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Editorial: A Report on the 2020 National Technology Leadership Summit

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On September 24-25, 2020, national teacher education leaders, editors of educational technology journals, and representatives from the nonprofit sector and industry convened again for the annual National Technology Leadership Summit (NTLS). The overall goal of the annual summit is to "accelerate the meaningful impact of digital technologies in education for the 21st century." The summit, which is typically hosted by the American Association of Colleges for Teacher Education (AACTE) in Washington, DC, moved online this year due to the continuous public health crisis associated with the spread of Covid-19. NTLS was generously supported by the Society for Information Technology and Teacher Education (SITE), AACTE, and the Chan Zuckerberg initiative.

NTLS featured presentations and updates by leading agencies and organizations in the field of educational technology, including the National Science Foundation, the EdTech Evidence Exchange (formerly JEX), the Chan Zuckenberg Initiative, and the Office of Educational Technology (U.S. Department of Education). In addition, NTLS has two staple events every year: (a) a panel featuring presidents of teacher educator associations discussing contemporary and pressing issues at the intersection of technology and teacher education, and (b) a panel featuring editors of educational technology journals.

This year's editors' panel, hosted by Rick Ferdig (outgoing editor, *Journal of Technology & Teacher Education*), focused on the promise and challenges of rapid publishing to address timely issues in technology and teacher education. Prompted by two recent publications supported by the Association for the Advancement of Computing in Education (see Ferdig et al., 2020; Hartshorne et al., 2020), editors discussed opportunities for expediting the publication process while considering the affordances or constraints of their respective journals.

As in previous years, the 2020 NTLS was organized around three strands: (a) Teacher Preparation in a Time of Crisis (TPTC); (b) Using Distance Technology for Field Placements; and (c) Computational Thinking in Music and the Arts.

The TPTC strand grew out of the work of the COVID-19 Education Coalition. NTLS strand leaders Jacqueline Rodriguez (AACTE) and Elizabeth Langran (SITE president), along with David Slykhuis (NTLS chair), worked on this national initiative formed in spring 2020 in response to the transition to emergency remote teaching. The coalition's deliverables, available athttps://www.learningkeepsgoing.org/, include materials created by a higher education subcommittee that specifically address two areas: student agency in online learning (COVID-19 Education Coalition, 2020), and policy recommendations for higher education institutions that prepare teachers (COVID-19 Education Coalition Higher Education Working Group, 2020)

In addition to building off of the coalition's work, the TPTC strand was able to take advantage of its large size and divide into several different groups to work on deliverables that included SITE and International Society for Technology in Education (ISTE) conference presentations on becoming a public scholar and researchers developing talking points for the media; addressing social justice in educational technology; collaborative research addressing preconceived notions of online learning effectiveness and best practices for both K-12 and higher education; and developing a prospectus to fund infrastructure, training/coaching, and future teacher preparation in technology.

The Using Distance Technology for Field Placements strand was led by Richard Hartshorne and Lisa Dieker (University of Central Florida). With the unexpected shift to extensive periods of remote learning in PK-20 education as a result of COVID-19, school districts and colleges of education developed innovative methods for preparing future teachers as well as supporting existing teachers within these new learning environments. The strand participants discussed ideas for distance technology field placement both in and beyond the COVID-19 era. Thus, the strand participants focused on the impacts of COVID-19 in preservice teacher education and in-service professional development, with a focus on both the near and far term.

More specifically, participants in this strand examined both tools and models of remote field placements, as well as current and future research practices associated with many of these tools and models. Additionally, participants addressed how these tools and models are being applied now to the new teaching and learning environments and how new tools might emerge as a result of COVID-19.

The participants discussed the benefits of these tools and models being leveraged for implementation beyond the COVID-19 era. Initial outcomes of the strand included two Birds of a Feather panel sessions at SITE Interactive: *Teacher Educators' Role in Preparing Teacher Candidates in the Post-COVID-19 Era and Beyond* (Burrows et al., 2020) and *Teacher Educators' Crossroad: Preparing Teachers in the COVID-19 and Post-COVID-19 Eras* (Trumble et al., 2020). These Birds of a Feather sessions

focused on collaborative discussions driven by both observations and experiences of participants, with each session focusing on various aspects of developing a collective understanding of past practices, emerging practices, new possibilities, and robust remote instruction infrastructure in preparing teachers for teaching and learning in remote environments as key areas of inquiry. Future desired outcomes include collaborative research projects to provide a more robust collection of research-based best practices related to using distance education tools and innovative models for preservice teacher preparation and in-service professional development.

