A narrative literature review of faculty perceptions of open educational resources (OER) led to the development of an instrument to measure faculty OER self-efficacy. Through the evaluation of extant literature, three central faculty considerations related to ideological, material, and support barriers and motivators were identified. The research examined the empirical literature on faculty perceptions of OER, including the barriers and motivators that are considered. The self-efficacy research of Bandura (Bandura 1977, 2006; Bandura, Adams, and Beyer 1977) was considered as a lens to examine issues that may prevent faculty from attempting to use OER or cause project abandonment when coping skills to address known challenges are lacking.

The literature coalesced around three central considerations related to ideological, material, and support barriers and motivators. Ideological barriers and motivators for faculty movement to OER included ideas fundamental to faculty identities, that they are part of an institution, and that they have professional commitments related to their teaching, research, and service roles. The desire to select high quality, peer-vetted resources figured prominently in the decision to use or not use OER, as did considerations of how cost would impact students. Material barriers and motivators identified were characterized by the inherent qualities of the
materials themselves that may influence a desire to use them. The most-often researched material consideration was the usability of and access to OER, which were widely perceived as being in online formats. Finally, support considerations, primarily institutional support and general knowledge of how to find and OER, were widely reported in the literature. Faculty expressed concerns over a lack of release time or professional acknowledgement as barriers to considering course redesigns. Using these barriers identified in the narrative literature review, a self-efficacy scale is presented to support the further development and assessment of OER professional development programs.

Keywords: OER pedagogy, self-efficacy

Faculty and institutions seeking to address the issue of textbook insecurity have utilized three major strategies with strong ties to library services: replacing high-cost textbooks with openly licensed textbooks or course materials, replacing high-cost textbooks with library-licensed materials, and campus implementations of reduced cost commercial options through inclusive access or rental models. Open educational resources (OER) are the predominant strategy to reduce textbook costs for students, and many OER programs, centered administratively within libraries and library consortia, have utilized state-funded grant programs to support faculty release time for course redesign (Croteau 2017). In this model, academic support staff members, such as instructional designers and librarians, are part of a design team to support faculty in identifying, creating, and adapting resources for courses. Organizations are embracing these strategies at various levels, but the pace of change is slow, and a formula or guide for success does not yet exist in these endeavors. As a critical issue, there is much room for new research specifically in how to scale library-based programs to support faculty OER activities.

For those faculty that have incorporated OER into courses, documented motivators encompass altruistic interests in reducing materials costs for students and a desire to incorporate materials to enhance pedagogical techniques (Martin et al. 2017; Nikoi and Armellini 2012; Williamson et al. 2011). Surveys of faculty indicate that they are aware of the challenges that
students face in acquiring their course texts and that lower-cost textbooks are needed. Faculty members also indicate that the costs of materials are a great concern when selecting them (Seaman, Seaman, and Babson Survey Research Group 2017). With students reporting that they delay or avoid purchasing expensive course texts, faculty experience challenges in the classroom with underprepared students. Faculties are challenged to identify and implement low and no-cost course materials, specifically OER. Faculty members report “cost, content quality, and ease of use as factors influencing adoption of open textbooks” (Petrides et al. 2011, 43). Jung and Hong (2016) identify effectiveness of resources, efficiency in terms of saving course time, learning appeal, and extension of learning outside the classroom as four faculty priorities when adopting OER. In researching methods to improve larger scale OER sharing, Cohen, Omollo, and Maclicke (2014) find that providing metrics of use delivers positive feedback to authors. This reinforces relationships and supports the institutional and personal obligations for ongoing authorship commitments. These types of metrics also assist potential OER users in the identification of quality OER resources, a recurring concern among faculty. Faculty who have adopted OER and open educational practices often report that the process may take more time, but student grades have improved and, with earlier access to course materials, the content is customizable to better align with course goals and represent diverse communities, and incorporates current issues (Jung, Bauer, and Heaps 2017). To build capacity in these programs, empirical studies on successful educational strategies are needed. Social cognitive and self-efficacy theories provide a lens to explore opportunities to engage and encourage faculty in this pedagogical shift.

As we explore OER adoption behaviors and motivators and how library-based programming might support wider adoption, an examination of the larger process of textbook
selection decision-making is a necessary topic of investigation. Better understanding of the overarching processes used by faculty in material selection, and how peer consensus about course learning objectives influences that behavior, helps us understand how the textbook selection process may be influenced to encourage adoption of OER. Departmental and individual processes provide examples of extensible criteria such as author credentialing, alignment to professional accrediting standards, price, and availability of ancillary material (Feldman-Maggor, Rom, and Tuvi-Arad 2016; Snider 2005; Whaley, Clay, and Broussard 2017). Czerwionka and Gorokhovsky (2015) document a collaborative process within a department to systematically select a textbook based on a set of evaluation criteria. Burns (2011) takes a different approach to classify areas of consensus within textbooks, an approach that has resulted in the identification of a pedagogical canon within a discipline. Badua, Sharifi, and Mendez Mediavilla (2014) offer insight into features and components of top-selling textbooks.

