Special Issue Editorial:
Preservice and Inservice Professional Development During the COVID-19 Pandemic

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INTRODUCTION

The global COVID-19 pandemic has changed our lives in countless ways. This has included the move to emergency remote learning for PreK-12 and post-secondary education around the world. While school districts and post-secondary education institutions originally anticipated relatively brief closures, the impact of COVID-19 resulted in extensive periods of emergency remote teaching and learning. Many K-12 school districts and institutions of higher education had to teach online for almost all of the

spring semester (2020); they have also added contingency plans for future remote instruction in the summer and for the 2020-2021 academic year. As we move beyond the survival phase of remote teaching and learning, it is critical now to transition to a thriving phase of remote teaching, learning, and teacher education.

While remote instruction is not new (U.S. Department of Education, 1996), and researchers have argued for years that teachers and teacher educators (TEs) should have been preparing for online and blended instruction (Ferdig & Kennedy, 2014), these calls have been mostly unheeded (Kennedy & Ferdig, 2018). Now, many teachers and TEs find themselves unprepared for the challenges they face (Hodges et al., 2020). These challenges include, but are not limited to creating content for online spaces, learning new delivery tools, understanding online pedagogy, engaging parents, addressing student mental health issues, and attempting various pedagogical strategies to address both synchronous and asynchronous teaching and learning. The good news is that many TEs have created professional development (PD) for teachers and many also successfully and quickly revised their courses to support online instruction for preservice teachers (PSTs). This special issue (SI) highlights numerous and varied efforts by TEs, researchers and practitioners across the globe as they rapidly responded to remote teaching and learning. Given the focus of this journal, these efforts are at the intersection of technology and teacher education for both the pre-service teacher education and in-service teacher PD.

THE PROCESS

There will be tremendous value in research published after the pandemic that looks back to find out what worked, what did not work, and what could be learned to improve current and future practice. At that point in time, the Journal of Technology and Teacher Education (JTATE; http://site. aace.org/pubs/jtate) will join other journals in such historical examinations. The major drawback with a retrospective approach, however, is that articles published in the next 12-24 months will not help TEs and in-service teacher (IST) professional developers attempting to create and implement online learning now. We need articles and best practice briefs that impact the field this summer and this coming academic year as we plan for continued online instruction. That was the purpose in originating this SI.

Upon conclusion of the SITE--Society for Information Technology and Teacher Education's 2020 Annual International Conference (http://

[site.aace.org/conf)](site.aace.org/conf) a call for papers was distributed for a fast-tracked SI of JTATE. While the SI would include peer-reviewed, research-focused manuscripts, it differed from typical JTATE SIs in a number of ways. First, the turnaround time from the date of the call and the deadline for submission was significantly abbreviated from several months to approximately three weeks. Second, the length and format of the manuscripts were significantly shorter than the typical 6000-8000 word JTATE papers. We followed a medical journal, short-paper style approach, whereby the authors had approximately 1,000 words to describe what they had done and its potential impact on other TEs. The purpose of this approach was three-fold: 1) to facilitate quick review and publication; 2) to provide easy-to-read and ready-to-apply best practices and resources to support teachers, students, parents, and TEs around the world with emergency remote teaching and learning; and 3) to afford space to allow editors greater impact by publishing considerably more articles than in a normal JTATE issue. This last point was critical because we knew that many of the papers would not have had time to complete significant empirical research; rather, this was viewed as a larger collection of works-in-progress that might lead to promising results.

To further support rapid review of manuscripts, authors were provided with a set of strict guidelines. These included a manuscript length of 500-1000 words, inclusion of strategies and/or open-access products to be used by others, and a standard writing format (rationale, process, early results/outcomes, implications/replication, and future research). At least three members of the editorial review board quickly—but rigorously—reviewed these articles to ensure they were: 1) situated in the literature and based on a sound theoretical basis; 2) empirical or quasi-empirical in nature, highlighting work people have been doing in the face of COVID-19 with early evidence of their success; 3) innovative in terms of teaching and learning strategies; and 4) complete with a variety of accessible resources. Editors also reviewed the papers to ensure enough text was provided to enable readers to replicate the processes or use the tools described in the work in order to improve in-service or preservice teacher development. With that said, the occasional theoretical piece was accepted, but this was done only if the piece impacted practice and/or drew on existing resources. In the end, there was an overwhelming response to the call, with 266 submissions. Of those, 33 were selected for publication (acceptance rate 12.41%).

