

Using a Technology Acceptance Model to Analyze Faculty Adoption and Application of Open Educational Resources

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ABSTRACT

This research reports on a mixed methods study querying faculty who have already adopted Open Educational Resources (OER) and who might be exploring OER-enabled pedagogy (OP) in their instructional practices. Insights gained from this research fill a gap in the literature and provide a deeper understanding of the context for adopting OER, thus providing guidance and information for institutional policy and program development in support of OER implementation. In 2018, over 250 faculty responded to an online survey that queried faculty on various motivating factors for both the adoption of OER and the use of OP. Using the Unified Theory of Acceptance and Use of Technology as a design framework, this research expanded on the framework to examine motivating factors through the lens of six main constructs: 1) how individuals believed that OER have helped them perform in their job (performance expectancy), 2) the degree of ease or difficulty associated with using OER in their instruction (effort expectancy), 3) the degree to which faculty perceived if others thought it was important that they use OER (social influence), 4) the extent to which the faculty perceived that the technical and organizational infrastructure to adopt OER were available (facilitating conditions), 5) individual attitudes about the use of OER and OP (attitudes), and 6) what individuals felt they could do with the technology skills they had acquired (technology self-efficacy). Findings indicate that supporting students is one of the main motivating factors spurring faculty to adopt OER and OP. In addition, both personal and professional growth as well as networking through engaging in open education is also important. Findings also indicate the need for careful planning before introducing OP approaches. These findings have implications for future OER and OP development.

Keywords: Open Educational Resources; OER-enabled Pedagogy; UTAUT

Uso de un modelo de aceptación de tecnología para analizar la adopción y aplicación de recursos educativos abiertos por parte del profesorado

RESUMEN

Esta investigación informa sobre un estudio de métodos mixtos que consulta a profesores que ya han adoptado Recursos Educativos Abiertos (REA) y que podrían estar explorando la pedagogía habilitada por REA (OP) en sus prácticas de instrucción. Los conocimientos adquiridos a partir de esta investigación llenan un vacío en la literatura y proporcionan una comprensión más profunda del contexto para la adopción de REA, proporcionando así orientación e información para el desarrollo de políticas y programas institucionales en apoyo de la implementación de REA. En 2018, más de 250 profesores respondieron a una encuesta en línea que preguntó a los profesores sobre varios factores motivadores tanto para la adopción de REA como para el uso de OP. Utilizando la Teoría Unificada de Aceptación y Uso de la Tecnología como marco de diseño, esta investigación amplió el marco para examinar los factores motivadores a través de la lente de seis constructos principales: 1) cómo los individuos creían que los REA les habían ayudado a desempeñarse en su trabajo (expectativa de desempeño), 2) el grado de facilidad o dificultad asociado con el uso de REA en su instrucción (expectativa de esfuerzo), 3) el grado en que el profesorado percibió si otros pensaban que era importante utilizar REA (influencia social), 4) el grado de que el profesorado percibió que la infraestructura técnica y organizacional para adoptar REA estaba disponible (condiciones facilitadoras), 5) actitudes individuales sobre el uso de REA y OP (actitudes), y 6) lo que los individuos sentían que podían hacer con las habilidades tecnológicas que tenían adquirida (autoeficacia tecnológica). Los resultados indican que el apoyo a los estudiantes es uno de los principales factores de motivación que impulsa a los profesores a adoptar REA y OP. Además, también es importante el crecimiento personal y profesional, así como la creación de redes a través de la participación en la educación abierta. Los hallazgos también indican la necesidad de una planificación cuidadosa antes de introducir enfoques OP. Estos hallazgos tienen implicaciones para el desarrollo futuro de REA y OP.

Palabras clave: Recursos educativos abiertos; Pedagogía habilitada para REA; UTAUT

使用技术接受模型分析教师对开放教育资源的采纳和应用

摘要

本研究描述了一项使用混合方法的调查研究，调查对象是已经采用开放教育资源（OER）且可能在其教学实践中探究OER教学（OP）的教师。该研究得出的见解填补了文献空白，并加深了对OER采纳所需情境的理解，进而在支持OER执行的过程中为机构政策和项目发展提供指导和信息。2018年，超过250名教师参与了一项网络调查，该调查询问了关于OER采纳和OP使用的不同激励因素。通过将技术接受和使用统一模型（Unified Theory of Acceptance and Use of Technology）作为设计框架，本研究对框架加以扩展，以期从6个视角分析激励因素：1）个体如何认为OER帮助他们在工作中的表现（表现期望），2）在其教学中使用OER一事的难易程度（付出期望），3）教师在多大程度上感知到他人是否认为其使用OER是重要的（社会影响），4）教师在多大程度上感知到采纳OER所需的技术和组织基础设施是可用的（促进性条件），5）个体对OER及OP使用所持的态度（态度），6）个体对其已拥有的技术能力还能做什么的感受（技术自我效能）。研究发现表明，教师采纳OER和OP的一个主要刺激因素是支持学生。此外，个人成长和专业成长，以及通过参与开放教育而建立的人际关系网也很重要。研究发现还表明，需要在引入OP方法前仔细规划。这些研究发现对未来OER和OP开发具有意义。

关键词：开放教育资源，基于OER的教学法，技术接受和使用统一模型（UTAUT）

Introduction and Literature Review

Traditionally, educational resources have been available through various commercial publishers and for a variety of costs; however, more recently, educators and administrators have been exploring the potential of low or no-cost Open Edu-

ational Resources (OER) to promote learning. These resources are defined as “material for teaching and learning that are either in the public domain or have been released under a license that allows them to be freely used, changed, or shared with others” (Sparks, 2017, n.p.). Much research has explored various aspects of OER, such as perceptions of the resource, student efficacy and out-

comes (Anderson, Gaines, Leachman, & Williamson, 2017; Hilton III, 2019; Magro & Tabaei, 2020). In addition, a great deal of research has focused on the use of OER, especially in terms of potential cost savings for students (Hilton III, Robinson, Wiley, & Ackerman, 2014; Lashley, Cummings-Sauls, Bennett, & Lindshield, 2017; Magro & Tabaei, 2020). As of 2017, the U.S. Bureau of Labor Statistics reported that the cost of textbooks has risen by 142% over the last decade and a half, representing a rate four times that of inflation (U. S. Bureau of Labor Statistics, 2017). Senack (2015) also noted that, tuition aside, textbook costs represent the second-greatest expense for college students. Clearly, development and use of OER could go far to help relieve some of the economic stress experienced by our student population.

Research has also shown that student recruitment can be positively impacted when OER are employed (Nikoi & Armellini, 2012). Higher retention rates and lower withdrawal rates have been evidenced, as well, when utilizing OER (Hilton III, Fischer, Wiley, & Williams, 2016). In addition, pedagogical variety can be explored when using OER, which might lead teachers to reflect on their use of content and approaches in their teaching (Jhangiani & Green, 2018; Kazakoff-Lane, 2014; Nascimbeni & Burgos, 2019). In order to explore the benefits of and to promote the growth and potential application of these resources, research is needed to investigate the skills and context required to adopt, reuse, develop, and apply OER (Amiel, 2013; DeVries, 2013;

Paskevicius & Irvine, 2019). As indicated in the literature, a significant number of students who are already struggling with tuition and housing costs will choose not to purchase textbooks, even knowing that this might affect success in a course (Prasad & Usagawa, 2014). Reduced student loan debt and higher program completion rates for students have also been credited to the use of OER (Bowen, Chingos, Lack, & Nygrn, 2012; Hilton III, 2016; Hilton III, Gaudet, Clark, Robinson, & Wiley, 2013). In order to enhance student success in the pursuit of higher education, more research needs to be conducted into the factors that could potentially motivate faculty to adopt and develop OER and to explore open teaching strategies leading to student success. Though there is a continued trend in faculty awareness of OER, their awareness and concerns about traditional publishers do not always result in adoption of OER (Seaman & Seaman, 2018). More research is needed regarding factors influencing faculty adoption of OER if the potential benefits and pedagogical impact are to be fully realized.

This research explored various factors that have played a role in influencing faculty adoption and application of OER and open practices, such as OER-enabled pedagogy (OP) in instruction. OP has been defined by Wiley and Hilton III (2018) as “the set of teaching and learning practices that are only possible or practical in the context of the 5R permissions which are characteristic of OER” (p. 135). The “5R” permissions refer to the right to retain, reuse, revise, remix, and redistribute re-

sources as this material is released with copyright licenses that provide this freedom (Wiley & Hilton III, 2018). Others, as well, have discussed an open pedagogical approach to learning by using OER and other open resources (Cronin, 2017; Jhangiani & Green, 2018; Weller, 2014).

In examining the literature on faculty adoption of OER, studies have addressed reasons for non-adoption of OER by faculty (Kursun, Cagiltay, & Can, 2014; Ngimwa & Wilson, 2012; Tovar & Piedra, 2014). Anderson, Gaines, Leachman, and Williamson (2017) found that there was no consistent understanding of OER among the faculty in their study. They also found that some faculty were unsure of where to locate quality OER and expressed a concern about overall quality. Krelja-Kurelovic (2016) found that, though faculty at one Croatian university reported positive attitudes towards OER, there was very little actual sharing of teaching material. In contrast to studies where researchers have speculated on faculty adoption of OER, the current research focused on various influencing factors motivating adoption by faculty *who have already adopted OER* in their teaching and who may be experimenting with applying OP.

The literature includes a number of studies examining the potential of faculty to adopt OER. In a study designed to measure the readiness of faculty and staff to adopt OER, McKerlich, Ives, and McGreal (2013) found that motivation in adopting OER was largely intrinsic. They found that “rec-

ognition” for both creation and use of OER was the lowest factor reported by study respondents and suggested that this might mean that it is intrinsic motivation that drives faculty in this situation (McKerlich et al., 2013). In fact in another study, Pawlowski (2012) suggested that emotional ownership is the key to overcoming barriers of OER adoption. Ownership was also found to be an important element by researchers Algers and Silva-Fletcher (2015). In a study collecting data from 52 institutions, the researchers found that altruism was important in determining whether teachers would potentially share OER (Algers & Silva-Fletcher, 2015). In another study published in 2013, which surveyed instructors from all levels of education on their sharing behavior with respect to OER, Van Acker, van Buuren, Krijjins, and Vermeulen (2013) found that altruism was positively correlated with the intention to share OER. They also concluded that this finding implied that teachers enjoy the behavior of sharing OER, without the need for additional extrinsic incentives (Van Acker et al., 2013). Altruistic motivation for making learning material accessible has also been noted in a variety of other research studies (McGill, Falconer, Dempster, Littlejohn, & Beetham, 2013; Pegler, 2012; Scheliga & Friesike, 2014). In addition, researchers Paskevicius and Irvine (2019) found that faculty reported being driven to use OER by a “spirit of openness” (p. 7).

In a 2016 study on the general perceptions of OER, Belikov and Bodily examined barriers and incentives for faculty to adopt OER and uncovered

several motivating factors. They found that some faculty (10.6%) were motivated to adopt OER in order to cut costs of material for student convenience and for enhancing equity; a smaller percent of faculty (9%) indicated that pedagogical benefits would motivate them to invest the time into evaluating OER (Belikov & Bodily, 2016). Other studies have shown that providing a cost savings to students is one of the highest motivating factors in the consideration to adopt OER by instructional faculty and staff (McKerlich et al., 2013; Tillinghast, 2015).