Policy initiatives at departmental, campus, and higher levels have influenced faculty uptake of OER. In several examples, mandates have angered faculty and launched concerns about encroachment upon the academic freedom of faculty (Knox 2017; McKenzie 2018). Investigations of faculty opinions on OER policy have revealed opposition to some top-down strategies that limit the academic freedom or intellectual property rights of faculty (Nikoi and Armellini 2012; Silver, Stevens, and Clow 2012). Other studies document faculty interest in policies to promote OER, such as establishing a process to ensure publication of high-quality, peer-reviewed OER, establishing technology and legal guidelines for OER, and instituting policies that acknowledge OER activity within faculty review processes (Masterman 2016; Nikoi and Armellini 2012).
The role of pedagogical norms and transmission of pedagogical techniques through faculty is also an important consideration in evaluating textbook selection and OER program design. Pedagogical approaches of faculty are necessarily connected to the suitability of a textbook and its possible replacement. Growing in popularity and importance, many campuses provide some distinct support for faculty to receive ongoing training or development related to pedagogical approach. Situationally, these types of faculty support centers may be partners for libraries in promoting pedagogical approaches that would support inclusion of OER. MacKenzie et al. (2015) uses grounded theory in an evaluation of a faculty learning center (LC), also known as a teaching and learning center. They found that activities at the LC that focused on the scholarship of teaching and learning (SOTL) “facilitated positive social action as members shared knowledge of teaching practice, offered support and encouragement to each other, and undertook/established collaborative projects” (MacKenzie et al. 2015, 281). Henderson and Bradley’s (2008) longitudinal study evaluated faculty pedagogical behavior as evidenced in semi-structured interviews. They explore how communities of practice influence pedagogical decisions. Faculty identity was found to be an influencer of online delivery techniques, and “pedagogical dilemmas (were) underpinned by the need to satisfy both demands of both identities (as a content expert and faculty member)” (Henderson and Bradley 2008, 91). This conflict may be useful in examining how teaching ancillaries like quiz banks and online study materials may influence textbook selection.

Within the literature of OER pedagogy, which is largely comprised of small institution-specific case studies, researchers identify barriers that inhibit greater adoption of OER resources. Faculty members consistently cite identification of suitable OER as problematic. Issues include inadequate systems to locate materials and lack of content in specialized areas beyond the
general education core (Belikov and Bodily 2016; Delimont et al. 2016; Hanley and Bonilla 2016; Hassall and Lewis 2017; Hood and Littlejohn 2017). Lack of institutional support for faculty is also perceived as a barrier. This includes adequate time for course redevelopment (Belikov and Bodily 2016; Delimont et al. 2016; Hassall and Lewis 2017), lack of support both in terms of pedagogical and technical resources (Hanley and Bonilla 2016; Hassall and Lewis 2017; McKerlich, Ives, and McGreal 2013), and clear administrative support, such as rewards and recognition (Delimont et al. 2016; Hanley and Bonilla 2016; Hassall and Lewis 2017; McKerlich et al. 2013). Lack of knowledge about copyright principles in the reuse and adaption of materials with Creative Commons licenses has also been cited as a limitation to widespread conversion away from high-cost, commercially produced textbooks (Hassall and Lewis 2017; Hood and Littlejohn 2017).

With growing knowledge of barriers to large-scale transition to OER, there is an opportunity to systematically utilize that literature as a source of data to describe the methods currently used to ameliorate those barriers, to develop strategies to enhance future program designs for libraries and beyond, to address issues of perceived self-efficacy that may inhibit further program success, and to develop reusable quantitative instruments to evaluate program effectiveness. The goal of this research, therefore, is to answer the following questions. Across the literature, what have researchers identified as the most critical faculty-perceived obstacles and benefits to the utilization of OER? And furthermore, how can knowledge of those obstacles enhance the systematic development and assessment of training programs designed to support and encourage faculty OER activity?
Theoretical Framework

Bandura’s (2001) discussion of social cognitive theory describes human agency in terms of three modes: personal, proxy, and collective agency. Each of these areas of agency is impacted by perceptions of efficacy and both are impacted by resultant behavior. Bandura (1977) further finds that there is a relation between perceived efficacy, or the belief that one will be successful at some task, and the choice of the individual to attempt that task. He explained:

The strength of people’s convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations. At this initial level, perceived self-efficacy influences choice of behavior settings. People fear and tend to avoid threatening situations they believe exceed their coping skills, whereas they get involved in activities and behave assuredly when they judge themselves capable of handling situations that would otherwise be intimidating. (Bandura 1977, 193-94)

Not only does perceived efficacy impact the likelihood that a task will be attempted, but Bandura (2001) also finds that the higher the self-efficacy expectation, the greater the chance that a task will be completed successfully. Improving individual efficacy expectations, therefore, plays a great role in the success of individual performance. Similarly improving expectation of proxy efficacy, or the confidence in others to complete a task and collective efficacy, and the belief that a group is capable of completing the task can improve the likelihood of success.

Four sources of information have been identified as influencers of efficacy: performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal (Bandura 1977). “Modes of induction,” or treatments, are associated with each source of efficacy (Bandura 1977, 195). Performance accomplishment, which is based on firsthand mastery experiences, may be induced through treatments such as participant modeling or desensitization exposure. Vicarious experiences include behavior modeling, such as observing the successful performance of a task by others. Verbal persuasion includes suggestion that an individual is able to successfully complete a task. This treatment may be ineffective in some cases: it may result in a
greater effort, but “without arranging conditions to facilitate effective performance [it] will most likely lead to failures that discredit the persuaders and further undermine the recipients’ perceived self-efficacy” (Bandura 1977, 198).

The final source of information, emotional arousal, can have both positive and negative implications for the development of self-efficacy. Creating stressful environments can create avoidance of activities. This may “impede development of coping skills, and the resulting lack of competency provides a realistic basis for fear” (Bandura 1977, 199). The influencers of self-efficacy are highly specific to the domain of the perceived self-efficacy. Bandura (1989) explains:

General items linked to particular activity domains are an improvement over omnibus measures that are disembodied from clearly defined activities and contextual factors. But ill-defined items still sacrifice explanatory and predictive power even though they may be tied to a designated domain. Relations obtained with suboptimal measures may underestimate or misrepresent the causal contribution of given factors. (732)

Furthermore, to more accurately predict the outcomes, Bandura (2006) recommends that the creation of instruments or “scales of perceived self-efficacy must be tailored to the particular domain of functioning that is the object of interest” (307-08). In the case of OER pedagogy, a situational self-efficacy scale that takes into account known skills, barriers, and motivators for successful OER adoption would have greater predictive power than a general scale focused more generally on faculty teaching. Such a predictive scale has not been researched or developed to date.