WHAT WE LEARNED

While there was a broad array of areas of focus for the submissions, we were able to categorize articles into five key themes:
1. Building Communities
2. Online Professional Development/Coaching
3. Simulated/Online Teaching Experiences for Preservice Teachers
4. Digital Tools
5. Equity Issues

Theme 1: Building Communities

Research has provided evidence of the need to establish rich, diverse, and supportive communities in K-12 teaching and learning settings (National Research Council, 2000). The first four articles in the special issue address best practices and resources for building innovative and supportive communities to address teaching and learning issues during COVID-19 and emergency remote instruction. In each of these articles, the lessons learned were framed in the idea of community-development and its role in the teacher education and PD processes.

There are a number of key takeaways from these articles. First, we learned that targeted hashtags (e.g., #RemoteTeaching, #RemoteLearning) can be leveraged to provide teachers with just-in-time spaces to address the myriad of unique and constantly evolving issues that have resulted from teaching in the time of COVID-19 (Trust, Carpenter, Krutka, & Kimmons). We also learned that PD that builds on the *Academic Communities of Engagement* (ACE) framework can be useful in providing affective, behavioral, and cognitive support for teachers, students, administrators, counselors, and parents in remote teaching and learning environments (Borup, Jensen, Archambault, & Graham).

Next, while we know that issues-based learning can be an effective approach for exploring societal issues, we learned that using issues-based collaborative curriculum design is an effective PD approach for addressing the dearth in instructional materials for teaching about COVID-19 (Sadler, Fiedrichsen, Zangori, & Ke). Lastly, through the use of an online STEM fair, we learned that PSTs need more preparation for teaching in online or blended environments and more time to consider the complexity of online and remote teaching (Evagorou & Nisiforou).

Theme 2: Online Professional Development/Coaching

The movement towards online course delivery in teacher education has gained increased momentum in recent years (Karchmer-Klein & Pytash, 2020). Yet neither TEs nor teachers typically receive systematic support or instruction on how to design high-quality, interactive online learning experiences (Archambault et al., 2016). As a result, the shift to remote teaching necessitated new models of teacher PD and support, including support for TEs themselves. Given constraints imposed by COVID-19, a number of online PD programs emerged to help address teacher needs. Online PD has the potential to support teacher learning by providing time and space for both synchronous and asynchronous interactions, offering opportunities to reflect on issues of practice either individually or in collaboration with colleagues (National Research Council, 2007). Coupled with virtual coaching, online PD can also provide a customized learning experience that directly supports teachers' pedagogical practice (Affinito, 2018). This SI includes eleven articles addressing innovative approaches to online PD and coaching.

These articles explored the transition of teacher education and PD to diverse settings, and a number of key findings emerged. These include: 1) there is a lack of preparation, training, and support the participants had for designing quality instruction with technology, which has created both additional stressors and barriers to effective remote teaching (Trust & Whalen); 2) teachers need to be provided with opportunities to develop and participate in online and blended teaching and learning opportunities (Christensen & Alexander; Gudmundsdottir & Hathaway); 3) there is a need for un-structured, socially-connected, learner-centered, and multi-modal teacher preparation and PD (Prestridge & Cox); 4) *Folk pedagogies,* the grounded knowledge of teachers and learners, is an effective approach for TEs who deploy video conferencing technologies, with a focus on a 'Do', 'Know', 'Think', and 'Manage' approach (Henriksen, Creely, & Henderson); 5) self-directed, un-structured PD communities which provide pedagogical resources and opportunities for teachers to connect are useful for supporting teachers that are new to remote teaching and learning (Safi, Wenzel, & Trimble Spalding; Trikilis & Papanastasiou); 6) virtual coaching, or providing expert guidance with PSTs, is useful in providing refinement, analysis, and continual development and improvement of pedagogical skills for remote teaching (Keefe); 7) as teachers sought their own support and resources to prepare for remote teaching, video was a preferred format, and search terms focused on specific online instructional practices (Cavanaugh & DeWeese); and 8) promoting inquiry in the remote classroom is an effective approach for TEs, and this

can be done effectively through scaffolding approaches and providing ongoing support (Geiger & Dawson; Manfra, Lee, & Grant).