In their research on open science, Scheliga and Friesike (2014) found that faculty participants were willing to sacrifice rewards to be able to engage in experimenting with new forms of disseminating knowledge and from the sense of joy experienced from sharing knowledge. Chae and Jenkins (2015) found somewhat similar results in their qualitative investigation of faculty using OER in the Washington Community and Technical College System. These researchers reported that two major motivating factors for faculty to use OER were the desire to provide access to academic material at a low cost and their own pursuit of pedagogical freedom (Chae & Jenkins, 2015). Hassall and Lewis (2017) conducted a study at the University of Leeds examining both institutional and technological barriers to the use of OER. What they found indicated that there was no innate motivational barrier to adoption but that rather the lack of motivation comes from a lack of opportunity (Hassall & Lewis, 2017). One external

factor that could influence a faculty decision to adopt or create OER might be in the form of institutional support. In the Scheliga and Friesike study (2014), it was recommended that constraints to open behavior can be diminished if this behavior is rewarded within the research culture and by the research institution. On the other hand, in one study at a North American university, Veletsianos discussed how institutional policies might potentially affect adoption (2015). Veletsianos described the institution of focus as one lacking institutional support for openness. Though some open and sharing practices were evident, this author suggested that “individual (rather than systemic) motivators may be significant drivers of openness in the higher education context” and not those of institutional policies or initiatives (Veletsianos, 2015, p. 205). Jhangiani, Pitt, Hendricks, Key, and Lalonde (2016) studied faculty at different types of institutions of higher learning in Canada—research-intensive, teaching-intensive, and colleges or institutes. They found that faculty at research-intensive universities were more likely to engage with OER than faculty at the other two types of institutions (Jhangiani et al., 2016). Finally, in a study that presented a different picture and that focused on three South African universities, Cox and Trotter (2016) conducted interviews with academic participants engaged in OER workshops designed to promote OER. The researchers wanted to learn what types of interventions might work best for motivating OER adoption and use in different academic institutional con-

texts. They concluded that institutional policy should not be regarded as a motivating factor for OER activity due to the individual institutional culture, which “mediates the role that policy plays in academics’ decision making” (Cox & Trotter, 2016, p. 9).

The concept of open educational practices (OEP), including the use of open resources, is in a fairly nascent state in higher education. Cronin’s definition of OEP includes the use of OER but extends to the use of open pedagogies and open practices of sharing as well (2017), with the central pedagogical premise being that of learning empowerment for both students and teachers (Jhangiani & Green, 2018). Some researchers have argued that, for the potential of OER to become fully realized, it needs to be accompanied by a radical change in educational practice (Masterman, 2016). Koseoglu, Bozkurt, and Havemann (2020) indicated that OEP moves beyond only the use of OER to include open approaches to learning, teaching, pedagogy and scholarship, as well as the use of open data and software. Others have discussed how OEP can be redesigned to better redress social injustice (Bali, Cronin, & Jhangiani, 2020). In fact, these authors offered a typology of OER that moves from content centric to process centric, from teacher centric to learner centric, and from a primarily pedagogical focus to a primarily social justice focus (Bali, Cronin, & Jhangiani, 2020). Their work built, in part, on that of Hodgkinson-Williams and Trotter (2018), who introduced an OER, OEP, and Social Justice framework that focused

on economic, cultural, and political dimensions and associated ameliorative responses (Hodgkinson-Williams & Trotter, 2018).

In one study, Cronin (2017) sought to understand the perception and use of OEP in higher education. Data from semi-structured interviews indicated a continuum of practices existed, with values ranging from closed to open (Cronin, 2017). In a study at the University of Oxford, Masterman (2016) reported that one approach to increase uptake in OEP is through the encouragement in the use of OER as it aligns with the concept that students are “citizens of tomorrow.” Havemann (2020) presented a case study at one London university and suggested that “it may be most productive to conceive of instances of educational practices as always *both/and*, deriving from an interplay of open and closed elements” (p. 10). Some researchers have voiced the opinion that teaching and learning with OER are not new phenomena but reflect long standing theories such as Social Constructivism and cognitive learning practices (Beetham, Falconer, McGill, & Littlejohn, 2012; Panke & Seufert, 2013). One author discussed a “learner-generated” approach to open educational practices and indicated it is one of eight attributes of open pedagogy (Hegarty, 2015). This author claimed that something “magical” happens when students become fully involved in the learning process (Hegarty, 2015). In addition, Hodgkinson-Williams and Paskevicius (2012) conducted a study involving student-assisted reworking of academic material into

open resources, noting the many positive benefits to the process. In fact, Baran and AlZoubi (2020) suggested that the greatest value of open pedagogy is in providing awareness of open access as well as promoting student agency. In one study, Wiley, Webb, Weston and Tonks (2017) found that overall student grades increased in a statistically significant manner during the time frame when increasingly student-created OER were added to a course. Singer (2018) described how OEP are used to help students understand how they can take control over their own education in an institution using competency-based education and prior learning assessment. In a paper discussing a move from using open resources to the exploration of open pedagogy, DeRosa and Robinson (2017) discussed how faculty who use openly-licensed resources can explore the possibilities of creating new relationships between learners and the information they access within a course. They stated that when students are exposed to the use and reuse of learning resources, they begin to develop a new relationship with resources, one which becomes even stronger if faculty involve their students in the critique and contribution to the body of knowledge with which they are engaged (DeRosa & Robinson, 2017). These researchers also stated that “open pedagogy uses OER as a jumping-off point for remaking our courses so that they become not just repositories for content, but platforms for learning, collaboration, and engagement with the world outside of the classroom” (DeRosa & Robinson, 2017, p. 117).

If faculty are motivated to explore, adopt, or create OER, other possibilities could then be open to them. Faculty would be able to explore the affordances of open resources and how they might potentially impact their teaching. In fact, recent research has indicated that a positive correlation exists between the use of OER and the adoption of engaging and open teaching methods (Nascimbeni & Burgos, 2019). It is this researcher’s hope that the insights gained from this research will fill a gap in the literature and potentially provide a deeper understanding of the context for adopting OER. This might provide guidance and information for institutional policy and program development in support of OER implementation, which could, in turn, help to promote pedagogical exploration.

Methodology

An explanatory sequential mixed method design was employed to address the research questions in this study. This particular research approach was applied in order to gather general data from a larger population of faculty in higher education and then to focus more specifically on the perceptions of those factors influencing the adoption of OER and the possible application of OP with a smaller sample of faculty interviewees.

Participants

Participants were identified by colleagues who were working in the area of Open Education. Faculty or instructors

were identified by a colleague at their institution as being someone already using OER and who might be applying OP in their instruction. Invitations to complete an online survey were sent to 1,100 faculty and instructors across the U.S., with a final count of 234 complete responses used as the quantitative data source and the open-ended qualitative source. Participants represented faculty and instructors of all ages and from community colleges to research institutions. In addition to the quantitative data collection, survey participants were invited to take part in a follow-up semi-structured interview. Fifteen face-to-face and phone interviews explored perceptions pertaining to OER and OP adoption more deeply than was possible on the quantitative survey.

The Research Model

The Unified Theory of Acceptance and Use of Technology (UTAUT) framework was used to guide the development of operationalized questions applicable to this research. Prior research applying the UTAUT framework to examine influencing factors pertaining to OER adoption helped to guide question formation for this research as well. For example, the work of Mtebe and Raisamo (2014a) in Tanzania applied the UTAUT to query faculty about their intentions to adopt OER, and Dulle and Minishi-Majanja (2011) conducted an Open Access adoption study applying UTAUT. This research was based on the work of Venkatesh, Morris, Davis, and Davis (2003), whose permission was given to adapt questions for this re-

search. Questions for the interview were also based on operationalized questions from former UTAUT research, in which reliability analysis and construct validity tests were applied (Dulle & Minishi-Majanja, 2011; Kandiero, 2015; Li, Yuen, & Wong, 2014; Mtebe & Raisamo, 2014a; Percy & Van Belle, 2012). A Likert scale was used to record responses on the survey. In addition, several demographic questions were added to address information represented by the modifiers from the UTAUT model.

The UTAUT model for this research included six main constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, attitude, and technology self-efficacy. Venkatesh et al. (2003) defined *Performance Expectancy* as the degree to which an individual believes that using the system will help him or her to attain gains in job performance including domains such as perceived usefulness, extrinsic motivation, job-fit, relative advance, and outcome expectations. These authors indicated that *Performance Expectancy* is the strongest predictor of intention to use new technology. *Effort Expectancy* is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003). The domains captured within this construct are perceived ease of use, complexity, and ease of use. *Social Influence* is the degree to which an individual perceives that important others believe he or she should use the new system and is represented by subjective norm, social factors, and image in earlier technology models (Venkatesh et al., 2003). This construct acknowledg-

es that an individual's behavior is ultimately influenced by their perception of how others in their sphere of influence will view them as a result of their use of a particular technology (Venkatesh et al., 2003). These researchers tell us that this construct is not as significant in voluntary contexts but operates by influencing perceptions about the technology (2003). *Facilitating Conditions* are the degree to which an individual believes that the organizational infrastructure and the technical infrastructure both exist in order to support the use of the technology and includes perceived behavioral control and compatibility (Venkatesh et al., 2003). Finally, two constructs were added from the original UTAUT model, those of *Attitude* and *Technology Self-efficacy* (Dulle & Minishi-Majanja, 2011; Venkatesh et al., 2003). *Attitude* refers to an in-

dividual's positive or negative feelings related to the technology, and *Technology Self-efficacy* is the confidence that is demonstrated in making decisions about use of computer and technology resources (Yussoff, 2009). These two constructs were dropped in later models of UTAUT because it was determined that they may not influence behavioral intention. Because this research was not concerned with intention but with actual use and because others researching the topic of the use of open resources and OER have included one or both of those constructs (Dulle & Minishi-Majanja, 2011; Percy & Van Belle, 2012), this research included questions in the instruments based on those constructs. The design framework used to support the research was modified and is depicted in Figure 1.

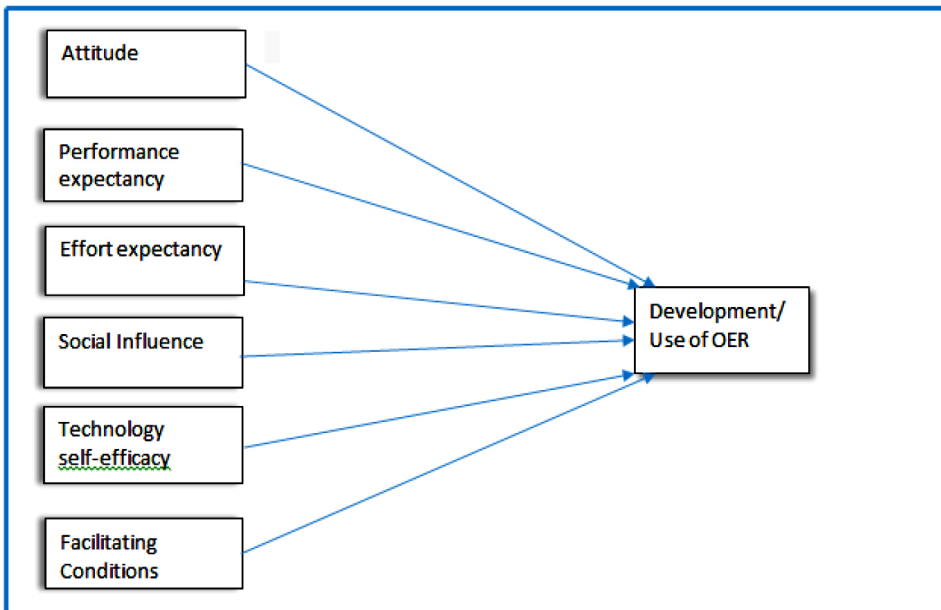


Figure 1. Modified Unified Theory of Acceptance and Use of Technology Design Framework

The Research Questions

This study, based on the constructs from the UTAUT model, explored 1) how individuals believed that OER have helped them perform in their job (performance expectancy), 2) the degree of ease or difficulty associated with using OER in their instruction (effort expectancy), 3) the degree to which the faculty perceived that others think it was important that they use OER (social influence), 4) the extent to which the faculty perceived that the technical and organizational infrastructure to adopt OER were available (facilitating conditions), 5) individual attitudes about the use of OER and OP (attitudes), and 6) what individuals felt they could do with the technology skills they had acquired (technology self-efficacy).