The role of self-efficacy has been applied, however, to the many areas of behavior study, including in the study of higher education and faculty behavior. In Morris (2011), the development of pedagogical self-efficacy by early-career faculty is explored through an application of Bandura’s (1986, 1997) social cognitive theory (SCT). Using qualitative
interviews conducted with faculty, the author reveals that positive feedback from students was highly instrumental in their early career pedagogical development. In this way, positive student feedback relating to no-cost course materials, or social persuasions, could be influential to the development of longstanding textbook selection behaviors. Samalot-Rivera and Porretta (2009) provide an example of a quantitative instrument based on Bandura’s (1977) concept of modeling. The authors developed a questionnaire for physical education educators to evaluate the extent of the educators’ uses of modeling to teach social skills. This example of SCT used in the development of an instrument could be helpful in examining the influence of department chairs and above in the higher education hierarchy on textbook selection practices. To what extent is selection of course materials by faculty influenced by the behavior of peers, the institutional messages, and positive or negative reinforcement models? Bandura’s (1977, 1986, 1989, 2001) theories, therefore, provide insight into the “treatments” that may influence faculty textbook selection and OER self-efficacy and adoption.

Other relevant applications of SCT to the current problem include the development of employee training programs. This is well covered in the literature of business and management, but faculty training in higher education is researched to a lesser extent. Examining faculty behavior and the role of administrative leadership related to supporting mission-oriented activities is useful in this area. Byun et al. (2018) applied SCT to investigate “trickle-down” management practices from high-level leaders to lower-level leaders; while outside of the culture of higher education hierarchies, it is nonetheless related to the opportunity for provosts, deans, and department chairs to influence the behavior of faculty. In this quantitative study, paired surveys of high-level and low-level leaders were used to evaluate factors such as task performance. The findings support the effectiveness of high-ranking university administrators
influencing textbook selection decisions. In Vlachos et al. (2017), SCT is the framework for an examination of employee participation in corporate social responsibility (CSR) initiatives. Considering the positive impact that reduced textbook costs can have on students, OER initiatives can be broadly conceptualized as an example of a higher education corporate responsibility initiative. Using quantitative techniques, the researchers examined “the complex links between managers’ genuine and self-serving attributions, managers’ traits (i.e., organizational tenure), employees’ CSR attributions, and employee behaviors advocating on behalf of the firm” (1113). The manager’s organizational tenure was shown to have a positive effect on genuine CSR behavior by employees. In a higher education setting, this may indicate that tenured faculty members are more influential in transitions to OER than tenure-track faculty.

In a final example of the application of SCT to manager and employee behavior patterns, Duff et al. (2015) look at patterns of absenteeism in the workplace. The authors also investigate the extent to which social information processing theory explained employee behavior. The findings in this study, that team behavior influenced individual behavior more than manager behavior, could lead to a hypothesis that departmental OER usage norms will have an impact on individual faculty to a greater extent than department chair behavior.

In summary, SCT as a behavioral modification tool has been well-documented in the literature of business management and it has been considered to some extent in higher education as a lens for viewing how faculty make pedagogical decisions. It is not yet examined as a higher education tool to influence the textbook selection process for the specific application of reducing costs to students. Using the existing literature as a source of data provides an opportunity to describe the methods currently used to ameliorate the barriers to successful performance of OER pedagogy, and serves as source to develop a predictive self-efficacy scale situated in the
specifics of OER pedagogy. Such a self-efficacy scale can be used as a pre- and post-test assessment to predict faculty OER activity and to design and assess OER workshops for faculty.

**Method**

In this narrative literature review, qualitative, quantitative, and mixed methods studies were examined to explore faculty perceptions of OER and to develop an analysis through those findings of the how self-efficacy might explain and predict the OER pedagogical behavior of faculty. Extant case studies, surveys, and interviews served as the data source for this analysis.

**Data Collection**

Criteria for article selection were established to focus primarily on faculty perceptions of OER or OER programs, eliminating a vast collection of literature on student outcomes research. The following criteria were used:

- The article represented an empirical research approach.
- The study involved faculty at colleges and universities in the United States or Canada.
- The article was published in a peer-reviewed journal.
- The research was published in 2000 or later.

The first set of articles that was reviewed was obtained through a search of the EBSCO Discovery Interface database using a Boolean search string to expand keyword terms for faculty, empirical, and higher education. This interface combines database content from across many databases including Educational Administration Abstracts, ERIC, Professional Development Collection, PsycINFO, and SocINDEX with Full Text. Upon applying additional date and peer-reviewed limiters, 434 records were identified.

A second search focusing on textbook selection was conducted in the same discovery environment. Expanders again were used to capture additional terms for faculty, empirical, and higher education and a subject heading “textbook selection” was applied. Upon applying additional date and peer-reviewed limiters, twenty-nine records were identified.
The 463 articles were examined for scope and geographic location of focus. The built-in discovery system limiters for geographic location over-filtered results due to a lack of metadata for all studies, so this process was completed manually. A collection of thirty-eight articles was read and analyzed for fit, thirteen were retained and eight more were located through bibliographic citations in the source articles and newer citations of the source documents. Although not peer-reviewed and outside the initial scope, a commissioned survey by Babson Survey Research Group was cited in the majority of the peer-reviewed studies and was of significant quality. In total nineteen studies were evaluated.

**Data Analysis**

Both deductive and inductive coding schemes were utilized. Using the theory base, deductive a priori coding was established to classify the modes of induction based upon Bandura’s (1977) sources of efficacy expectations, and whether the research documented or evaluated their successful or unsuccessful usage, or if the modes of induction were merely suggested as best practice. Inductive codes were developed to categorize perceived barriers, benefits, motivators, and requisite skills related to faculty adoption of OER for instructional purposes. Atlas.ti software was utilized to apply coding schemes and to classify the study characteristics of each data source.

Initial coding revealed interrelatedness between codes for motivators, benefits, barriers, and requisite skills. These were due to how the researchers in the selected studies framed survey and interview questions. For example, in Petrides et al. (2011), faculty who were experienced with using OER were asked open-ended questions about the perceived benefits of using OER, whereas in Belikov and Bodily (2016), faculty with little or no OER experience were asked what
would motivate them to use OER. Both groups cited the availability of institutional support as
being a benefit or motivator.

