



# Examining the Use of Renewable Assignments in a Teacher Education Course to Build Understanding of Open Educational Resources

RESEARCH ARTICLE

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## ABSTRACT

Despite a culture of sharing in education, awareness of Open Educational Resources (OER) in teacher education and K-12 education is limited. The purpose of this mixed-methods study was to explore graduate-level teacher candidates' (n = 9) understanding of OER, the value they placed on it, and their self-efficacy in sharing work openly after participating in a renewable assignment. Data collected included a survey, course artifacts, and interviews. Of the nine participants, three openly licensed their work and one shared their resource publicly on OER Commons. Further findings indicate that the participants' understanding of OER improved and they valued OER as part of their practice in both using and sharing resources. Participants indicated that they lacked teacher self-efficacy about their work for varied reasons. However, after receiving positive student outcomes and feedback from peers, participants were more open to sharing their work publicly. Implications for teacher education are discussed.

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## INTRODUCTION

Education has a long-held culture of sharing. Educators share learning ideas, activities, and resources as they design, supplement, and adapt curriculum materials matched to their learning standards and students' needs (Blomgren, 2018; Sawyer et al., 2020). Open Educational Resources (OER) provide an opportunity to transform teaching and learning. OER are freely accessible and openly licensed, easing the economic burden of textbook costs and allowing instructors flexibility in how they use and adapt these teaching and learning materials to align to learning standards and meet the needs of their learners (William & Flora Hewlett Foundation, 2020). However, outside of educational technology, the OER movement is not taking hold in teacher education programs or prekindergarten through 12th grade (PK-12) education due to several obstacles. First, although increasing, there is a paucity of OER content designed for teacher preparation programs. Additionally, educators report difficulties with discovering and evaluating OER, particularly for PK-12 classrooms (Cortinovis et al., 2019; de los Arcos et al., 2015). Another notable obstacle is that many teacher educators, preservice teacher candidates, and PK-12 teachers lack awareness and understanding of OER, such as Creative Commons (CC) licenses and repositories of these materials (Seaman & Seaman, 2022a, 2022b; Van Allen & Katz, 2020).

Learning materials used in teacher education programs undoubtedly have a significant influence on teacher candidates' key takeaways from courses and, subsequently, future instructional practices. In addition, exposure to and strategic use of various teaching and learning resources (e.g., textbooks, lesson plans, and websites) within coursework help teacher candidates identify resources they may rely on in the future (Sawyer et al., 2020). While PK-12 teachers are provided with curricula by schools and districts, educators often enhance their curricula with supplemental materials to "create the environment and resources most optimal for them" (Hegarty, 2015, p. 3).

Teacher education programs provide an opportunity to not only increase teacher candidates' awareness of OER but also develop open materials as part of the learning process. In this manuscript, we discuss the findings of a mixed-methods study in which graduate-level teacher candidates designed resources within a teacher education course and were invited to share their work publicly as OER. The purpose of the study was to explore teacher candidates' understanding of OER, the value they placed on it, and their self-efficacy in sharing work openly after participating in a renewable assignment.

## GUIDING PERSPECTIVES

Open education, "an educational practice in which teachers and students use openly licensed materials to engage in new and interesting ways with educational content" (McKernan et al., 2015, para 3), is a relatively novel concept in teacher education; therefore, little research has investigated open practices in this field. Many of the existing studies explored OER as a cost-saving measure to integrate free, digital, high-quality materials for teacher development, particularly in developing countries where access to expensive curriculum materials is limited (Murphy & Wolfenden, 2013; Sapire & Reed, 2011). Findings of these initiatives indicated benefits for the OER designers, instructional users, and student users alike, including increased collaboration, awareness of OER, knowledge development of teaching and learning, adaptability of resources for contextualized needs, and instructional use of OER in teachers' practices.