Theme 3: Simulated/Online Teaching Experiences for Preservice Teachers

With the rapid transition to online learning, PSTs were suddenly unable to complete their teaching experiences at schools (e.g., internships, field experiences, and practicum assignments). Field experience is critical for PSTs; it has been argued that it is the most important component of development (Edwards & Briers, 2002). Without having the face-to-face experience, education programs had to adapt utilizing existing technologies. Fortunately, TEs were able to adapt utilizing simulations, 360-degree video, and several other innovations to ensure fieldwork could still be completed successfully. These technologies have been implemented online to ensure PSTs are still getting the imperative fieldwork experience without having to be in the field. There were eight articles that addressed this theme.

In these eight articles, several unique lessons emerged. First, scenario-based simulated PD environments are effective in facilitating deep reflection about individual teaching practices by increasing the visibility of the instructional decision-making process to both the TE (for feedback), and the PST (for development) (Sullivan, Hillaire, Larke, & Reich). Additionally, virtual reality simulations can serve as mechanisms to support PST development of pedagogical skills and improved confidence, as well as assessment of a diverse collection of PST competencies during remote practicum experiences (Sasaki, et al.). Second, we learned that multi-perspective 360 video is a relatively inexpensive approach that can provide PSTs with similar field experiences as face-to-face, providing opportunities for student observation and assessment from multiple perspectives, and serving as a viable field experience alternative during the COVID-19 crisis, or future similar crises (Zolfaghari, Austin, Kosko, & Ferdig). Third, providing structured virtual student teaching and tutoring opportunities for PSTs can serve as a useful option to traditional field-based experiences, resulting in extensive support for students in high-needs contexts, professional growth opportunities for the PSTs, and experience for TEs in unique and innovative methods of supporting PSTs (Cirillo, LaRochelle, Arbaugh, & Bieda; Kier & Clark).

Fourth, as the need for promoting global solidarity increases in the wake of COVID-19, video-based case studies, alongside self-reflection instruments (i.e., Teaching for Global Readiness Scale) can be effective in allowing teachers to reflect on their pedagogical approaches related to global learning (Kerkhoff). Fifth, a human-centered design approach in teacher education can be effective in establishing a collegial community among PSTs,

as well as supporting the development of teacher empathy, creative thinking, collaboration, and embracing ambiguity (Baran & AlZoubi). Lastly, while the use of video conferencing can be engaging and beneficial for toddlers and preschoolers during the COVID-19, it is important that TEs and PSTs explore ways to maintain learner engagement throughout the video-conferencing session, as well as methods of maintaining communication with families regarding format and expectations (Szente). While there are some overlapping contexts within some of these articles, they each provide a unique examination of simulated or online teaching experiences for PSTs, and extend the current discussion related to the use of innovative technological applications and pedagogical approaches in supporting the development of PSTs.

Theme 4: Digital Tools

When the pandemic hit and emergency remote instruction became the new normal, digital tools allowed ISTs and PSTs to continue their education. When used correctly and situated in a relevant context, digital tools can facilitate the completion of even the most complex tasks (Jesson, McNaughton, Rosedale, Zhu, & Cockle, 2018). Digital tools foster active learning and allow for collaboration in both synchronous and asynchronous formats. Moreover, digital tools have the power to engage, for example, through gamification, the creation of screencast learning content, or through immersion into poetry writing. The SI features five articles addressing the theme of digital tools.

The utilization of digital tools in unique and innovative ways to support ISTs and PSTs were the primary focus of the articles in this section, and the five articles provided us with a number of key lessons learned. First, while there has been a clear focus on the use of synchronous video conferencing, asynchronous video can be more effective for supporting student reflection, establishing and maintaining connection with learners, providing feedback, whole-class feedback, and interactions across time zones. Thus, it is important to prepare ISTs and PSTs in decision-factors for determining whether to use synchronous or asynchronous video in remote teaching and learning (Lowenthal, Borup, West, & Archambault).

Second, screencasting is an easy-to-use method of disseminating asynchronous content and can be useful in supporting PSTs' motivation and emotion during the COVID-19 crisis. Thus, screencasting-based activities are important to embed in PST programs to reduce PST attrition and burnout, while increasing self-efficacy (Ranellucci & Bergey). Third, it is important to seek innovative ways of supporting IST PD. Digital poetry has

shown promise as one such approach, as it affords ISTs with engaging exploration, creativity, and composition opportunities with digital tools, resulting in a more comprehensive understanding of the composition process (Hassler, Pytash, & Ferdig). Lastly, digital escape rooms, which have been receiving increased attention in eLearning, can serve as a useful approach to teaching PSTs about integrating gamification concepts in the classroom (Neumann, Alvarado-Albertorio, & Ramirez-Salgado). Additionally, creating a digital escape room is a useful and unique approach to provide inexperienced educators, such as alternate certification teachers and PSTs with PD related to problem-based learning, particularly in remote teaching and learning scenarios (Gomez).

