

Re-Designing Professional Development to Assist Instructors' Rapid Transition to Remote Teaching During the Covid-19 Pandemic

Anya S. Evmenova

Jered Borup

Nada Dabbagh

George Mason University

Abstract

As universities moved to remote teaching environments in response to COVID-19 pandemic, many teacher educators were forced to make the switch without any professional development. This paper presents an example of how faculty at one large public university in Virginia were supported through this process. In Phase 1 of our response we rapidly redesigned an existing Online Teaching Initiative (OTI) course and leveraged the expertise of previous course completers. The OTI was originally developed in the instructor-led, collaborative format. In response to the pandemic, it was moved to the on-demand, self-paced and unfacilitated format. For Phase 2, we have further redesigned the course so that one portion (3 modules) would be self-paced but facilitated, and the other portion would be instructor-led, collaborative with weekly deadlines. The topics covered in each portion were selected based on our personal experiences and faculty survey responses. Recommendations for other programs are discussed.

Keywords: professional development, teacher educators, online teaching and learning

Online learning has grown dramatically over the last 20 years (Allen & Seaman, 2017; Gemin & Pape, 2017). Before the Covid-19 pandemic, a third of all students in higher education in the United States took at least one credit-bearing course online and half of those students took all of their courses online ([National Center for Education Statistics, 2018](#); Seaman et al., 2018). The need for online learning has grown dramatically in 2020 as universities closed during the Covid-19 pandemic requiring students and instructors around the world to practice social distancing measures. Wherever possible, colleges and universities have turned their attention to online learning

solutions to maintain some continuity in student learning. Some have argued that these measures should not be called online teaching or learning and prefer the term “emergency remote teaching” (see [Hodges et al., 2020](#)). To exacerbate the problem, research has shown that teaching online requires different competencies, and skilled in-person instructors do not necessarily make quality online instructors (Barbour, 2012). Thus, with minimal notice and preparation, countless instructors were forced to transfer their content online as well as start teaching in this new format without sufficient time for robust professional development.

Barriers for Online Teaching

Even under the best of circumstances, preparing teachers for the online environment is challenging and often the bottleneck to meeting the student demand for quality online learning. Ertmer’s (1999) foundational research identified two barriers to faculty development. The first-order barriers were faculty members’ knowledge and skills and the second-order barriers were their beliefs, attitudes, and self-confidence. Of the two, Ertmer explained that first-order barriers are the easiest to overcome once time and resources are secured. Overcoming first-order barriers is foundational because instructors cannot teach online without sufficient technological skills and knowledge (Hillman et al., 1994). In fact, the available technology also determines the instructional strategies that that can be used in a course. Anderson (2009) explained that as “technologies have developed, distance education evolved in parallel to support new forms of interaction, pedagogy and support services” (p. 111). The Internet has undoubtedly caused the most dramatic evolution in distance education. Prior to the Internet, distance education focused on learner independence and employed largely passive pedagogical methods. Although passive pedagogical methods persisted during the initial phases of online learning, faster internet speeds

and wider bandwidth have enabled more collaborative and constructivist learning (Garrison, 2009). However, these new capabilities do not guarantee a change in practice and many instructors simply use the internet to transmit passive learning to a greater number of students. Garrison (2009) argued that instead, online courses should be “less about bridging distances and more about engaging learning in discourse and collaborative learning activities” (p. 94). Thus, faculty not only need to develop sufficient technological skills and knowledge (first-order barriers), but also need to change their beliefs and attitudes towards online learning (second-order barriers). If instructors fail to overcome second-order barriers by reconceptualizing the types of teaching and learning that are possible online, they are likely to simply attempt to replicate the in-person environment or default to the transition of passive learning and ignore the new possibilities that the online environment affords.

Preparing Teacher Educators to Teach Online

If faculty are to overcome both first- and second-order barriers, those providing the professional development need to carefully consider not only what is taught, but also how it is taught (Norton & Hathaway, 2015). Unfortunately, research on preparing educators for online teaching often involves a limited subset of knowledge and skills without a meaningful focus on how those are taught. That is true for both studies that involve teacher educators and K-12 teachers (Moore-Adams et al., 2016; Parrish & Sadera, 2019). It is suggested that seamlessly incorporating technology use as well as active learning and modeling of online instruction can benefit both faculty in universities and K-12 teachers (Cooper et al., 2020; Gosselin et al., 2016; Norton & Hathaway, 2015).