Given the benefits, one would think that educators would learn about OER through teacher education programs and professional development. However, this is simply not the case. A recent survey of higher education faculty in the United States (US) during the 2021–2022 academic year found that only 52% of respondents indicated they were aware or very aware of OER (Seaman & Seaman, 2022b). Of US K-12 educators, only 17% of respondents reported they were aware or very aware of OER, showing a decline from recent years (Seaman & Seaman, 2022a). Seaman and Seaman (2022a, 2022b) noted that these percentages decreased when a strict definition of OER was used, which included awareness and knowledge of CC licensing, and the potential use of materials with less restrictive licensing. Kimmons (2016) has cautioned that the individual terms *open*, *education*, and *resource* are widely known and used, which can lead to misunderstanding and overconfidence in what people perceive as OER.

Included within the larger concept of open education are open pedagogy and renewable assignments. Open pedagogy is a valuable practice that empowers students as creators of content shared with and used by others, motivating students to take more ownership in their learning and providing more equitable learning experiences that value diverse student voices (Jhangiani, 2017; Paskevicius, 2017; Wiley, 2013). Such learning requires participation and vulnerability on the part of the learner but results in increased student agency and engagement (Cronin, 2020), with the added benefit of students contributing to a rich array of materials that can be accessed and improved upon by a global community. Open pedagogy deconstructs the traditional student-teacher relationship by providing space for and empowering students to actively engage in dialogue about concepts, curation of resources, and co-creation of content (Paskevicius, 2017). However, in a study comparing different implementations of open pedagogy, Hilton et al. (2020) found that students had varying perspectives on the educational value of the open pedagogy activities and concluded that these benefits might be contextual based on the course implementation and student population.

Renewable assignments are a particular form of open pedagogy where students are invited to openly license and publicly share artifacts created as part of course assignments or activities, extending the value of the artifact beyond students' learning (Katz & Van Allen, 2020). Students reported greater motivation when working on renewable assignments since their artifact can be shared with others and becomes publishable and citable (Al Abri & Dabbagh, 2019). In a case study examining the affordances, challenges, and impact of renewable assignments, Baran and AlZoubi (2020) found that students' positive experiences resulted in development of student agency. Kimmons (2016) discovered that K-12 teachers who designed OER in a summer institute developed close collaborative relationships and were empowered to join a larger community of educators with a common goal, opening up their individual classrooms to the outside world. Within teacher education, renewable assignments can support the development of professional practices that prioritize curation, adaptation, collaboration, and innovation.

## THEORETICAL PERSPECTIVES

Many factors affect an individual's willingness to engage in a task and the effort they put towards it. Two theoretical perspectives guided our thinking about engaging teacher candidates in the renewable assignment: the Expectancy-Value theory (Wigfield & Eccles, 2000) and Bandura's (1997) notion of self-efficacy.

### EXPECTANCY-VALUE THEORY

According to the Expectancy-Value theory (Wigfield & Eccles, 2000), the interplay between one's beliefs about competence and the value of a task influences individuals' choices, effort, and performance. Beliefs about competence include one's own perception of their ability compared to others, along with expectations of success. Beliefs about value are related to the reasons individuals engage in tasks, including intrinsic value or interest, attainment value or importance, utility value or usefulness, and cost or amount of effort versus time (Wigfield & Eccles, 2000). Each of these factors and the interactions among them are important to understand what motivates and influences teachers to integrate specific resources, such as OER, and practices, like open pedagogy, into their instruction. These factors also have implications for content and assignments addressed in teacher preparation programs.

### TEACHER SELF-EFFICACY

Beliefs about competence are closely related to one's self-efficacy beliefs. Self-efficacy, as defined by Bandura (1977), has been identified as a key source of motivation and confidence in one's abilities to complete a task or reach a goal. Teacher self-efficacy (TSE) is related to teachers' perceptions of their teaching capabilities and effectiveness in lesson planning and implementation in order to positively impact student learning (Zee & Koomen, 2016). Teachers, particularly novice teachers, who experience improved student achievement and positive interactions with colleagues about teaching performance tend to have more positive TSE (Rosenholtz, 1985; Zee & Koomen, 2016). Studies have shown that teacher disempowerment, feelings of loss of control and agency over teaching practices, and perceptions that policies

enforced by their administration have little to no instructional value result in lower teaching quality (Tsang & Lui, 2016) and TSE (Dunn, 2020). However, open pedagogy has the potential to foster teacher agency and value shared decision-making. Simply stated, “openness empowers teachers” (Kimmons, 2016, p. 15).

