> credible organization. This usually involves doing some type of a Google search
>
> to make sure that person is not connected to something that is questionable in
>
> nature.

Librarian two discussed quality of OER material in relation to utilized platforms. She

indicated, "It's a matter of the platform that you're looking through to find the OER

content." She elaborated by stating, "If you find something that's factually very good

quality, but poorly designed, you can find information and then adopt it to a platform

that's more suitable for it, like Blackboard, for instance." She also indicated that, "A lot

of these are developed by professionals who have spent years in the field, and they're

evaluated and they're very critical and they're very good quality resources." She

continued, "The quality of information in OERs I would say are generally exceedingly

high. Whenever I'm talking about quality, I'm usually talking about things like open

textbooks." Librarian three echoed by stating,

> We do have a tab in the Lib Guides for each discipline where we've put things
> that we've found that could replace a textbook. So, I think the quality of those are
> great, they're made by other colleges and universities…they're academic works
> and they're at the appropriate level ... College level.

Librarian one discussed licensing as a characteristic of OERs. Librarian one stated, "In
the best-case scenario that information is clearly marked." She elaborated,

> …but I've actually contacted content creators directly to see if I was able to use
> their resources on our guides. So even though it might not be an OER as such, I
> have received permission for use on our Lib Guides.

She further indicated, "If either of those don't work, in most cases fair use allows that you
can link out to individual resources." Librarian one also stated,

> Specifically, with licensing, I believe that faculty members have to become more
> engaged with the understanding of information ethics, and information creation.
> Understanding how and why copyright is important. Why we need to start to
> license things differently instead of just pulling a PDF offline that someone has
> posted in an incorrect manner.

She reiterated,

> If we're going to change the system, it just can't be that we are circumventing the
> system and posting entire books and course modules. But, creating resources that
> are freely available for people to use and licensing them in a way that
> demonstrates how we believe information should be stated. Still giving proper
> credit.

The librarians also discussed complexity and simplicity of OERs. Librarian one stated, "It really depends on each individual resource. If it's easy to find, and easy to implement." She elaborated,

> If it's something that we have to find specifically, or if we have to reach out and contact somebody to implement, then that might mean that the implementation will either take longer or be placed on the back burner if we have other projects.

She also stated, "…If we're creating our own OERs we need to have time to record or create them in whichever way we need." Librarian two indicated, "Once you understand the mechanics of how to build an effective search, they can be applied regardless of what you're looking for. You may encounter issues, but generally speaking, it's going to be a good foundational platform." She also stated, "…finding OER materials was just a matter of understanding how the search mechanisms behaved and what my limitations needed to be to find the best resources." She further indicated,

> For me, it was initially complex in that when I began, I didn't have an understanding of what an OER was. And then as I grew my own personal knowledge, the complexity was lessened because I had become more of an expert of the material.

Librarian three mentioned, "It makes more sense for us to put the time and the effort into looking for all these resources, so that's a big determining factor."

Evaluation methods for OERs. The librarians discussed the various evaluation methods used for OERs. Librarian one stated, "we also make sure that any information we put on that page, especially if we have links to websites, we also include that evaluation criteria for students." She elaborated, "On most of our LibGuides page that

features websites, we also have information about the CRAP test, or the CARS test, which are two information literacy assessments that you could do." She also stated, "One great thing about LibGuides is it does have a statistical suite, so we are able to see hits on a specific website." She also indicated,

> I would say that it's very similar to evaluating resources for any use…Is the information findable? Is the information freely available, or licensed correctly and visibly? Is the information easy to find, or on a website that was either a search, or found through a Google search?

She elaborated,

> I actually went in there to look at the statistics to see if they were being used, and if I could kind of tease out how often they were being used within the platform. We also see if they're embedded in our courses, and really the hits are the best way to tell on the website.

Librarian two noted, "You can look at the analytic side of blackboard to determine whether resources are being clicked on. You can see if someone's clicked on it, but to me utilization or use is different than just merely clicking." She also stated, "Well, I would evaluate it based on whether it's actually being used, and if it's use is significant, in that you can put resources into a content management system, and they're just there as a presence." She continued,

> …but if it's something that being truly adapted, it's going to be integral to the success of the student in the course. If it is a learning object that the individual has developed or found or whatever OER method was used to actually integrate into the course, and the students are utilizing it and referring back to it, that would, to

me, be an indicator of success.

She also indicated,

> I would also look to see if they're adapting information. If I see something in a
> PDF, and say I have a student developing an infographic, if they're actually using
> the information and using it in context of the broader scope of whatever reference
> I'm referring back to, then that is an indicator of expertise, which to me is an
> indicator of use and knowledge.

She elaborated,

> …but if a student is referring back to it and critically incorporating it into the
> context of an assignment or a discussion board, to me that is a better indicator.
> Even a class discussion, It's a better indicator of use. That would be something
> that I would look for.

Librarian three stated, "Before we would link to anything, we would look at it first and
we evaluate the way we do when we purchase things for the library." She also mentioned,

> Does it match what the learning objectives are for the course? You would look
> for authority kind of things, like who made this and are they a subject expert? If
> something is coming from somewhere like the OpenStax, then we know that a
> university is behind it that has good stature. I feel less worried that that might not
> be good because it has that big name behind it.

Overall experiences and recommendations for future adoption and integration.

The librarians provided recommendations to other librarians who are looking to support

OER adoption and integration at other institutions. Librarian one stated, "talk to someone

that has gone through a similar type of program. There's a bunch of OER lists that are

available on all sorts of mailing lists. One is called Lib OER…and people are frequently sharing information."

She added,

> What I would also suggest is being forthcoming about these issues with faculty members who wish to implement OERs. Because a lot of implementation of OERs for the library, you have to select, and you have to create. If faculty members want to become involved with that process, create a road map for faculty members to make it a much more transparent process about the time investment that is needed.

She elaborated, "…and then if there is content creation, how long that might take, and how you might have to run through several models or try several different OERs to find one that works for you." Librarian two stated, "find one faculty member and one administrator who understand[s] or are willing to learn the value of OERs, because it takes multiple levels of buy in across the institution." She continued "…it's a chain reaction of buy-in that happens, and it has to happen on all levels across the institution." She elaborated, "Once you have that one person, then you start building one course, and you have to show that it's possible." Librarian two also mentioned,

> As long as you have one course where you can show savings for the institution and the student. You can show, just from the design and education standpoint, sound delivery of practice and theory and pedagogy, and you can show your administrators that this is not something that's going to break the bank, it's [going to] save money for the students, which is in turn is going to reflect positively on the institution.

She also stated,

> For the library, you have to be a willing advocate of information ethics, and you
>
> have to be understanding that people don't necessarily know or comprehend the
>
> nuances of things like Creative Commons licensing, and copyright, and fair use,
>
> and so you have to be prepared to confront and inform individuals as they become
>
> curious about the platform or platforms.

Further, she stated,

> …and then you have to be able to dedicate effective time to assisting faculty and
>
> other individuals in finding materials. Also marketing the resources that you have
>
> to help both adapt OERs and finding OERs. It's a fairly time intensive process,
>
> and it's not something that should be undergone kind of lightly or casually, but I
>
> think it is very important that it be done intentionally.

Librarian three stated,

> I think it's something that's gaining a lot of popularity so there's more and more
>
> out there for librarians in terms of professional development. Webinars about it,
>
> it's in the trade magazines of professional literature, so I think learning about it
>
> and seeing what other librarians are doing is helpful. The Creative Commons and
>
> these different organizations, they have a lot they put out to help people learn, so I
>
> think that's useful for getting started with it.

The librarians also discussed their overall experiences with OER adoption and integration

at the research site. Librarian one stated,

> I really like the concept of open licenses and OERs. As a librarian, we subscribe
>
> to many proprietary databases. And all of these cost a lot of money. So, even

> though I appreciate the scholarly model as it exists right now, that content creators
>
> need to be paid for their scholarly work, I believe that creating a push towards
>
> OER resources, and freely available, and freely accessible educational resources
>
> is the way that we should be going within our educational model.

Librarian one also discussed costs associated with non-OER materials. She stated, "If proprietary databases, or quiz sections, or online course modules cost the students a significant portion of money, then as educators we should be trying to figure out how to make that information freely available for more." She continues by stating,

> So, information like Khan Academy, or infographics created by subject matter
>
> experts, that are freely available for remixing, or for transformation. I really think
>
> that this is the way that we should be moving. If we're locking people out of
>
> learning about specific things because of proprietary models we've got a problem.
>
> So, I think OERs [are] a good way to bridge that gap.

She also stated,

> If on a college or state level we could have more resources and support for people
>
> that are creating OERs, that would help to mitigate the financial arguments that
>
> people have against them. We've always created information that is proprietary,
>
> so we're going to keep doing that. But what if we shift our directions and create
>
> that information, and package it in a different way?

Librarian two stated the following, "It's more about helping people define the scope of what an OER is."

> The librarians described the importance of their roles as OER advocates and

information literacy specialists at the institution. Assisting faculty in understanding OERs

is a large part of their roles as librarians. The librarians also indicated that generally, OERs have a certain level of quality and credibility, but the accessibility of information is the most beneficial aspect of OER adoption. In contrast, the most challenging aspect of OER adoption is lack of knowledge and understanding of licensing and copyright.

Demographics of Survey Participants

An email invitation was sent to 3,071 students who were enrolled in one or more OER integrated courses in the Spring semester at the research site. Demographics of the student participants are shown in Table 1.

Table 1

Demographics of Student Participants

Demographic	n (132)	%
Gender		
Male	31	23.66
Female	100	76.34
Age		
Under 21	63	47.73
21-30	43	32.58
31-40	7	6.82
41-50	11	8.33
51-60	5	3.97
Over 60	1	0.76
Ethnicity		
American Indian or Alaskan Native	1	0.72
Asian or Pacific Islander	5	3.62
Black or African American	23	15.94
Hispanic or Latino	33	23.91
White or Caucasian	80	54.35
Other	2	1.45
Semester Enrollment		
1 Course	7	4.00
2 Courses	25	17.60
3 Courses	16	12.00
4 Courses	40	32.00
5 Courses	33	26.40
6 or More Courses	10	8.00

Of the 3,071 students invited to participate, 132 students (4%) completed the online OER survey via SurveyHero. The majority of students (74%) were female.

Approximately one half of the students (48%) were under the age of 21. Over half of the

students (61%) were Caucasian. One third of the students (31%) were enrolled in four

courses for the Spring semester.

There were 21 unique courses identified as OER integrated, however, only 6

subject areas were represented by student survey participants. The represented subject

areas for the OER integrated courses were Biology, English, Criminal Justice, Education,

Health Care Management, and Emergency Management. For the purpose of this study,

demographic data was collected to describe the population of participants as a sample.

The demographic data was not collected to generalize the population, however, collected

data was used to provide a report and characteristics of the sample.

Results for Research Subquestion 4

What are student perceptions of the use of OERs in their higher education

coursework? To address this subquestion, student responses from the OER student survey

were analyzed. The OER student survey took 4-5 minutes to complete. Student

participants were asked questions related to their perceptions of OERs in their courses

and in comparison, to traditional textbooks. Results are shown in Table 2.

On Question 1, *I enjoy learning in an environment that incorporates open educational*

resources, 45.2% of students indicated strong agreement, and 43.7% indicated agreement.

Overall, 88.9% of students reported that they enjoy learning in environments that

incorporate OERs. Conversely, 5.6% of students indicated strong disagreement and 1.6%

indicated disagreement. Overall, 7.2% of students reported that they did not enjoy

learning in environments that incorporate OERs.

Table 2

OER Survey Student Responses

Survey Question (*n=126*)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I enjoy learning in an environment that incorporates open educational resources.	7	2	5	55	57
2. Open educational resources make me feel more engaged with my learning.	7	3	14	52	50
3. Open educational resources improve my performance in my program.	7	4	13	51	51
4. Open educational resources directly improve the quality of my learning experience in this course.	7	3	14	59	43
5. There is a match between the open educational resources' content and specific learning objectives of this course.	8	3	26	51	37
6. I think this course is of less value to me because anyone can access the materials.	40	50	19	8	8
7. Open educational resources are not as good as purchased textbooks.	38	47	23	9	7
8. Open educational resources help me understand the topics better than textbooks.	9	15	31	43	25
9. I believe I can learn more through open educational resources than through a textbook.	8	14	43	36	23
10. Open educational resources do not offer any advantages to me.	39	59	13	6	6
11. If given a choice, I prefer learning using open educational resources.	8	8	27	48	31
12. I would like to take more courses using open educational resources.	6	3	22	60	32
13. I would recommend a course that incorporates open educational resources.	6	2	22	60	33

On Question 2, *Open educational resources make me feel more engaged with my learning,* 39.7% of students indicated strong agreement, and 41.3% indicated agreement.

Overall, 81.0% of students reported that OERs make them feel engaged with their learning. Conversely, 5.6% of students indicated strong disagreement, and 2.4% indicated disagreement. Overall, 7.9% of students reported that OERs did not make them feel engaged with their learning.

On Question 3, *Open educational resources improve my performance in my program*, 40.5% of students indicated strong agreement, and 40.5% of students indicated agreement. Overall, 81.0% of students reported that OERs improve performance within their program of study. Conversely, 5.6% of students indicated strong disagreement, and 3.2% indicated disagreement. Overall, 8.7% of students reported that OERs did not improve performance within their program of study.

On Question 4, *Open educational resources directly improve the quality of my learning experience in this* course, 34.1% of students indicated strong agreement, and 46.8% indicated agreement. Overall, 81.0% of students reported that there is a direct improvement to the quality of the learning experience in courses when OERs are utilized. Conversely, 5.6% of students indicated strong disagreement, and 2.4% indicated disagreement. Overall, 7.9% of students reported that there is no direct improvement to the quality of the learning experiences in courses where OERs are utilized.