In response to the COVID-19-related transition to emergency remote teaching, universities in general and teacher preparation programs in particular supported their faculty by providing

easy access to technology (e.g., Zoom), offering courses (e.g., on online course development), and conducting various workshops and webinars (e.g., how to engage students in a synchronous environment). As expected, research examining emergency remote teaching is still evolving and studies focusing on faculty preparation are especially sparse. Consistent with any new and rapidly emerging phenomenon, the initial research tends to include case studies. While case study findings should not be generalized, they can be insightful. Of particular relevance is Quezada's, Talbot's, and Quezada-Parker's (2020) case study. It explored one liberal arts college's brick-and-mortar teacher education program's rapid shift to emergency remote teaching. Quezada et al.'s open coding of documents and notes taken during webinars and teacher education meetings identified five remote teaching activities and possible focus areas for professional development: (1) providing instruction in both synchronous and asynchronous formats; (2) providing technology-based support and consultation for teacher candidates; (3) adapting course assignments and practicum experiences; (4) providing feedback online; and (5) maintaining social-emotional engagement in courses and clinical placements.

Indeed, establishing meaningful discussions and communications has traditionally been an important topic in effective online teaching practices (Walters et al., 2017). Collaboration and community are extremely important in the field of teacher education and should be supported regardless of the course formats. Boutelier and colleagues (2020) have reported on the use of online worklabs for providing accountability, immediate feedback, exposure to virtual platforms, and establishment of supporting professional learning communities (PLCs) for academic and social-emotional well-being. These hands-on experiences and discussions allow teachers to gain successful personal experiences, which later can be generalized to their own teaching experiences (Ertmer & Ottenbreit-Leftwich, 2010). During these critical times, many universities

have explored time-efficient and meaningful ways to provide high-quality professional development for teacher educators that would support both their technology competencies and offer professional support from peers (Jin & Redish, 2020).

Context and Rationale

In 2014, long before the pandemic, our college of education began offering an instructor-led and collaborative course to help teacher educators to teach online. Our six-week Online Teaching Initiative (OTI) online course focused on asynchronous teaching strategies, but participants also attended a webinar to learn synchronous online teaching techniques. The course design and facilitation were guided by the Community of Inquiry (CoI) framework (Garrison et al., 2000) and the Quality Online Learning and Teaching rubric (Christie, 2014). The CoI framework (<https://coi.athabascau.ca/>) is one of the most influential online learning frameworks with over 6,000 citations according to Google Scholar at the time of this writing. The Quality Online Learning and Teaching rubric, now called the Quality Learning and Teaching rubric (for additional information see <http://courseredesign.csuprojects.org/wp/qualityassurance/instructional-quality/qlt/>), was created by analyzing existing models and rubrics including the CoI framework.

Six modules of the OTI course addressed various topics of high-quality online instruction: (1) introduction to online instruction; (2) assessment and feedback; (3) student collaboration; (4) discussions; (5) presence and support; as well as (6) course design and development. The course was largely delivered asynchronously with weekly assignments and deadlines which allowed us to model facilitation strategies. We were especially aware of our facilitation techniques, knowing that they would likely impact faculty's perceptions of online teaching. Each module contained lessons and workshops that participants completed within their

sandbox course shell in the learning management system. Lessons included examples from other faculty as well as students within the college and university. Participants had a chance to engage in meaningful discussions and experience an organized group project. Digital badges were designed to certify participants in the various areas of online teaching when they successfully completed the varied activities. The focus of the original OTI course was on strengthening learner-instructor and learner-learner interactions (Garrison, 2009). For several years, the course has served an important purpose in preparing our college faculty to teach online. Since its inception, the course was offered 11 times with 136 instructors successfully completing it prior to Spring 2020. In an effort to study participants' experiences, we previously conducted a mixed methods study with 21 faculty members (Borup & Evmenova, 2019).