## METHODS

Utilizing a convergent mixed methods research design (Creswell & Creswell, 2018), we explored the perceptions of nine graduate-level teacher candidates after they engaged in a renewable assignment as part of their teacher education coursework. The aim of this study was to understand how teacher candidates’ participation affected their understanding and value of OER, and self-efficacy in sharing openly. Therefore, this study examined a novel approach, open pedagogy, to curriculum resource development as an emerging pedagogy for teacher education.

## COURSE CONTEXT AND DESIGN

Our study took place in the Fall 2019 semester through a course at Lehman College, a diverse, mid-sized four-year college in the City University of New York, entitled *Language, Literacy, and Educational Technology*, which was taught by the first author. This 14-week teacher education course provides candidates with knowledge of digital literacy skills and strategies for incorporating technology into literacy instruction utilizing inquiry-based, problem-based, and project-based approaches. All assigned readings were either open access or OER, inviting teacher candidates to see models of and experience these resources as learners. Topics addressed included OER and CC licensing to develop the teacher candidates’ knowledge of OER. During a co-taught class, we facilitated a guided exploration of resources to determine whether or not they were OER and understand the meaning of CC licensing on resources. Finally, we introduced candidates to OER Commons (<https://www.oercommons.org/>), an education repository of OER, and provided time for them to explore and ask clarifying questions about specific resources for their teaching practice. To help candidates develop effective open practices, they engaged in a renewable assignment. In a student-centered approach, the assignment provided candidates with flexibility, choice, and creativity as they developed a meaningful classroom resource that exemplified their understanding of major concepts in the course (Van Allen & Katz, 2019). The candidates were given the option of adapting or remixing existing resources or developing their own resources and were further invited to apply a CC license and share their work with others on OER Commons. In addition to producing a resource, candidates were also required to implement their design in their classrooms and reflect on the experience. For more detailed information about the course, see Van Allen and Katz (2019).

## PARTICIPANTS

All teacher candidates enrolled in the aforementioned course were invited to participate in the study. As a graduate-level course designed for those seeking professional certification, all candidates were certified teachers. While all were required to complete the renewable assignment since it was part of the course evaluation, candidates were provided with the option to opt out of the study at any time. Of the 12 candidates enrolled in the course, nine consented to participate. All participants were female. Eight of the participants were current teachers of prekindergarten (PreK) to middle school grades. The remaining participant implemented her project as a volunteer at a local elementary school in a fifth-grade classroom. All participants were considered novice teachers with less than five years of teaching experience.

## DATA COLLECTION

A convergent mixed methods research design was used in this study, combining quantitative and qualitative data (Creswell & Creswell, 2018). Mixed method designs provide more insight into the results since researchers are better able to explain quantitative results through qualitative data collected and provide the unique perspectives of participants. In a convergent design, researchers collect and analyze quantitative and qualitative data separately on the same constructs and then merge the results of datasets looking for consistent themes. This

design results in a comparison of data providing a more thorough understanding of the research findings as a whole.

During the first class session, all candidates enrolled in the course were advised of the study and study requirements, including time commitments and tasks. Given that the first author was the course instructor, measures were taken to reduce the candidates' concerns about their participation in the study and potential bias. The second author distributed, collected, and retained consent forms, which the first author was unable to access until after the conclusion of the course. All data were analyzed after the course ended.

*Quantitative data.* We collected quantitative data through the development and dissemination of a survey and an examination of artifacts, the renewable assignment submissions. The survey, which we designed to understand the factors that influenced participants' decisions in the design process and perceptions of the assignment in relation to their values, beliefs, and future practices consisted of 12 questions. Participants were asked to identify how they designed and licensed their resources. Additionally, the survey included Likert scale items in which participants rated their perceptions, beliefs, and values about OER after completing the renewable assignment. Six open-ended prompts allowed participants to further elaborate on their perceptions. The online survey was distributed to all enrolled candidates by the second author at the end of the course. Of the nine participants, seven returned the survey with a 77% response rate.

