

Editorial: Strengthening the Impact, Novelty and Diversity of Research on Technology and Teacher Education

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It is with great excitement that I assume leadership as editor-in-chief of *CITE Journal*. In this role, I am committed to continuing the outstanding stewardship of founding editors Glen Bull and Lynn Bell. Lynn will remain as the managing editor providing valuable support and knowledge of the journal processes and procedures. For that I am particularly thankful. I am also grateful for the support of SITE (the Society for Information Technology and Teacher Education), which sponsors the journal, along with the co-sponsor associations in English teacher education, social studies teacher education, science teacher education, and mathematics teacher education.

Since 2000, *CITE Journal* has served as a scholarly venue for the publication of conceptual and empirical works at the intersection of technology and teacher education. Importantly, *CITE Journal* has worked with the cosponsoring organizations to explicate clearly how technology can be used to support applications of technology in teacher education that are content-driven. This focus on content, pedagogy, and technology is at the crux of the technological, pedagogical and content knowledge framework (Koehler & Mishra, 2009) that has informed much of contemporary research on teacher knowledge for effective use of technology in teaching.

My vision for the next phase of the journal focuses on four areas that would further elevate *CITE Journal* as a leading platform for the dissemination of research focusing on technology and teacher education: (a) improve the visibility and impact of the journal; (b) support discourse and timely exchange of ideas through commentaries; (c) advance scholarship related to the use of novel technologies, and (d) emphasize issues of diversity and equity in technology and teacher preparation.

Visibility and Impact

One of my immediate goals is to expand the visibility of *CITE Journal* to allied research and professional audiences as well as policy makers and practitioners. Journals that are more visible are more likely to be read and cited. A key strength of *CITE Journal* is its open-access online format, which makes content widely available around the world. As a result, *CITE Journal* articles have the potential to be widely read and cited. In turn, articles that are widely cited are more likely to substantially impact research and practice. A recent symposium organized by the University of Virginia's Curry School of Education, Digital Promise, and the Jefferson Education Accelerator noted that 90% of educational technology decisions are not based on evidence of efficacy. With its rigorous scholarly publications widely accessible, *CITE Journal* is in a unique position to support decision-making among teacher educators and other professionals.

Further, the ability to publish multimedia and not only text provides an added advantage in that it helps readers get a better glimpse of the work reported in *CITE Journal* articles through video, images, audio, and so forth. It could also promote increased methodological transparency by allowing authors to publish data, instruments or coding schemes as appendices. In an era where educational research is under scrutiny, such transparency would go a long way in illustrating the contributions of our work. The use of social media including table of content alerts, a Facebook group, and Twitter could be leveraged to improve the visibility of authors and the journal itself. I will be investigating opportunities to utilize social media and other ways of promoting the content and visibility of the journal to further improve impact.

Timely Exchange of Ideas

A noteworthy tradition of *CITE Journal* is the use of commentaries to promote scholarly discourse and the rapid exchange of ideas among readers. Commentaries are valuable for promoting various points of view, including debates on important trends. As such, they have the potential to advance knowledge and understanding of contemporary issues related to technology and teacher education. Examples of such commentaries are published in the current issue and include the [Social Studies Education Response \(Manfra, 2017\)](#) and the [Response of the Association of Science Teacher Educators \(Roehrig & Ellis, 2017\)](#) to "[An Interview With Joseph South](#)" published by Bull, Spector, Persichitte, and Meier (2017). These two commentaries bring attention to current discourse related to the development of technology competencies for university professors and candidates of teacher preparation programs (U.S. Department of Education, 2016).

Moving forward, I encourage readers, particularly seasoned scholars, to submit commentaries in response to *CITE Journal* articles, including supporting arguments, critiques, or counterpoints. In addition to promoting the timely exchange of ideas, such commentaries could help further highlight the work of *CITE Journal* authors.

Novel Technologies

Technology is rapidly changing, making it difficult for educational institutions and teachers to keep pace. Previously, Mouza and Lavigne (2013) used the term *emerging technologies* to indicate both technologies whose integration in classroom settings has been widely investigated as well as those whose integration could benefit from additional research. For instance, while research into how teachers learn to utilize laptop computers in teaching and learning has gathered much attention in the last decade (e.g., Dunleavy, Dexter, & Heinecket, 2007; Mouza, Cavalier, & Nadolny, 2008; Windschitl & Sahl, 2002),

research on teacher learning related to other mobile and wearable technologies is still in its infancy. We need more work that identifies ways in which we can help practicing and future teachers learn how to capitalize on the size and mobility of emerging technologies.