On Question 5, *There is a match between the open educational resources' content and specific learning objectives of this course*, 29.6% of students indicated strong agreement, and 40.8% indicated agreement. Overall, 70.4% of students reported that the content presented by OERs aligned with the learning objectives for each course. Conversely, 6.4% of students indicated strong disagreement, and 2.4% indicated disagreement. Overall, 8.8% of students reported that the content presented by OERs did

not align with the learning objectives for each course.

On Question 6, *I think this course is of less value to me because anyone can access the materials*, 32.0% of students indicated strong disagreement, and 40.0% indicated disagreement. Overall, 72.0% of students reported that the course still carries value even though the materials were accessible by anyone. Conversely, 6.4% of students indicated strong agreement, and 6.4% indicated agreement. Overall, 12.8% of students reported that the course held less value because the materials were accessible by anyone.

On Question 7, *Open educational resources are not as good as purchased textbooks*, 30.7% of students indicated strong disagreement, and 38.0% indicated disagreement. Overall, 68.7% of students reported that OERs are as good as purchased textbooks. Conversely, 5.7% of students indicated strong agreement, and 7.3% indicated agreement. Overall, 13.0% of students reported that OERs are not as good as purchased textbooks.

On Question 8, *Open educational resources help me understand the topics better than textbooks*, 20.3% of students indicated strong agreement, and 35.0% indicated agreement. Overall, 55.3% of students reported that OERs helped to understand the topics better than textbooks. Conversely, 7.3% of students indicated strong disagreement, and 12.2% indicated disagreement. Overall, 19.5% of students reported that OERs did not help to understand the topics better than textbooks.

On Question 9, *I believe I can learn more through open educational resources than through a textbook*, 18.6% of students indicated strong agreement, and 29.0% indicated agreement. Overall, 47.6% of students reported the belief that learning was increased more through OERs than through a textbook. Conversely, 6.5% of students

indicated strong disagreement, and 11.3% indicated disagreement. Overall, 17.8% of students reported the belief that learning was not increased more through OERs than through a textbook.

On Question 10, *Open educational resources do not offer any advantages to me*, 31.7% of students indicated strong disagreement, and 48.0% indicated disagreement. Overall, 79.7% of students reported that OERs do offer advantages. Conversely, 4.9% of students indicated strong agreement, and 4.9% indicated agreement. Overall, 9.8% of students reported that OERs do not offer any advantages.

On Question 11, *If given a choice, I prefer learning using open educational resources*, 25.4% of students indicated strong agreement, and 39.3% indicated agreement. Overall, 64.7% of students reported that if given a choice, they prefer learning using OERs. Conversely, 6.6% of students indicated strong disagreement, and 6.6% indicated disagreement. Overall, 13.2% of students reported that if given a choice, they do not prefer learning using OERs.

On Question 12, *I would like to take more courses using open educational resources*, 26.0% of students indicated strong agreement, and 48.8% indicated agreement. Overall, 74.8% of students reported that they would like to take more courses using OERs. Conversely, 4.9% of students indicated strong disagreement, and 2.4% indicated disagreement. Overall, 7.3% of students reported that they would not like to take more courses using OERs.

On Question 13, *I would recommend a course that incorporates open educational resources*, 26.8% of students indicated strong agreement, and 48.8% indicated agreement. Overall, 75.6% of students reported that they would recommend a course that

incorporates OERs. Conversely, 4.9% of students indicated strong disagreement, and 1.6% indicated disagreement. Overall, 6.5% of students reported that they would not recommend a course that incorporates OERs.

In addition to questions regarding the student learning experience, value of OER integrated courses, and OER material in comparison to traditional textbooks, the OER student survey also inquired about OER content quality. Student responses are shown in Table 3. Table 3 shows students reported that the quality of the content found in OERs for enrolled courses was between average and above average quality.

Table 3

OER Survey Student Responses Regarding Quality

Survey Question (*n=123*)	Poor	Below Average	Average	Above Average	Excellent
14. Overall, how would you rate the quality of the content within the open educational resources for this course?	2	1	44	45	31

Of the 123 students surveyed, 1.6% of students rated content quality as *poor*, 35.8% of students rated content quality as *average*, and 36.6% of students rated the content quality as *above average*. The most frequent response regarding content quality was *above average* (*Mode=* 4). Table 4 summarizes the descriptive statistics for the OER student survey. For this study, only median and mode were reported as measures of central tendency, as Likert scale data is ordinal in nature. The most frequent value (mode) and the middle value (median) were reported for each survey question. Overall, the students perceived OERs as engaging, advantageous, and just as beneficial as traditional textbooks.

Table 4

Summary Statistics for OER Student Survey

Survey Question (*n=126*)	Median	Mode
1. I enjoy learning in an environment that incorporates open educational resources.	4.0	5.0
2. Open educational resources make me feel more engaged with my learning.	4.0	4.0
3. Open educational resources improve my performance in my program.	4.0	4.0
4. Open educational resources directly improve the quality of my learning experience in this course.	4.0	4.0
5. There is a match between the open educational resources' content and specific learning objectives of this course.	4.0	4.0
6. I think this course is of less value to me because anyone can access the materials.	2.0	2.0
7. Open educational resources are not as good as purchased textbooks.	2.0	2.0
8. Open educational resources help me understand the topics better than textbooks.	4.0	4.0
9. I believe I can learn more through open educational resources than through a textbook.	3.0	3.0
10. Open educational resources do not offer any advantages to me.	2.0	2.0
11. If given a choice, I prefer learning using open educational resources.	4.0	4.0
12. I would like to take more courses using open educational resources.	4.0	4.0
13. I would recommend a course that incorporates open educational resources.	4.0	4.0
Survey Question (*n=123*)	Median	Mode
14. Overall, how would you rate the quality of the content within the open educational resources for this course?	4	4

Emergent Themes for Subquestion 4

Two open-ended survey questions were asked to examine student perceptions of the impact of OERs on their studies and student experiences with OERs. For the first open-ended qualitative question: *In what other ways has using open educational resources impacted your studies*, there was a total of 50 codes. The codes were then

combined into 13 categories. The following three themes emerged from the 13

categories: (a) OER benefits and their impacts on learning, (b) challenges associated with

OER use in coursework, and (c) OERs compared to traditional textbooks (Appendix H).

    OER benefits and their impacts on learning. The students discussed

comprehension, engagement, access, and affordability as OER benefits. One student

stated, "Using OERs allows me to explore a topic in depth and find similar topics that are

actually easier to understand than the textbook at times." Another student stated, "OERs

have made certain courses easier to understand than purchased textbooks." Another

student stated, "When using OERs, I am more engaged in my learning."

    Many of the students discussed access as a benefit to OERs. One student stated,

"Being able to access certain things on my phone has been able to increase my study

time." Another student stated, "Freedom to access materials wherever and whenever

allows the person taking the course more freedom to learn at their leisure...good stuff..."

Another student stated, "I can access what I need from wherever I am…I am not limited

to working from home."

    The students also mentioned affordability as a benefit of OERs. One student

stated, "Rather than being restricted to an expensive text book I can simply use OERs to

learn about the topic at hand." Another student mentioned, "It lets you focus more on the

studies then the financial constraints which come with textbooks." Another student

mentioned, "The material is available for my use so even though I can't afford the text

book I still have access to the information needed for the course." Another student stated,

"It has saved me money. By allowing me to avoid textbook fees I was able to take more

classes in a semester." Another student stated, "We don't have to waste money on a

textbook and the open educational sources are often times just as effective."

Challenges associated with OER use in coursework. The students discussed

some of the challenges associated with the use of OERs in their coursework. One student

stated, "[OERs] should be able to provide more than it did." Another student stated, "Call

me old fashioned but I still prefer a written textbook." Another student mentioned, "After

some time staring at a computer screen, it can really hurt your eyes." Another student

stated, "The last two semesters without OERs I did much better academically, but I can't

really blame it on the resources." Another student stated, "OERs do not challenge me as

much so, I put less effort into the course."

OERs compared to traditional textbooks. The students discussed OERs compared

to traditional textbooks and the limitations of OER materials. One student stated, "I feel

like when I learn from a textbook it is not as engaging and sometimes hard to

comprehend what is being taught in a textbook." Another student indicated, "Learning

from a book only allows one type of perspective, even if several people were behind the

making of that particular book." Another student stated, "It has helped however, I only

have access to it from a computer." Another student stated, "One of the main problems, is

offering online content that is only available to read online."

The second open-ended qualitative question stated: *Please provide any additional

comments about your experiences with open educational resources in this course*. There

were 16 codes, which were organized into three experience categories, (a) Positive

experiences, (b) Neutral experiences, and (c) Negative experiences. These three

categories were then combined into one emergent theme: Student experiences with OERs

(Appendix I).

Student experiences with OERs. The students discussed their overall experiences with OERs. One student stated, "The resources, especially videos are a great help to auditory and visual learners." Another student stated, "I believe these resources gave me the same support and information as standard textbooks." Another student stated, "I had no idea how to properly access these resources and incorporate them into my papers." Another student stated, "I identify these resources as useful, but unreliable." Another student mentioned, "The quality of the resource is very dependent on the subject."

The students viewed OERs as helpful but sometimes restrictive. Compared to traditional textbooks, students indicated that OERs helped them comprehend and understand concepts better. Additionally, they noted that OERs were engaging, current, and accessible. Learners also indicated that OERs are limited because the materials are only accessible online. The most commonly identified benefits of OERs by learners was accessibility and affordability.

Summary

In Chapter 4, the researcher provided a synopsis of the data collection process, an overview of the study detailed findings from the interviews and survey conducted with research participants. Interviews were conducted with 7 faculty, 4 instructional designers, and 3 librarians who were all participating in an OER initiative at the research site. The semi-structured (focused) interview questions were designed to explore perceptions of faculty, instructional designer, and librarians on OER adoption and integration. The qualitative findings were coded, categorized, themed, and organized according to the subquestions they represent. Twenty-one themes emerged from faculty, instructional designer, and librarian interview data.

A survey was distributed to students enrolled in at least one OER inclusive course during the 2018 spring semester. The survey was designed to collect quantitative and qualitative data about students' perceptions of OERs as integrated course resources. Specifically, questions regarding engagement with OERs, performance with OERs, OERs compared to textbooks, and OER quality were asked. The quantitative findings were analyzed and reported using descriptive statistics. The qualitative data was coded, categorized, themed, and organized. Four themes emerged from the student survey data. In Chapter 5, the findings will be interpreted and contextualized, and a discussion of the implications, limitations, and future directions will be provided.

Chapter 5: Discussion

This case study was conducted to discover stakeholder perceptions of OER

adoption and integration at a state college in east Florida. Specifically, faculty,

instructional designers, and librarian data were collected via semi-structured face-to-face

interviews. Student data were collected via a survey. The data were analyzed through a

multi-level coding and theming process and presented in Chapter 4. This case study was

grounded in Rogers' (2003) diffusion of innovations theory and the research questions

were designed to guide the exploration of stakeholder perceptions within the context of

an OER initiative at the research site. Chapter 5 will present the overview of findings,

meanings and understandings, findings linked to existing literature, research significance,

limitations, implications, directions for future research, conclusions, and

recommendations.

Overview of Findings

There was a total of 21 themes that emerged from faculty, instructional designer,

and librarian interview data. The eight major themes that emerged from the faculty data

were (a) faculty perceptions of OER quality; (b) time investment and work involved to

adopt and integrate OERs; (c) OER selection and characteristics; (d) faculty perceptions

of OERs compared to textbooks; (e) challenges associated with OER adoption and

integration; (f) perceived advantages of OER adoption and integration; (g) pedagogy, use,

and experiences; and (h) faculty recommendations for future adoption. Faculty have the

primary role of OER adoption and integration into courses. The quality of the resources

was rated highly by faculty primarily due to the types of resources being adopted and

integrated. Access to information was also a favorable determinant of OER adoption by

faculty. Faculty data indicated that while OER are freely accessible, affordable, and generally of high quality, the time commitment required to locate, vet, modify, integrate, and maintain OERs is substantial. These challenges may be influential in determining the rate at which these resources are adopted and diffused at the research site.

The six major themes that emerged from the instructional designer's data were (a) experiences and perceptions of OER adoption, (b) challenges associated with OER adoption and integration, (c) perceived advantages of OER adoption and integration, (d) locating, selecting, implementing, and evaluating OERs, (e) identified characteristics of OERs, and (f) overall experiences and recommendations for future adoption and integration. The instructional designers took more of a secondary role to the librarians in supporting and encouraging OER adoption by faculty. Designers were deliberate in their roles and encouraged the adoption of OERs if faculty were open-minded and showed a genuine interest in replacing the existing textbook or supplementing course materials. Locating and vetting OER material was delegated to faculty by designers to properly determine appropriateness and quality of the adopted material. Designers frequently mentioned that cost savings was the biggest advantage of OER adoption and integration.

The seven major themes that emerged from the librarian's data were (a) perceptions of librarian roles, (b) challenges associated with OER adoption and integration, (c) perceived advantages of OER adoption and integration, (d) locating, selecting, and implementing OERs, (e) identified characteristics of OERs, (f) evaluation methods for OERs, and (g) overall experiences and recommendations for future adoption and integration. The librarians enthusiastically support and strongly encourage OER adoption and integration by faculty. One major challenge expressed by the librarians was

a lack of licensing and copyright knowledge by faculty. In contrast, OERs are freely accessible, adaptable, and free from subscription costs, which saves both the student and the institution money.