*Qualitative data.* We collected qualitative data through follow-up interviews and examination of artifacts, participants' reflections on the implementation of the resource developed in the renewable assignment with their students. We conducted semi-structured follow-up interviews with four participants further inquiring about their participation in the renewable assignment. As discussed by Tashakkori and Teddlie (2009), interviews complement quantitative data in mixed methods research because they "generate in-depth information in response to queries and probes ... about particular areas of interest" (p. 299). To understand differing perspectives, we identified and recruited a stratified purposive sampling (Creswell, 2013) of two participants who shared their resources openly and two participants who did not from those who indicated they were willing to participate in a follow-up interview on the survey. Creswell (2013) noted that more authentic information can be gathered when the researcher develops a relationship with participants. Therefore, the interviews were conducted by the first author, who had an ongoing relationship with each of the interviewees as the course instructor, after the candidates had received their final grades in the course. We fully transcribed all interviews for further analysis. In addition to interviews, we analyzed the reflections of all participants to explore their understanding of OER and their perceived effects of the renewable assignment on their instructional practices.

## DATA ANALYSIS

We used descriptive statistics (Tashakkori & Teddlie, 2009) to analyze the survey data and renewable assignment artifacts and thematic analysis methods to analyze data from the open-ended survey questions, candidate reflections, and interviews (Creswell, 2013). After the conclusion of the course, both authors used descriptive statistics to analyze how the artifacts submitted were designed (e.g. adapted, remixed, or newly created) and to describe if and which CC license was applied to the resources. Then, the first author reviewed the survey data and coded the open-ended questions to identify emerging themes. The interviews and student reflections were coded separately from the open-ended survey data using an iterative process of reading, coding, and collapsing codes into categories. The first author color-coded repeated instances based on patterns observed in the data. To reduce potential bias, the second author served as a peer debriefer, reviewing the categories and providing feedback to the first author. Peer debriefing is "a process of exposing oneself to a disinterested peer ... for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind" (Lincoln & Guba, 1985, p. 308). We met together to compare the results from the quantitative and qualitative datasets and form final themes for describing and interpreting the findings (Creswell, 2013).

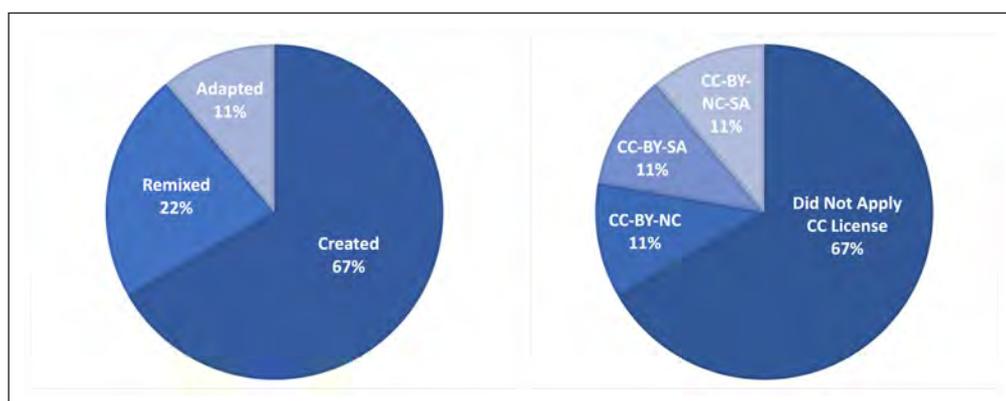
## FINDINGS

This study sought to explore teacher candidates' understanding of OER, value for their practice, and self-efficacy in sharing openly as a result of participation in a renewable assignment. Our findings describe artifacts produced by the candidates, demonstrate participants' improved understanding of OER, and reveal their perceived positive value of OER for their practice. However, the participants' self-efficacy impacted their willingness to publicly share their work with others.