Based on data from pre- and post-course questionnaires as well as follow-up interviews, we found that a strength of the course was that participants experienced quality online learning as a student. For instance, the course included a lesson on how to provide quality feedback, and the instructor also modeled and provided feedback in multiple forms: text, video, audio, individual, and group feedback. When learning how to facilitate collaborative projects and discussions, they actually participated in a collaborative project and regular discussions. Our research found that learning activities were successful at overcoming both of Ertmer's (1999) first-order barriers (knowledge and skills) and second-order barriers (instructor beliefs, attitudes, and self-confidence) towards effective online teaching practices. That resulted in improved faculty knowledge, skills, perceptions, and attitudes required for high-quality online teaching (see Borup & Evmenova, 2019).

Limitations and Need for Further Development

We also recognized two primary limitations of the course. First, the course took a large

amount of time. On post-course surveys, OTI completers reported spending an average of 5.3 hours per week ($SD = 3.08$; range 1-20 hours) on course activities. While there was a high retention rate in the course for those who committed to it, we did observe a good amount of faculty who signed up for the course and then dropped it before completing a single assignment (attrition rate more than 40%). Based on informal communications with some of those faculty members, they dropped the course once they saw the amount of work that it demanded. Second, the course was only offered twice a year. Set start and end dates with weekly deadlines allowed us to model the type of learning activities and facilitation techniques that we wanted faculty to adopt. However, it also removed the flexibility that many faculty members wanted and ability to complete modules at their own pace.

The pandemic exacerbated the inflexibility of the course and increased the need for changes in the original OTI. When it was clear that all courses would have to be taught online, faculty needed rapid, flexible support—two adjectives that did not describe the OTI course. While the existing OTI course was successful at preparing faculty to teach online, it was not designed to provide the professional development for “emergency remote teaching” (Hodges et al., 2020). It had to be re-designed to support faculty in ways that were more flexible and personalized. Furthermore, we knew that many faculty members would be teaching their courses synchronously and the OTI course did not offer the level of support that they required.

Phase 1: Our Initial Response to the COVID-19 Pandemic

In response to the new, immediate needs of our faculty, we developed an on-demand version of the OTI course that offered six self-paced and unfacilitated modules with only essential information but numerous examples. We removed the introductory module and added a new module on synchronous online teaching. We also promoted synchronous webinars that a

faculty member in the college provided multiple times to prepare faculty to teach synchronously online.

Unlike the original course, the on-demand version was self-paced and unfacilitated. It did not require participation in discussions or submission of assignments. Instead, the workshops were re-designed as “challenges” for participating faculty. They could practice their newly developed skills through these challenges, but did not submit those and/or received any feedback from the instructor unless they requested that feedback. Faculty had an opportunity to apply what they learned within their individual courses rather than in sandbox courses as had been done previously. Group discussions were replaced with an FAQ discussion board and participants were invited to contact a facilitator who was available to answer any questions or concerns. We also identified successful completers of the original course within each department to help support faculty and respond to their subject-specific inquiries.

While this unfacilitated version of the course did not have any required learner-learner interactions, the on-demand content and instructor availability on the as needed basis were designed to help faculty quickly transfer to emergency on-demand online teaching. This on-demand version provided some support during the pandemic but represented the other side of the continuum from the original OTI course. The original OTI course was highly structured, instructor-led and collaborative, while the on-demand version was self-paced and unfacilitated. In order to ensure both modeling of best practices through facilitated activities, collaborations, and more flexibility, in Phase 2 we had to find the happy medium and further re-design the initiative.

Phase 2: Finding a Sustainable Balance Between Flexibility and Interaction

Our Phase 1 response to the Covid-19 pandemic focused on flexibility, on-demand

content, and providing opportunities for personalized support. This was seen largely as a stopgap measure but not a long-term solution since we were not providing faculty with quality feedback or opportunities to discuss and collaborate with their peers within the course. As a result, in Phase 2 we needed to find a sustainable balance between providing faculty with the flexibility that Phase 1 afforded as well as the collaborative online learning experiences that benefited faculty in the original OTI course and that we wanted faculty to adopt when creating their own courses.