An analysis of student responses indicated that learners were generally satisfied with the OERs integrated in their courses. Findings from the *OER Student Survey* suggest that OERs are perceived as engaging, providing value to courses, and are as effective as traditional textbooks. Learners indicated that they would prefer to learn using OERs and that OER quality was found to be above average. Themes extracted from student data included OER benefits and impacts on learning, challenges, and OERs compared to traditional textbooks. Additionally, overall student experiences with OERs were examined and organized into positive or negative themes.

Several themes overlapped between the faculty, instructional designers, and librarians. While views on advantages, challenges, and characteristics of OERs varied across participant groups, there were still many commonalities among the responses such as views on the cost-effectiveness of the resources, the quality of the resources, and the time commitment involved to adopt the resources. Likewise, there were themes extracted from the student data that were also common among the other three participant groups. These themes were (a) challenges associated with OERs, (b) perceived advantages of OERs, and (c) perceptions of OERs compared to traditional textbooks. There were also several categories that emerged from the student data also common to the other three participant groups, such as access, currency, affordability, and tangibility. The most common referenced advantage of OERs by all participants was cost savings. The quality of OERs was also a common reference among faculty, instructional designers, librarians,

and students.

Meanings and Understandings

There were 21 themes that emerged from the participants' interview data; 8 themes were associated with Research Subquestion 1, 6 themes were associated with Research Subquestion 2, and 7 themes were associated with Research Subquestion 3. These themes were closely examined along with the participant's perceptions. There were 4 themes that emerged from the qualitative data extracted from the OER student survey. These themes were associated with research subquestion four. In the following section, meanings and understandings extracted from the interview and survey data are organized and presented according to the corresponding research questions.

Research Subquestion 1. What are faculty members' perceptions of OER adoption and the integration of OER materials in higher education? Seven faculty were interviewed for this study. Faculty answered questions regarding their experiences with integrating OERs into their curriculums, OER quality, discoverability, benefits, and barriers. Eight major themes emerged from the faculty data.

Faculty perceptions of OER quality. Faculty indicated that generally, the resources utilized were of high quality. Faculty utilized a variety of peer-reviewed academic resources, academic journals and articles, as well as governmental, organizational, and educational websites, research websites, and verifiable videos to combat quality concerns. They also noted that finding and utilizing the most current, relevant, and up-to-date resources helps when considering the quality of the materials. Some faculty stated that the organization of the resources needed improvement, but generally, OER materials were well-written and had a high level of efficacy.

Time investment and work involved to adopt and integrate OERs. The faculty

also indicated that the time investment involved to adopt and integrate OER materials

into their curriculum was substantial. They noted that adopting OER material took a great

deal of time, extra effort, and also required maintenance. All of the faculty members

indicated that the time commitment involved with researching, locating the resources,

vetting the resources, integrating the resources, and updating the resources was

significant, if not overwhelming. Faculty also mentioned that maintaining the resources

in order to keep the material current, links and videos active, and instructions applicable

proved challenging and time consuming. They also indicated that the integration of OERs

into the curriculum frequently required a course redesign. Despite these challenges, most

faculty noted that using scholarly, distinguished sites helped reduce the time involved

with vetting the resources and keeping the resources current.

OER selection and characteristics. The faculty discussed their perceptions of the

selection of OERs and the characteristics of OERs. Some of the most common types of

OERs used by faculty were government webpages and websites; YouTube videos;

newspaper articles; journal articles; academic, empirical research; literature; academic

journals; mainstream media; documentaries; images; federal resources; teaching cases;

podcasts; and modules. Faculty also use a variety of methods to search for and locate

OERs. Most faculty members search the internet to locate the OERs used in their courses.

They also work with the librarians to find OER materials. Some faculty indicated that the

complexity of OERs generally does not affect their decision to adopt the resources and

that the quality of the resources has more of an impact on whether they will adopt a

particular resource. In contrast, faculty noted that the simplicity of OERs was linked to

ease in accessibility and simplistic navigational features. Faculty also indicated that using OERs with a range of both complexity and simplicity or the capability to use OERs to present complex ideas was important.

Faculty perceptions of OERs compared to traditional textbooks. Faculty members discussed their perceptions of OERs compared to traditional textbooks. They indicated that while in some instances a textbook is suitable for the course, many of the textbooks selected for their courses were outdated and inaccurate. They noted that the textbooks cover a vast amount of information, some of which students do not necessarily need to meet the course objectives. Faculty also indicated that OERs are more alive than textbooks and that using OERs encourages creativity. Faculty mentioned that some of their students prefer the physical feel of traditional textbooks and that students may experience apprehension when using OERs as a textbook replacement. They noted, however, that some OERs have the same features of a traditional textbook, such as printing and highlighting.

Challenges associated with OER adoption and integration. The most common challenges that faculty experienced with OER adoption and integration were creating and modifying the material, perceptions of quality, student difficulties with the resources, and use by adjuncts. Faculty sometimes have to create the resources and support documents needed for an OER-integrated course. Additionally, learners sometimes experience difficulties when using the OERs, depending on how they are integrated into the course's LMS. Adjunct faculty also experience difficulties when using an OER-integrated course as the Master Course. Many adjuncts are not familiar with OERs and are therefore not familiar with how to adopt, integrate, or instruct using OERs as primary resources.

Faculty noted how challenging it was to adopt and integrate OERs into their courses. They indicated that the amount of resources available can sometimes be overwhelming. Likewise, for students, OERs are occasionally difficult to comprehend, formatted incorrectly, and are navigationally challenging. One faculty member noted that students are expected to have advanced technological knowledge, but many are not familiar with the LMS, making OER integration more challenging for them. Faculty also mentioned that OERs lack supplemental resources and are therefore not as easy to integrate and use as traditional textbooks.

Perceived advantages of OER adoption and integration. There were many perceived advantages of OER adoption and integration. Faculty described OER as easy to use and current. They noted that using OERs allowed them to be creative and flexible within their courses. The most cited advantage of OER adoption and integration was cost savings for students. Faculty identified that there had been a significant amount of money saved by adopting OERs in their courses. They also noted that the cost of traditional textbooks made it difficult for their students to purchase the books for the course. Likewise, faculty indicated that the cost savings makes the adoption and integration of OERs worth the work.

Aside from cost, some faculty described OERs as easy to understand. They noted that OERs are resources that provide the students with practical and authentic information, which is beneficial when entering the work force. According to faculty, the learners showed an appreciation for the integrated OERs and were excited to use them as a resource. Faculty noted that OERs provided enjoyment for learners and that learner feedback about the integrated materials was positive overall, which was consistent with

the results from the OER Student Survey.

Pedagogy, use, and experiences. Faculty indicated that the adoption and integration of OERs did affect pedagogical practices and general use within the curriculum. They noted that the integration of OERs allowed them to create, modify, and adapt the materials to best fit instructional practices. Faculty also indicated that the nature of OERs allowed them to collaborate with faculty peers and to share information with other faculty within the institution. They indicated that OERs allowed more flexibility within the design of their courses and allowed them to be more creative. Faculty used OERs within their curriculum in a variety of ways, including quiz development, integrating support documents and institutional resources, creating OER tailored assignments, and building full courses integrating OERs.

Additionally, faculty integrated OERs by frequently linking out to videos and PDF documents, integrating Podcasts, and using assessment questions and modules. Faculty noted that OERs were not only used to enhance the curriculum, but also to build the curriculum using various OER material. They also indicated that the OERs integrated into their courses allowed students to think critically about various concepts and topics for the course. Faculty mentioned using OERs to help prepare learners both inside and outside of the class, for in-class discussions, and to engage learners by catering to their learning styles.

Faculty recommendations for future adoption and integration. Faculty recommendations for future adoption and integration of OERs varied, based on faculty experiences. Overall, faculty indicated that the opportunity to adopt and integrate OERs was an exciting challenge and that participating in the OER initiative was a positive

experience. One faculty noted that the use of OERs at institutions of higher education is "where we are as a society." They also mentioned that the decision to adopt and integrate OERs into the curriculum should be made after careful thought and that faculty should think about the reasons they want to adopt and integrate OERs, as well as the types of resources that are the most appropriate for the objectives of the course.

Research Subquestion 2. What are instructional designers' perceptions of course design and development with the inclusion of OER materials? Four instructional designers were interviewed for this study. Instructional designers answered questions regarding their experiences with OERs, OER quality, discoverability, benefits, and barriers. Six major themes emerged from the designers' interview data.

Experiences and perceptions of OER adoption. The instructional designers all had some prior experience working with OERs through personal, professional, or educational exposure. They indicated that their roles as designers are to integrate faculty-selected and vetted OERs into the courses and to promote the adoption and integration of OERs at the institution. Instructional designers discussed their overall experiences working with faculty who were adopting or who were considering adopting OERs into their courses. One designer indicated that some faculty were initially hesitant to adopt OERs at the institution and they did not trust the resources. Other faculty were more proactive, and they took the initiative to adopt and integrate OERs into their courses. One designer mentioned that there is extra effort involved with OER adoption and integration, but that OERs provide more freedom within the design of courses.

Challenges associated with OER adoption and integration. The instructional designers discussed the challenges associated with adopting and integrating OERs. They

perceived OERs to be very time consuming and, because of this, OER integration must be built into the planning process. Additionally, the designers also mentioned that there must be adequate training for faculty and designers specifically regarding licensing and copyright. The designers indicated that because the materials need to be selected and vetted by faculty, it is sometimes challenging to judge the quality of the OERs without faculty perspectives.

Perceived advantages of OER adoption and integration. The instructional designers discussed the perceived advantages of OERs. The most frequently reported advantage was the cost-effectiveness of the resources. The designers also noted that OERs are open access and that the easy accessibility of the resources is advantageous to learners. The designers mentioned that OERs are customizable and that the materials can be tailored to meet the objectives of the course and the needs of the learners. One designer discussed that the integration of OERs can propel a module and make it more dynamic. The designers reported that using OERs may benefit learners by keeping them on track for graduation.

Locating, selecting, implementing, and evaluating OERs. The instructional designers discussed locating, selecting, implementing, and evaluating OERs. The designers indicated that locating and selecting the resources can be time consuming and that the implementation of the resources require faculty input. They mentioned that the resources are generally accurate if they are located and selected from OER repositories, OpenStax, or the LibGuides. The designers discussed ADA compliance, copyright, and accessibility as important issues to consider when designing with OERs. They also indicated that building a relationship with the librarians and using them as resources can

help with licensing and copyright issues as well as with locating appropriate resources. One designer noted that evaluation methods have not yet been implemented, but that examining completion and retention rates may be indicators of OER success.

Identified characteristics of OERs. The designers discussed several characteristics of OERs including types, quality, complexity, and simplicity. The most frequently integrated OERs by designers were articles, videos, readings, software, webpages, infographics, public domain content, OpenStax, modules, linked content, databases, repositories, and library resources. Designers indicated that the quality of the resources varies according to the source of the material. Generally, the OERs integrated into courses are credible, organized, and curated and vetted by faculty. Designers noted that they rely on the expertise of faculty members to determine the appropriate level of quality for the OERs selected for integration. The designers indicated that the complexity of the resources depends on the level of the learner, and how easy they are to integrate and use within the course and the LMS. One designer noted that the complexity of the resources relates to compatibility within the LMS, functionality within the LMS, and accessibility within the course.

Overall experiences and recommendations for future adoption and integration. The instructional designers discussed their overall experiences and recommendations for future OER adoption and integration. They indicated that the expectations for OER adoption and integration should be discussed with faculty and that conversations about the amount of work involved should be done before the adoption process begins. The designers also discussed the importance of building a relationship with librarians and faculty members for more effective OER adoption and integration. They noted that

leveraging relationships with others who have gone through OER adoption is also important. Additionally, the designers mentioned the importance of participating in professional development to stay current with new information and developments on OERs.

Research Subquestion three. What are librarians' perceptions of support functions for the adoption and integration of OER in higher education? Three librarians were interviewed for this study. The librarians answered questions regarding their experiences with OERs as librarians, OER quality, discoverability, benefits, and barriers. Six major themes emerged from the librarians' interview data.

Perceptions of librarian roles at the institution. The librarians all viewed their roles differently at the institution. The roles for the librarians were wide-ranging, from advocacy to assisting faculty with OER adoption and integration. Many of the librarians mentioned presenting to faculty to assist them in efforts to adopt and integrate OERs. As a part of their perceived roles, the librarians also indicated that creating OER materials was a way that they supported faculty in the selection and integration of OERs. Likewise, they stated that they frequently access specific materials, identify sources, and assist faculty in finding OERs.

Perceived advantages of OER adoption and integration. Numerous advantages were identified by the librarians. One major advantage was the open and free accessibility of the resources. Likewise, the abundance of the resources available for adoption and integration was noted as an advantage. The resources that are adopted and integrated into the courses are free to use and, therefore, there are no subscription fees required to access the resources. This allows the library to bypass costs associated with traditional publisher

resources and other proprietary systems. The librarians also discussed the adaptability of the resources selected for integration. The level of adaptability is an important consideration for OER adoption, as it provides more freedom and allows for creativity to make the resource fit the needs of the course. The librarians discussed being advocates for OER and their roles in encouraging the use of resources and materials that are open, easy to share, adaptable, and cost effective. They promote the use of LibGuides, a content management platform, to host OERs for information literacy and information sharing. The librarians also noted that the cost-effectiveness of OERs is a major advantage.

Challenges associated with OER adoption and integration. The librarians discussed some of the challenges associated with OER adoption and integration. They indicated that some of the material may be out of date due to issues with linking out to the resources. This causes a larger problem, as faculty favor linking out to resources to bypass some of the licensing restrictions on OERs. Another challenge associated with OER adoption integration is the time that it takes to curate the resources.

