Editorial: A Report on the 2017 National Technology Leadership Summit

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On September 28-29, 2017, national leaders from educational associations, editors of educational technology journals, directors of nonprofit foundations, federal policy makers, and corporate representatives gathered in Washington, DC, for the National Technology Leadership Summit (NTLS). The event was hosted by the American Association of Colleges for Teacher Education (AACTE).

NTLS provides an annual opportunity to facilitate dialog between educational technology and teacher educator associations. *CITE Journal* is a tangible outcome of this dialog representing five teacher educator associations (English, math, science and social studies – listed on the opening page of the CITE Journal) and educational technology. As Debra Sprague put it in a 2004 editorial, such dialog is important so that as educational technology leaders we are not *talking to ourselves.* Many of the outcomes over the years have been communicated in a series of editorials published in *CITE Journal (*see Bull, Spector, Persichitte, & Meier, 2017)

Editors of all key educational technology journals, including the *CITE Journal* editor-in-chief and *CITE Journal* section editors, were represented at the NTLS. This is a rare opportunity to get together those associated with current publishing efforts. At the editors' panel they all shared insights related to recent trends, reviewing processes, and opportunities to advance the visibility and impact of educational technology research. The ultimate goal is to produce and disseminate high quality research relevant to the needs of teacher educators, practitioners, education leaders, and policy makers.

Research Strands for the 2017 NTLS

The recent NTLS was organized around three research strands: technology standards for school leaders, microcredentials, and American innovations in the content areas.

The strand on technology standards for school leaders was led by Mike Spector (University of North Texas) and Charles Hodges (Georgia Southern University). The work in this session was a continuation of work over the last year or more, which has been documented in a few publications (Bull, Spector, Persichitte, & Meier, 2017; Hodges, Carpenter, & Borthwick, 2017; McLeod & Richardson, 2017). In summary, school leaders are busy professionals and their formal preparation often does not give them a solid understanding of the possibilities that educational technology can offer in today's schools.

The discussions in the strand this year focused on the reality that good resources are available, including a large body of educational technology research, ISTE's Standards for Administrators, and case studies of successful technology integration in schools; the academic and professional communities of educational technology and educational leadership, however, do not have enough collaboration and interaction. Thus, strand participants recommended that we seek opportunities to encourage collaboration and interaction between these professional communities. There may be possibilities to lead a special issue of an educational leadership journal on these ideas, to present sessions at leading educational leadership conferences, and to bring scholars and practitioners from educational leadership into our educational technology publications and conferences. Continued discussions and networking resulting from the strand may result in additional, unique opportunities to form meaningful collaborations between the educational technology and educational leadership communities of practice.

The strand on microcredentials was led by Rick West (Brigham Young University) and David Slykhuis (University of Northern Colorado). This group focused on the what, why, and how of open microcredentials (badges). Open badges are digital images embedded in rich metadata that help individuals share their skills and interests with the world. They are important for advancing our education besides formal institutional credentials.

A number of case studies have been reviewed and discussed focusing on how open microcredentials are being used in K-12 classes, faculty professional development, higher education, and community colleges. Further, the group discussed existing challenges and barriers to suitable implementation of open microcredentials. To address the issue of barriers, strand members worked in four groups with a focus on earners, issuers, interpreters, and reviewers of open badges to identify and rank different key problems.

As a next step, strand members are piloting a solution by designing a microcredential for conference attendance built around competencies and criteria. Strand members are working in four groups that include the needs assessment group (focusing on what competencies around conference attendance the badge should include), assessment group (developing relevant assessments related to the identified competencies), technical design group (creating the badge), and review group (process for reviewing and issuing the badge). This work will be piloted in one of the upcoming educational technology conferences.