A second-level coding process was used to regroup the codes into thematic areas to better
represent the nature of the demonstrated perceptions, faculty considerations in the decision to
utilize OER or not, and were comprised of material considerations, support and training
considerations, and philosophical considerations. Few references to modes of induction were
coded, as the literature presented little empirical examination of faculty development or
institutional programming related to OER initiatives.

Findings

Of the nineteen studies, the most common methods of data collection were surveys (79
percent) and interviews (21 percent), with 75 percent of those using interviews also collecting
data via surveys, as shown in Table 1. The studies primarily represented perceptions of
participants from the United States (63 percent) with 68 percent of the studies using a sample
size of 50 or greater. Mixed methods research accounted for 53 percent of the methods, and the
remaining studies were split closely between qualitative (26 percent) and quantitative (21
percent) methods.

Table 1. Characteristics of Selected Studies

| Data collection method - Document Analysis | n  | %  |
| Data collection method - Focus Group     | 1  | 5  |
| Data collection method - Interview       | 4  | 21 |
| Data collection method - Observation     | 1  | 5  |
| Data collection method - Survey          | 15 | 79 |
| Location - Canada                       | 1  | 5  |
| Location - Global with Participants from US or Canada | 6  | 32 |
| Location - United States                | 12 | 63 |
| Sample Size - 1-9                       | 3  | 16 |
| Sample Size - 10-24                     | 1  | 5  |
| Sample Size - 25-49                     | 2  | 11 |
| Sample Size - 50-99                     | 1  | 5  |
| Sample Size - 100-999                   | 6  | 32 |
| Sample Size - 1,000-10,000              | 4  | 21 |
| Study type - Qualitative                | 5  | 26 |
| Study type - Quantitative               | 4  | 21 |
| Study type - Mixed                      | 10 | 53 |
Three broad categories were developed to describe the findings of the faculty perceptions research. Studies evaluating ideological considerations examined and documented factors influencing faculty OER perceptions that were ideological in nature. These considerations were related to faculty beliefs and values related to student learning, pedagogical approaches, the ethics of working with commercial publishers, and beliefs about the roles of faculty as teachers, as members of a scholarly community, and as participants in an institutional culture. Studies included in the materials consideration category identified considerations related to the ability to find, evaluate, and use OER, including issues related to their alignment to the curricular needs, the accessibility, currency, or quality of the resource, and the availability of ancillary resources. Factors influencing factor perceptions of OER were internally consistent across the studies with ideological considerations represented in 79 percent of all studies, material consideration in 89 percent of the studies, and support consideration represented in 89 percent of the studies. All three factors were present in 74 percent of studies ($n=14$), followed by two factors appearing in 11 percent of the studies ($n=2$), and a single factor appearing in 16 percent of the studies ($n=3$).

Table 2. Factors Considered Influencing Faculty Perceptions of OER

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td><strong>Ideological Considerations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student learning experience and outcomes</td>
<td>15</td>
<td>79</td>
</tr>
<tr>
<td>Student textbook costs</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Teaching experiences and outcomes</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Faculty peer relationships</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Role of faculty within the institution</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Environmental impact of textbooks</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Ethics of textbook adoption</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td><strong>Material Considerations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usability and access</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Availability of suitable content</td>
<td>11</td>
<td>58</td>
</tr>
<tr>
<td>Customization of materials</td>
<td>11</td>
<td>58</td>
</tr>
<tr>
<td>Quality of OER</td>
<td>11</td>
<td>58</td>
</tr>
<tr>
<td>Availability of ancillaries</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Ability to locate</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Currency of materials</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Accessibility features for disabilities</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td><strong>Support Considerations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Support</td>
<td>17</td>
<td>89</td>
</tr>
<tr>
<td>General Support</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>Technology Support</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td>Copyright or Licensing Support</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Authoring or Editing Support</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td><strong>Modes of Induction</strong></td>
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<tr>
<td>Performance Accomplishments</td>
<td>3</td>
<td>16</td>
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<tr>
<td>Vicarious Experience</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Emotional Arousal</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Verbal Persuasion</td>
<td>0</td>
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</tr>
</tbody>
</table>
Ideological Considerations

Across all studies, an average of 24 percent of the individual ideological considerations were present in the studies, with a high of 71 percent \((n=5)\) of the considerations reported in a representative study by Pitt (2015). Student learning experience and outcomes \((79\%\), \(n=15)\), student textbook costs \((63\%\), \(n=12)\), and teaching experiences and outcomes \((63\%\), \(n=12)\) were the most often ideological considerations influencing faculty perceptions across the studies.

Student Learning Experience and Outcomes

The majority of researchers examined faculty perceptions of student learning experiences and outcomes considerations related to issues such as student access to course materials, class preparation, student retention, and student satisfaction. Faculty reported their experiences with increased or level performance and preparation of students in OER courses (Bliss et al. 2013; Delimont et al. 2016; Jung et al. 2017; Weller et al. 2015). Researchers described the enhancement of the student learning environment to create a “community of learning and [change] people’s perceptions of learning as more social activity” (Atenas, Havemann, and Priego, 2014, 35) with students more engaged in the course (Bliss et al. 2013; Delimont et al. 2016; Pitt 2015; Weller et al. 2015) and an increase in interactivity (Petrides et al. 2011). The ability of students to have immediate and equitable access to OER course materials also factored into favorable perceptions (Bliss et al. 2013; Jung and Hong 2016; Pitt 2015; Weller et al. 2015; Young 2016). One alternate faculty perspective on the value of OER included a concern that “OER is not going to be a make or break issue of retention. It is not a panacea for at-risk students” (Weller et al. 2015, 357).