The librarians indicated that it takes a significant amount of time to locate, select, create, and integrate OERs. In addition, the librarians noted that sometimes it is challenging to locate specific resources because the content license may be very restrictive. The librarians also noted that if the licenses do not permit repurposing and redistributing, the resources are still very limiting. Likewise, the lack of understanding about the licensing restrictions on OERs was noted by librarians as a challenge, specifically for faculty. One librarian shared that some content management platforms, including the institution's LibGuides, have limitations on how information is shared out. This limitation was noted to be a challenge for the adoption of OERs, as it restricts the

type of resources that are hosted by the library.

       Locating, selecting, and implementing OERs. The librarians described their experiences with locating, selecting, and implementing OERs at the institution. They noted that locating OERs can sometimes be time consuming and that OER repositories are not as robust or comprehensive as expected. One librarian noted, "We have to do all sorts of different searching on all sorts of different platforms." The librarians mentioned that Google Advanced Search is a better solution in terms of searching for OERs however, Google's search results are sometimes overwhelming and incorrectly cataloged. The librarians also described issues with selecting and implementing OERs. Specifically, how the licensing dictates what can be done with the content. One librarian discussed how problematic it can be because of the amount of caution it takes to remain ethical when adopting OERs. The librarians noted that information ethics is a key component in OER licensing and that they all strive to uphold the license attached to the OERs.

       The librarians also noted that there are resources available but that it does take time to locate them. One librarian mentioned that it is possible to use content created by other libraries, but permission is sometimes needed to use the material. The librarians also indicated that extreme caution should be taken when considering the attributions of the licenses attached to OERs. They also noted that OERs should be adaptable, accessible, functional, and designed appropriately if they are to be adopted successfully.

       Identified characteristics of OERs. The librarians identified four characteristics of OERs including: quality, complexity, simplicity, and licensing. They noted that information-literacy criteria is used to ensure quality of the OERs selected for integration. The librarians indicated that the resources that are selected should be up-to-date, created

by experts, developed by professionals, considered high quality, and have a minimal level of bias. They perceived OERs as factually sound, easy to find, and easy to implement. One librarian discussed how the simplicity of the content management platform, LibGuide, made it challenging to support some of the interactive and dynamic OERs available. The librarians stressed the importance of OER licensing. They noted that the complexity of OERs was linked to difficulties with overall awareness and understanding of licensing and copyright permissions. Another factor that the librarians mentioned relating to OER adoption was the usability and ease of use of the resources.

Evaluation methods for OERs. The librarians discussed the types of evaluation methods used for OERs and OER success. They noted that literacy assessments are commonly used to evaluate certain aspects of OERs. They also indicated that OERs are examined in the same manner as resources that are purchased for the library. The librarians also mentioned that they evaluate OERs by the way the resources are being utilized. Regarding the OERs that are integrated into the LibGuides, the librarians noted that they study the data from the embedded statistical suite. They use the data to determine which resources are being utilized and how frequently they are being utilized.

One librarian also mentioned the use of BlackBoard Analytics to observe how the OERs are being accessed within a course. Likewise, they indicated that student use within the course is another way of evaluating the success of OERs. One librarian mentioned that the adaptation of resources by learners to meet an objective or complete an assignment is an indicator of use and knowledge, which, in turn, is an indicator of OER success. The librarians stated that they try to evaluate OERs by reviewing specific criteria such as alignment to learning objectives, authority and expertise of the source,

and credibility of the source.

Overall experiences and recommendations for future adoption and integration.

The librarians shared their overall experiences and provided recommendations to other

librarians who want to become more involved in the OER movement. One librarian noted

that it takes buy-in across the institution for OER adoption to be successful. Likewise, the

recommendation was to find one faculty member and one administrator who are willing

to make the change to OERs because buy-in has to occur at "multiple levels." This

librarian made an important observation about adoption and diffusion across the system:

"It's a chain reaction of buy-in that happens, and it has to happen on all levels across the

institution." Another recommendation is to show that the successful adoption of OERs is

possible within the course. One librarian noted that one way to demonstrate this is

through "a design and education standpoint; the sound delivery of practice, theory, and

pedagogy." Additionally, demonstrating the cost savings for the students and the

institution as a whole will help with OER adoption.

Another librarian recommended advocating for information ethics, specifically,

regarding informing others about the distinctions between licensing, copyright, and fair

use. The librarians also recommended that other librarians must be ready to dedicate

effective time to assist faculty and other individuals who are looking to adopt OERs, as it

is labor intensive to find, adapt, and promote the resources. One librarian noted that

talking to other librarians who have already gone through the adoption process and

joining listservs dedicated to OERs can also help. Another recommendation by the

librarians is to talk to faculty and be forthcoming about the time investment and work

required for an OER adoption. It was noted that being transparent about these issues can

help faculty better prepare themselves for an OER adoption.

   Research Subquestion 4. What are student perceptions of the use of OER in their higher education coursework? Students were surveyed about OERs and their perceptions of the resources. Quantitative findings yielded important information about how students perceive OERs and the impacts of OERs on learning. Student survey results indicated that 88.9% of learners enjoyed learning in an environment that incorporated OERs. Findings from the *OER Student Survey* indicated that 81% of learners agreed OERs improved their performance in courses. In addition, 81% of learners noted that OERs made them feel more engaged with their learning. The student survey inquired about the perceptions of OER in comparison to traditional textbook and survey responses indicated that 68.7% of learners perceived OER to be just as effective as traditional textbooks. Additionally, 64.7% of learners preferred to take OER integrated courses. When asked about the quality of the resources, 61.8% of learners noted that the quality was above average to excellent.

   The qualitative findings from the OER student survey indicated that, overall, learners were satisfied with the OERs integrated into their courses. The learners indicated that improved learning, access to the materials, and the amount of money saved with OERs were major advantages. The learners stated that OERs help in learning complex subjects, that OERs are accessible, and that it is easier to focus on course content when using low-cost resources. Some learners, however, noted that there were limitations and challenges to the OERs used in their courses. They indicated that OERs did not provide an adequate amount of information, the resources were not as challenging as expected, and the content is limited to being read online. While the learners discussed both positive

and negative aspects of the OERs used in their courses, there were more instances of OER satisfaction. Specifically, compared to textbooks, learners indicated that OERs were easier to understand, better to learn from, more engaging, and allowed for multiple perspectives.

Findings Linked to Existing Literature

Results from the interviews with faculty, instructional designers, librarians, and the student survey results led to the identification of eight emergent themes regarding OER adoption and integration in higher education: (a) faculty adoption, (b) cost-effectiveness, (c) access to information, (d) quality, (e) time, (f) licensing, (g) educational impact, and (h) institutional support. The following section links these emergent themes to relevant existing literature.

Faculty adoption. Results from the present study indicated that faculty members were the primary stakeholders responsible for the adoption and integration of OERs at the institution. Therefore, it is important to understand faculty perceptions of the resources and their motivations to adopt OERs. Both instructional designers and librarians stressed the importance of faculty member's acceptance of OERs for adoption. According to Belikov and Bodily (2016), faculty utilize a variety of educational resources, including course textbooks, to help facilitate learner achievement. Seaman and Seaman (2017) reported that 67% of faculty members indicated being solely responsible for revising course resources, yet 96% of faculty are using copyrighted printed textbooks and 78% are using copyrighted digital textbooks for their courses. The adoption of OERs by faculty is heavily reliant upon faculty perceptions of OER quality, efficacy, cost-effectiveness, and ease of use compared to traditional textbooks (Colvard et al., 2018; Seaman & Seaman,

2017). Research indicates that faculty view OERs as equally effective as traditional textbooks, equal to traditional textbooks in term of quality, and equal or better than traditional textbooks in terms of content (Colvard et al., 2018; Seaman & Seaman, 2017). Faculty indicated that there was an initial resistance to OER adoption because of the familiarity and security with traditional textbooks. After adoption, however, faculty indicated that there was a sense of freedom and creativity (Pina & Moran, 2018).

Faculty adoption can also be encouraged through incentive programs, library-led initiatives, and professional development. Incentive programs provide funds for faculty to adopt or create cost-effective resources and materials that may include open textbooks, library-licensed resources, or OERs (Salem, 2017). Initiatives and incentive programs may help faculty cope with some of the barriers they encounter with finding, assessing, creating, adopting, and integrating OERs (Salem, 2017; Smith & Lee, 2017). Likewise, providing professional development opportunities and training on OER and open-licensing concepts may be a motivator for faculty to adopt OERs (Taylor & Taylor, 2018).

Cost-effectiveness. In the present study, faculty, instructional designers, and librarians noted that the cost-effectiveness of OERs is a primary benefit for learners and that the savings observed with the adoption of OERs at the research site was substantial. Faculty also noted that cost-effectiveness of OERs was the principal reason for OER adoption. Silver, Stevens, and Clow (2012) noted that textbooks are one of the most frequently used learning resources; however, the cost of textbooks has become challenging for students as well as for faculty. It was reported that 68% of faculty require textbooks for their courses (Seaman & Seaman, 2017). Likewise, 89% of faculty

indicated that the exhaustiveness of the resource was an important factor when selecting required materials and 89% indicated that the cost for students was an important factor for selecting resources and materials (Seaman & Seaman, 2017). Faculty members are seeking more cost-effective options for their learners and have begun looking to actively adopt OERs as a solution (Belikov & Bodily, 2016). Studies report that the adoption and integration of high-quality OERs can reduce educational debt for students and that there is a significant cost savings observed with the integration of OERs as textbook replacements (Colvard, Watson, & Park, 2018; Watson, Domizi, & Clouser, 2017).

A study by Ikahihifo et al. (2017) suggested that learners who were taking OER-integrated courses indicated that OERs provide a significant cost savings. They noted that the money saved allowed them to take additional courses, pay tuition, purchase additional educational materials, pay for living expenses, and finance their savings. Another study projected a total cost savings of approximately 1 million dollars through the use of an open textbook (Hilton, Robinson, Wiley, & Ackerman, 2014). The cost to develop an open textbook may be more than the cost of purchasing a textbook; however, after implementation of the open materials that difference is outweighed by the long-term cost savings observed by learners (Vojtech & Grissett, 2017; Wiley, Hilton, Ellington, & Hall, 2012).

Additionally, it has been suggested that learners who forgo purchasing required textbooks experience negative effects on their learning and academics. One study's findings reported that 66.6% of learners did not purchase a required textbook due to cost. Additionally, 37.6% of learners who do not purchase textbooks earn poor grades and 19.8% fail a course (Florida Virtual Campus, 2016). Therefore, the ability to provide

access to free and open resources allows institutions to counteract those effects for their learners, improving student success rates (Vojtech & Grissett, 2017).

Access to information. The faculty, instructional designers, and librarians in the present study indicated that access to information was another key benefit for the adoption and integration of OERs. It was noted by the interview participants that learners who have early and unlimited access to course materials may be more engaged and perform better in class. Literature suggests that the fundamental core of the open education movement is the ability to provide open and unlimited access to information, thereby facilitating learning (Atenas, Havemann, & Priego, 2014; Panke & Seufert, 2013; Salem, 2017). Seventy-eight percent of learners indicated that OERs provided access to current information better than traditional textbooks (Feldstein et al., 2012). Likewise, 70% of learners noted that course readings and content were accessed with a personal computer most or all of the time and 30% indicated that a smartphone was used to access course readings and content most or all of the time (Cooney, 2017). Learners also indicated that to complete required assignments, access to OER material was acquired through laptops, desktops, smartphones, and tablets. Likewise, it was indicated that learner engagement is linked to the ability to easily access course materials through a digital device (Cooney, 2017).

Access to information and resources is one of the most important considerations for OER adoption. There are three factors which generally characterize OERs: (a) access, (b) format, and (c) license. Additionally, Wiley (2014a) described five characteristics of permissions that build the framework for OER access: (a) retain, (b) reuse, (c) revise, (d) remix, and (e) redistribute. The five R's are the foundational principles of OER access.

The ability to create content, use content, adapt content, combine content, and share content is quintessential when locating, adopting, and integrating the resources.

Quality. Perceptions of OER quality observed by the faculty, instructional designers, librarians, and students in the present study are important indicators for OER adoption. The interview participants and most students perceived OERs to be better than traditional textbooks in terms of quality. Ikahihifo et al. (2017) noted that OERs are perceived as equal to or better than traditional textbooks in terms of quality. Jhangiani et al. (2018) noted that learners who used the print version of an open textbook rated it significantly higher in quality than a traditional textbook. In contrast, learners indicated that there was no difference observed in the quality of a digital open textbook compared to a traditional textbook and a print open textbook. Learners perceived the open textbook as higher in quality in terms of clarity, engagement, practical examples, research cases, and study aids (Jhangiani et al., 2018). Learners also indicated that OERs supported their required coursework and provided positive overall comments regarding the quality of OERs compared to a traditional textbook (Hilton et al., 2013; Vojtech & Grissett, 2017).

Vojtech and Grissett (2017) noted that in the current literature, faculty and student perceptions of OER quality were similar. Eighty-five percent of faculty indicated that OERs were equal or better than traditional textbooks used for courses. Likewise, 65% of faculty noted that OERs supported their teaching efforts in courses. Faculty perceptions of OER quality were positive and received higher quality ratings than traditional textbooks (Vojtech & Grissett, 2017). Faculty noted that quality was a concern in consideration of OER adoption and integration and lack of quality in OERs was cited by 28% of faculty (Seaman & Seaman, 2017). A total of 12 peer reviewed studies were

conducted on perceptions of OER quality. Findings from the 12 studies indicated that 50% of respondents rate OER quality equal to traditional textbooks, 35% of respondents rated OER quality better than traditional textbooks, and 15% rated OER quality worse than traditional textbooks (Hilton, n.d.).