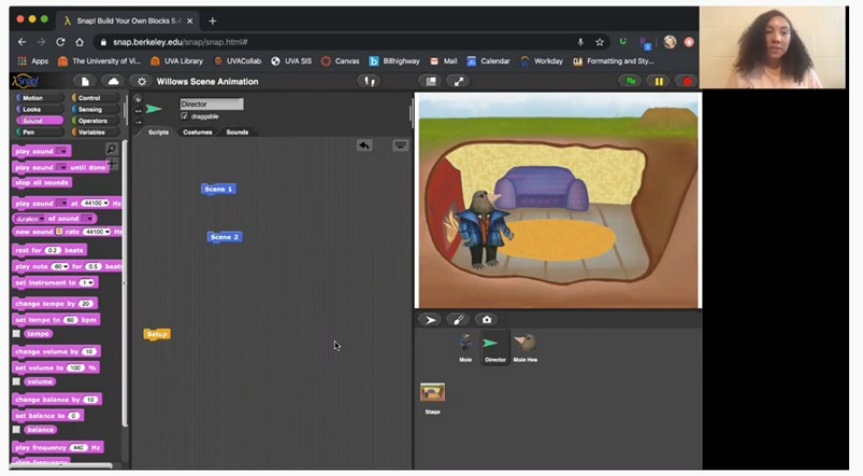
The third strand, Computational Thinking in Music and the Arts, led by Glen Bull (University of Virginia) and Chrystalla Mouza (University of Delaware), with support from James Rutter, Alexis Kellam and Natasha Heny, explored different approaches to using Snap!, an object oriented visual programming environment to advance computational thinking skills in the context of arts and music. The strand featured a presentation by Jens Moening and Brian Harvey, developers of Snap!, on computational media features in Snap!

Subsequently, participants worked in three breakout groups to address computational thinking in (a) Art and Storytelling; (b) Music and Computational Media; and (c) Art, Music and Physical Computing. During this time, participants explored different Snap! features for advancing computational thinking in arts and music.

For instance the group on Art and Storytelling explored the potential of Snap! by creating a storyboard with multiple frames and recording a voice-over to narrate a story (see Figure 1 for an example of stories that could be created using Snap!). Similarly, the group on computational thinking in music explored Snap! features using TuneScope (https://soundscope-website.web.app). For other examples on digital stories, see the Make to Learn website: https://www.maketolearn.org/digital-stories/. Strand participants convened at the end of the session to share their computational products and discuss approaches to the integration of computational thinking in Arts and Music within K-12 school curricula.

This issue of *CITE Journal* includes a collection of articles examining different models of teacher professional development at the intersection of technology and content including mathematics, computational thinking, and engineering, in addition to an article focusing on preservice teacher learning of equitable disciplinary discourses in digital collaborative spaces.

Figure 1. Creating Digital Stories in Snap!



Description of Current Issue

The English Languare Arts Education article, "Preservice Teacher Commognitive Conflict around Poetic Discourse in Digital Spaces and Implications for Equitable Teaching" by Karis Jones, used the commognitive framework by Sfard (2007, 2009) to investigate preservice teacher learning in collaborative digital environments. This framework was used to examine changes in students' discourses, particularly around the use of metarules. Though not previously used outside technical fields, Jones argues that this framework provides a lens for teacher educators to study preservice teachers' shift or lack thereof to new and more equitable disciplinary discourses. Data were collected from online interactions in a digital space (i.e., Slack), and analysis focused on hashtag practices in online postings and a commognitive analysis of classroom discourse in and around Slack. Findings indicate challenges in shifting the leading discourse in digital spaces but also the promise of the commognitive framework to study teacher learning.

The Mathematics Education article, "Developing Mathematics Knowledge and Computational Thinking Through Game Play and Design: A Professional Development Program" by Hannah Smith, Avery H. Closser, Erin Ottmar, and Ivon Arroyo, describes an innovative professional development program, the Game Play and Design Framework. Middle school teachers played, designed, tested, and implemented mathematics games in the classroom with their students. Data were collected through surveys artifacts (i.e., games developed by teachers). Findings indicated that teachers completed the design process and produced playable math games. They also reported increases in their confidence as well as positive experiences with the program. However, challenges were discovered in moving to the last stage of the work of having students create games. This work has implications for teachers interested in integrating technology and computational thinking into existing STEM curricula.

A second Mathematics Education article, "Does a Technology-Assisted Lesson Study Approach Enhance Teacher Learning While Eliminating

Obstacles of Traditional Lesson Study?" by Rongjin Huang, Dovie Kimmins, Jeremy Winters, and Gregory Rushton, also focuses on professional development for educators. The researchers used a form of technology-assisted lesson study aimed at addressing some of the challenges associated with traditional approaches, such as scheduling issues. In this approach teachers use Swivl to videotape their research lessons and review annotated videos asynchronously with an experienced facilitator. Data were collected from two teachers and demonstrated the positive impact of the program on teacher learning of reform-oriented teaching while highlighting the affordances of technology in lesson study.

The Science Education section features two articles examining elementary teachers' self-efficacy in engineering education. One article "Teacher Self-Efficacy in a Rural K-5 Setting: Quantitative Research on the Influence of Engineering Professional Development" by Michele Parker, Kelly Ficklin, and Margaret Mishra, examined elementary teachers' self-efficacy of integrating engineering into the K-5 curriculum before and following participation in Engineering Is Elementary (EiE) professional development and 4 weeks after the last EiE intervention. Data were collected through the T-STEM survey from 43 teachers who completed the program. Results indicated increases in teachers' engineering teaching efficacy and beliefs, outcome expectancy, and instruction.

A second article, "Qualitative Research on the Influence of Engineering Professional Development on Teacher Self-Efficacy in a Rural K-5 Setting" by Kelly Ficklin, Michele Parker, and Tammy Shaw-Ferguson complements the quantitative findings by reporting on interview data from 14 teachers who completed the EiE professional development. Findings indicated that teachers improved in their self-efficacy and considered engineering as achievable in K-5 classrooms. Further, teachers noted the lack of STEM training in teacher preparation and the need for professional support.

I hope *CITE Journal* readers enjoy these articles over the winter break. Please consider submitting a commentary!

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