The first research question was addressed by the quantitative phase of the study, while research question number two was addressed through the data collected in the qualitative phase of the study.

RQ#1. What are the factors that have informed the decision to adopt OER and possibly OER-enabled pedagogy by higher education faculty?

RQ#2. What are the perceptions pertaining to OER and OER-enabled pedagogy by higher education faculty who have already adopted OER?

Data Collection and Analysis

Data were collected via an online questionnaire (see Appendix A), as well as

face-to-face and phone interviews (see Appendix B). Questions for this study were operationalized and developed considering the UTAUT framework and helped to examine factors that had influenced faculty who had already adopted OER and who may have been applying OP. As previously mentioned, participants were contacted via email for the quantitative and qualitative sections of the research. In the online survey, quantitative data were collected, which included several open-ended questions to collect qualitative data. Interviews were arranged either through face-to-face contact or through phone conversations for qualitative data collection and were recorded with participant permission and later transcribed. Using a code re-code approach (Saldana, 2009), data were thematically analyzed in alignment with the UTAUT model while allowing for other emerging themes.

Data from the quantitative survey were recorded using a 5-point Likert scale, and responses from the survey were aggregated using descriptive statistics. Central tendency was determined using median, and the frequency or percentages of the responses were used in order to build a picture and describe the reported variables that had influenced OER or OER-enabled pedagogical adoption by faculty. Qualitative data were imported into a computer assisted qualitative data analysis software program for coding, categorizing, and thematic analysis. In this way, the words of the faculty were used to deepen understanding and give voice to the participants (Corden & Sainsbury, 2006).

Findings

This mixed method research explored perceptions of faculty who had adopted OER for instruction and may have used OP. Quantitative and qualitative findings are presented separately in the following sections.

Quantitative Data

Participants. Faculty participating in this study reported teaching at almost

100 institutions across the U. S. with over 65% teaching for ten or more years (see Table 1). Over half were in tenure track positions, and the majority were full-time faculty (84%). Age fell roughly into three main categories, ranging from 35 to 55 plus. Responses indicated that the majority had been teaching using OER less than six years at 91%. The majority taught at the undergraduate level (82.5%) with most of the remainder teaching both undergraduate and graduate levels (15.0%).

Table 1. The Demographic Profile of Faculty Respondents to a Survey on OER (n=234)

Classification	Percentage
Age	
Under 35	7.7
35-44	35.5
45-54	30.3
55+	26.5
Tenure Status	
Tenured	54.6
Tenure track, not tenured	10.0
Non-tenure track	35.4
Teaching Status	
Full-time faculty	83.8
Part-time faculty	4.7
Adjunct instructor	6.0
Other	5.6

Note. Other = Professionals such as teaching assistants or special lecturers.

Performance expectancy. This construct is the degree to which an individual believes using the system will help him or her to attain gains in job performance (Venkatesh et al., 2003). The

data from the survey indicated that faculty and instructors felt strongly (76% agreed) that there was a benefit to using OER in their instruction (see Figure 2).

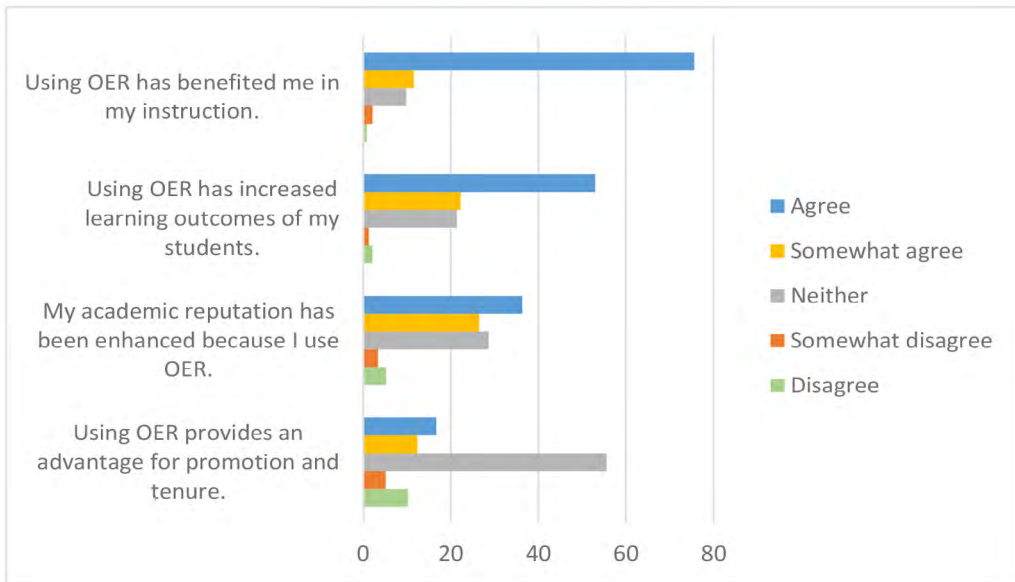


Figure 2. Survey responses for questions pertaining to Performance Expectancy related to OER

More than half of the respondents (53%) agreed that OER increased the learning outcomes of their students. Though 22% of respondents neither agreed nor disagreed that using OER had enhanced their reputation, over one-third (36%) agreed it did with an additional 27% somewhat agreeing. A majority (56%) felt the use of OER neither helped nor hindered the promotion and tenure process, and less than a third of participants (29%) felt that it would benefit promotion or tenure.

Effort expectancy. This construct is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003), and the domains within this construct are perceived ease of use, complexity, and ease of use. The continuum of introducing OER into courses often begins with finding suitable OER, adapting or creating an OER, and then integrating the OER into a specific

course. Quantitative data explored the ease with which faculty and instructors were able to locate OER, and a majority (74%) somewhat to strongly agreed it was easy to find class material (see Figure 3).

A greater majority of respondents indicated they somewhat agreed or agreed that adapting and creating material was easy (78%). Finally, survey participants responded that they somewhat agreed or agreed (74%) that the integration of OER into their classes was a fairly easy process.

Social influence. This construct represents the degree to which an individual perceives that others in the professional context believe he or she should use the new technology (Venkatesh et al., 2003). Quantitative data indicated that more respondents (59%) disagreed to somewhat disagreed that they were

influenced by others around them who were using OER, with just over one-fourth (27%) indicating that they were influenced by others (see Figure 4). However, almost 38% somewhat agreed to agreed that their departments felt it

was important to use OER, and a full 61% felt that their OER work was favorably viewed by the institution. Only 15% of participants indicated that they thought students expected OER to be offered in their courses.

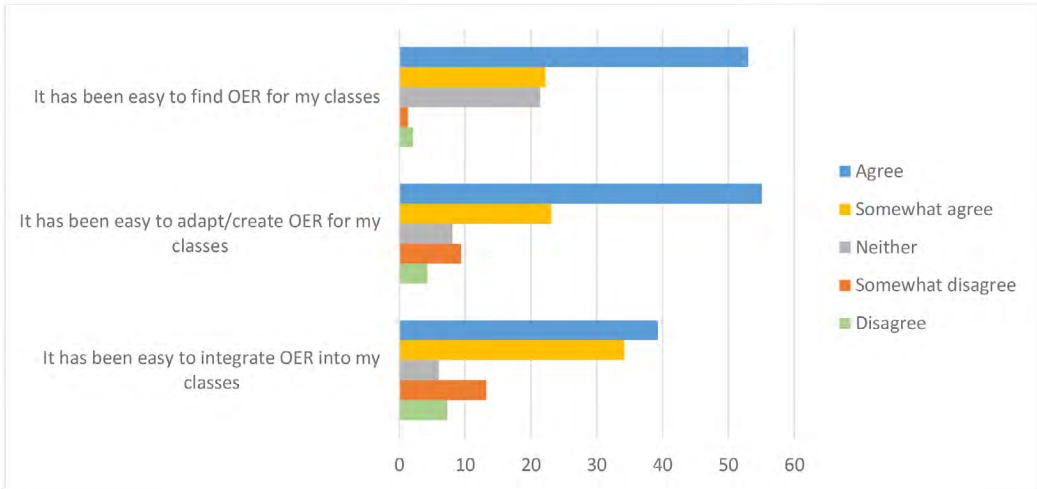


Figure 3. Survey responses for questions pertaining to Effort Expectancy related to OER

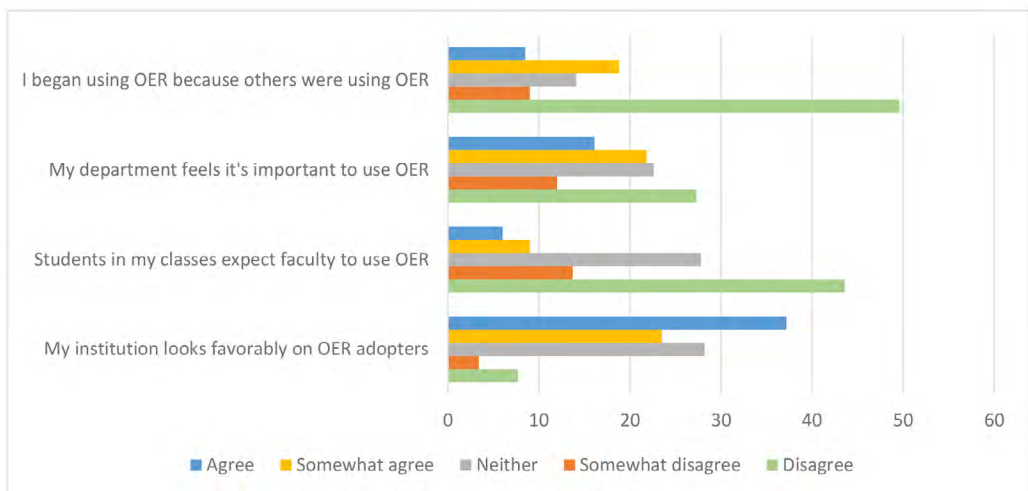


Figure 4. Survey responses for questions pertaining to Social Influence related to OER

Facilitating conditions. This construct refers to the amount of support an individual believes he or she will be given to use a new technology and the extent to which the new technology is compati-

ble with one's philosophy (Venkatesh et al., 2003). Though approximately one-third (34%) of respondents disagreed that campus guidance was provided when they began using OER, more than

half of respondents (57%) felt that guidance was in place on their campus (see Figure 5).