Using Data to Inform Re-Design Efforts

In order to guide our re-design efforts, we reached out to OTI completers. A 26-item questionnaire, containing both Likert-scale and open-ended questions, was sent to the 136 OTI completers. Forty-one faculty responded yielding 30% return rate. They took the course across multiple years: 12% in 2014; 12% in 2015; 10% in 2016; 17% in 2017; 21% in 2018; 19% in 2019; and 9% could not remember the exact year. The vast majority of respondents received all the badges in the course (93%). Before the pandemic and since completing the course, 61% of participants taught at least one course online. This percentage increased to 100% in Spring 2020. Below is the brief description of the results and subsequent re-design decisions. Changes across different phases are also later summarized in Table 2.

Decision 1: Content. The results indicated that the vast majority of the 41 respondents agreed or strongly agreed that the OTI provided them with the skills and knowledge necessary to...:

- ... teach an online course – 97%
- ... assess student learning using a variety of methods – 93%
- ... facilitate online discussions – 93%

- ... establish an online learning community – 85%
- ... facilitate student collaboration – 93%
- ... use Blackboard – 97%

These results confirmed that the organization of the OTI was successful in addressing the online teaching essentials and could remain the same covering the aforementioned topics. The open-ended question about any additional content that could be better represented in the OTI did not yield any additional topics. Faculty offered suggestions on how some areas could be presented in more detail (e.g., more on accessibility, the use of LMS analytics, more about grade center in the LMS). Several respondents also desired more information on the use of synchronous tools for both teaching and conducting office hours. As one faculty noted, “I’d love to know more about how to teach synchronous sessions using available tools.”

Decision 2: Knowledge & Skills. The majority of respondents agreed or strongly agreed that the OTI course encouraged them to:

- ... to use technological representations (e.g., multimedia, visual demonstrations, etc.) to explain and demonstrate specific concepts in my content area – 100%
- ... to use alternative assessments in my courses (online and/or blended) – 81%
- ... to include more group/collaborative projects in my courses (online and/or blended) – 85%
- ... to establish instructor presence in my courses (online and/or blended) – 95%

OTI completers appreciated all the knowledge and skills they had received: from logically organizing a course in the learning management system to having an online presence and developing a community. Some, especially those with very limited experiences reported checking notes from the OTI course when creating content and designing learning experiences. Teacher educators more experienced in online teaching benefited from learning different programs and tools (e.g., Popplet, VoiceThread) and ways to incorporate those meaningfully into

the courses. A comment like this was not uncommon, “Coming in as someone with a lot of online teaching experience, I was surprised by how much I took away.” This reassured us that initiatives like OTI are important to provide to faculty, including those with online teaching experience. Moreover, those who have successfully completed the initiative were eager to have the refresher courses afterwards. In addition, many faculty members reported using what they learned to establish high-quality blended environments (e.g., multimedia presentations, alternative assessment ideas, using video to offer directions and clarifications on completing an assignment). Faculty appreciated the opportunity to incorporate hybrid learning activities, “especially when unexpected disturbances in the schedule occur[ed].” As one faculty noted, “I’ve been able to implement things I learned in the OTI course when I had to cancel class and the students had an online week.” This knowledge became crucial as the COVID-19 pandemic happened.

Decision 3: Flexibility. The main question we were trying to answer was how to make the OTI course more flexible and personalized while also modeling best practices and offering opportunities to collaborate. Seventy nine percent of respondents agreed that some topics such as introduction to online teaching, course organization in the LMS, and assessments could be effectively delivered in a self-paced format. As one respondent said, “It would permit those who have extra time the option of moving ahead.” The other 21% could envision this content presented in a self-paced, but facilitated format. All faculty noted how much they appreciated the feedback and accountability from the instructors. Thus, a decision was made to make self-paced modules with a facilitated format to allow participants to submit their work for feedback and receive help from the instructor when needed.

Decision 4: Interaction. At the same time, while some modules could be delivered in

self-paced and a facilitated format, faculty felt strongly about the benefits of interacting with peers and having the instructor model best practices. As one faculty noted, “I think we could work [independently] through some modules, but at some point we would need to collaborate with peers.” Such content as social presence and support, collaboration, discussions and synchronous instruction were identified by 63% of respondents as topics that needed an instructor-led, collaborative format as in the original OTI course. Even those who were open to the possibility of having these topics presented in a self-paced format noted the benefits of discussions and interactions with peers in these modules. According to one faculty, “Yes [these modules could be presented in a self-paced format], but I think the discussions around each really helped deepen my thinking and understanding of each [topic].”