The 2017 Horizon Report identified a number of emerging technologies with potential for adoption in the next five years. Those include makerspaces and robotics (1 year or less), analytics and virtual reality (2 to 3 years), and artificial intelligence and Internet of things (4 to 5 years). *CITE Journal* could play a crucial role in advancing research on teacher preparation and professional development on the use of new technologies, including higher educator preparation for embedding these novel tools in teacher education curricula. Much work has already been published within *CITE Journal* (for examples see Ackaoglu & Kale, 2016; Chao, Muray, & Star, 2016; Krutka & Carpenter, 2016; Langran & Baker, 2016), but we could make even greater strides, becoming a leading venue for innovative and forward-thinking approaches to teacher education in relation to emerging technologies

Diversity and Equity

With the increasing diversity of the student population, it is important to identify practices that better equip teachers to utilize technology in ways that promote learning, development and success for all students. As an example, recent discourse emphasizes the importance of helping all students move from *consumers* to *creators* of computing innovations, with coding identified as a new form of literacy (Cuny, 2012; NMC/CoSN Horizon Report, 2017). Therefore, it is important to examine ways of developing teacher knowledge, beliefs, and practices that help all students, particularly those underrepresented, become creators of computing innovations.

Further, we need to examine ways of using technology as a means of helping teachers gain knowledge and dispositions needed to support equitable teaching. Again, *CITE Journal* has already made significant strides in this area (for examples, see Cook & Bissonnette, 2016; Manburg, Moore, Griffin, & Seperson, 2017). Moving forward, I would be interested in seeing more articles that squarely address issues of diversity and equity in teacher preparation, including culturally relevant approaches (Gay, 2002). In order to help all children reach their potential, we need to understand better how to prepare teachers who are well equipped with the knowledge and skills needed to support equity and diversity in K-16 institutions through the use of technology.

Description of Current Issue

The current issue of *CITE Journal* includes six outstanding articles. The article published in English Education, titled [“Pedagogy Meets Digital Media: A Tangle of Teachers, Strategies, and Tactics” by Julie Rust](#), examines “tangles” that emerged when a classroom teacher partnered with a researcher to integrate digital media tools and pedagogies in traditional high school English curricula. Through a rich ethnographic account and reflection, the author identifies those tangles, in addition to examining how and why those tangles emerged. The TPACK framework is used as an analytic lens to examine ways in which content, pedagogy, and technology interacted with teacher decision-making.

The Mathematics Education article, [“The Efficacy and Impact of a Hybrid Professional Development Model on Handheld Graphing Technology Use” by Daniel Iliaria](#), examines the ways in which a professional development model that integrated face-to-face and online instruction interacted with teachers’ implementation of handheld graphing

technology. It also examines participants' perceived growth in skill and ability to provide support to other teachers interested in using this technology in mathematics classrooms.

The Science Education article, "[Using Personal Science Story Podcasts to Reflect on Language and Connections to Science](#)" by Jennifer Kreps Frisch, Neporcha Cone, and Brendan Callahan, examines the ways in which prospective teachers use podcasts to communicate personal science stories to students. In this work, podcasts were seen as an opportunity to use a culturally connected mode of communication to help students make connections to science. In their analysis, the authors examined the types of science stories participants constructed and the depth of science content and academic vocabulary used in story podcasts.

The Social Studies Education article, "[3D Modeling and Printing in History/Social Studies Classrooms: Initial Lessons and Insights](#)" by Robert Maloy, Torrey Trust, Suzan Kommers, Allison Malinowski, and Irene LaRoche, examines the use of 3D technology in social studies classrooms. The authors examined how, through a collaboration between preservice and in-service teachers, participants integrated 3D modeling and printing into social studies curriculum topics and the challenges they faced when integrating such technologies into their classrooms.

In the General section article, "[Reflecting on the Challenges of Informal Contexts: Early Field Experiences With Technology in Teacher Education](#)," Nick Lux, Amanda Obery, Jamie Cornish, Bruna Irene Grimberg, and Anthony Hartshorn examine the role of early field experiences for preparing preservice teachers to use technology. Specifically, the authors focus on an informal science context, the Tech Club, which was designed through a school-university effort to support the use of technology, particularly formative assessment tools. In their examination, the authors focus on the ways in which this early field experience influenced preservice teachers' perceptions of teaching, learning, and technology.

Finally, the Current Practice article, "[Enhancement or Transformation? A Case Study of Preservice Teachers' Use of Instructional Technology](#)," Todd Cherner and Kristal Curry investigate the ways in which English and social studies preservice teachers utilized technology during their student-teaching placements. Using the SAMR (Substitution-Augmentation-Modification-Redefinition) framework (Puentedura, 2009), the authors examine the ways in which digital tools were used to support teaching and promote student learning, as well as the ways in which the complexity of such uses progressed throughout the duration of the participants' student-teaching.

Collectively, these articles address many of the themes outlined in my *CITE Journal* vision, including a focus on novel technologies (e.g., 3D printing and mobile technologies) and attention to equity and diversity (e.g., culturally relevant pedagogy; see Science Education article). They also make important theoretical contributions as they move both the TPACK and SAMR models forward with examples, critiques, and identified tensions (see English Education and Current Practice articles). I am positive that *CITE Journal* readers will find these articles timely and fruitful.

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