A greater number of survey respondents (65%) felt that campus resources were made available when they were ready to explore and implement OER. In terms of the survey respondents' belief that OER helped facilitate their instruction and were compatible with their instructional philosophy, data indicated strong agreement (82%).

Attitude. This refers to an individual's positive or negative feelings related to the technology (Yusoff, 2009). Respondents on the survey indicated that they somewhat to strongly agreed (92%) that sharing the OER they created was important (see Figure 6). They also indicated that they expected other faculty to equally share the OER that they created (90%). Slightly more than half (51%) of respondents felt that working with OER enabled them to pursue their research interest.

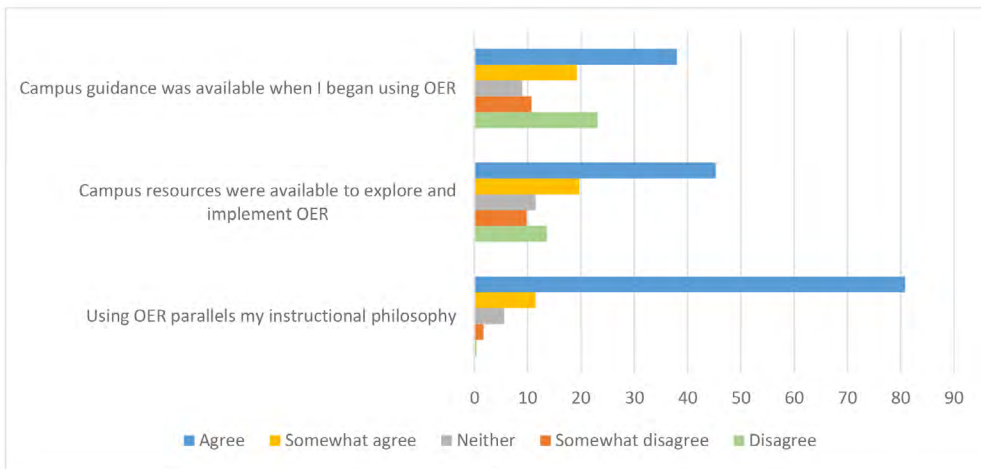


Figure 5. Survey Responses for Questions Pertaining to Facilitating Conditions Related to OER

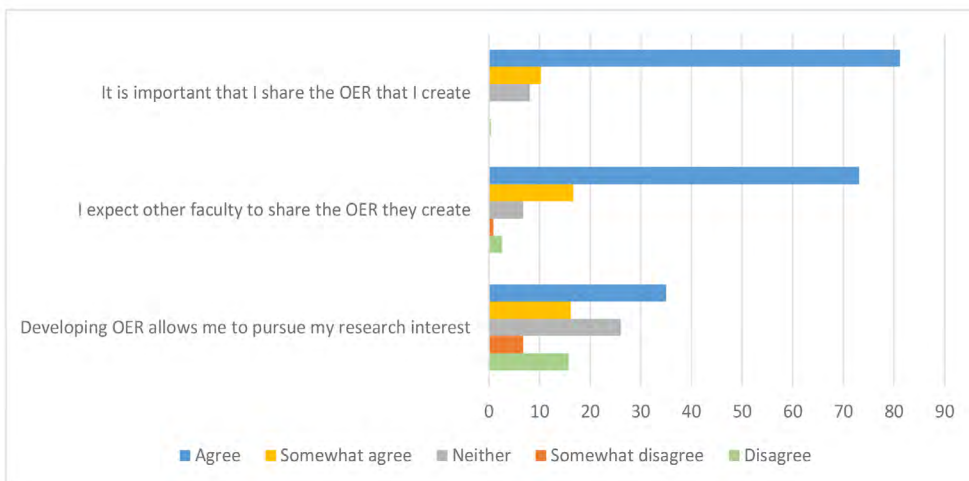


Figure 6. Survey Responses for Questions Pertaining to Attitude Related to OER

Technology self-efficacy. This construct indicates the confidence that is demonstrated in making decisions about the use of technology resources (Yussoff, 2009). For this study, self-efficacy applies to the skills needed to adopt OER, develop or modify OER, and apply the correct licenses to the resources. As shown in Figure 7, quantitative data indicated a self-reported high level of skill for adoption at the time they began using OER (83%). Currently, most faculty (90%) felt they had the technical skills for developing and modifying OER. Data also indicated a high level of understanding (90%) in the selec-

tion and application of the appropriate copyright licensing to the resources for distribution.

OER-enabled pedagogy. One survey question inquired as to whether participants were now or had ever applied OP in their courses. A brief explanation of OP was included on the questionnaire. Of the 234 respondents, 47% responded in the affirmative, with the remainder indicating they had not applied OP in their instruction (53%). Several open-ended survey questions followed, the data from which are explored in the qualitative section.

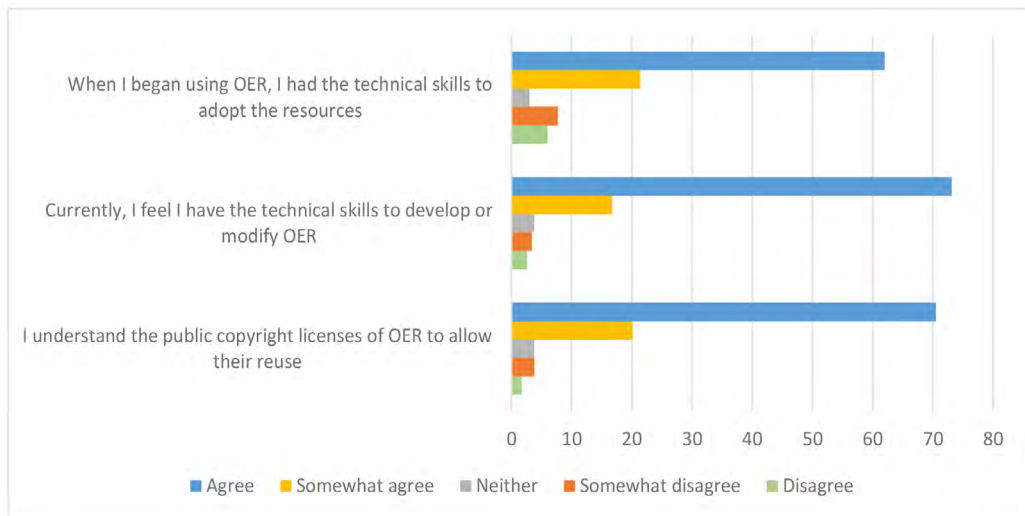


Figure 7. Survey Responses for Questions Pertaining to Technology Self-efficacy Related to OER

Qualitative Data

Qualitative data were collected from open-ended questions on the survey and from follow-up interviews. Approximately 90% of participants responded to open-ended questions on the survey adding to the qualitative data collected from 15 subsequent in-

terviews. Of the interviewees, 60% taught at community colleges with the remaining 40% teaching at four-year colleges and universities.

Performance expectancy. During the interviews, and as indicated on the open-ended survey questions, participants relayed that working with and us-

ing OER helped them in their job performance. A number of themes related to performance expectancy emerged from the data. These included (1) benefits to teaching and learning, (2) opportunities for personal and professional growth, (3) increased visibility and impact on reputations, and (4) encouraging institutional interplay.

Benefits to teaching and learning. Survey respondent open-ended data and interview data indicated three ways that participants believed OER benefited the teaching and learning process. These included providing better access to materials, reducing costs for students, and affording the ability of instructors to customize resources.

Most interview participants discussed the positive impact that their use of OER had on student learning. The fact that using an OER for a course provided instant resource access for students was very important for the interviewees. One participant mentioned that she covered a great deal of information in an undergraduate biology class and that having the OER textbook at the beginning of the course “is critical to [student] success because I don’t have enough time in class to go over every new term and every concept. So, I’m asking them to do the reading first before they come to class and then come to class prepared so we can go through things.” Another participant mentioned, “I was convinced that at least half of the class wasn’t buying the textbook before [introducing an OER]. So anecdotally, I think my students do better because they can access the text.” Discussions

of access also included the important American Disabilities Act (ADA) access provided through ADA-compliant OER and having access to OER formatted for multiple devices. One issue pertaining to access was that of limited Internet coverage in some rural areas of the United States. One participant shared that students “all have access at least while they’re on campus, but then there are the limitations when you leave campus. That’s why accessibility on various devices is really important.”

If the cost associated with textbooks is removed from the educational-cost equation for students, faculty and instructors viewed this as positive for the learning and teaching process and, in fact, some viewed it as a matter of social justice. When cost is removed, access is then immediate and provides support for student success. This concept was repeated numerous times in the open-ended data from the survey: “It allows students who are socially and economically disadvantaged to have the same chance as the rest of the students.” One participant indicated that because of the no-cost textbook he offers, “I keep more students in the class ... because the students at least have an opportunity to be successful ... just because the cost itself is less of a barrier.” Cost can be an extreme barrier in low-income areas. One interviewee shared, “We are low cost, open access, high, high, high poverty area here. It’s not everybody anymore, but I still think [our student body] is over 80% Pell Grant eligible.”

Many participants felt that their teaching was enhanced because they could customize—even immediately—

the resources in their courses by “building on the 5 R’s.” One participant spoke about “putting together lessons with just the right amount [of information] that added richness and quality material. This directly impacts the student experience because they can see, for example, a documentary that just came out yesterday in Spain.” Another shared that being able to customize the OER “... has given me more control on the content of the book by making it more relevant to the course, to my teaching, and the things I’m trying to emphasize in my teaching content-wise.” One participant also shared, “Too often textbooks drive the curriculum. By creating my own OER, I’ve been able to modify it to meet the learning goals set by our state and by our local population of students.” Many benefits were mentioned by participants in terms of the ability to customize an OER: an ease of editing as students gave feedback on the resource, which would promote ownership and empower the students to give informative feedback; the ability to add fresh, relevant information; putting the development of the content into the hands of experts – not publishers; the freedom to localize the content for relevance; a freedom from copyright restrictions; and the ability to add material in various formats to address different learning styles.

Provides personal/professional growth. Several of the participants were excited about the skills they were developing by tackling an OER project. One shared, “For me the value of [developing OER] is that it pushes me to extend myself beyond my comfort zone, so I can bring more information to my students. So, it benefits my learning as

well.” Another participant, discussing developing OER for an institutional program, said, “It was really a growth experience, you know. Communicating with the university for permission to use certain aspects of the university’s website, going to trainings for textbook creation. So that, I feel, was a great professional learning experience.” One participant commented about the experience of becoming a better teacher. “I think [developing OER] provides me the opportunity to be more engaged in the learning itself. I think it makes me, I hope, a much better instructor.”

Data indicated that professional growth opportunities open when faculty and instructors adopt teaching and learning with OER. Various opportunities were mentioned: becoming involved in a new research study; attending different conferences and workshops; becoming a new co-curriculum developer; taking on the role of liaison with administration; and becoming a campus lead in OER development. One participant shared, “I know some of my colleagues have been reluctant to try this on their own. But they see me working with OER and are inspired. Providing support for them has made me a better teacher, too.”