Student Textbook Costs
Through surveys and interviews, twelve (63 percent) researchers examined faculty sensitivity to student textbooks costs and the resulting impact on their interest or willingness to utilize OER. The relationship between student textbook costs and faculty decisions to replace high-cost commercial textbooks is a well-worn topic in the literature of faculty OER perceptions. The studies selected here examined this topic from both the motivator and benefit angles, with faculty not yet using OER and those who had already made the switch, respectively. Researching OER motivators, Martin et al. (2017) found that 74 percent of faculty \( (n=574) \) would be willing to use an OER textbook due to a “desire by the faculty to save students money, or to alleviate the cost of education, represented a majority” \( (85) \). Twelve out of the nineteen studies examined the role of textbook costs and all reported some positive faculty association between textbook costs and a decision or interest in OER to reduce those costs. One of Pitt’s (2015) participants described this motivation: “I went looking for an open source textbook for teaching physics when I thought about the racket that the textbook publishing companies are running” \( (141) \). Hanley and Bonilla (2016) examine how this impetus influences faculty publishing decisions as well. Their survey of 1,230 California faculty found that 88 percent of faculty found that a “desire to reduce costs to students” was an important or very important factor that they would consider in choosing whether to make their own textbook publications open \( (136) \). While multiple studies of faculty perceptions articulated a belief that OER would reduce student costs, Weller et al. (2015) found that students \( (60.9 \text{ percent}, n=196) \) and librarians \( (51.2 \text{ percent}, n=83) \) agreed with this cost benefit perception to a lesser extent than faculty \( (73.1 \text{ percent}, n=264) \).

**Teaching Experiences and Outcomes**

Twelve (63 percent) of the studies included findings related to faculty perceptions that OER had or would have an impact on curriculum innovation, enhanced teaching, improved
efficiency, or improved teaching effectiveness. Pedagogical benefits were identified including the enhanced ability to use technology effectively in the classroom (Bliss et al. 2013; Delimont et al. 2016) and better alignment between the textbook and lectures (Bliss et al. 2013). Jung and Hong (2016) reported that resource effectiveness was the most often cited instruction priority considered in the decision to use OER. Furthermore, they defined four examples of effectiveness as the most influential: “to offer learner-centered materials, to provide quality content, to employ active learning methods, and to encourage deeper learning” (Jung and Hong 2016, 34). Faculty found that use of OER offered an “opportunity to rethink how they organized the content for their students” (Watson, Domizi, and Clouser 2017, 294) and resulted in faculty experiments with collaborative and active learning approaches including utilizing a flipped classroom (Jung et al. 2017) and reflective teaching practices (Weller et al. 2015). The opportunity to customize resources was viewed as a positive benefit to pedagogical approaches with Petrides et al. (2011), who document how open materials can enhance faculty collaboration. A participant in a survey by Seaman, Seaman, and Babson Survey Research Group (2017) explicated this faculty perception in an open-ended response: “Being able to take ownership of the content, customize it as I see fit, and then teach based on desired student learning outcomes rather than what is printed in a single textbook is a game changer” (33).

Peer Referral, Behaviors, and Relationships

Researchers identified peer relationships as an important factor influencing perceptions of OER. The practices of sharing OER, peer referral and vetting, and collaboration were identified as potential motivators or as barriers, where not supported. Faculty referenced their consideration of peer referral in the decision to use OER (Delimont et al. 2016; Pitt 2015) and the need for repositories of OER to incorporate a peer-review process (Belikov and Bodily 2016). Belikov
and Bodily (2016) explain, “suspicions are prevalent among faculty who see free and open for their weaknesses, which include lack of publisher accountability and peer review” (242). Opportunities for faculty collaboration on the creation and adoption of OER resources was viewed positively, however, with the capacity to reduce the time and effort involved in course design and to create opportunities to share personal recommendations for sources (Delimont et al. 2016; Petrides et al. 2011; Pitt 2015).

*Other Ideological Considerations*

To a lesser extent, several other ideological considerations were represented in the literature. Researchers documented the influence of the role of faculty within the institution (11 percent, n=2), which included examples of concern for their institutional or departmental roles, reputation, or savings (Delimont et al. 2016; Pitt 2015). One study identifies faculty concern for the environmental impact of textbooks as a motivation to use OER (McKerlich, Ives, and McGreal 2013) and Pitt (2015) cites faculty concerns with the ethics of the commercial publishing industry as consideration for OER adoption, stating, “I do not take bribe[s] from them and it gives me freedom from internal guilt” (147).

*Material Considerations*

Across all studies, an average of 44 percent of the individual material considerations were present in all studies, with a high of 88 percent (n=7) of the considerations reported in a representative study by Jung et al. (2017). Examination of usability of and access to OER formats (63 percent, n=12), availability of suitable content (58 percent, n=11), customization of materials (58 percent, n=11), and quality of OER were the material considerations most often reported across the studies.

*Usability and Access*
Faculty perceptions of OER materials being exclusively available in online format and the resultant challenges were widespread in the selected literature. Study findings include general statements about the ease or difficulty of use of materials or comments related to online or print format. Faculty concerns about the need for printed materials or student preference for print over digital were frequently cited barriers to OER adoption (Seaman, Seaman, and Babson Survey Research Group 2017). For example, Delimont et al. (2016) finds that “they would have liked to have known that students in his/her course were likely to print the materials rather than use them electronically” (10) and other studies report on faculty concerns with wireless connectivity and technology skills impeding access (Atenas et al. 2014; Bliss et al. 2013; Martin et al. 2017). Still other studies cite positive motivators related to online OER formats. Faculty valued the day-one universal access afforded by OER (Bliss et al. 2013; Delimont et al. 2016; Jung et al. 2017; Weller et al. 2015), especially when considering the ability to use the materials with cellphones and other devices (Hanley and Bonilla 2016; Pitt 2015; Young 2016). In summary, mixed perceptions were presented on usability and access of OER formats, with some faculty finding the formats easy to use and others finding them more challenging.