Time. In the present study, time was noted to be a major challenge to OER adoption by faculty, librarians, and instructional designers. Interview participants indicated that locating, vetting, adapting, maintaining, and integrating OERs took a significant amount of time and effort. Similarly, Hassall and Lewis (2017) noted that the time that it takes to locate and curate OERs is one of the most challenging aspects of OER adoption for faculty. Perceptions of OER adoption and integration as it relates to time is linked to motivation for OER adoption. If OERs are perceived as time consuming resources, there will inherently be a lack of motivation to adopt and integrate OERs (Hassall & Lewis, 2017). Many faculty indicated that it takes a significant amount of time to search, locate, and implement OERs (Taylor & Taylor, 2018). Faculty must vet the open materials and resources that are integrated into their courses; therefore, locating relevant quality resources takes substantial time outside of regular faculty duties. Additionally, organizing the resources into a useable format is a step that adds to the time commitment for faculty members (Taylor & Taylor, 2018).

Faculty are also tasked with providing supplemental materials that would normally be provided by textbook publishers and these supplemental materials take time to develop. Currency is important when selecting and integrating OERs. It has been noted that maintaining web-based OERs can be very time consuming. Web-based OERs are not static and therefore require additional time to ensure that links are functional and that the

resources integrated remain active and current. Sometimes, faculty will need to spend additional time updating their curricula and the resources to ensure reliability, quality, and currency (Taylor & Taylor, 2018). Seaman and Seaman (2017) noted that keeping OERs up to date was the third most mentioned concern among faculty being cited by 29% of respondents.

 Licensing. In the present study faculty awareness of the licensing concepts associated with open education was one identified factor that affects the adoption of OERs. Faculty, librarians, and instructional designers all noted that there is a general misunderstanding of licensing terms associated with open materials. Specifically, faculty were identified as lacking appropriate knowledge in Creative Commons, copyright, public domain, and fair use concepts. However, Seaman and Seaman (2017) reported that 71% of faculty acknowledge an awareness of any open-licensing concept. Identifying the licensing on adopted materials is critical to understanding how the material can be adapted and integrated into courses. Certain licenses restrict remixing and sharing of content; therefore, in such cases, faculty must be aware that these limitations will affect how these materials are implemented. Likewise, license limitations define which materials are classified as OER and which materials do not meet the definition of OER (Taylor & Taylor, 2018).

 The permissions for use of material were designed to reverse copyright laws and provide a concise declaration of how content can be used. Creative Commons licensing allows users to revise, remix, reuse, and share content legally without having to obtain permission (Blomgren, 2018). Understanding Creative Commons licensing and the attributions associated with the licensing allows for a clearer path towards OER adoption.

Likewise, sharing information about OER licensing including fair use, public domain, copyright, and Creative Commons fosters the core principles of open education, contributes to the educational awareness of OERs, and increases OER use throughout all levels of education (Blomgren, 2018).

Educational impact. In the present study, the educational impact of OERs on learner performance was not specifically studied. However, learners were asked questions about their perceptions of the impact of OERs on engagement, learning experiences, and performance. Student survey responses indicated that learners perceived OERs to be engaging, that OERs improved their overall learning experience, and that OERs improved their overall performance in class. There have been several studies detailing the impact of OERs on learner performance. A study conducted by Vojtech and Grissett (2017) on the efficacy of OERs suggested that learners generally find OERs to be as effective as traditional textbooks.

As of 2018, there have been 13 peer reviewed studies that focus on the efficacy of OERs and the educational impact of OERs (Hilton, n.d.). Findings from these studies indicate that students who use OERs as a textbook replacement perform equal to or better than students who use traditional textbooks (Hendricks, Reinsberg, & Rieger, 2017; Hilton, 2016; Jhangiani, Dastur, Le Grand, & Penner, 2018; Jhangiani & Jhangiani, 2017; Robinson, 2015; Vojtech & Grissett, 2017). Likewise, learners who are enrolled in OER-integrated courses showed increased levels of engagement, course performance, grades, pass rates, as well as decreased withdraw rates (Fischer et al., 2015; Pawlyshyn et al., 2013; Pitt, 2015; Robinson, 2015). Student perceptions of OER are important in understanding student engagement as a predictor of achievement (Vojtech & Grissett,

2017). A moderate positive relationship between OERs and academic achievement has been observed in learners who have demonstrated prior academic achievement in their courses. (Grewe & Davis, 2017).

Additionally, new learners received slightly increased course grades, which may indicate that OERs have a positive effect on the achievement of first time in college (FTIC) cohorts (Winitzky-Stephens & Pickavance, 2017). A college-wide adoption of an OER initiative at Mercy College yielded results indicating a 20% increase in the pass rate for a mathematics course (Pawlyshyn et al., 2013). The impact of OERs on enrollment rates may add value for institutions as student enrollment is the pillar of the educational institution. Findings suggest that learners who are enrolled in OER-integrated courses tend to enroll in more credits per semester compared to learners enrolled in courses utilizing traditional textbooks (Fischer et al., 2015; Robinson, 2015).

Institutional support. The relationships built among administrators, faculty, librarians, and instructional designers at the study site provide a foundation for OER implementation at institutions of higher education. In the present study, faculty, librarians, and instructional designers all noted that building a relationship with each other as well as with their peers drives the OER adoption process. Likewise, it was noted that institutional support is necessary for an institution-wide OER implementation. Chismar (2015) noted that research has focused on the relationship between faculty and instructional designers and between faculty and librarians. Further, it was noted that improved relationships between faculty members and instructional designers may lead to higher course quality (Pina & Moran, 2018). Likewise, working collaboratively on adopting and integrating OERs may improve the design and development process as well

as the working relationship between faculty and instructional designers (Pina & Moran, 2018).

Librarians are the primary leaders and advocates for OER adoption and integration in institutions of higher education. Forming partnerships with institutional librarians may help reduce some of the barriers associated with OER adoption and may provide support for faculty who are adopting OERs (Smith & Lee, 2017). Librarians are "natural partners" in OER initiatives and are powerful resources for providing adoption strategies, access to information, copyright and open licensing regulations, access to repositories, and overall support for OER adoption (Smith & Lee, 2017, p. 108).

Administrators can support faculty by encouraging the adoption and integration of OERs in several ways, including promoting partnerships between institutional stakeholders, remaining active in OER initiatives, and creating institutional policies to support OER adoption (Taylor & Taylor, 2018). It is important for institutional stakeholders to become involved in OER initiatives early in the adoption process. Stakeholders must be diligent in forming partnerships with each other and other supporters of OERs to help propel institutional initiatives. According to Hassall and Lewis (2017), many faculty report a lack of support from other departments (49.8%), faculty (45.9%), and the institution as a whole (40.7%). The institution's culture plays a major role in the adoption of OERs and the support of the entire institution is necessary for a rapid rate of diffusion throughout the system (Hassall & Lewis, 2017).

Research Significance

The purpose of this embedded single-case study was to discover the perceptions of institutional stakeholders on the adoption and integration of OER within the context of

an initiative at a state college in east Florida. The perceptions of faculty, instructional

designers, librarians, and students were documented and analyzed to better understand

the adoption and integration process of OER as an innovation at the research site. This

study emphasizes the importance of stakeholder perceptions and how those perceptions

influences the rate of adoption for an innovation. More importantly, faculty perceptions

of OER provide significant clues into how these resources are adopted, the methods by

which they are adopted, and possible implications of adoption within faculty curriculum.

The emerging themes from this study indicated that the adoption and integration

of OER is time consuming and poses many challenges. Faculty members demonstrated a

lack of understanding about licensing, copyright, and locating OER materials. Despite

this, faculty, instructional designers, and librarians indicated that the adoption and

integration of OER was worth the time investment due to the cost savings and immediate

access that it provides to the students. The need for affordable course materials has been

an increasing concern among educational policy makers as well as educational

institutions worldwide (Colvard, Watson, & Park, 2018). The results from this study may

exemplify the importance of quality and affordable educational material for students who

are seeking a degree. Likewise, the data extracted from this study may provide insights

into how the adoption and integration of open resources supports openness as a practice

and promoting access and accessibility on a global scale (Kalz, Khalil, & Ebner, 2017).

Implications of the Study

The adoption of OERs in higher education has significant implications for

stakeholders, as they are key in determining the success of the adoption process. OER

adoption affects stakeholders in various ways. The results from this study identified how

OER adoption and integration are perceived by faculty, instructional designers, librarians, and learners. Additionally, the adoption of OERs within the context of an OER initiative sheds light into the success of the adoption and integration process as framed by Rogers' (2003) diffusion of innovation theory.

Implications for faculty. Faculty are the primary adopters of OER and therefore must understand their functionality, licensing, and implications of utilizing these resources, especially as full textbook replacements. These institutional stakeholders are critical to the success or failure of OER adoption. There are many considerations for faculty members when determining if OER adoption is appropriate for their content areas. Quality, reliability, accuracy, ease of use, discoverability, complexity, simplicity, advantages, and challenges of OER are just some of the many considerations for faculty in supporting the adoption and integration of these resources. Quality OERs are not difficult to locate if faculty are willing to work with institutional librarians and instructional designers. Building these relationships will help faculty not only locate appropriate quality and reliable resources, but also reduce the time involved with vetting OERs and integrating them into their courses. Working together, stakeholders can ensure that the OER adoption and integration process is successful.

Implications for instructional designers. Instructional designers are responsible for ensuring that the OERs integrated into institutional courses meet the learning objectives and that OER-integrated courses provide an optimal educational experience for learners. Providing quality courses with the integration of OERs can be challenging for instructional designers if they fail to properly educate faculty on the limitations of the resources. In selecting OER materials, instructional designers look to faculty members as

content experts to vet the materials. Likewise, it is the expertise of the instructional designer that is necessary to identify if a resource is instructionally appropriate, aligned to the objectives and assessments, and accessible for all learners accessing the course.

Instructional designers design courses using a systematic method or model. These methods and models allow designers to properly align course materials to the learning objectives, course activities, and course assessments (Dick, Carey & Carey, 2015). Likewise, a course maintenance process may alleviate some of the presenting issues with linking out to materials, videos, articles, and documents such as broken links and non-functioning sites. While it is ultimately the faculty member's responsibility to update courses, instructional designers can use their expertise when advising faculty on the best ways to integrate OERs into a well-designed quality course.

Implications for librarians. Librarians are essential for promoting the adoption and integration of OERs at institutions of higher education. They have a full understanding of Creative Commons licensing, copyright rules, and citation guidelines. They are advocates for information literacy and for OER adoption. Many librarians are spearheading OER initiatives within their institutions to encourage the adoption of OERs (Smith & Lee, 2017). With the growth of OERs in higher education, it is challenging for librarians to curate these resources given the abundance of information available and the already demanding job duties that librarians hold (Smith & Lee, 2017).

OERs are not a one-size-fits-all solution; therefore, librarians are faced with locating appropriate OERs for specific content areas in which an OER may not exist. However, librarians are in a perfect position to provide the knowledge that faculty and designers need to properly implement OERs, as their main advantage is access to

information. They can search, organize, promote, curate, adapt, and support the use of OERs, all within their role as librarians. It is this advantage that allows librarians to create the change and propel the OER movement within higher education.

Implications for learners. OER adoption and integration are of special interest to learners, as they are the end users of the resources. The cost of college tuition has continued to rise, making learners concerned with the ability to attain an affordable education. Likewise, the price of educational materials such as textbooks and supplies comprise a large portion of the total cost of education (Ikahihifo, Spring, Rosecrans, & Watson, 2017). Adopting OERs as alternatives to costly textbooks not only saves students money but may also have implications reaching far beyond financial concerns. Learners who have access to OERs are saving money and receiving earlier access to the information needed for the course.

Earlier access to course materials may have an influence on a learner's overall success and completion rate in the course (Grewe & Davis, 2017). Likewise, the money saved through the adoption of these resources may allow learners to take more courses, progress through their degree plans, and possibly increase completion rates. Learner engagement with OERs is another important consideration for their adoption. OERs may lead to greater satisfaction among learners, increase learner engagement, and improve learner performance (Weller, Farrow, De Los Arcos & Pitt, 2015). In a study conducted by Ikahihifo et al. (2017), 74.2% of learners reported that they were more engaged with OERs than with a traditional textbook. Results from Ikahihifo et al. (2017) indicated that learners perceived OERs as more engaging than traditional textbooks and they noted that their performance improved with the utilization of OER materials.

Implications for the study site. The findings from the present study can be used to inform the practices of all stakeholders who are actively promoting the use of OERs at the institution. The goal of the OER initiative is to increase the rate of adoption and diffusion of OERs through active participation of faculty, librarians, and instructional designers in addition to student use within courses. Rogers (2003) indicated that a higher rate of adoption and diffusion of an innovation within a social system improves the chances of a widely accepted idea. This study's findings are in alignment with prior studies on the efficacy and perceptions of OERs (Bliss et al., 2013a; Bliss et al., 2013b; Colvard, Watson, & Park, 2018; Croteau, 2017; Fischer et al., 2015; Grewe & Davis, 2017; Hilton et al., 2013; Hilton et al., 2016; Jhangiani, Dastur, Le Grand, & Penner, 2018; Pawlyshyn et al., 2013; Pitt, 2015; Robinson et al., 2014; Wiley et al., 2016; Winitzky-Stephens & Pickavance, 2017). Overall, interview and survey responses indicated that OERs are beneficial to adopt and integrate at institutions of higher education, if for nothing other than the cost savings observed by the students. The findings from the present study will be presented to the chair and members of the OER committee at the study site for further reflection on the processes for the OER initiative. Findings will also be shared with institutional stakeholders through two presentations given by the OER committee. This study will be expanded on in the future by the researcher to include the examination of OER impact on measures of student success at the study site.