An overwhelming number of participants identified the importance of networking and collaboration as part of their personal and professional growth. One participant shared, “I think it’s nice to be in the OER community and talk to other people about what technology they’re using and how things are going and what topics they

are covering... It's been really positive for me professionally and really makes my job easier in the classroom." Another participant was very excited about the "... amazing Twitter and social media network of folks that are working in OER, and there's a constant river of information that I feel like I'm keyed into now that I wasn't before I was using OER." This type of connection can also produce collaborative works. One participant mentioned jointly developing material that later was adopted nationally and internationally. "It was not just collaboration. It was a genuine intellectual fusion where the sum was way more than any of the parts could be. My colleagues are very collaborative. ... Personally, it was very satisfying to me." This type of networking also allows faster access to resources.

Increases visibility and impacts reputation. Several participants felt that their professional reputation had been positively affected by their use of OER. However, one participant mentioned, "There's nothing that I've done that would warrant a reputation of some kind. I just do what I do because I love what I do." Another participant mentioned "the students feel that they are part of something new, and they're part of something exciting." In fact, some participants shared how their involvement with OER was viewed very positively by students. Another participant mentioned that "my students have become involved and will go by [other faculty's] offices and say, 'Hey, I've taken your course before. This was how the cost of the textbook was a challenge for me.'" Several participants mentioned

that their colleagues were impressed that they had applied for and received grants to develop OER. Several others also mentioned that their reputation was being enhanced because of their work with colleagues across their campuses. One participant shared, "I've actually had the opportunity to speak to people that I wouldn't have normally because I was advocating for OER." Other participants mentioned that their work with OER had been recognized by the administration on their campus. One participant shared that "there are many deans and directors and provosts, and now chancellors who know of me by name." Another participant explained, "... when our small department completed the [OER] textbooks, I feel like that's brought some degree of visibility to the department for the wider university. And then also some recognition, potentially, at the state and national levels for using this kind of innovative curricular [resource]." One other participant mentioned that, after developing OER for their department, they were able to offer "zero-cost" courses, which resulted in a rise in their enrollment. She shared that "this is very beneficial to our department ... bringing in more funds for the college so we can expand our program. I mean it's just a domino effect." Another participant mentioned that by sharing a collaboratively-developed OER that the contributors were able to "get their name on [an OER publication] that is out there beyond our walls here, which is really great. ... Usefulness, visibility, prestige. I think it's contributed all those things to our department."

Encourages institutional inter-play. The impact of offering OER can extend to a broader institutional level. One participant mentioned that their community college campus claimed to have saved students over \$200,000 dollars a term as a handful of instructors launched OER in their courses. This participant also shared that since launching OER, completion rates have risen. This can bring awareness and potential funding to support OER development. Another mentioned that he has concentrated on sharing his teaching resources through the college's learning management system. "This has benefited my school's relationship with the company that made the system. I've spoken at conferences and have helped my school become more connected to an online learning network of sharing."

Participants also discussed institutional recognition of their efforts developing and implementing OER. Findings indicated that there is no direct positive influence on promotion and tenure through OER involvement, though indirect benefits were mentioned. Participants at four-year institutions indicated they were not recognized formally in the promotion and tenure process. However, one participant mentioned the advantage of "being able to speak about [creating and promoting OER] as part of my teaching philosophy when I go up next for promotion." Another shared that "the OER movement has allowed me to become an OER Ambassador on campus and to participate in a state-wide program development project," which would enhance a CV. Others discussed indirect

ways that involvement with OER would be viewed positively by an institution: being able to speak about involvement during the hiring process; participating in OER-related committee work; completing certified workshop training; researching and publishing on topics related to OER; and creating and promoting newly-design curriculum using OER.

Effort expectancy. Participants also shared various aspects of finding, adapting, creating, and then integrating these resources in their practice. Themes that emerged from this data included that OER adoption and development are motivated by pragmatic factors, that the context strongly helps to determine the approach taken and the ease of adoption, and, finally, integration is not a difficult task.

Pragmatic motivators for adoption. It might be assumed that student savings is the sole reason that faculty and instructors would want to adopt OER, but the qualitative data revealed that other pertinent reasons exist: to reduce wastefulness; a dissatisfaction with department resource recommendations; a desire to create relevant material; and to share with a wider community. One participant mentioned a "growing dissatisfaction with rising textbook costs and the charges that go with it." This participant discussed a "textbook that was \$320 ... and the lab manual, that's another \$150 or \$180. ... And with new editions coming out all the time, and there's no change. That's just stupid. ... When I realized how easy open textbooks could be, I was like,

‘Just do it!’” A number of participants were very aware of the potential wastefulness when they required students to purchase a text and then required only a portion to be used. One discussed using a commercial textbook that was required by the department and “would tell my students, ‘This book is going to cost you \$200, and you’re only going to read ten or twenty percent of it. Sorry.’” One participant shared, “I had worked in business for years, and I had my own material that I had used as a consultant. My material was much more relevant to what students would need in the business world, so I just put together my own resource.” One participant shared that she became involved with OER when taking part in a project to develop an entirely new curriculum for the university. “These were new classes, and we decided to write the textbook specifically for the classes.” Another participant shared, “I transitioned to using OER when I began teaching online. It only made sense to me to offer my material online. I also wanted to share with everybody. Not just my students, but with a larger community. ... To me, that’s a big motivator.”

Context determines approach and ease of adoption. Insights from the interviews and open-ended survey data revealed that there were multiple approaches and varied phases as part of the adoption process. This was dependent on context and individual circumstances. Several participants shared that they enjoyed the process of finding OER that were available through repositories of open textbooks. “OpenStax is a pretty good resource, and they vet the

material. ... It’s the same kind of content and quality that you get with your traditional textbook. So that’s relatively easy to adopt.” Besides using a repository of vetted work, another faculty mentioned the importance of networking to find resources by “either going through the conferences [for resource recommendations] or talking to other people. Going to statewide meetings. Identifying experts and contacting them for ideas.” One participant, who had created their own OER in the past, shared that now, “I spend a lot more time searching than I do creating. It’s not less effort, but it’s different. It seems like a more reusable effort ... because I think we duplicate a lot.”

Regarding adapting and creating OER appropriate for a course, participants indicated that the effort varied with the circumstances. One shared, “With no textbook available for this lower division class, no open material in that field, ... it’s been a real challenge to bring that course up to a similar standard [as my other class] with OER.” One participant was an experienced teacher and shared that she had a lot of material that had been created over the years but experienced a different challenge when, along with a colleague, they tried consolidating their material into one text: “The content was not the issue, but learning how to put that all together and create the flow and consistent language. We ended up having to bring in an editor to kind of look at the finished product and polish it for us.” Many participants shared that creating their own OER was time consuming, and at times, there was a steep learning curve.

One participant reported working on a basic public speaking text and shared, "... the creation of a textbook like that - 15 chapters, over 400 pages, desk-top published, Creative Commons license - is EXTREMELY time consuming, and I don't know if I'd recommend it." She did continue to share that "... the book has been used in 12 other institutions that I know of and has been downloaded 14,000 times," which was rewarding. Another participant shared that most instructors "have the experience of creating ancillary material, so creating OER is just an extension [of this experience]."

Integration not difficult. One participant felt that introducing a new OER text into instruction was "similar to integrating other commercial material." However, another felt that integrating OER was emotionally easier because it hadn't involved a large financial investment, "I didn't have to adopt it and get the students to buy it and then discover it wasn't working well. ... and I could change it as we went along." One participant mentioned that, regarding maintaining one's own online resources as opposed to trying to stay abreast of changing commercial textbook versions, "has been more consistent for me than [using commercial] textbooks. It's less work maintaining. More work setting up, but less work maintaining," in the end saving time. Another participant commented, "Oh, it's a lot of work, not difficult, but a lot of work ... but it should be a lot of work ... to find and to integrate anything new into your classes. That's what we do."

Social influence. Interview participants and survey respondents reflected on a variety of social influences that led them to adopt OER. This social influence could come from colleagues, the open source community, the culture of their institution, or empathy for students.

Some of the participants relayed that they had been influenced to adopt OER because of colleagues, especially in their departments, though not by the department administration. One participant shared that their English "staff was so enthusiastic about [using OER] and pitching it, we unified together and presented [the idea] to our department." One participant mentioned being inspired by the open source community, while several others indicated that they were hired into new positions where there was already a culture of using OER and cited institutional support as the main influence in their use of OER. Some of the participants felt that they were influenced by their own frustration as students, as they had struggled with the cost of schooling. One shared a story while being a student, "... no small part of [being influenced to use OER] was the fact that I was like some of these students. I'm a first-generation college student. I come from a single parent household, and a pretty troubled one at that, so when I went to college, it was kind of sink or swim. There was no support. There were some semesters where I was actually homeless, and it was a big challenge getting through college. ... So, I think we need to be doing better for our students."

Facilitating conditions. Data were collected regarding both the organizational infrastructure available to support adopting OER as well as the compatibility with instructional philosophy. Participants shared information that evidenced two main themes related to facilitating conditions: 1) providing support leads to results, and 2) the use of OER reflects teaching philosophy.

Providing support leads to results. Although two of the participants shared that they had begun work with OER very early on, when no formal support was provided, the overall data showed that currently support exists through various means at most institutions. Several universities organized presentations about OER use. At one campus, a special technology unit exists that began to encourage OER development. Having the support from this unit made the difference in one participant's experience with OER: "So I tried OER on my own like three years ago, and on my own I kind of failed. Then the next year, I applied for something called FITC, an institute of technology ... helping faculty stay current in technology. There's a big emphasis for OER, and I had the opportunity to then become an OER Ambassador." Some institutions offered special programs like the OER Ambassador program or a special Pathways Program that supported developing OER material. Several participants shared that their institutions had a dedicated librarian or some form of library support for OER. Another participant spoke about one of their librarians. "Besides the state-wide initiative, we've had one digital initiatives

librarian with a huge interest in [OER]. She's the liaison who manages [our efforts], who helps us through the process and kind of shepherds us, and then she also is the person who will help us with updates." Data indicated that some form of grant program was offered at a number of institutions. Grants took a variety of forms in the different institutions: stipends were made available for faculty interested in modifying courses to incorporate OER; specials grants for the creation of new OER; professional development grants for conference attendance; salary supplements for introducing OER; special grants for formal research on OER; small grants to review Open Textbook Network material; grants for upkeep and maintenance of previously-developed OER; and grants offered through student organizations providing iPads. Other participants suggested that they felt they were indirectly supported at their institutions by not being deterred from experimenting with OER. One participant admitted, "Other than the grant, it was mostly just not getting in my way, that they supported the idea that I was going to adopt a book that I was writing ... and were also very happy with the cost." Finally, some participants indicated that they worked in institutions in a state that had organized state-wide OER initiatives, which in turn have promoted both grant programs and state-wide conferences supporting OER adoption and development.

Use of OER reflects teaching philosophy. Many participants shared that adopting and creating OER was a direct accompaniment to their instructional

philosophy and helped to facilitate their instruction. One participant shared that “I teach my classes as storytelling classes, with the idea that the students tell their own versions of the stories that we’re reading in classes. So, it’s a remix ... as students are working with public domain material. It’s ready to be reused and remixed in whatever ways they want to do that.” Another shared that using online information “allows us to consider origin, to understand authorship, and to understand ownership ... and starts a whole new conversation.” Three different participants mentioned their collaborative approach to instruction. One specifically mentioned how the use of OER could model a constructivist philosophy to teaching: “So, I like to watch students building their own knowledge, and I think it can be helpful for them to see that I’m actually building the knowledge that we use in class as well.” Several participants felt that the flexibility of revising OER supported their approach to instruction as it helped them make the material relevant and localized and helped to promote engagement. Finally, a number of different participants mentioned that OER and open practices supported a larger philosophy about education. They spoke about the right that every person should have to an education.