Availability of Suitable Content

While the breadth and depth of OER content continues to expand, faculties report that the availability and suitability of OER content impacts their willingness or ability to redesign courses. Findings related to the suitability of content from a standpoint of comprehensiveness, alignment with learning goals, language of resource, or comparability to other resources including commercial resources were described in the selected studies. Hanley and Bonilla (2016) find that over 70 percent (n= 230) of faculty members were influenced in their decision to use open textbooks by the “pertinence of the content to the objectives of the course” (135). High-
quality resources have wide-availability for high enrollment general education courses, but as researchers document, faculty expressed challenges about the availability of resources for more specialized needs (Atenas et al. 2014; Belikov and Bodily 2016; Seaman, Seaman, and Babson Survey Research Group 2017; Young 2016), that available resources may be missing important content (Watson et al. 2017), or they were unavailable in the instructor’s language of choice (Atenas et al. 2014).

Customization of Materials

Conversely, in some of the selected studies, not only was suitable content available, but faculty also found that due to the open license and ability to adapt content, the materials were highly customizable to their needs. Researchers identify faculty interest in the ability to adapt materials to meet instructional needs and comment about flexibility or adaptation to a cultural context being beneficial. Jung et al. (2017) report “the ability to customize the textbook enhanced the relevance of the content to the student” (130). A faculty participant in Pitt’s (2015) study remarked that “The book is a resource… The book no longer drives the course. I produce the curriculum. The book is my servant. I am not its servant” (148). Faculty using OER appreciated the ability to reorganize and customize content (Atenas et al. 2014; Belikov and Bodily 2016; Bliss et al. 2013; Delimont et al. 2016; Jung et al. 2017; Martin et al. 2017; Petrides et al. 2011).

Quality of OER

Some of the selected studies report that faculty believed OER options had the same or better quality as their commercially produced counterparts (Bliss et al. 2013; Hilton et al. 2013). In a post-implementation study of eighty community college instructors by Bliss et al. (2013), only 11 percent reported that the quality of the OER textbook was of worse quality than the
commercial option, citing problems with the presentation of the content and the content itself. Other studies focused on how perceptions of quality impacted faculty willingness to adopt OER. In Atenas et al. (2014), a survey of 217 faculty members using a repository of OER identified resource quality as the second most frequently cited barrier to OER adoption. In the same study, one respondent reported, “You can find a lot of resources but not all have the same quality” (35). The lack of a peer review process for many OER contributes to the low-quality perceptions (Belikov and Bodily 2016). Petrides et al. (2011) explain:

Perceived quality of the content also influenced faculty decisions to adopt open textbooks. Perceptions of quality derived from various sources, including recommendations from trustworthy faculty colleagues, a personal relationship with the author, and a first-hand review of the textbook to determine its quality and pedagogical approach. Additionally, prior knowledge that the textbook was peer-reviewed influenced faculty decisions to adopt it. (43)

Other Material Considerations

Not as widely reported (42 percent, n=8) are material considerations related to the availability of ancillary materials, which include faculty perceptions about the availability of supplemental faculty or student resources to accompany an OER text or resource. The lack of resources, such as slides for instructor or adaptive homework platforms for students, presents a perceived barrier to wider adoption (Hassall and Lewis 2017; Martin et al. 2017; Pitt 2015; Seaman, Seaman, and Babson Survey Research Group 2017; Watson et al. 2017). Problems with discoverability of resources impeded adoption (Atenas et al. 2014; Belikov and Bodily 2016; Pitt 2015; Seaman, Seaman, and Babson Survey Research Group 2017). Discussed later as a support challenge, challenges with the ability to locate resources create a barrier in the efficiency of the OER course redesign process. As Young (2016) explains, “It seems plausible that using standard textbooks or relying on salespeople would allow for quicker selection than researching and evaluating OER or finding suitable library resources” (154). In 26 percent of the literature, the
currency of materials, or the frequency of their updates, was reported favorably where OER was perceived to be more current (Delimont et al. 2016; Pitt 2015), and as a concern where currency was identified as a potential barrier (Hanley and Bonilla 2016; Watson et al. 2017). Finally, rounding out faculty concerns with the material quality of OER is the ability of OER to provide accessibility features for the visual, hearing, or learning impaired (Jung et al. 2017; Martin et al. 2017; McGowan 2019). In a survey of 150 faculty members, Jung et al. (2017) find that nearly half of surveyed faculty members were unaware if open textbooks were accessible for students with disabilities.

Support Considerations

Across all studies, an average of 33 percent of the individual support considerations were present in all studies, with a high of 86 percent ($n=6$) of the considerations reported in a representative study by Delimont et al. (2016). Institutional support (63 percent, $n=12$), general or library support (58 percent, $n=11$), technology support (47 percent, $n=9$), and copyright or licensing support (42 percent, $n=8$) were most often reported as support considerations across the studies.

Institutional Support

Findings in this area relate to institutional support for faculty release time, institutional recognition, or availability of financial support. Faculty experienced a lack of release time as a barrier to OER implementation. Bliss et al. (2013) report that over half ($n=52$) of faculty who had implemented an OER course perceived that they had spent more time on the preparation compared to the prior semester; however, an analysis of time spent by all participants in the program revealed no statistical difference in the amount of time spent preparing, although the time spent was perceived differently by OER program participants. In a smaller study, Delimont
et al. (2016) report that 46 percent \((n=13)\) of faculty thought that “the time required to develop the resource contributed to the difficulty of the process and indicated that it took somewhat more time than they anticipated…” (9). Lack of time was also consistently reported as a perceived barrier by faculty who had not participated in OER course revisions (Belikov and Bodily 2016; Hassall and Lewis 2017; Martin et al. 2017; Mc Kerlich et al. 2013; Pitt 2015; Seaman, Seaman, and Babson Survey Research Group 2017; Watson et al. 2017; Young 2016). Beyond the most frequently cited concerns about lack of time, institutional support also related to the desire for financial support (Delimont et al. 2016) and for support for OER work to count toward institutional recognition, including tenure or promotion (Delimont et al. 2016; Mc Kerlich et al. 2013). Finally, faculty expressed concern that their department or institution may not be generally supportive of OER (A tenas et al. 2014; Hanley and Bonilla 2016; Hassall and Lewis 2017; Mc Kerlich et al. 2013). A survey of over 200 health sciences faculty found that “educators received no support or very little support from 49.8 percent of departments \((n=104)\), 45.9 percent of faculties \((n=96)\), and 40.7 percent of institutions \((n=85)\)” (Hassall and Lewis 2017, 79) for the creation or use of OER.