Final Plan. Based on insights from the survey and our own personal reflections and experiences, we divided the OTI course into two portions. The first portion would be self-paced but facilitated with lessons and tasks. Faculty would also receive feedback on all submissions, but there would be no opportunities for discussion and/or collaboration with their peers. This allowed us to offer the first portion any time during the year with open, rolling enrollment. The second portion would be similar to the original OTI course and would provide robust opportunities to discuss and collaborate with other faculty enrolled in the course. The need for discussion and collaboration required us to set regular deadlines that would result in similar pacing across faculty participants. As a result, we planned on offering the course only at specific times during the year.

The faculty survey responses helped us to identify topics for each portion. The three self-paced modules would focus on designing and developing quality online learning experiences and the four collaborative modules would focus on facilitating strategies (Table 1).

Table 1

Plan for a Balanced OTI in Phase 2

	Self-Paced, Facilitated Portion	Instructor-led, Collaborative Portion
Modules (n=)	3	4
Focus	Online course design and development, assessments	Facilitation, discussion, collaboration, and synchronous
Pacing	No deadlines	Weekly deadlines
Peer Communication	None	Weekly discussions and collaborative activities
Feedback	Provided on all submissions	Provided on all submissions

Discussion

When faced with an emergency such as Covid-19, instructors need rapid and flexible support. In Phase 1 of our response, we provided faculty with a combination of asynchronous and synchronous professional development opportunities while still modeling some best practices for emergency remote teaching. Overall throughout the college, 293 courses (excluding internships, independent studies, and dissertation/thesis writing) in Spring 2020 semester were transferred from an in-person format to synchronous and asynchronous online environments. Continuity of instruction was maintained for more than 5,300 students. However, our Phase 1 response needed to place a high premium on flexibility even at the sacrifice of collaboration and communication. As a result, immediately following the initial shock of the pandemic, we began

designing a Phase 2 response that would provide more balance between flexibility and communication/collaboration.

Professional development contains three types of interaction: participant-content, participant-facilitator, and participant-participant (Moore, 1989). Each has its own purposes and affordances. Of the three, participant-content interactions can be on-demand and the most scalable. Once it was announced that all courses would be offered online to comply with social distancing and isolation recommendations, faculty needs were extremely high and overwhelmed our capacity to support faculty individually. As a result, during our initial response to the pandemic we focused on providing meaningful content and learning activities that could be accessible to faculty 24-7.

However, participants' ability to learn by interacting with the content and meaningfully applying their learning is limited and largely dependent on the participant's background and metacognitive skills (Bandura, 1986). In other words, learning is best when it is social. Vygotsky (1978) emphasized the need for participants to interact with a highly skilled and knowledgeable facilitator. While these interactions cannot be completely on-demand, they can be personalized to each participant's needs and still allow for a high degree of flexibility. These one-on-one interactions between facilitators and participants can be time-consuming and can overwhelm facilitators when participant needs are high or when the number of faculty who need support far outnumber the facilitators, as was the case when campus was closed and all courses moved online. As a result, we had to leverage the online teaching expertise throughout the college. Thankfully we had been developing online teaching capacity for years and were able to depend on the some of the 136 OTI completers to support less-experienced faculty within their academic units. We were also able to promote webinars as a way to provide synchronous professional

development opportunities.

Of the three types of interaction, formal participant-participant interactions are the least flexible and require the most synchronization and coordination. However, they are still extremely important when the goal is to improve participants' motivation, perceptions, and attitudes (Bandura, 1986). Anecdotally, we knew that these interactions were naturally occurring throughout the college, but we were unable to facilitate participant-participant interactions during Phase 1. Participant-participant became an important component to our Phase 2 OTI re-design that offers three collaborative and discussion-rich weekly modules.

Practical Implications and Recommendations

Findings from this research—as with all case studies—cannot be generalized since we examined “a single entity, a unit around which there are boundaries” (Merriam, 1998). As Stake (2010) explained, the goal of case studies is not to generalize but to understand and improve how things work. While not generalizable, this study can provide important insights to other colleges of education that are facing similar challenges and to researchers seeking to answer similar questions.