### DESCRIPTION OF ARTIFACTS

In analyzing the resources submitted, we observed that a majority of participants chose to create a new resource that was shared solely within the class without a CC license (see [Figure 1](#)). Of the nine participants, six (67%) created new resources, two (22%) remixed existing resources, and one (11%) adapted an existing resource. One participant designed an OER textbook chapter for students, while the remaining eight participants designed lesson and unit plans for instruction. Many of these resources included student-facing materials such as handouts and PowerPoint presentations. Given that the course emphasized learning-by-doing approaches and the assignment directed candidates to demonstrate technology integration in literacy instruction, the finding that most participants created a new resource is not surprising. One participant expressed, "There wasn't much [sic] OER Commons projects to remix, so I decided to create my own resource." Discoverability of OER has been noted as a challenge in the literature ([Cortinovis et al., 2019](#); [de los Arcos et al., 2015](#)), so the narrow assignment focus likely made it challenging for candidates to find resources in PreK-12 OER repositories to adapt and remix.

In designing their resources, candidates were invited, but not required, to apply an open license to their work. Three participants (33%) chose to share their work with an open license (see [Figure 1](#)). Selection of the CC license varied with one participant each selecting a CC-BY-SA, CC-BY-NC, and CC-BY-NC-SA license. While all candidates were required to share their work with colleagues in the class, only one participant (11%) chose to share their openly licensed artifact publicly on OER Commons. Previous findings on open pedagogy have shown that while much work produced is shared with others, roughly one-third of content creators assign an open license to their resources ([Hilton et al., 2019](#)).



**Figure 1** Characteristics of Resources (n = 9).

### UNDERSTANDING OF OER

As a result of the course, the participants' overall understanding of OER improved, though perceptions on levels of understanding varied (see [Table 1](#)). For many candidates, this course was their first exposure to OER in their teacher education coursework and their teaching experiences. One interview participant, who was particularly enthusiastic about OER, exclaimed, "The Masters of Education [programs], they should be telling people about this. It's just funny people don't know about it!" Despite their lack of awareness about OER prior to the course, all participants displayed a basic understanding that OER are freely available materials with CC licensing that allow different permissions to use the work. 57% of survey participants agreed or strongly agreed that completing the renewable assignment helped them understand OER better with 42% remaining neutral. Interview participants further defined OER as "resources where everyone can go to retrieve (them) and use (them) in their own way", "(resources) that

<b>PARTICIPATING IN THIS ASSIGNMENT HELPED ME:</b>	<b>STRONGLY DISAGREE</b>	<b>DISAGREE</b>	<b>NEUTRAL</b>	<b>AGREE</b>	<b>STRONGLY AGREE</b>
<b>Understand OER better</b>	0%	0%	42.9%	28.6%	28.6%
<b>Learn how to use OER to support my teaching practices</b>	0%	0%	42.9%	43.9%	14.3%
<b>Learn how to develop OER</b>	0%	14.3%	57.1%	14.3%	14.3%
<b>Learn more effectively than a traditional assignment</b>	0%	0%	0%	28.6%	71.4%

**Table 1** Understanding of OER Survey Responses (n = 7).

help support ... curriculum and content, or whatever it is you're trying to achieve", and "resources that are available to the public that everyone can use. Like depending on the license, you're able to do different things with it."

Like OER, the concept of CC licensing was also new to participants. In the words of one interviewee, "The licenses definitely stood out because I had never heard of those before ... it was interesting to learn about the different types and why you might use them." Although all participants understood the essential concepts of OER, some struggled to discern the differences among different CC licenses. "A lot of them [CC licenses] look alike so I was a little confused ... I just need a little more understanding of each one." This unease about CC licenses challenged participants when they were invited to select a CC license for their own projects.

When asked to rate their level of agreement that the renewable assignment helped them learn how to use OER in the future to support their teaching practices, 14% strongly agreed, 44% agreed, and 43% were neutral. Fewer participants thought that the renewable assignment helped them learn how to develop OER in the future with only 14% strongly agreeing, 14% agreeing, 57% remaining neutral, and 14% disagreeing. These results imply that more participants will use OER in the future than develop OER to share with others publicly. This implication is consistent with findings that only about 12.4% of educators publish OER with a CC license (Farrow et al., 2015).