The American Innovations strand led by Denise Crawford (Iowa State University) and Glen Bull (University of Virginia) focused on issues around science and mathematics when students reconstruct and enhance early inventions using advanced manufacturing. As a way to ground their discussion, strand members engaged in two project activities. One involved taking a series of measurements to derive Ohm's Law, and the other demonstrated an activity that had middle school students derive Ampere's Law for Solenoids. Subsequently, strand members discussed the benefits of integrated STEM activities, difficulties of integrated STEM activities in schools, and action items to move forward the STEM education community. A report of this work is published as an editorial in CITE-Science Education (this issue).

Description of Current Issue

This issue of *CITE Journal* includes an exciting collection of articles at the intersection of technology and teacher education. The Current Practice section features two articles addressing contemporary issues related to digital textbooks and twitter chats. The first article, "Enhancing Preservice Science Teachers' Use of Text through E-Readers" by Brian Zoellner and Terence Cavanaugh, examines preservice science teachers' views about the uses of e-readers and e-text before and after they were required to incorporate them into a lesson plan as part of a science methods course. The second article, "Making and Missing Connections: Exploring Twitter Chats as a Learning Tool in a Preservice Teacher Education Course" by Betina Hsieh, examines the experiences of a group of secondary preservice teacher candidates who followed various Twitter hashtags and then reflected upon these experiences. The study examines benefits and challenges associated with Twitter chats as a professional learning opportunity.

The *CITE-General* section shifts attention from preservice preparation to in-service professional development. The article, "Supporting Change in Teacher Practice: Examining Shifts of Teachers' Professional Development Preferences and Needs for Technology Integration" by Yin-Chan Liao, Anne Ottenbreit-Leftwich, Michael Karlin, Krista Glazewski, and Thomas Brush, examines K-12 technology-using teachers' perceptions and needs of professional development during a 6-year time span. Using a cross-section study design including surveys and interviews, the authors identify the content and formats of professional development that teachers identified as useful for their technology integration practices from 2009 to 2015.

CITE-Math also features two articles focusing on cutting edge topics related to the development of preservice teachers' computational thinking and statistical knowledge. The first article "Computational Thinking in Mathematics Teacher Education" by George Gadanidis, Rosa Cendros, Lisa Floyd, and Immaculate Namukasa, examines the role of teacher education in fostering preservice teachers' knowledge of computational thinking in mathematics. Using online discussions and reflection assignment, the study examines preservice teacher attitudes toward their experience with computational thinking in mathematics teaching and learning.

The second article "Incorporating Multiple Technologies Into Teacher Education: A Case of Developing Preservice Teachers' Understandings in Teaching Statistics With Technology" by Jennifer Lovett and Hollylynne Lee, presents one approach to helping secondary preservice mathematics teachers develop their technological pedagogical knowledge around statistics through the use of multiple technologies and authentic data sets.

The *CITE-Science* article is directly aligned with some of the work discussed at the NTLS focusing on STEM activities that involve manufacturing. The article "Technology-Supported Science Instruction through Integrated STEM Guitar Building: The Case for STEM and Non-STEM Instructor Success" by Sean Hauze and Debbie French, focuses on a 50-hour professional development initiative in the manufacture of a solid-body electric guitar. In addition, the professional development focused on the teaching of integrated STEM modular learning activities aligned with current standards. Subsequently the authors drew connections between professional development, teacher practice, and student outcomes. Specifically, they examine whether STEM and non-STEM teachers were able to implement technology in STEM courses successfully and whether this implementation resulted in student gains of STEM content associated with guitar building.

Finally, *CITE-Social Studies* features an article on "The Role of Photoblogs in Social Studies Classroom: Learning about the People of the Civil War" by Elizabeth Barrow, Janice Anderson, and Martinette Horner. The authors drew on existing educational technology frameworks to provide an example of how technology can engage students with meaningful social studies instruction. The purpose is to illustrate ways in which teachers can transform their lessons using technology in authentic ways.

Collectively, these articles illustrate ways in which current, emerging and novel forms of technology (Mouza, 2017; Mouza & Lavigne, 2012) can be integrated in preservice and in-service preparation to create technology-rich learning environments that support learning. I hope *CITE Journal* readers find these works productive. Commentaries are always welcome.

Acknowledgements

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