Based on our initial faculty response, our recommendation for other colleges of education is to start by taking inventory of their current resources and expertise. Once they have compiled resources for best online practices, they should explore ways to provide professional development in ways that meet the specific needs of faculty. Our experience also stressed the importance of balancing both on-demand and collaborative professional development. Based on the feedback from the course completers, our Phase 2 efforts would focus on re-designing our OTI course so that we offer both self-paced and facilitated modules as well as instructor-led and facilitated modules to teacher educators in our college (see Table 2).

Table 2

OTI Module Topics, Areas of Focus, and Formats across Course Versions

Modules	Areas of Focus	Original OTI	OTI On-Demand (Phase 1)	Balanced OTI (Phase 2)
Introduction to online teaching	<ul style="list-style-type: none"> • Introduction to online learning • Common misconceptions of online learning • Technology affordances 	Instructor-led Collaborative	N/A	Self-paced Facilitated
Course Design and Management	<ul style="list-style-type: none"> • Backwards design • LMS Basics • Different types of content • Course accessibility and copyright 	Instructor-led Collaborative	Self-paced Unfacilitated	Self-paced Facilitated
Assessment and Grading	<ul style="list-style-type: none"> • Advantages & disadvantages of traditional & alternative assessments • Qualities of effective feedback 	Instructor-led Collaborative	Self-paced Unfacilitated	Self-paced Facilitated
Discussions	<ul style="list-style-type: none"> • Dimensions of online interactions • Facilitating online discussions • Effective discussion prompts 	Instructor-led Collaborative	Self-paced & Unfacilitated	Instructor-led Collaborative
Collaboration	<ul style="list-style-type: none"> • Student collaboration online • Facilitating online collaboration • Tools for collaboration 	Instructor-led Collaborative	Self-paced & Unfacilitated	Instructor-led Collaborative
Presence, Feedback, and Support	<ul style="list-style-type: none"> • Importance of establishing presence • Nurturing a sense of community • Strategies for responding to student needs 	Instructor-led Collaborative	Self-paced & Unfacilitated	Instructor-led Collaborative

Synchronous Learning Sessions	<ul style="list-style-type: none"> • Activities for synchronous meetings • University-supported platforms • Case studies from within the college 	Included in the previous module	Self-paced Unfacilitated	Instructor-led Collaborative
-------------------------------	---	---------------------------------	--------------------------	------------------------------

Professional Learning Communities

During the pandemic, we also recognized a need for faculty to receive personalized, one-on-one support. Knowing that we could not offer that level of support within on-demand OTI, we decided to leverage the expertise of the OTI faculty alumni by developing the Online Teaching Support Group. The group comprised of faculty across all academic programs within the college. All members of the group had extensive experience in online teaching and the large majority were successful OTI completers. The group became the primary contacts for faculty when they had questions or needed support.

Teacher education is a highly collaborative field, and the possibilities of establishing professional learning communities (PLCs) should be explored even after the pandemic is over (Boutelier et al., 2020). These PLCs can be a space to share examples of effective online teaching activities, ask any specific questions, and engage in conversation about experiences and challenges. As one of our OTI completers noted, “To be honest, sometimes it is just good to know that you are not the only one with challenges!” As faculty may or may not be teaching an online course while enrolled in the professional development course, such PLCs may provide a great opportunity to interact with others instructors when actually teaching online. PLCs can also significantly reduce the demands on professional development facilitators’ time. Perhaps most importantly, PLCs can be especially important when overcoming second-order barriers to change, a topic that requires additional research.

Conclusions

We understand that as a field we need to leverage our expertise to better understand the needs faculty have during this unprecedented time and how to best provide meaningful support. Similar to our previous research on the original OTI course (Borup & Evmenova, 2019), we have planned research to examine how our approach during this crisis helped faculty to overcome both first- and second-order barriers. For this event to have a long-lasting positive impact on future online teaching and learning, we recognize that faculty not only need to develop skills (first-order barriers) but also need to have positive attitudes and beliefs (second-order barriers) towards online learning (Ertmer, 2005). We strongly believe that collaborative efforts will be the most successful at meeting this global need. As a result, we will place a creative commons license on the new OTI course currently under development and invite others to collaborate.