## VALUE OF OER

Largely, participants demonstrated positive beliefs about the value of OER for their practice because the resources provided extra support and new or additional teaching ideas to adapt to their student's needs; in other words, OER had utility value for these participants (see Table 2). As stated by a survey participant, the renewable assignment "opened my eyes to what was out there." This belief was echoed among other participants as well with 86% of participants strongly agreeing that the renewable assignment was valuable to their learning and work as a teacher. OER "provides a big pool of information from different people, different areas that can come together and build off each other so everyone's getting support." Participants also appreciated that OER enabled them to consider new perspectives and ways of teaching concepts. "Being an educator is collaborative work no matter where you are ... there's a lot of value in there [OER Commons] for teachers ... I can see someone else's lesson like, wow, I never thought of it that way."

<b>THIS ASSIGNMENT WAS</b>	<b>STRONGLY DISAGREE</b>	<b>DISAGREE</b>	<b>NEUTRAL</b>	<b>AGREE</b>	<b>STRONGLY AGREE</b>
<b>Valuable to my learning</b>	0%	0%	14.3%	0%	85.7%
<b>Valuable to my work as a teacher</b>	0%	0%	0%	14.3%	85.7%
<b>Empowering to me as a student</b>	0%	0%	14.3%	14.3%	71.4%
<b>Empowering to me as a teacher</b>	0%	0%	0%	28.6%	71.4%
<b>An important contribution to others</b>	0%	0%	14.3%	57.1%	28.6%

**Table 2** Value of OER Survey Responses (n = 7).

In addition, participants saw value in sharing their work openly with others and becoming part of a community of educators. The participant who shared work publicly on OER Commons explained, "I'm a teacher contributing to something, a source that other teachers are coming and looking at or using and contributing ... just the sense of belonging to a community and

contributing. You always feel good.” Several participants made similar comments about supporting other educators. A survey participant responded, “Other teachers can take my project and easily adapt it to their students,” while another stated, “Maybe a new teacher might come around and go to OER Commons and see something that I put up. So being helpful to other teachers.”

## SELF-EFFICACY AND SHARING

Surprisingly, participants largely elected not to share their work with an open license beyond the class, despite reporting that they saw value in sharing openly with others. As noted previously, 33% of participants included a CC license on their work, with only one sharing a resource publicly. Survey data confirmed that participants felt lower self-efficacy in their work with 28.6% strongly agreeing, 57.1% agreeing, and 14.3% remaining neutral that their work was an important contribution to others. In interviews, participants who did not choose to share their work reflected and explained that they were uncomfortable sharing because they lacked confidence in their work. “Just going head-on not knowing what the result would be kind of made me nervous.”

There were many reasons for participants lowered self-efficacy on the renewable assignment, including candidates’ uncertainty about the effectiveness of their work, unease about selecting a CC license, challenges in writing for others, and status as a novice teacher. For many, this renewable assignment was not only their first experience integrating technology in their literacy instruction in significant ways, but also the first time they interacted with OER, CC licensing, and OER Commons. In a reflection, one participant noted, “I needed to feel comfortable myself while using technology with my students.” Another explained, “I was not too confident in knowing which copyright I needed for my project.” In these ways, the candidates demonstrated lower expectancies for success in student outcomes, limited understanding of CC licensing, and concerns with the process of publishing their work on OER Commons. All of these factors impacted their decisions on whether or not to share their work publicly and/or with a CC license. As one survey participant stated, “Although I was confident in my work, I wasn’t sure if I wanted to share it globally. I wasn’t sure it was good enough for that platform.”

Participants also demonstrated concern about their teaching abilities. Beliefs about ability relate to how confident one is that one can accomplish a task (Wigfield & Eccles, 2000). All of the participants were considered novice teachers, who tend to have lower TSE than experienced teachers due to their lack of mastery experiences (Tschannen-Moran & Woolfolk Hoy, 2007). One participant directly expressed how her status as a novice teacher impacted her decision. “I’m still a new teacher, so I’m just still learning the ropes ... as I get more experience, then I’ll have way more value to OER Commons.” Additionally, participants indicated that they were unsure about how to write resources for others, noting that “writing my project in a way where other teachers could do this project with their own students was a challenge for me” and “I kind of just made it as to what my kids needed.” Simply stated, most of these novice teachers felt that their work needed to be improved to share it publicly.