Attitude. Data collected for this construct indicated two themes: satisfaction was derived from working with OER and there was an overwhelming sense that sharing of resources was positive.

Derive personal and professional satisfaction. Many participants

expressed some form of satisfaction in working with OER. Some mentioned that working with OER was fun and challenging in a positive way and that being an author was rewarding. One mentioned the pleasure in “taking satisfaction in the fact that money isn’t going to Pearson and McGraw.” Several participants felt they were a part of a larger, more important movement to support students. One stated, “I think it’s exciting to be a part of a team. Working with something that is free to the students. I think it’s exciting to be part of something new.” A good number of the participants felt that great satisfaction was gained because students were being served better as the result of the use of OER. Another participant expressed a frustration that often undergraduate textbooks weren’t written for a student newly entering the community college environment. “The assumptions about 18-year olds in [commercial textbooks] is pretty different. So, finding a textbook that I could edit to make relevant to my students ... has been really satisfying—to find things that work for them.” A number of participants mentioned that the ability to edit the textbook was very satisfying. One also mentioned that “If you’d told me 25 or 30 years ago that I would be able to spend my time reading 16th century books that I can get for free online, and then repurposing them and sharing them with new audiences, I wouldn’t have believed it. It’s incredible!” Several participants shared how working in OER supported their research efforts. Several were conducting OER-related research in their classes. Participants also mentioned the per-

sonal satisfaction that comes with the ability to share. One participant agreed that it was very satisfying to have your work “adopted by faculty across the nation and into Canada. So, I feel like maybe I’ve gained a little prestige, professionally, in the sense that I kind of feel like this important author. People are using my work across the country in their classrooms. And people email me, “This is great. Thanks for putting this together.”

Sharing supports global progress. Much of the data indicated a very positive attitude toward sharing resources. Evidence of this came from one participant discussing how a colleague in another state requested instructional material. The participant shared, “... anything I have, I’ll share. So, I ended up sending her all of my exams, and quizzes, and all of my lab activities. So, it just seems like we faculty keep having to reinvent the wheel because we’re working in these little islands, or silos. I mean, the more we share, the more streamlined this process gets - and easier. It becomes more globally collaborative.” Another participant mentioned the transition to feeling comfortable in sharing. “I worried just a minute that [sharing work globally] would undercut my own research or might give away ideas ... but now that I’ve had some experience with it, I’ve only had positive experiences in sharing information. ... And then you get these amazing threads of amazing people that link to all the work that’s available for free from researchers that they love.” Several participants discussed how working and sharing online pro-

notes greater exposure of work, which can sometimes be uncomfortable. One participant, while sharing work at a conference, was somewhat unnerved by what was perceived as harsh criticism of the OER being presented; however, most respondents felt similarly to one participant: “For me the sharing has been great. Once again, it’s a personal thing, but also a professional thing. I really believe in networked learning, networked knowledge, and so by sharing my stuff, I’ve been able to build a really important personal network of people that I collaborate with, that I can ask for help, that I feel connected to through the material that we work on.”

Technology self-efficacy. Data were collected regarding to what extent faculty and instructors believed in their ability to be successful working with OER. Two themes emerged from the data. First, technology skills are important. Second, you need knowledge of the licenses in order to make resources openly available.

Technology skills important. Participants generally felt that they were technology savvy. However, one participant, who was adopting an OER, admitted, “I don’t consider myself tech savvy at all. ... having a supportive library staff helps [finding material]. But I don’t think I needed the skills that I thought I needed to be able to find these [resources].” Another admitted that “I think I’m fairly tech savvy, and it was pretty easy for me to understand and to put a lot of this [OER] together, whereas my co-author was not as savvy. And I think she felt more challenged by it. But I don’t

think that should be a reason not to do it because there are lots of resources to help people with the technical aspects.” This participant also admitted appreciating the “help of the digital initiatives librarian, who made the process easier.” Another participant admitted, “In terms of barriers to OER, [tech skills] can be a big one.” The aspect of technology also extends to students who will be using the OER. One participant advised that instructors need to consider how students will be using the OER: “... if I’m not explicit, I spend more time answering technical questions about how to access [the OER] than I do about the content of the text.”

Need knowledge of licenses.

Most participants were aware of Creative Commons (CC) licenses that are applied to OER. One participant admitted that “Until I started doing this, I didn’t really have a full comprehension of the differences in the licenses and how to give attribution. I do understand them now, but I don’t understand why ... some people don’t want their material changed. Do they really understand the license? You should be able to use the resource in the way that you need to for whatever you’re teaching.” Another participant spoke about how the concept of CC licenses was “really foreign” and “we’re going to have to do some work on [learning about CC] because we’ve been so scared of violating copyright throughout our careers.”

OER-enabled pedagogy. Qualitative data for this topic were collected from open-ended survey questions and from interviews and helped to identify cer-

tain themes in this area. These themes indicated that OP could be realized in many ways and there were benefits in teaching and learning; however, there also were obstacles in applying OP

Realized in many forms. Data revealed many different types of activities that participants identified as OP. Examples included student-created lessons, study guides, full sections of the curriculum, glossaries, bibliographies, chapter introductions or whole chapters, and supplemental practice problems to support texts. The highest number of OP activities centered around student-generated content for wikis, blogs, and webpages, followed by student-selected articles and material to be incorporated into a course. Three participants shared that their students had created an entire OER. One participant indicated that “under my supervision, students in my classes created a history of psychology textbook.” Several others mentioned students developing banks of quizzes and study questions to incorporate into courses. One participant mentioned how frustrating it was not to find OER for a behavior analysis course that then prompted an OP approach to the problem. “So, I walked into my upper division behavior analysis course—with seniors and graduate students—and I bring in copies of different texts and say, ‘Let’s talk about OER, you guys. Let’s talk about this. I want you to read this and tell me what you think.’” Students ended up working on a Psychology 400 OER for future classes. Another participant mentioned having students “write additional sections [of the course textbook] that they felt would be target-

ed to community college students and creating local guides to go with [the textbook].”

Benefits to teaching and learning. Just as was realized in the findings regarding the benefits of OER, the application of OP benefits both teaching and learning as well. Many participants commented that they felt the OP approach increased student engagement and motivation. This realization provided the motivation for them to experiment with OP. Many other participants felt that students took more ownership of their learning and felt like they were building a learning community when involved with OP. One participant shared, “[Students] act like experts, responsible for their own education and learning.” Another participant shared an additional benefit: “[Creating OER] gives them a practical or tangible artifact that represents an outcome instead of saying, ‘We’re just going to learn about this.’ They have something they created that they can use again and that they have ownership of, basically.” Another participant shared, “It’s just been a wonderful experience all the way around, not only because [students] become authors and they get to demonstrate their competence in a particular topic, but because they see that in actual practice [creating information] gets messy. It’s a real-life experience.” This same participant also shared how applying OP is basic to teaching philosophy. “For me it’s a philosophical position I’ve always held ... that idea of student-centered learning. The students should ask the questions. The students should find the answers; we’re just here to facilitate

that process. So open pedagogy and the fact that we can have these information networks now allow me to implement the philosophy that I’ve had all along about teaching, that in a classroom is so hard.” Finally, one participant shared, “The earlier that students understand that they are a part of the academic conversation, that their voices are of value and a worthy contribution, the better students they become and ideally better citizens.”

Obstacles in applying OP. Data shed light on some of the frustrating aspects in implementing OP. One participant shared that “[Students] seem more engaged with [OP] but also sometimes more frustrated because it is not as cut and dried as a regular type of assignment.” Another indicated, “At the undergraduate level, I find students very intimidated by open pedagogy. It has been a learning experience for me to adjust assignments that account for the intellectual confidence levels.” Another participant also disclosed, “I think it has made them more interested, but also a little bit more frustrated because it does require them to work a little bit harder; however, once given guidance and allowance to make mistakes, each [student] found value in the process.” One participant also discussed one aspect of the process: “... in part about me becoming comfortable with letting students try to be the authors, to try to be the creators.” Other participants reflected on why they haven’t become involved with OP: the logistics would be difficult; not wanting to single out particular student work to include in OER; the curriculum is too tight; the desire

for a very concise textbook; and the fear that it would take a lot of extra preparation. Finally, one participant felt the pressure from administrative economic concerns: “Trying open pedagogy for the first time can lead to frustration ... and as long as we’re in the era of declining enrollment and declining funding, there’s a lot of pressure for certain metrics, like completion retention, and so experimentation in teaching can be hard to do in that climate.”

Discussion

This research explored various factors influencing faculty adoption and application of OER and OER-enabled pedagogy in instruction. It is organized through, but not limited to, the UTAUT framework in order to provide a structure for reflecting on the data by examining the expectations for performance and effort, social and institutional influences, as well as attitude and the types of technology skills supporting OER and OP application. These findings are important in that they illuminate various facets of an instructor’s path through the process of selection, adoption, creation, and application of OER. A small number of studies have utilized a technology acceptance theoretical framework with which to study instructor perceptions and acceptance of OER (Kandiero, 2015; Kelly, 2014; Mtebe & Raisamo, 2014a) and even fewer have focused on factors motivating the adoption of OER from the perspective of faculty who have already adopted OER (Coleman-Prisco, 2016). This research is fairly unique in that it

surveyed faculty and instructors who are already using OER, from the perspective of a technology acceptance theory. Data are also unique in that they give insight into the on-the-ground application of OP, prompting a deeper reflection on this process. As in the Coleman-Prisco (2016) study, data from this research indicate that supporting students is one of the main motivating factors spurring faculty to adopt OER and OP. Data reveal the importance of personal and professional growth and of networking for faculty and instructors through engaging in open education. Findings also indicate the need for careful thought and planning in terms of instructional context and student experience in higher education when applying OP.

Performance Expectancy

This research indicates that performance is enhanced by using OER. Faculty and instructors feel that using OER benefits their instruction as well as the learning outcomes of their students, which is congruent with other research in this area (Coleman-Prisco, 2016). Qualitative data identified issues that enhance performance: immediate and multiple ways that students can access learning material; reduced textbook costs to provide equitable access; and the ability to customize material. These all enhance the teaching and learning experience. In regard to access, cost, and ability to customize OER, other research has indicated similar results (Chae & Jenkins, 2015; Hilton III, Robinson, Wiley, &

Ackerman, 2014; Jhangiani & Jhangiani, 2017; Lashley, Cummings-Sauls, Bennett, & Lindshield, 2017; Seaman & Seaman, 2017).