Theme 5: Equity Issues

Equity of access to technology and teacher PD (or the lack thereof) has been a concern for decades (Van Dijk, 2006). The abrupt transition to remote teaching and learning caused by the COVID-19 pandemic has amplified concerns about the digital divide (Pew Research Center, 2020). It helped raise awareness of the gaps in student success that may be exacerbated by socio-economic inequities. While online learning may be convenient for some students, others risk being left behind if issues related to access and online course design are not consciously addressed. This SI includes a selection of five articles that address the theme of inequities with regard to technology access, accessible design, and mental health in the era of COVID-19 online education.

In these five articles, we learned a number of key lessons. First, social isolation and other consequences of COVID-19 can negatively influence emotional and mental health of both teachers and students (Kalir, Cantrill, Dean, & Dillon; Roman). Additionally, as education transitions from face-to-face to remote settings, many support services for accessibility issues are either unavailable, difficult to obtain, or reduced in capacity (Smith & Colton). As a result, it is important for educators to pay close attention to digital and other equity issues (Hall, Roman, Jovel-Arias, & Young; Kalir, Cantrill, Dean, & Dillon), emotional and mental health issues (Roman), and accessibility issues (Smith & Colton). It is also critical for educators to inform solutions to resolving equity, accessibility, and emotional/mental health issues. ISTs and PSTs, though, are often unaware of such inequities (Hall, Roman, Jovel-Arias, & Young). Thus, it is important that IS PD and PS teacher education facilitates a comprehensive understanding of these issues, as well as approaches to address them. This can be facilitated effec-

tively through self-reflection exercises (digital inequities, emotional/mental health) or through the development of educational resources or support materials (accessibility) (Hall, Roman, Jovel-Arias, & Young; Kalir, Cantrill, Dean, & Dillon; Roman; Smith & Colton).

Lastly, in the move to remote teaching and learning, a homework gap has emerged among students. Consequently, IST PD should extend beyond creating student resources, content delivery, and pedagogical approaches, and should also address communication strategies between schools, teachers, students, and parents (Clausen, Bunte, & Robertson). As with the previous sections, there is a great deal of interconnectedness between the articles in this section, with each highlighting new issues resulting from the COVID-19 pandemic, and many providing evidence-based solutions to varying aspects of these issues, and others serving as calls for TEs to provide renewed attention to these important issues.

SHARING OTHER PROJECTS AND STORIES

The response to the call for papers was overwhelming. Within 3 short weeks, 266 papers were submitted. Not every paper met the requirement for publication in a rigorous, peer-reviewed journal. However, almost every single paper shared stories, tools, and implications that might help others. These were stories written by TEs, ISTs, PSTs, administrators, and even parents. They were written by authors around the globe. Even if we accepted a larger than usual number of papers for the special issue (in this case, 33), we were facing the fact that up to 233 important stories might not get told in a widely-accessible public domain.

We are pleased to announce that we have partnered with the Association for the Advancement of Computing in Education (AACE) (http://aace.org) to publish an open-access book titled, "Teaching, Technology, and Teacher Education During the COVID-19 Pandemic: Stories from the Field" (Ferdig, Baumgartner, Hartshorne, Kaplan-Rakowski, & Mouza, 2020). The book contains more than 125 research and practice stories that we were not able to share in this SI. We want to thank the authors of the SI as well as the authors of the edited book for being willing to share their work.

CONCLUSION

Due to the recency of the impacts of COVID-19 on K-12 schools and colleges of education around the globe, many educators working with in-service and pre-service teachers are struggling to plan for blended and online instruction this summer and beyond. We encourage researchers, practitioners, and authors to use this SI as a roadmap for both further research exploration and practical application. In conclusion, we would like to thank our international advisory board and editorial review board, as well as numerous ad hoc reviewers for this SI for their extensive, critical, and constructive reviews. Additionally, we would like to thank AACE for their willingness to publish these important research pieces rapidly in an attempt to help others.

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