Yet, some of these same participants changed course and expressed regret for opting not to share their work publicly in their reflections and interviews. “It didn’t really hit me until after I ... looked at the brilliant work that my kids did ... wow, this is amazing ... It made me want to share it even more.” As noted by previous research, improved student achievement and positive feedback from colleagues improved TSE (Zee & Koomen, 2016). It was only after implementation that these participants shifted their thinking about sharing their work because they experienced both student success and received positive responses from students, parents, colleagues, and administrators. “Getting feedback from my colleagues made me feel like I should have done it because they were so excited about it.” One participant reflected on the work produced by her students as a result of the project, “Parents loved the book and left amazing feedback. I sent our digital book to the head of the technology department ... and she was very pleased to see such amazing work in PreK.” All of the follow-up interview participants indicated that they would be willing to share their work publicly with a CC license in the future. “I feel like I would do that because if I’m getting so much from other people, then I would be able to give back as well.”

## LIMITATIONS

While this study represents important perspectives of teacher candidates as they learned about and engaged in open practices, it has many limitations. First, the small sample size limits generalizations that can be made from the findings to other contexts. The study was bounded to one class context in which nine teacher candidates participated. Out of these nine participants, only seven participants completed the survey and only four were interviewed. Thus, our case is bounded to this small group of novice teacher candidates who lacked prior knowledge about OER prior to the course. However, this small sample provides a unique examination of beginning teachers' perspectives as they grapple with using and creating teaching and learning resources as part of ongoing professional learning experiences in advanced certification coursework.

Additionally, the uneven sample size of data collected through the quantitative and qualitative methods raises concerns about validity. In convergent mixed methods research, quantitative data collected from a larger sample can provide a broader perspective, while qualitative data collected from a smaller sample can further explain and provide in-depth perspectives when both types of data are intended to measure the same constructs (Creswell & Creswell, 2018). We ensured that the interview and survey protocols measured the same constructs and triangulated data from all sources to increase the validity of our findings to the extent possible.

Finally, a major limitation of this study is that the first author served as both the instructor of the course and a primary researcher. It is possible that participants felt intimidated or pressured to participate and relayed limited perspectives. Alternatively, since the participants had a close relationship with the researcher, they may also have felt more comfortable providing authentic feedback and perspectives. As noted in the methods, we implemented several measures to reduce the potential for influence and bias, such as ensuring study participation was voluntary, ensuring all data collected during the course was gathered and held by the second author until after the conclusion of the course, and using member checking throughout data analysis.

## DISCUSSION

Overall, participants indicated that they enjoyed the renewable assignment explaining that it was a "wonderful," "meaningful," "challenging," "impactful," and "successful" experience. 71.4% of participants strongly agreed and 28.6% agreed that the renewable assignment helped them learn more effectively than a traditional assignment, such as a test or research paper. Consistent with previous findings (Al Abri & Dabbagh, 2019; Hilton et al., 2019), these participants found the renewable assignment to be engaging and valuable to their learning. However, beliefs about value are only one aspect of an individual's motivation to engage in a task or activity.

Despite being current teachers, this was the first time they had heard of OER or CC licenses. While participants expressed enthusiasm for finding and using OER, their own self-efficacy and self-perceptions as novice teachers prevented them from sharing their work with an open license, as well as beyond the class. In the in-depth interviews, participants expressed regret that they had not shared their resources openly on OER Commons after receiving positive feedback and outcomes on their work. Nevertheless, the opportunity to learn about, explore, adapt, and create OER provided these teacher candidates with a fuller understanding and awareness of open practices. These positive experiences and greater knowledge about OER and CC licenses support positive TSE and expectancies for future success in open practices. Wigfield and Eccles (2000) Expectancy-Value theory explains that ability beliefs are "influenced by individuals' perceptions of their own previous experiences and a variety of socialization influences" (p. 69).