Qualitative data further revealed that many participants, especially in the interview research, felt very positive that working with OER provided opportunities for personal and professional growth, including interfacing with new colleagues and administration. This finding does not easily connect with current research. Belikov and Bodily (2016) did, however, report that a small percent of faculty had indicated that various pedagogical benefits would motivate them to investigate OER. Though research has indicated that seeking prestige is not a motivator for adopting OER (Van Acker et al., 2013) this research finds that a large majority of faculty and instructors do feel that their work in open education has increased their reputation. However, previous research has indicated much lower agreement (Hodgkinson-Williams, 2010; Sclater, 2010). Regarding benefits for promotion and tenure, these data do not indicate that there is a strong, direct benefit as a result of working with OER or OP. This is consistent with other research. There is little empirical work that explicitly addresses this issue (Thoms, Burns, & Thoms, 2018), though limited research has indicated a disconnect between the value assigned to open scholarship and institutional policies (Jhangiani et al., 2016; McKiernan, 2017). Data from this research provide a rich context for personal and professional growth and the interplay between the individual and the institu-

tion, which reflect on performance expectancy.

Effort Expectancy

Findings in this construct indicate that there are multiple and pragmatic motivators for faculty and instructors to embrace OER adoption, with varying levels of effort. Data reveal that it is often the instructional context that determines the best approach to adoption and the ease of execution. This study's qualitative data provided a good sense of the actual effort and process of finding, adopting, creating, and integrating OER. Interview data revealed that finding appropriate material is fairly easy, while creating material is much more challenging, though rewarding. The integration process mirrors the integration of any new material and is considered an integral part of instruction. These findings are consistent with findings from similar studies that have focused on the potential effort in adoption of OER (Anderson et al., 2017; Dulle & Minishi-Majanja, 2011; Mtebe & Raisamo, 2014b; Percy & Van Belle, 2012) but with the difference of providing more in-depth reporting of qualitative data.

Social Influence

Findings indicate that various types of social factors influence the adoption process: via colleagues, departments, students, and the institution. Respondents in this research indicate collegial influence in approximately a quarter of the situations. Survey data

also indicate the influence of departmental support at a rate greater than from institutional support in this study, with less support indicated through the interviews. Though other research has indicated the hypothetical importance of collegial and departmental support (Coleman-Prisco, 2016; McKerlich et al., 2013) research indicating actual support is not evident. Both quantitative and qualitative data from this study indicate that the influence from student expectations is small, and little research has been conducted supporting this aspect of social influence. Two exceptions are related studies that indicated students viewed those faculty using OER much more favorably than those using a traditional textbook (Vojtech & Grissett, 2017) and a recent study that indicated students felt teachers should freely share their teaching resources (Pound & Bostock, 2019). However, the qualitative data indicate empathy for students is a motivator, which appears to be based on participants' experience as students. The assumption of a positive institutional perception of those using OER is reported by more than half of the survey respondents though this perception isn't as evident with interview participants. No outside research was found to substantiate these findings.

Facilitating Conditions

Institutional support appears to be in place in over half of the institutions represented by survey respondents. This is not consistent with current research on the extent of actual institu-

tional support, which has indicated that funding still needs a wider support base (Cox & Trotter, 2016; Dutta, 2016; McGowan, 2019). This finding is logical, however, because the current study examines the institutional influence on subjects who are actually using OER, while other research has focused on the projected needs at the institution to support OER development. Recent research by Maina, Santos-Hermosa, Mancini and Ortiz (2020) also indicate the need for both specific training and for institutional support in order to succeed in the implementation of OP. Regarding the data relating to the compatibility of OER use with instructional philosophy, a large percent (82%) of survey participants report this alignment while all the interview data support this concept. It was difficult to relate these concrete findings to other research, which has dealt with more general philosophical exploration of "openness" (Deimann & Farrow, 2013; Jhangiani et al., 2016; Wiley, 2006), as the context of this research is on those who have already adopted OER.

Attitude

This research data indicate a strong belief in sharing the work that is self-created as well as the work of others. These findings are consistent with some research on sharing (Schuwer & Janssen, 2018; Tillinghast, 2020; Tseng & Kuo, 2013), though other research has indicated a lower rate in the belief of sharing (Banzato, 2012; Van Acker et al., 2013). Data also indicate that working with OER fosters

the opportunity to pursue research. In addition, the qualitative interview data reveal that faculty and instructors, who work with OER and OP, derive personal and professional satisfaction in doing so. This has been evidenced in prior research as well (Rolfé, 2012).

Technology Self-efficacy

The quantitative and qualitative data are in alignment for this construct: technology skills are needed, especially for developing and modifying OER. In lieu of individual skills, technology support needs to be available. Findings from this study are congruent with other research, which has found that individuals with a higher overall sense of computer efficacy are more likely to find OER easy to use (Kelly, 2014) and that adequate technology skills can be a barrier to OER development (Muganda, Samzug, & Mallinson, 2016). However other recent research counters this assumption, indicating no significant difference between users and nonusers of OER in the degree of comfort with technology (Hassall & Lewis, 2017). An inadequate knowledge of copyright and licensing for open material can also be a barrier to adoption. This research indicates that respondents are fairly well-versed with licensing of OER. This is most likely due to the fact that all participants are involved in some aspect of OER and OP; however, current research has indicated a need for faculty and instructors to more fully understand copyright and CC licensing in order to promote OER development (Hassall & Lewis, 2017; Muganda et al.,

2016; Paskevicius & Irvine, 2019; Seaman & Seaman, 2018). One finding that emerges from this research is that faculty and instructors need to be aware of how their students will interface with the OER. Some students struggle with the technology needed to access and manipulate the resource, while other students may experience restrictions to accessing computers and the Internet. While the latter finding has been indicated in other research (Ally & Samaka, 2016; Liebenberg, Chetty, & Prinsloo, 2012), the former does not appear to have been addressed in the literature.

OER-enabled Pedagogy

Quantitative and qualitative data are not parallel for this topic, as the quantitative data indicate a higher experimentation and use of OP than is evidenced through the qualitative data. It became clear when reviewing the open-ended data on the survey that a number of participants were conflating OP with the use of OER in their courses. This would account, in part, for the different proportion of individuals on the survey claiming to have used OP in their instruction. The concept of OP is in alignment with ideas presented by some of the current scholarly discussions promoting the development of new pedagogical methods that enable transparency, communication, and engagement (Dalsgaard & Threstrup, 2015). This is congruent with some research that found that educators using OER and OP felt they were agents of change and innovation (Paskevicius & Irvine, 2019; Pitt, Jordan, de los Arcos,

Farrow, & Weller, 2020). Nascimbeni (2020) explored the competences that university educators should master for open and networked teaching. He indicated that educators aren't required to master new competences but rather adapt their teaching strategies to collaborative learning settings (Nascimbeni, 2020). Finally, the current research is also consistent with other research in that some participants felt that by using OER they were stimulated to bring about changes in their teaching role and to explore other avenues of openness in their pedagogical approach (Nascimbeni & Burgos, 2019; Tur, Havemann, Marsh, Keefer, & Nascimbeni, 2020).

This research captures the excitement and positive outlook of others who are experimenting with OP and who believe that engaging in this approach to pedagogy and shifting to a student-centered approach can help to equip students with the necessary skills to live and work in an open world (DeRosa & Robinson, 2017; Hilton III, Wiley, Chaffee, Darrow, Cuilmett, Harper, & Hilton, 2019; Masterman, 2016; Tillinghamst, 2020; Woodward & Kimmons, 2017). Contemporary educators can help to prepare students to become engaged learners, learners who are knowledge producers and not just knowledge consumers (Nascimbeni, 2020).

Implications

Findings from this research have helped to shed light on the actual use of OER and application of OP in various institutions across the U. S. Findings have also exposed new lim-

itations of practices as well as reemphasized limitations that have been brought to light in prior literature. These limitations have implications for future OER and OP experimentation and development. The implementation of OER and OP can be realized either through a top-down institutional approach or through a grass-roots approach. In either case, having a champion is imperative—a committed faculty member or department, a librarian, an instructional designer, a committed administrator. This research indicates that personal and professional growth is an important motivating factor in adopting open practices. Workshops that emphasize professional development, student success, and research possibilities might assist in laying the groundwork for open practices. Networks found on campus, within institutional systems, and beyond help to provide support for OER development and interested instructors and faculty should be made aware of these. Networked connections in terms of supporting organizations such as the OpenTextbook Network, the Rebus Community, and the Scholarly Publishing and Academic Resources Coalition (SPARC) organizations provide another source of support. Technology support is critical and could include support in locating resources, adoption, adaptation, creation, and integration of OER, as well as untangling the nuances of copyright and licensing. Though not documented empirically in the literature, this research indicates that intentional or state-wide support especially encourages the development of OER through grant programs and stipends.

Institutions need to rethink promotion and tenure practices to be inclusive of work happening around open practices. Data drive many institutional initiatives, so institution-specific research needs to be conducted in order to frame development at a specific institution. These data could then be shared with the larger community to support more global efforts. Finally, the concept of open practices, with implications for pedagogical exploration, needs on-the-ground research if practical application is to be realized.

Limitations

It is recognized that a small sample size will affect the generalizability of the findings (Leung, 2015). However, the methodology for this research was well documented in support of easy replication in order to boost reliability. Bias is always a possible factor when a single researcher is responsible for interpreting the data (Bryman, 2012). By requesting feedback from colleagues involved in OER research, by striving for the highest ethical standards, and by employing member check of interview transcripts, bias has been kept at a minimum (Bryman, 2012). It is also recognized that data collected in this research were self-reported, which may not necessarily reflect reality (Roth, Ogryn, & Schmitz, 2016). In addition, the sample for this research was made up of faculty who had been identified by colleagues as individuals involved with OER or OP, faculty who could provide information-rich data. This research used a purposive sampling approach,

one without an underlying probability-based selection method, which, therefore, limited generalizability, while at the same time providing unique and rich information of value to the study (Etikan, Musa, & Alkassim, 2015). Finally, it must be acknowledged that volunteer bias may be evident in this research: those interviewed were volunteers who had indicated a willingness to be interviewed when responding to the survey. Full-time instructors or faculty were sought for this research. These individuals might be different in some systematic way from others who did not volunteer.

Conclusion & Future Research

This study employed an explanatory sequential mixed methods approach, drawing upon survey and interview data from instructors and faculty, who are using OER or OP, in order to fill a gap in the literature and potentially provide a deeper understanding of the context for adopting OER and implementing OP. Findings have provided information for institutional policy and program development in support of OER and OP implementation.

One factor that motivates the use of OER stands out above all others in this research: faculty and instructors are motivated by the desire for their students to succeed. One faculty member shared, “If we’re serious about student success, and we’re very serious about increasing inclusivity and access for our students, we can’t be relying on things like financial aid, because that’s a terri-

ble, terrible misnomer. We need to be very careful about how much we're asking them to pay for things, and whether we can give them open resources." Another factor sheds an interesting light on the impact of using OER. Many interviewees, who started out exploring the use of OER to specifically help their students, now report wanting to share their OER beyond their students, by providing their material to a larger audience. What may start out as a small step can expand into a global leap.

Participants reported that their plans included creating more open material, both on their own and in collaboration, with a few expanding to experiment with OP. Many reported wanting to convert all of their courses to use OER. Some are inspired to conduct research around OER and OP, and numerous responses indicated a desire to reach out to colleagues to encourage these open practices.