**General Support**

Considerations impacting faculty OER perceptions coalesced around the general need for OER training or workshops and support to find, use, select, evaluate, or review OER, functions often associated with librarian support of OER initiatives. While general awareness of OER is frequently cited in open-ended questions as an ongoing training need (Belikov and Bodily 2016; Hassall and Lewis 2017; Mc Kerlich et al. 2013), Seaman, Seaman, and Babson Survey Research Group (2017) have conducted annual surveys of faculty OER perceptions and found that general faculty awareness of OER has improved with a 12 percent gain in awareness for 34 percent to 46
percent \( (n=4100) \) over a three-year period. Where specific information about a lack of training for or knowledge about OER is indicated in the literature, the need for support in searching for, selecting, and reviewing OER is referenced (Atenas et al. 2014; Avila and Wray, 2018; Belikov and Bodily 2016; Hanley and Bonilla 2016).

Technology Support

More specific support needs were described in the selected studies related to using the learning management system or addressing the format or technological aspects of working with OER in online and print versions. Petrides et al. (2011) explain, “faculty participants highlighted the need for technical training for new online practices, from basic technical support for incorporating the internet into the classroom, to more complex activities allowed by open online textbooks” (46). Faculty suggested that additional support or training was needed to address the software challenges associated with revising and adapting OER (Atenas et al. 2014; Delimont et al. 2016). Faculty surveyed by McKerlich et al. (2013), for example, cited the need for hardware or software to increase their use of OER \( (n=90, 74\%\) percent).

Copyright or Licensing Support

Library staff also frequently provide the necessary support that faculty need to understand how to evaluate or apply licensing or copyright restrictions, especially in the context of creating new OER and remixing or revising existing OER. Faculty perceptions of the ease of utilizing OER were shaped by concerns about following copyright laws (Hassall and Lewis 2017; Seaman, Seaman, and Babson Survey Research Group 2017). Conversely, Weller et al. (2015) finds that only 28.2 percent of their survey respondents \( (n=281) \) currently using OER were concerned about whether they had permission from the copyright holder to use or modify the content,
although a majority of the sample (70.4 percent, \(n=285\)) “considered open licensing important and were familiar with the Creative Commons logo (41.1 percent, \(n=171\))” (354).

**Authoring Support**

Finally, a lack of authoring or editing support was found to influence faculty perceptions of OER in a small subset of the research (16 percent, \(n=3\), specifically the support or training required to create or modify OER (Delimont et al. 2016; Hanley and Bonilla 2016; Watson et al. 2017). In interviews with faculty engaged in an OER grant program at Kansas State University, 23 percent (\(n=13\)) of participants would have favored having authoring support if they were to participate in the initiative again.

**Modes of Induction**

Empirical studies of existing faculty OER preparation programs are missing from the literature, although cursory coverage of the topic was available in the selected OER perceptions studies. Across the nineteen studies, three made passing reference to the existence of some type of program. Three studies referenced an existing program that could be categorized as offering an opportunity for faculty to participate in some performance-based experience. These included participation in a workshop, provision of a step-by-step guide, a hands-on learning experience, or discipline-specific training. In a review of existing OER grant program requirements, for example, McGowan (2019) finds that 51 percent of institutions or agencies (\(n=37\)) “require funding recipients to participate in some type of orientation or required support programme…” (10). These types of orientation sessions, as Young (2016) describes, are often developed and led by librarians. Avila and Wray (2018) describe using multiple individualized library sessions with faculty to evaluate syllabi and learning outcomes and search for appropriate materials. They state that the “subject librarian and faculty work together to review the selected materials and to
correlate them with the class assignments and course syllabi” (Avila and Wray 2018, 97). Avila and Wray (2018) describe other learning opportunities involving vicarious experiences, described as “locate and explain” (96), such as reviewing licensing terms and incorporating resources into a learning management system. While there were no identified examples of verbal persuasion, such as suggesting that faculty can accomplish the work, one example of positive emotional arousal was identified. McGowan (2019) indicates that 18 percent of institutional OER websites provide program outcome data on financial savings to students. Given the widespread acknowledgement that student savings is a top motivator for the faculty use of OER, the provision of outcome data should serve as a positive mode of induction. The lack of a comprehensive evaluation of the effectiveness of OER preparation programs and their associated pedagogical approaches further supports the need to develop tools, such as a self-efficacy scale, to evaluate program effectiveness.

**Discussion and Implications for a Situational Scale**

In this literature review, the author broadly explored faculty adoption of OER to better understand the attitudes and perceptions that impact the widespread adoption of OER. Self-efficacy as an explanatory theoretical framework suggests that in order to develop a situational scale to improve self-efficacy, it is necessary to explore the research literature to identify areas where coping ability may be needed to accomplish a task. Identifying motivators and barriers that influenced OER perceptions in previous studies is a starting point for this exploration. Literature related to faculty perceptions of OER quality and accessibility and an investigation of professional development strategies for open education practices were presented. Empirical research on the effectiveness of specific faculty professional development strategies for OER,
however, is lacking. Thus, to design new empirical studies to measure the impact of faculty professional development for OER, we must first evaluate the obstacles faced by faculty.