In our study, numerous participants mentioned their mindset. "I don't think I was really in that mindset of sharing it." "In the back of my head, I kept thinking, yeah, I'm going to do OER [share work openly]." "I decided early on that I wasn't going to share it on OER Commons." Many candidates were concerned about the presentation of their work and expressed a desire to share a high-quality resource with others, indicating their resources may not be good enough. However, these perspectives ignore the community aspect of open practices and the benefits therein; OER is meant to be shared and built upon by others and provides opportunities for innovation, creativity, and connectedness. As open pedagogy becomes more popular in teacher

education, finding ways to increase teacher candidates' self-efficacy may help promote open sharing of resources in more formal ways.

Our participants recognized the value of open educational practices, noting that there were many helpful resources they could use on OER Commons and acknowledging the need to share their own resources with others. As one participant stated, "It would be interesting if I put it up there and then saw someone else use it in a different way ... that would be pretty cool." Hegarty (2015) discusses how open education communities can only be sustained with peers who are willing to share resources, not just use resources. One participant summed it up, "It's exciting because the more you share, the more everyone shares with each other." Perhaps our participants' perceptions on the value of sharing openly is due to the longstanding culture of informally sharing teaching and learning ideas, resources, and practices in the education community.

## IMPLICATIONS

According to Blomgren (2018), rather than simply taking a stance on the value of open education, educators need to understand the complex, nuanced, connected implications of OER for their contexts. The findings of this small study point to the need for greater use of OER and open pedagogy in teacher education programs to improve awareness and use in PreK-12 contexts. Our recommendations include providing multiple encounters with open practices, allowing for exploration and use of OER in assignments and class activities, and allocating time for collaborative work on OER.

Hegarty (2015) has explained that "building confidence and independence in an open learning situation" (p. 7) is essential for scaffolding open practices with people new to open environments. By engaging with open education practices in multiple courses through varied learning activities and assignments, teacher education programs can scaffold learning and experiences in a trusting environment to support TSE (Seraphin et al., 2019).

As noted by Sawyer et al. (2020), teacher educators have an important responsibility to encourage "teachers to be innovative, perhaps by integrating the old with the new as they curate and adapt, and specifically to be thoughtful and reflecting in choosing or creating lessons" (p. 532). Providing time and permission to experiment with openness and to learn from this play can improve self-efficacy (Hegarty, 2015). Kim (2018) provided a framework for integrating lesson design activities with preservice teachers. By embedding exploration and discussion of OER in relation to course topics in frameworks proposed by Kim, teacher educators can help teacher candidates utilize open repositories and conceptualize how to create, adapt, and remix resources.

Since open practices are built upon a participatory culture, time should be allocated for teacher candidates to share their work with peers, implement projects with students, and reflect on outcomes prior to being invited to share work openly. Both Hegarty (2015) and Kim (2018) have found that peer review and reflective practices are important elements of open pedagogy. Peer review and reflection can be integrated as an interactive process, allowing teacher candidates to co-construct professional knowledge together over time in experiences facilitated by the instructor.

## CONCLUSION

Given the limited research conducted on open pedagogy in teacher education, this small-scale mixed methods study presents a unique perspective of teacher candidates' perspectives on OER and experiences in designing OER through a renewable assignment in a course. Despite these participants' reticence to share their work with others, the renewable assignment resulted in increased awareness and knowledge about OER. They saw the value in using and sharing open teaching and learning materials with others. However, being novice teachers, they lacked the TSE needed to participate in the global open education community. Yet, their perspectives shifted after they implemented their OER in their classrooms and received positive feedback from students, parents, and colleagues resulting in a future desire to share their work openly. Open practices require trust and vulnerability since everyone can critique OER in open

environments, making positive TSE essential to participation in open communities. It is critical to help teacher candidates see the value of OER, learn how to use it to support their teaching, and empower them to participate in a global community of educators. Future research should examine ways to support TSE of novice teachers as they engage in renewable assignments. In addition, further research should be conducted to inform the preparation and work of teacher educators in open practices. Through the strategic use of OER and integration of open practices in teacher education, candidates will be better prepared to provide high-quality, equitable teaching and learning experiences to PK-12 students by leveraging OER and contribute to a flexible, growing repository of teaching and learning resources.

## COMPETING INTERESTS

The authors have no competing interests to declare.

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