Implications for theory. Rogers' (2003) diffusion of innovations theory provides a framework for the adoption and diffusion of any innovation within a system. Rogers' theory outlines five characteristics of innovations that influence adoption: (a) relative

advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability (Rogers, 2003). This case study utilized Rogers' diffusion theory as a framework to understand the adoption and integration of OERs as an innovation within the context of an OER initiative at a state college in east Florida. Usability and ease of use (complexity) are factors that are noted by Rogers' (2003) diffusion theory and TAM.

Rogers (2003) indicated that complexity is a factor that affects the rate of adoption across a system. Stakeholder perceptions of OER complexity were specifically examined and provided some insight into decisions to adopt OERs at the research site. Overall, participants in the present study did not perceive OERs to be extremely complex or difficult to use. Therefore, many of the participants decided to adopt and integrate OERs early in the process and were considered early adopters of OERs. The early adopters are key for diffusing the concept of OER adoption at the institution. Examining the complexity and simplicity of OERs may provide a deeper understanding about adoption of the resources. The perceptions of the stakeholders about the attributes of OERs are critical in determining the rate of OER adoption (Rogers, 2003). Understanding the factors that influence stakeholders' decision to adopt OERs may help improve the rate of adoption and diffusion throughout the system, which is important for an institutional-wide initiative. Understanding adoption and diffusion may also help to improve the adoption rate of other innovations within the same system.

Limitations

This study was conducted on a group of faculty members, instructional designers, librarians, and students at a medium-size state college in east Florida. The number of participants in each of the groups were very small compared to the size of the institution.

Due to the infancy of the OER initiative, the number of faculty who were participating was limited, therefore, the sample size was also limited. Of the 44 faculty involved in the initiative, seven responded and participated in the study. Regarding the participation of instructional designers and librarians, four out of five designers and three out of five librarians participated in the study. One designer and one librarian were not eligible to participate in the study, as they assisted the researcher with the panel and pilot testing.

The response rate for the student survey was also a limitation. The researcher sent out 3,000 emails to the students enrolled in OER-integrated courses in the Spring semester. Of the 3,000 students, 126 completed the survey. Despite the low response rates, the minimum sample size for qualitative research was achieved (Creswell, 2013). For this study, purposeful maximal sampling was used. This sampling method causes difficulties in generalizing results for other faculty members who teach with OERs and across other institutions that may be participating in OER initiatives. Further, this study focused on faculty members' perceptions, which overall are subjective in nature. Regardless of subjectivity, case study research can be grounded in the lived experiences and the perceptions of the individual, which is a source of knowledge that should not be questioned (Moustakas, 1994).

Additionally, because participation in this study was voluntary, representation for all instructional departments was not available. The results were limited to a total of five instructional departments, which makes it difficult to generalize for other instructional areas. Some faculty members integrated OER into their curriculums at the onset of the initiative, in 2016, and were considered early adopters. A portion of the data was skewed, as these faculty were way ahead of the adoption curve compared to their faculty peers.

Due to the varying experiences of OER adoption and integration among the participants across the system, the rate of adoption for this system cannot be generalized across other social systems (Rogers, 2003).

Another limitation of this study was that there were flaws present with the instrumentation. Instrument reliability and validity are important considerations for a quality research study (Yin, 2009). The researcher took special care in attempting to locate valid and reliable instruments that were appropriate for this study; however, no such instruments existed. Therefore, the instruments created for this study were modifications of other surveys and protocols developed as a part of student dissertations. The instruments were reviewed by a panel of experts and pilot tested in order to establish an appropriate level of validity and reliability. There were also minor challenges associated with the recording and transcribing of the interviews. The initial method used to record and transcribe the interviews did not function properly. Therefore, another recording and transcribing method had to be used after the interviews had commenced. After the interviews were transcribed using the second method, there were several errors discovered within the transcripts. The researcher took special care to review each transcript against the audio files and the transcripts were reviewed and verified by the participants for greater accuracy.

Despite the limitations presented, this study provides insight into how institutional stakeholders perceive the adoption of instructional technologies such as OERs and stakeholders' reflected experiences of the OER initiative at the institution. Additionally, while results cannot be generalized, understanding how OERs are adopted in a specific social system may be beneficial for other social systems who are also considering the

adoption of OERs and examining the challenges that may occur with OER adoption and integration.

Directions for Future Research

This case study examined the adoption and integration of OER at a state college by documenting the perceptions of faculty, instructional designers, librarians, and students as institutional stakeholders. The study was conducted within the context of an OER initiative at a single, medium-size institution in east Florida.

Future research should extend this study by replicating with administrators (i.e., department chairs, instructional deans, and vice presidents) to gain their perceptions of OER adoption. Findings from this study suggests that institutional-wide adoption and integration of OER is only possible with full institutional support, which includes buy-in from department chairs, instructional deans, and ultimately vice presidents. Further, replication with a larger sample of stakeholders would allow the results to be generalizable. Specifically, a larger faculty sample would cover a wider range of instructional departments. Likewise, a greater student sample would cover a variety of courses and perspectives across the institution.

This case study examined stakeholder perceptions by collecting data through interviews and a survey. Yin (2014) recommends utilizing multiple data collection methods for a properly aligned case study and to establish construct validity. While the researcher did collect student data, additional quantitative data from other sources would be ideal. Therefore, it is recommended that a replication of this study with the inclusion of course evaluations as a data source be conducted. Course evaluations would provide a deeper understanding of student perceptions on the OER material, as well as the way it is

being utilized by the faculty members. In addition, future research should also examine the use of course analytics within the learning management system (LMS), as it may provide additional data on how OER are being used by the student within the course.

It has been proposed that the adoption of OER materials may be beneficial to students as the implementation of cost-effective materials may lead to higher enrollment and completion rates (Colvard, Watson, & Park, 2018). It is recommended that future research be conducted to determine the impact of OER adoption on measures of student success including final course grades, retention, enrollment and completion rates. It is also recommended that future studies examine OER adoption and integration in the context of open degree pathways (Z degree) such as those implemented by Tidewater Community College as well as adoption in gateway and general education courses.

Additionally, institutions of higher education are focusing more attention on the success of minority populations and economically disadvantaged learners. It is suggested that the cost-effectiveness of OERs may support at-risk students in the completion of their degrees (Winitzky-Stephens & Pickavance, 2017) Therefore, research delineating the impact of OER as cost-effective resources on underserved at risk populations is also recommended.

Recommendations Based on the Results of the Study

There are several recommendations based on the results of this study.

1. Faculty who are adopting and integrating OERs should collaborate with librarians and instructional designers to create effective practices for OER adoption.

2. Faculty should participate in various library-led training and informational sessions on how to effectively adopt and integrate OERs within the context of their

content areas.

3. Instructional designers who are working with faculty to adopt and integrate OERs should participate in professional development opportunities to support and encourage the advancement of OERs.

4. Librarians should continue to serve as advocates for OER adoption and integration and as personal resources for faculty who require assistance with OER rules regarding licensing, copyright, and citations.

5. Administrators should fully invest in all OER initiatives within the institution so that stakeholders are supported throughout the OER adoption and integration process. Full administrative support is necessary to speed up the rate of adoption and diffusion at the institution.

6. A tool to automatically check for broken links within an OER-integrated course design should be implemented to reduce the time and maintenance involved with linking out to OERs. By implementing a link validation tool, the time involved with OER adoption and integration may be reduced.

Conclusion

Faculty, instructional designer, and librarian perceptions of OER adoption and integration at a state college in east Florida were examined in this embedded single-case study. A detailed analysis of the literature, the identification of Rogers' (2003) diffusion of innovation theory as a theoretical framework, and participants' interview and survey responses revealed several connections and variances in OER perceptions between faculty, instructional designers, librarians, and students. Several themes were extracted from coded and categorized interview data. This study indicated that faculty perceived

OERs as very time consuming; however, the amount of money that students are saving because of OER adoption outweighs the work involved to implement these resources.

Instructional designers also perceived OERs as time consuming. They stressed the importance of faculty serving as SMEs when locating, selecting, and evaluating OERs. They perceived these resources as beneficial due to the cost-effectiveness of the resources and the ease of access. Instructional designers play a secondary role to librarians and assist faculty in integrating OERs within the design of the course. Librarians are advocates for OER adoption and integration. They serve as primary resources to aid faculty and designers in integrating OERs appropriately. The librarians are familiar with licensing and copyright rules, which was identified as one of the biggest challenges for faculty. The librarians stressed the importance of seeking out library resources and the help of the librarians to facilitate the adoption of OERs at the institution.

Learners using OERs in their courses viewed the materials favorably. When questioned about the resources and their quality, learners perceived them as having very good to excellent quality. Compared to traditional textbooks, learners found OERs to be just as effective as a textbook. Some learners, however, did find the digital format of OERs to be a challenge, as access to the resources is not available beyond the duration of the course. Additionally, some learners preferred the tangibility of a traditional textbook (i.e., the ability to print out and read pages, the ability to highlight pages, the ability to have the textbook at any time). Learners also indicated that OERs allowed them to feel more engaged with their studies and that their learning experience was improved with the addition of OERs.

This study used Rogers' (2003) diffusion theory as a framework for adoption and

diffusion of OERs at the research site. Faculty, instructional designers, and librarians were asked about their perceptions of OER complexity, as complexity was identified by Rogers as an attribute of innovation that affects the rate of adoption. Overall, stakeholders indicated that OERs are not overly complex and that the complexity adds to the value of the overall use of the resources. Observability is also an attribute of innovations that affects the adoption rate. Stakeholders indicated that observing the cost-savings associated with OER adoption can be a motivator for adoption and diffusion across the institution. Likewise, it was suggested that observing how others within the institution are adopting and integrating OERs can help the innovation-decision process and increase the number of faculty adopting OERs.

Additionally, findings from the study identified a specific unit as early adopters. Early adopters are typically opinion leaders and carry a higher degree of respect (Rogers, 2003). The Criminal Justice department was identified as an early adopter, as it was the first department to integrate OERs and convert all courses to full-course OERs. The influence of the Criminal Justice department may aid in the diffusion of OERs throughout the institution. The decision to adopt OERs by faculty is driven by their perceptions of OER attributes. Therefore, if faculty perceive OERs as simple, advantageous, and compatible they are more likely to adopt OERs in their curricula (Coleman-Prisco, 2017).

For this embedded single-case study, the units of analysis were identified as the institution's stakeholders. Perceptions of the stakeholders were examined in order to better understand the adoption and integration of OERs at the research site. Documenting the perceptions of faculty, instructional designers, librarians, and students provides insight into the rate of adoption and the diffusion process for OERs in higher education.

The results from this study indicate that despite the challenges associated with open resources, OERs are beneficial for learners in many ways. While the impact of OERs on student success are not definitive, it is far more beneficial for institutions to rely on the expertise of their stakeholders to better understand how the resources affect the overall success of learners. With the recent focus on textbook affordability in education, institutions should not discredit OERs as quality and cost-effective substitutions to traditional textbooks. All stakeholders must ultimately understand that the true benefit of OERs lies in their ability to provide equal opportunity for the advancement of knowledge and global access to education despite economic and social boundaries.

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Appendix A

Faculty Interview Guide

Faculty Interview Guide
Faculty Adoption and Integration of OER

Time of interview:
Date:
Place:
Interviewer:
Interviewee:

Description: Thank you for agreeing to share your experiences with OER adoption and integration. The purpose of this interview is to understand your experiences as a faculty member who has adopted and integrated OER into your curriculum.

Prompt: As a reminder, your responses will remain confidential so you may speak openly without concern. As a volunteer research participant, you are not obligated to participate in this study and you may withdraw from this study at any time.

I will now be asking you a set of questions related to your personal experiences with adopting and integrating OER into your curriculum. For the purpose of this study, OER are defined as teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use 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. There are no correct or incorrect answers. Please provide as much detail as possible when answering. I will be recording your responses to the interview questions so that I may transcribe them at a later date, but I may also make notes about how your questions are being answered. After the transcription is complete, I will forward you a copy of the interview via email so that you may review for accuracy. Before we begin, do you have any questions about the nature of the study or my role as the researcher?

Questions:

Integration Experiences

1. Please describe your experience prior to the institution's 2016 OER initiative using open educational resources in your course.

2. Were you the decision maker for the integration of open educational resources in your curriculum?

    a. If so, why did you decide to integrate open educational resources into your curriculum?

    b. If not, please describe your feelings about the decision to integrate open educational resources into your curriculum.

3. In what way(s) do you use open educational resources in instructional practices to prepare and deliver instruction?

4. Please describe your experience(s) with the quality (factually correct, organized, up-to-date, well-written, efficiency) of the materials.

5. What types of open educational resources do you use for your course(s)?

6. Have you made any specific curriculum changes or changes to your instructional practices in order to accommodate the integration of open educational resources in your courses? If so, please explain the changes.

7. To what degree have you integrated open educational resources into your curriculum (e.g. supplements, full textbook replacement, full course)?

   7a. How did you obtain the resources utilized in your course(s)?

8. Please describe your experiences with the discoverability (ease or difficulty in locating) of the materials integrated.

9. What were the main expectations you had about integrating open educational resources into the curriculum?

10. Did you adapt or modify the OER materials in any way for integration into the curriculum? If so, for what reasons did you adapt or modify the materials?

Perceptions of Open Educational Resources

11. What are some of the benefits and drawbacks that you experienced as an instructor when integrating open educational resources into your curriculum?