Referring to Bandura’s (2006) directive to create a context sensitive self-efficacy scale, several instruments and procedures for the development of self-efficacy scales for higher education can be referenced and adapted in this process. Hemmings (2015) used a qualitative model to explore the single domain of teaching self-efficacy, using a semi-structured interview protocol. Horvitz et al. (2015) used a web-based adaptation of the Michigan Nurse Educators Sense of Efficacy for Online Teaching (MNESEOT) Instrument (Robinia and Anderson, 2010) to evaluate online teaching efficacy across all disciplines, and Vera, Salanova, and Martin-del-Rio (2011) conducted a conceptual analysis of three faculty domains of teaching, research, and management to develop and test the validity of a self-efficacy scale. Additionally, Bandura (2006) provides a guide to the development of a context-sensitive scale. Key steps in this procedure involve identifying the main tasks involved in a domain, evaluating the barriers to successful performance, and developing a scale of “can do” statements with sufficient sensitivity, utilizing, for example, a hundred-point measurement rather than a five-interval scale.

In investigating the teaching roles of faculty, Vera et al. (2011) identify four primary tasks: “(1) determining elements and contents of academic training, (2) transmitting knowledge, abilities and competence, (3) communication with students, and (4) assessing students’ learning” (802). Of these, only the first two tasks have distinct variability from the typical faculty process when OER are used. This is supported by the findings of the narrative literature review that material and support considerations are the most frequently cited factors in faculty OER perception studies. Furthermore, when examining present modes of induction for OER self-efficacy, locating, evaluating, and utilizing OER materials are the focus of current programs.
Additionally, in examining the selected literature, barriers to successful performance were also identified in terms of ideological, support, and material considerations.

By applying the concepts of developing a self-efficacy scale to the preceding review of literature on faculty OER obstacles, the following “I can” statements provide a mechanism (Table 3) to evaluate faculty OER self-efficacy and guide the development and assessment of OER pedagogy boot camps and trainings for faculty audiences. As shown, the literature was used to shape a tool to measure self-efficacy, which, when aligned with known barriers, offers a predictive model. Aligning learning outcomes to the self-efficacy scale and utilizing inductive approaches that successfully improve self-efficacy further enhance the likelihood of faculty OER adoption. As these areas of self-efficacy directly relate to the identified conceptual areas and barriers from the literature, each item may be restated from a self-efficacy statement for faculty self-reflection to create a learning outcome to be used by OER educators, librarians, or others. In this way, those tasked with OER education can better address known obstacles for faculty adoption.

**Future Steps**

Translating the recommended situational scale for OER self-efficacy into a program for the delivery of OER workshops or training goes hand-in-hand with the need to validate the reliability of the scale. Vera et al. (2011) provide a model for using confirmatory factor analysis to test the internal reliability, for example. While not addressed directly in this study, effective modes of induction should also be examined. Performance mastery opportunities through extended engagement and cumulative accomplishments have been shown to have greater impact than shorter instruction sessions utilizing vicarious experiences, such as demonstration without time for the individual performance of tasks (Bandura 1977; Bandura, Adams, and Beyer 1977).
For example, skill-based “Material Considerations for Self-Efficacy” are more suitable to hands-on instruction sessions that prioritize opportunities for faculty to experiment and demonstrate mastery of skill beyond a brief boot camp or one-shot model. For example, an inductive model for improving self-efficacy related to statement 2.3 “I can customize the OER that I find in order to better match my teaching objectives” may involve an extended hands-on learning session involving OER customization rather than limiting the topic to a brief discussion of the open permissions that allow customization. Ideological considerations to improve faculty OER self-efficacy should focus on the importance of peer-to-peer sharing, which is consistent with prior studies on the importance of peer collaboration and support. Finally, in the category of support considerations, induction methods based on verbal persuasion may be effective at developing faculty self-efficacy related to identifying support personnel, although those personnel need to be adequately prepared and resourced in order to avoid the pitfalls of empty support promises.

To further improve faculty OER self-efficacy, applying this situational scale to the development of professional development curriculum is a logical application of this research and a highly needed venture, given the lack of empirical research dedicated to how faculty advance from an interest or ideological impulse to address the negative impact on students of the rising costs of textbooks. Furthermore, adaption of the scale to a pre- and post-test model offers the opportunity to improve the rigor and meaningfulness of assessments of the impact of OER pedagogy programs.
References


Florida Virtual Campus. 2016. 2016 Florida Student Textbook and Course Materials Survey. Tallahassee, FL.


Appendix

Situational Scale for Measuring Self-Efficacy (adapted from Bandura, 2006)

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
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<tr>
<td>Cannot do at all</td>
<td>Moderately Can Do</td>
<td>Highly Certain Can Do</td>
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</table>

Confidence (0-100)

1. **Ideological Considerations for Self-Efficacy**

1.1 I can improve the student learning experience by OER using in my courses

1.2 I can reduce student textbook costs by using OER in my

I can improve my teaching experience by using OER in my courses

I can identify colleagues in my department, institution, or professional communities with whom I can share OER expertise or collaborate on using OER in my courses

2. **Material Considerations for Self-Efficacy**

2.1 I can address challenges with electronic or print formats of OER

2.2 I can identify and effectively use a repository of high-quality OER suitable for my teaching needs

2.3 I can customize the OER that I find in order to better match my teaching objectives

2.4 I can identify material that have been peer-reviewed or vetted by content experts

2.5 I can locate or design ancillary resources for my teaching needs

2.6 I can locate or design ancillary resources for students

2.7 I can evaluate the accessibility features of OER for visual, hearing, or learning impaired students

3. **Support Considerations for Self-Efficacy**

3.1 I can advocate for or identify opportunities for release time for OER course design

3.2 I can advocate for or identify opportunities for financial support for OER course design

3.3 I can align my work on OER course design with my professional requirements for teaching, research, or service

3.4 I can identify the people, departments, or instructional materials that will assist me with searching for or evaluating OER
<table>
<thead>
<tr>
<th>Section</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6</td>
<td>I can identify the people, departments, or instructional materials that will assist me with addressing technology challenges</td>
</tr>
<tr>
<td>3.6</td>
<td>I can identify the people, departments, or instructional materials that will assist me with addressing copyright or licensing challenges</td>
</tr>
<tr>
<td>3.7</td>
<td>I can identify the people, departments, or instructional materials that will assist me with the authoring or editing of OER that I create</td>
</tr>
</tbody>
</table>