Future research could include additional studies employing a technology acceptance model or perhaps other adoption models to frame the study of OER and OP application. It would also be informative to compare adoption rates and practices in areas with state-

wide initiatives with adoption rates and practices in those states where no such programmatic approach is in place. An in-depth focus on very specific technology needs for adopting, creating, and implementing OER could also benefit institutions developing an institutional OER initiative. Finally, using an OER-enabled pedagogical approach to instruction is in a nascent state, and on-the-ground and in-depth research, from both faculty and student perspectives, is needed to more fully explore the potential of this pedagogical shift. As Wiley and Hilton (2018) have indicated, "As faculty come to understand that OER allows for the benefits of open pedagogy, the adoption of OER will significantly accelerate," (p. 144) which, in turn, will impact education for learners everywhere.

Acknowledgements

I would like to acknowledge my dissertation advisor, Dr. Christine Sorensen-Irvine, for her guidance and review of this research. I would also like to acknowledge and thank the participants who took the time to contribute to this research.

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APPENDIX A

Online Survey

Aloha! My name is Beth Tillinghast, and I am inviting you to take part in a research study. I am a PhD student at the University of Hawai'i at Mānoa (UHM) in the Learning Design and Technology Department as well as a UHM Librarian working in the area of Scholarly Communication. As part of the requirements for earning my graduate degree, I am conducting research in the area of Open Educational Resources (OER).

What am I being asked to do? If you agree to participate in this project, you will be asked to fill out an online survey.

Taking part in this study is your choice. Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you. Your choice to participate or not to participate will not affect you.

Why is this study being done? The purpose of this project is to understand the various factors that have motivated faculty to adopt OER and possibly to apply OER-Enabled Pedagogy in their instruction. A number of studies have been conducted of faculty who might be thinking about adopting OER, but very little research has been conducted in regard to faculty who have actually already adopted OER and who are using it in their instruction. I am asking you to participate because you have been identified by one of your colleagues at your institution as someone who has adopted and is using OER.

What will happen if I decide to take part in this study? The survey will consist of around 30 multiple choice and open-ended questions. It will take approximately 15 minutes to complete. The survey questions will include questions like, "What type of OER have you used in your classes?" or "Have you applied Open Pedagogy in your classes?" The survey is connected to this consent form. By reading this form and moving on to the survey portion, you are acknowledging consent to participate.

What are the risks and benefits of taking part in this study? I believe there is little risk to you for participating in this research project. You may become stressed or uncomfortable answering any of the survey questions. If you do become stressed or uncomfortable, you can skip the question or take a break. You can also stop taking the survey, or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in this survey. The results of this project may help to inform and possibly promote further OER and OP development.

Confidentiality and Privacy: You will not have to provide any personal information, such as your name or email address. You will be invited, but not required, to contact me through my email address provided at the end of the survey if you would like to be contacted for a follow-up interview as part of the research project.

I will keep all study data secure in a locked filing cabinet in a locked office/encrypted on a password protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Compensation: There will be no direct compensation for participation in this survey research.

Future Research Studies: Identifiers will be removed from your identifiable private information and after removal of identifiers, the data may be used for future research studies or distributed to another investigator for future research studies. We will not seek further approval from you for these future studies.

Questions: If you have any questions about this study, email me at [betht@hawaii.edu]. You may also contact my faculty advisor, Dr. Christine Sorensen, at [sorens@hawaii.edu]. You may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu to discuss problems, concerns and questions, obtain information, or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit <http://go.hawaii.edu/jRd> for more information on your rights as a research participant.

To Access the Survey: Please continue using the *Next* button below. By continuing, you are giving consent to participate in this study.

Please print or save a copy of this page for your reference.

Mahalo!

Please tell me a little about yourself by answering the following questions.

1. At what institution do you mainly work?

2. How many years have you been teaching?

- Less than 1 (1)
- 1 to 3 (2)
- 4 to 6 (3)
- 7 to 9 (4)
- 10 to 15 (5)
- 16 to 20 (6)
- More than 20 (7)

3. How many years have you been teaching using OER?

- Less than 1 (1)
- 1 to 3 (2)
- 4 to 6 (3)
- 7 to 9 (4)
- More than 9

4. How many years have you been teaching using OER-Enabled Pedagogy?

- Less than 1 (1)
- 1 to 3 (2)
- 4 to 6 (3)
- 7 to 9 (4)

- More than 9
- N/A

5. What is your tenure status?

- Tenured (1)
- Tenure track, not tenured (2)
- Not tenure track (3)

6. What is your age?

- Under 35 (1)
- 35 - 44 (2)
- 45 - 54 (3)
- 55 + (4)

7. What is your current status?

- Full-time faculty (1)
- Part-time faculty (2)
- Adjunct instructor (3)
- Other (4)

8. What level of courses do you teach?

- Undergraduate (1)
- Graduate (2)
- Both undergraduate and graduate (3)

Please select the most appropriate response to the following statements.

9. Using Open Educational Resources (OER) have benefited me in my instruction.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

10. Using OER in my classes has increased the learning outcomes of my students.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

11. I believe that my academic reputation has been enhanced because I am using OER.

- Strongly agree (1)
- Agree (2)

- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

12. Using OER has been advantageous in the promotion and tenure process.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

13. Which approach, repository, or software have you used to provide OER for your students? (Please select all that apply.)

- Added OER materials to the Learning Management System (1)
- Pressbooks (2)
- OpenStax (3)
- Open Textbook Network (4)
- MERLOT (5)
- Created my own OER (6)

Other (7) _____

14. What type of OER have you used in your classes? (Please select all that apply.)

OER textbooks that I have downloaded from a site like OpenStax or Open Textbook Network (1)

Scholarly articles that have been published in Open Access journals (2)

Materials that I find freely on the Internet (3)

YouTube Videos (4)

Materials that I have created (5)

Materials from open courseware sites (6)

Other (7) _____

15. It has been easy for me to find appropriate OER material for my classes.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

16. It has been easy for me to adapt the OER material that I have used for my classes.

Strongly agree (1)

- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

17. It has been easy for me to integrate OER into my classes.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

18. I began using OER in my classes because others around me were using OER.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)

Strongly disagree (7)

19. My department considers it important that faculty use OER.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

20. Students taking classes in my department expect faculty to use OER in those classes.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

21. My institution has looked favorably on me because I adopted OER.

Strongly agree (1)

Agree (2)

- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

22. When I began using OER in my teaching, guidance was available on my campus to provide assistance.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

23. The necessary resources were available to me to help me find, adapt, and integrate OER into my instruction.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)

Strongly disagree (7)

24. Using OER is congruent with the way I like to conduct instruction.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

25. Sharing the OER that I might create or modify with others is important.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

26. Researching and/or developing OER allows me to pursue my research interests or activities.

Strongly agree (1)

Agree (2)

- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

27. I expect that other faculty who develop OER would share their work.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

28. When I first began using OER, I had the technical skills necessary to adopt the resources.

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree nor disagree (4)
- Somewhat disagree (5)
- Disagree (6)

Strongly disagree (7)

29. I feel I have the technical skills needed to develop or modify OER resources.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

30. I understand the copyright licenses of OER that allow their reuse.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

31. Are you now or have you applied OER-Enabled Pedagogy in your classes?
(This approach might be exemplified by the involvement of the students in curriculum or resource development.)

Yes (1)

No (2)

Skip To: Q33 In a few words, ... = No

32. If you have applied OER-Enabled Pedagogy, would you please describe the activity in a few words.

33. What motivated you to try OER-Enabled Pedagogy in your classes?

34. How has the use of OER-Enabled Pedagogy affected student behavior or learning?

35. In a few words, please share what makes OER valuable to you in your teaching?

36. Finally, please sum up the reasons that you were motivated to adopt or develop OER.

End of Block: Default Question Block

Thank you very much for taking this survey. I would very much appreciate it if you would consider participating in an interview on this same topic. It would support my dissertation research and further scholarly work in OER and OER-Enabled Pedagogy.

If you would like to participate in this continued research project, please contact me at betht@hawaii.edu.

Once again, thank you very much for your participation.

Mahalo!

A

APPENDIX B

Interview Protocol

Faculty Interview

Interviewer: BT

Interviewee: F#

Date of Interview:

Start Time of Interview:

End Time of Interview:

Location of Interview:

A. Introduction

As faculty identified for this research, you have been involved with some aspect of the adoption or creation of OER. Because of this experience, your opinion and perspective represent valuable information that might potentially impact further OER or OER-Enabled Pedagogical development.

Thank you very much for agreeing to participate in this interview.

B. Interviewee Background – Warmup Questions

1. Before we begin talking about textbooks, please tell me a little about yourself. How long have you worked at __ (Name of Institution) ____?
2. What's your discipline?

C. Review of Study

The purpose of this study is to gain an understanding of the factors that have motivated faculty to adopt or create OER. If faculty are also experimenting with or implementing OER-Enabled Pedagogy, I would like to hear about the reasons for doing so.

As you know when you signed the consent form, I will be audio taping our conversations today.

Do you have questions before we begin?

→**Record Time Start** _____

→**Start Recording**

D. Interview Questions for Faculty

1. Please describe how you have used OER in your instruction.

2. Would you please describe the ways that using OER benefit or detract from your instruction.
3. What about for your students? Describe the ways that the use of OER in your instruction might either benefit or detract from your student's learning.
4. Would you please discuss ways that you may have personally or professionally gained by using OER?
5. What about gains for your department or institution? Would you describe those.
6. Please tell me about how you transitioned from using commercial materials to using OER in your classes.
7. Tell me about your experience in terms of the effort it has taken to find, and adapt, and then integrate OER into your classes.
8. What were the influences in your personal or professional life that caused you to adopt OER?
9. How have you felt your reputation on campus has been affected by your use of OER in your classes?
10. How did your institution support your initial use of OER?
11. How does the use of OER reflect your instructional philosophy?
12. If applicable, would you please describe the professional and personal satisfaction that you derive when adopting or creating OER.
13. Would you describe any advantages that using OER might have in the promotion and tenure process.
14. Would you please tell me your thoughts on the positive and/or negative aspects of sharing these resources.
15. In what way do you think your skills with technology have played part in adopting OER?
16. Would you describe your knowledge of the open licenses that support OER.
17. How have you experimented with OER-Enabled Pedagogy in your classes? (If No, ask "Why have you decided not to explore OER-Enabled Pedagogy?" and conclude interview.)
18. Would you please tell me about your experiences applying OER-

Enabled Pedagogy in your classes.

19. What motivated you to try this approach?
20. In what ways has the use of OER-Enabled Pedagogy impacted your instruction?
21. From your experience, please describe the benefits and drawbacks of OER-Enabled Pedagogy on students' learning.

Please describe the process and the effort in applying OER-Enabled Pedagogy in your teaching.
22. Would you please tell me about both the personal and professional reasons that influenced you to adopt OER-Enabled Pedagogy.
23. In what ways did your department or institution support your use of OER-Enabled Pedagogy?
24. Would you talk about possible personal and/or professional satisfaction in using OER-Enabled Pedagogy.
25. How might your technology skills have played a role in the application of OER-Enabled Pedagogy in your teaching?
26. Finally what makes OER valuable to you and to your students?
27. What are your future plans in terms of using OER or OER-Enabled Pedagogy?

E. Concluding Questions for Faculty

28. Is there anything else you would like to share about your experiences with adopting OER textbooks or materials or about using an OER-Enabled Pedagogy approach?

→**Stop Recording**

→**Record Time End** _____

I think that is all then, and I want to thank you very much for taking time for this interview today. You have been very helpful, and know that the information you provided has been important.

Other Topics Discussed:

Post Interview Comments and/or Observations:

- Make note of comments or observations here.