12. What are some of the barriers experienced when integrating open educational resources into your curriculum?

Adoption of Open Educational Resources

13. Please explain how the complexity or simplicity of OER within the design of your courses influences your adoption of OER as a textbook replacement.

14. Please explain how the advantages and disadvantages of OER influences your curriculum before and after adoption. Please describe the time investment involved with adopting OER into your course(s).

Follow-up Questions

15. What recommendations would you make to other faculty members who are considering integrating open educational resources into their curriculum?

16. Is there anything else that you would like to share about your experience integrating open educational resources into your curriculum?

Appendix B

Instructional Designer Interview Guide

Instructional Designer Interview Guide
ID Adoption and Integration of OER

Time of interview:
Date:
Place:
Interviewer:
Interviewee:

Description: Thank you for agreeing to share your experiences with OER adoption and integration. The purpose of this interview is to understand your experiences as an instructional designer who has adopted and integrated OER into your course design.

Prompt: As a reminder, your responses will remain confidential, so you may speak openly without concern. As a volunteer research participant, you are not obligated to participate in this study and you may withdraw from this study at any time.

I will now be asking you a set of questions related to your personal experiences with adopting and integrating OER into your course design. There are no correct or incorrect answers. Please provide as much detail as possible when answering. I will be recording your responses to the interview questions so that I may transcribe them at a later date, but I may also make notes about how your questions are being answered. After the transcription is complete, I will forward you a copy of the interview via email so that you may review for accuracy. Before we begin, do you have any questions about the nature of the study or my role as the researcher?

Questions:

Integration Experiences

1. Please describe your experience(s) using open educational resources in your course design.

2. Please describe your experience(s) with the quality (factually correct, organized, up-to-date, well-written, efficiency) of the materials that you select for course design.

3. How do you evaluate the success of OER in your designs?

4. What types of open educational resources do you typically use for your course designs?

   4a. How did you obtain the resources utilized in your course designs?

5. Have you made any specific changes to your instructional design practices in order to accommodate the integration of open educational resources? If so, please explain the changes.

6. Please describe your experiences with the discoverability (ease or difficulty in locating) of the materials used in course designs.

Perceptions of Open Educational Resources

7. What issues do you feel are important to consider when locating, selecting, implementing or evaluating open educational resources in course designs?

Adoption of Open Educational Resources

8. Please explain how the complexity or simplicity of OER influences your adoption of OER in a course design.

9. Please explain how the advantages and disadvantages of OER influences your adoption of OER in a course design.

Follow-up Questions

10. What recommendations would you make to other instructional designers who are considering integrating open educational resources into their design plans?

11. Is there anything else that you would like to share about your experience integrating open educational resources into your course designs?

Appendix C

Librarian Interview Guide

Librarian Interview Guide
Librarian Adoption and Integration of OER

Time of interview:
Date:
Place:
Interviewer:
Interviewee:

Description: Thank you for agreeing to share your experiences with OER adoption and integration. The purpose of this interview is to understand your experiences as a librarian who has adopted and integrated OER as a support function in your role.

Prompt: As a reminder, your responses will remain confidential, so you may speak openly without concern. As a volunteer research participant, you are not obligated to participate in this study and you may withdraw from this study at any time.

I will now be asking you a set of questions related to your personal experiences with adopting and integrating OER. There are no correct or incorrect answers. Please provide as much detail as possible when answering. I will be recording your responses to the interview questions so that I may transcribe them at a later date, but I may also make notes about how your questions are being answered. After the transcription is complete, I will forward you a copy of the interview via email so that you may review for accuracy. Before we begin, do you have any questions about the nature of the study or my role as the researcher?

Questions:

Integration Experiences

1. Please describe your previous experience(s) using open educational resources in your role as a librarian.

2. Please describe your experience(s) with the quality (factually correct, organized, up-to-date, well-written, efficiency) of the resources that you select for the content management platform (LibGuides)?

3. How do you evaluate the success of OER in the content management platform (LibGuides)?

4. What types of open educational resources (i.e., documents, images, or video) do you typically use for inclusion in the content management platform (LibGuides)?

   4a. How did you obtain the resources utilized in the content management platform (LibGuides)?

5. Have you made any specific changes to your practices as a librarian in order to encourage the adoption and integration of open educational resources? If so, please explain the changes.

6. Please describe your experiences with the discoverability (ease or difficulty in locating) of the materials used in the content management platform (LibGuides).

Perceptions of Open Educational Resources

7. As a librarian, what factors do you feel are important to consider when locating, selecting, implementing, or evaluating open educational resources?

8. What would you say are the barriers experienced when adopting and using OER as library resources?

Adoption of Open Educational Resources

9. Please explain how the complexity or simplicity of the process of obtaining OER materials influences your adoption of OER in the content management platform (LibGuides).

10. Please explain how the advantages and disadvantages of OER influence your adoption of OER in the content management platform (LibGuides).
11. What are the challenges that you face as a librarian when adopting and using OER to support the institution?

Follow-up Questions

12. What recommendations would you make to other librarians who are considering adopting open educational resources?

13. Is there anything else that you would like to share about your experiences with open educational resources?

Appendix D

OER Student Perception Survey

OER Student Perception Survey

This survey is being conducted as a part of a study investigating student perceptions of OER use in their coursework. **Open educational resources** are the course materials, modules, videos, tests and any other materials incorporated into this course that are available to you at no cost. These resources provide course learning support in place of a purchased textbook.

Participation in this survey is completely voluntary. You may stop at any time during the survey. All information on this survey is anonymous. You must be 18 years of age or older to participate. Participation is not associated with your course grade. Your instructor will not know who completes this survey.

Instructions: Please answer the following demographic questions.

1. Age

○ Under 21 ○ 21-30 ○ 31-40 ○ 41-50 ○ 51-60 ○ Over 60 ○ Prefer not to say

2. Gender

○ Male ○ Female ○ Other/Prefer not to say

3. What is your ethnicity? Please select all that apply.

☐ American Indian or Alaskan Native ☐ Asian or Pacific Islander
☐ Black or African American ☐ Hispanic or Latino
☐ White or Caucasian ☐ Prefer not to answer
☐ Other (Please Specify) [   ]

4. How many courses are you taking this semester?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 or more

Instructions: Indicate your level of agreement or disagreement with each statement by selecting the option that best describes your feelings.

5.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
5a. I enjoy learning in an environment that incorporates open educational resources.	○	○	○	○	○
5b. Open educational resources make me feel more engaged with my learning.	○	○	○	○	○
5c. Open educational resources improve my performance in my courses and/or degree program.	○	○	○	○	○
5d. Open educational resources directly improve the quality of my learning experience in this course.	○	○	○	○	○
5e. There is a match between the open educational resources' content and specific learning objectives of this course.	○	○	○	○	○
5f. I think this course is of less value to me because anyone can access the materials.	○	○	○	○	○
5g. Open educational resources are not as good as purchased textbooks.	○	○	○	○	○
5h. Textbooks help me understand the topics better than open educational resources.	○	○	○	○	○
5i. I believe I can learn more through open educational resources than through a textbook.	○	○	○	○	○
5j. Open educational resources do not offer any advantages to me.	○	○	○	○	○
5k. If given a choice, I prefer learning using open educational resources.	○	○	○	○	○
5l. I would like to take more courses using open educational resources.	○	○	○	○	○
5m. I would recommend a course that incorporates open educational resources.	○	○	○	○	○

6.

	Poor	Below Average	Average	Above Average	Excellent
Overall, how would you rate the quality of the content within the open educational resources for this course?	○	○	○	○	○

7. In what other ways has using open educational resources impacted your studies?

8. Please provide any additional comments about your experiences with open educational resources in this course.

Appendix E

Codes, Categories, and Themes for Faculty Interview Data

Categories	Codes	Themes
Factual Accuracy	Accuracy	Faculty perceptions of OER quality
	Current	
	Efficacy	
	Organization	
	Subject appropriate	
	Outdated information for subject	
	Ineffective content	
	Very accurate	
	Vetted	
	Verify information	
	Discern if good resource	
	Things that we could verify	
	Correct information	
	Up to date	
	Relevant	
	Reports of current events	
	Well written	
	Very easy	
	Validity	
	Reliable	
	Longevity	
	Robust	
	Stable	
	Cross references	
	Looking at the source	
Time Maintenance	Time	Time investment and work involved to adopt and integrate OERs.
	Tweak sources to be static	
	Lost a site	
	Updating links	
	Working links	
	More work	
	Constant work	
	Lot of work on front end	
Types Discoverability Access Complexity Simplicity	Government websites	OER selection and characteristics
	Government webpages	
	Government documents	
	Federal government	
	Websites	
	Khan academy	
	YouTube video	
	Videos	
	Podcasts	
	Digital grammar tools	
	Academic empirical	
	Documents	
	Articles	
	Literature	
	Case studies	
	Assessments	
	Mainstream media	
	Narrated visual	
	Documentaries	
	Images	

	modules	
	Creative commons	
	Available in public domain	
	Freely accessible	
	Readily available	
	Access	
	Complex	
	Simple	
	Simple with complex ideas	
	Range of complexity	
	Open	
	Modification	
	Have to dig	
Versus textbooks	Textbook	Faculty perceptions of OERs compared to traditional textbooks
Quality	No textbook	
Tactile Nature	Textbook free	
Not necessary	Quality compared to textbooks	
Easier to use	Textbooks give quizzes	
Equal	Print OER materials	
	Textbook not necessary	
	Not accurate	
	Student doesn't get as much	
	Textbook inaccuracies	
	Didn't meet needs of students	
	Wasn't in any textbook	
	Textbook disables creativity	
	Learning is equal	
	Easier to understand	
	Ease point of view	
	Easier to find online	
	Easy to adapt	
	Easy transition	
	Easy to find materials	
	Easier	
	Ease of use	
	Equally if not more effective	
	Equate to textbook	
Disadvantages	Course redesign	Challenges associated with OER adoption and integration
Barriers	Clean up	
	Very difficult	
	Student difficulty	
	Electronic notes difficult	
	Misstates	
	Adjuncts	
	Negativism	
	Barrier	
	Not willing	
	Technology	
	Student know-how	
	More difficult	
	Not easy	
	Wasn't one source to use	
	Challenging to find	
	Bit of a challenge	
	Checking embedded links	
	Challenges	

	No disadvantages	
	Navigation trouble	
	Hindrance	
Cost	Cost savings	Perceived advantages of OER
Benefit	Saving students money	adoption and integration
License	Buy book	
Students enjoy	No cost	
using	Financially better for student	
Feedback	Textbook cost	
	Financial for students	
	Rewards	
	Feel good	
	Creative commons	
	Available in public domain	
	Freely accessible	
	Readily available	
	Access	
	Categorize OER	
	Freedom of choice	
	Completion	
	Students read it	
	Better for students	
	Advantageous to student	
	Students work ahead	
	Students enjoy OER	
	Info can be overwhelming	
	Decisions about wealth of info	
	Technology	
	Navigation is simple	
	Positive student feedback	
Course design	Designing purely OER	Pedagogy, Use, and experiences
Modification	Modify information	
Collaboration	Create	
Creativity	Adapt	
Use of OER	Made sense instructionally	
Learning style	Present to students	
	Supplement	
	Textbook optional	
	Re-record for additions	
	Combined concepts	
	Make changes	
	Information sharing	
	Sharing	
	Reaching out to others	
	Give it additional information	
	Creative	
	Flexible	
	Flexibility	
	Fun	
	Customizable	
	Versatility	
	Using documents	
	Assignments based on it	
	Develop support documents	
	Added institutional resources	
	Built a new course	

	Quizzed developed	
	Using classes	
	Putting together curriculum	
	Use multiple pieces of info	
	Curriculum enhancement	
	Links to PDF	
	Use for ideas	
	Use for critical thinking	
	Critically think	
	Watch videos outside of class	
	Gave podcast	
	Engage students in videos	
	Use modules	
	Use assessment questions	
	In class discussion	
	Gather information	
	Learning style	
	Students learn differently	
	Process didn't work	
	Use feedback to make adjustments	
	Prepare students	
	Reading to prepare	
	Preparation	
	Haven't made curriculum changes	
	Haven't made changes	
Advice Other experiences Suggestions Integrations	Replace and find things readily avail OER initiative Didn't know OER Clarity and conversations No experience or knowledge Excited and concerned Exciting challenge Positive experience Positive influence Good experience Prior experience using OER Recently switched What should be used What they need to know Think about why Where we are as a society	Faculty recommendations for future adoption and integration

Appendix F

Codes, Categories, and Themes for Instructional Designer Interview Data

Categories	Codes	Themes
Prior experience	Exposed a little	Experiences and perceptions of OER adoption
Roles	Hands on learning	
Practices	Open texts	
	More confident	
	More knowledgeable	
	Graduate school	
	Model OER	
	Repository	
	Wasn't aware	
	Textbook affordability	
	Role as it is	
	Experience as a student	
	Developed a math MOOC	
	Initially very resistant	
	Distrust from faculty	
	Teachers initiated	
	More freedom	
	Exploring	
	Don't pick content source	
	Terms of use	
	Alternative solutions	
	Look into OER	
	Best practices	
	Picking the right person	
	Extra effort	
	Description of course activities	
	Schedule of activities	
	Change adopted	
	Practices haven't changed	
	Don't think changed practices	
	Promoting use	
Benefits	Output superior	Perceived advantages of OER adoption and integration
	Tailor materials	
	Lesser cost	
	Save students money	
	Open materials	
	Catapult a module	
	Additional things	
	Not need to replace	
	Use it however	
	Customizable	
	Fewer expenses	
	Benefit for graduation	
	Materials stay current	
Barriers	Time	Challenges associated with OER adoption and integration
Disadvantages	Time consuming	
	Time concern	
	Planning process	
	Don't have OER	
	Lack of training	
	Takes readiness	
	Quality of material	