References

- Bandura, A. (1986). *Social foundations of thought and action*. Prentice-Hall, Inc.
- Borup, J. & Evmenova, A. S. (2019). The effectiveness of professional development in overcoming obstacles to effective online instruction in a College of Education. *Online Learning Journal*, 23(2), 1-20. <https://doi.org/10.24059/olj.v23i2.1468>.
- Boutelier, S., Gibson, S., Leal, C., & Ludwig, N. (2020). Teacher education during isolation: Virtual worklabs for community and accountability. In R. E. Ferdig, E. Baumgartner, R. Hartshorne, R. Kaplan-Rakowski, & C. Mouza (Eds.) *Technology and teacher education during the COVID-19 pandemic: Stories from the field* (pp. 473-477). Association for the Advancement of Computing in Education (AACE).
- Cooper, R., Farah, A. & Mrstik, S. (2020). Preparing teacher candidates to teach online: A Case

- study of one college's design and implementation plan. *International Journal on E-Learning*, 19(2), 125-137.
- Christie, B. (2014), Quality Online Learning and Teaching (QOLT) evaluation instrument sections and objectives. California State University. Retrieved from <http://qolt.sfsu.edu/sites/default/files/QOLT2-pgnumberslogoCore24CClicense111715.pdf>
- Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development*, 47(4), 47–61.
- Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational Technology Research and Development*, 53(4), 25-39.
- Ertmer, P. A., & Ottenbreit-Leftwich, A.T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-105.
- Gosselin, K.P., Northcote, M., Reynaud, D., Kilgour, P., Anderson, M. & Boddey, C. (2016). Development of an evidence-based professional learning program informed by online teachers' self-efficacy and threshold concepts. *Online Learning*, 20(3), 178-194.
- Hillman, D. C., Willis, D. J., & Gunawardena, C. N. (1994). Learner-interface interaction in

distance education: An extension of contemporary models and strategies for practitioners. *The American Journal of Distance Education*, 8(2), 30-42.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). The difference between emergency remote teaching and online learning. [blog post]. EDUCAUSE Review, Retrieved from <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>

Jin, Y. & Redish, T. (2020). Professional development for remote learning in teacher education to support teacher educators and preservice teachers during the COVID-19 pandemic. In R. E. Ferdig, E. Baumgartner, R. Hartshorne, R. Kaplan-Rakowski, & C. Mouza (Eds.) *Technology and teacher education during the COVID-19 pandemic: Stories from the field* (pp. 473-477). Association for the Advancement of Computing in Education (AACE).

Merriam, S. B. (1998). *Qualitative research and case study applications in education: Revised and expanded from case study research in education*. Jossey-Bass.

Moore, M. G. (1989). Three types of interaction [Editorial]. *American Journal of Distance Education*, 3(2), 1-7. <https://doi.org/10.1080/08923648909526659>

Norton, P. & Hathaway, D. (2015). Teachers' online experience: Is there a covert curriculum in online professional development? *Journal of Technology and Teacher Education*, 23(4), 509-533.

Parrish, A. H. & Sadera, W. A. (2019). A Review of faculty development models that build teacher educators' technology competencies. *Journal of Technology and Teacher Education*, 27(4), 437-464.

Quezada, R. L., Talbot, C., & Quezada-Parker, K. B. (2020). From bricks and mortar to remote teaching L A teacher education program's response to COVID-19. *Journal of Education for Teaching, 46*(4), 472-483. <https://doi.org/10.1080/02607476.2020.1801330>

Stake, R. E. (2010). *Qualitative research: Studying how things work*. New York, NY: Guilford Press.

UNESCO (2020). 1.37 billion students now home as COVID-19 school closures expand, ministers scale up multimedia approaches to ensure learning continuity. Retrieved from <https://en.unesco.org/news/137-billion-students-now-home-covid-19-school-closures-expand-ministers-scale-multimedia>

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, Ed.). Harvard University Press.

Walters, S., Grover, K. S., Turner, R. C. & Alexander, J. C. (2017). Faculty perceptions related to teaching online: A starting point for designing faculty development initiatives. *Turkish Online Journal of Distance Education, 18*(4), 4-19.