Choosing	Accurate	Locating, selecting, implementing, and evaluating OERs
Finding	Meets student needs	
Assessment	Time	
Obtaining OER	Repositories	
Discoverability	LibGuides	
Savings	Create a LibGuide	
Adoption	Google Advanced search	
	Open textbooks	
	Find and vet	
	Working with designers	
	Learning resources	
	SME's find	
	Provide feedback and recommendations	
	Find an alternative	
	Depends on context	
	Website (3)	
	Partnership with librarians (2)	
	Tricky	
	Larger repositories	
	Search for things	
	Keyword	
	Resources available	
	Math hard to find	
	Load of resources	
	License will allow	
	Looking in the right area	
	Portals	
	Time consuming (3)	
	Finding what fits audience	
	Pretty easy	
	Difficult to find	
	Work with librarians	
	Math hardest	
	Not difficult	
	Accessibility	
	Citation strategies	
	New benchmarks	
	Running a pilot	
	Make adjustments	
	Take ownership	
	Curriculum maintenance	
	More training	
	Copyright	
	ADA compliance	
	Institutional	
	Hard sell	
	Provide learning experience	
	Very limiting	
	Faculty use how they need	
	Make it what you need	
	Evaluate	
	Students dropping out	
	Stay in class longer	
	Completing	
	Time on task	

	Better grades	
	Survey	
	Versus traditional class	
	Savings	
	Graduate sooner	
	Retention	
	Outcomes	
	Course evals	
	Meaningful	
	Being successful	
	Evaluation process	
	Data isn't mature	
	Textbook savings	
	Take more courses	
	More time to spend	
	Learning curve	
	Librarians	
	Evaluate	
Types	Articles	Identified characteristics of OERs
Quality	Articles and videos	
Complexity	Media	
Simplicity	Try not to limit	
	Library	
	Readings	
	Videos	
	Materials developed	
	Software	
	Webpages	
	Infographics	
	Public domain	
	OpenStax	
	Link Outs	
	Modules incorporating video, text, PDF	
	Modules	
	Open text	
	Time to conduct searches	
	Databases and repositories	
	Vet materials	
	Don't trust resource	
	Levels of quality	
	Gauge quality	
	First eval	
	Past copyright	
	Making sure accurate	
	Not SME	
	Evaluations	
	Peer reviews	
	Learning resources	
	Very organized	
	Resources that have credibility	
	Don't need to worry	
	Know how to curate	
	Not involved	
	Look at materials	
	Rely on expertise	

Dictated by level of student
Ease of use
Accessibility (2)
Transformed PDE
Link out
More direct for learner
Everything connected
User interface simple
Reflected on classes
Fair use
Understanding fair use
Base level understanding
Easier to adopt
Difficulty
Abundance of resources
Websites, articles, videos

Advice Suggestions	More well versed	Overall experiences and recommendations for future adoption and integration
	More receptive	
	Collection of resources	
	Find stuff easily	
	Look more credible	
	Help faculty with strategies	
	Offering text free	
	Not jump in	
	Lot more than expected	
	Getting better	
	Don't be scared	
	Be creative	
	Modify	
	Conversations with faculty	
	Relationship with librarians	
	Leverage relationships	
	Partner with library	
	Talk to librarians	
	Leverage people who have done it	
	Open doesn't mean free	
	Lot of stuff out there	
	Come up with something	
	More than cost concerns	
	Professional development (2)	
	Be knowledgeable	
	Land of opportunities	
	Fun and innovative	
	Conduct analysis	
	Reach out	
	Takes time	
	Pros and cons	
	Exciting times	
	Working with faculty	
	Seeing her work	
	Big sell	
	We want to promote	
	Buy in	
	Department buy in	
	22 classes	
	Entire degree OER	
	Textbooks as much as tuition	
	Positive experience	
	Diffusion	

Appendix G

Codes, Categories, and Themes for Librarian Interview Data

Categories	Codes	Themes
Experience Changes to Practice	Creating OERs Helping faculty integrate Present to faculty Create OERs Access specific material Identify sources Assist finding OERs Helping adopt Not worked with Teach courses OERs Presentations Converting ENC1102 Talk to faculty Specific point of need resources Creating workshops Advocacy Presentations	Perception of librarian roles at the institution.
Benefits	Nontraditional OERs Information freely accessible No subscription fees Bypassing cost Plentiful Adaptable Receptive to sharing Price Host ourselves	Perceived advantages of OER adoption and integration.
Disadvantages Barriers	Out of date Link outs Content license Not a complex platform No host platform Lose modular learning Time Copyright Time creating Time to find Expectations Time involved Buy in Acceptance Awareness Lack of understanding Don't know they exist Platforms used Can't effectively share Can't share out Had to find license Lot of work Not subject experts Compete with pre-made content Subject expertise Still new	Challenges associated with OER adoption and integration
Discoverability Obtaining OERs Implementation	Toss up Overwhelming Cataloged incorrectly	Experiences with locating, selecting, and implementing OERs

Choosing Types of OERs	Specific search	
	Problematic	
	Upholding license	
	Time consuming	
	Resources out there	
	Permissions	
	Can be hard	
	Not true OER easy	
	Trickier	
	Takes looking	
	Create resources	
	Search the internet	
	Google searches	
	Institutional repositories	
	The Orange Grove	
	Searching in Merlot	
	Subject specific resources	
	Usability	
	Can't modify	
	Accuracy	
	Thoroughness	
	Functional	
	Authority	
	Really open	
	Copyright	
	Different types of media	
	Images	
	Videos for competencies	
	Linking	
	PDF or documents	
	Images and videos	
Quality Complexity or Simplicity Licensing	Use information literary criteria to ensure quality	Identified characteristics of OERs
	Information is up to date	
	Bias at understandable level	
	Use info ethically	
	Accessible to linking	
	Aware of copyright rules	
	Created by experts	
	Leave off LibGuide	
	Platform	
	Factually very good quality	
	Developed by professionals	
	Quality	
	Quality is great	
	Easy to find	
	Easy to implement	
	Have to find	
	Creation	
	Best ways to search	
	Searching	
	Finding materials	
	Initially complex	
	Encourage people	
	Not an issue	
	Clearly marked	

	Content creators	
	Fair use	
	Faculty more engaged	
	Change the system	
Assessment	Evaluation criteria	Evaluation methods for OERs
	Evaluating	
	Evaluate	
	Literacy assessments	
	Statistical suite	
	Look at statistics	
	Leg work	
	Being used	
	Referring back	
	Adapting information	
Suggestions Experiences	Buy in	Overall experiences and recommendations for future adoption and integration.
	Show it's possible	
	Show savings	
	Advocate of info ethics	
	Dedicate effective time	
	Talk to someone	
	Forthcoming about issues	
	Learning about it	
	Open licenses and OER	
	Cost the students money	
	OERs bridge gap	
	More resources and support	
	Helping people define	

Appendix H

OER Student Perceptions Survey Themes Table for Question 7

Themes	Categories	Quotes
OER benefits and their impacts on learning	Comprehension	"It helps give a better understanding perspective of the subject being taught." "…because for certain things, I am able to understand the concept more clearly." "Having OERs help me understand my class and classwork assignments." "Using OERs allows me to explore a topic in depth and find similar topics that are actually easier to understand than the textbook at times." "Makes it easier to understand and grasp the concepts." "I find that type of material better to learn from than a textbook." "It teaches me a better understanding of the material." "Helps me understand things better." "I often use OERs to get a different explanation of a topic I did not quite understand either in class or in the purchased textbook…" "OERs have made certain courses easier to understand than purchased textbooks." "They sometimes simplify and explain topics better than a textbook that can be complex." "I understand things on a deeper level, because I have different perspectives and readings to look at."

	Impact	"OERs have positively impacted my studies." "It was a good experience." "Good." "OERs have impacted my studies by opening other resources connected with the resource offered in the course."
	Perspectives	"…I am taught from a few different perspectives rather than only one." "Using OERs showed different perspectives of the same material." "…we watched documentaries of things really happening to real people and it gave us a perspective of the situation in a more real feel then if we read it in a text book." "The OERs that we used in our course included real life examples."
	Grades and Engagement	"Good grades." "I have gotten better grades this entire semester." "When using OERs, I am more engaged in my learning."
	Currency	"OERs have impacted my studies because they present me with current information." "In today's world, textbooks are outdated the moment they are published so its beneficial to have courses that can constantly provide me with updated, contemporary materials." "I like the fact that OERs are sometimes more up to date than textbooks."
	Learning from OERs	"It helps facilitate the learning process for more complex material like science and mathematics." "OERs provide a backup for students that are falling behind

	in courses or are confused about lecture material and want to learn it another way." "I believe students should take advantage of those resources if they are more compatible with their learning style." "OERs help with my time management as well." "OERs allow professors to pinpoint the exact material that is needed for a class helping students to save time and study information that is specific to their course." "OERs are also beneficial because they streamline course content." "Made it easier for me to learn compared to just sitting and reading a textbook all semester." "Being able to use other sources of information has allow me to gather a widen sense knowledge." "…it also makes it so anyone can share their knowledge onto other in a way that may be easier to for others to follow." "It allows me to find and use resources I never would have found or thought to find on my own." "Very detailed list of studies to follow..."
Access	"…anyone can easily access them, and it makes my course easier." "Being able to access certain things on my phone has been able to increase my study time." "…but gain access to amount of research." "It makes a huge difference with my motivation when it's so easily accessible." "the access to the online library database really helps me use sources that are within my fingertips with no travel time to the library involved." "The material is available for my use so even though I can't afford the text book I still have

	access to the information needed for the course." "I'm lucky that one of my classes allows us to use open educational resources because anyone can easily access them." "and with these resources being in abundance and ranging from dates of creation and viewpoints I can review diverse information on the topic freely."
	"Freedom to access materials wherever and whenever allows the person taking the course more freedom to learn at their leisure...good stuff..." "Anywhere at any time of the day." "Easy access helps me find information much quicker." "I can access what I need from wherever I am…I am not limited to working from home." "It is easier to take along, and because of that studying on the go is encouraged more so than it would be with a textbook." "Easily access from any location, no need to lug my books back and forth." "Easy access, at home and on a trip." "I enjoy being able to have my content in some printed out pages vs an entire large textbook. It is easier to take along, and because of that studying on the go is encouraged more so than it would be with a textbook." "…with OERs (Google, yahoo, quizlet, e-book, and more) you have the whole world in your hand." "There are virtually unlimited amounts of OERs."
Affordability	"Benefits students with low income." "Rather than being restricted to an expensive text book I can simply use OERs to learn about the topic at hand." "I appreciate the cost factor.

		As a parent, it is already expensive to raise children and when you can get your books free with the class, it is worth it to me."
		"More money for me."
		"It lets you focus more on the studies then the financial constraints which come with textbooks."
		"It has saved me money. By allowing me to avoid textbook fees I was able to take more classes in a semester."
		"You get to save a lot of money, since textbooks are very expensive."
		"Financially."
		"Not having a textbook saved my money."
		"It has made it easier for my family financially to support my education."
		"We don't have to waste money on a textbook and the open educational sources are often times just as effective."
Challenges associated with OER use in coursework	Uncertainty	"…should be able to provide more than it did."
		"It is difficult to tell if the problem was the teacher or the materials."
	Tangibility	"Call me old fashioned but I still prefer a written textbook."
		"Also, most of the OERs are taught by people speaking, I would prefer to read it or if they offered text to read in addition to the videos."
		"after some time staring at a computer screen, it can really hurt your eyes."
	Academics	"The last two semesters without OERs I did much better academically, but I can't really blame it on the resources."
		"None. I failed the class, due to the professor disagreement with the OERs provided."
		"There is no change."
		"OERs do not challenge me as much so I put less effort into the course."
OERs compared to traditional textbooks.	Learning from the textbook	"Book content has sometimes been difficult."

		"I feel like when I learn from a textbook it is not as engaging and sometimes hard to comprehend what is being taught in a textbook."
		"Learning from a book only allows one type of perspective, even if several people were behind the making of that particular book."
		"With the book limits research because you can used whatever the publisher have wrote in the textbook."
		"Textbooks are often very dense and detailed, but an instructor may only focus on one portion of a chapter."
		"Well it's way easier than textbooks."
	Limitations	"It has helped however, I only have access to it from a computer."
		"One of the main problems, is offering online content that is only available to read online."
		"You cannot copy the material, because it's presented as a video with no text."
		"While the material is good, it would be much more useful If I could have access to it when the class is over, so I could consult it when I'm doing real work."

Appendix I

OER Student Perceptions Survey Themes Table for Question 8

Themes	Categories	Quotes
Student Experiences with OERs	Positive Experiences	"The resources, especially videos are a great help to auditory and visual learners." "It was helpful." "I believe these resources gave me the same support and information as standard textbooks." "…Once I was able to do that, my school work became easier and I got better grades." "I just love it."
	Neutral Experiences	"I identify these resources as useful, but unreliable." "The quality of the resource is very dependent on the subject." "While I enjoy the online database, I wish it wasn't so confusing to use."
	Negative Experiences	"It made the exam preparation difficult." "The OpenStax book that was made available online made it difficult to learn." "The teacher did not supplement the textbook with any interesting presentations, videos, feedback, interactive lessons or anything else." "I had no idea how to properly access these resources and incorporate them into my papers." "I think it needs to be improved every teacher does something different." "I prefer studying with textbooks, which are almost always unified, if not expensive."