Jl. of Technology and Teacher Education (2015) **23**(3), 273-277

Introduction to the Special Issue: Creativity, Technology & Teacher Education

DANAH HENRIKSEN *
Arizona State University, USA
danah.henriksen@asu.edu

PUNYA MISHRA
Michigan State University, USA
punya@msu.edu

This special issue of the *Journal of Technology & Teacher Education* puts the spotlight on the topic of creativity – within the scope of technology and teacher education. The importance of creativity in teaching can be traced back to foundational thinkers such as Dewey (1916; 1934) and Vygotsky (1960). In more recent years creativity in education has begun to receive a significant level of attention (Florida, 2002; Pink, 2005; Robinson, 2003; 2011; Sawyer, 2011; Zhao, 2012). As it becomes clear that we must develop creatively thinking students that can problem solve and work across fields, creativity in teaching becomes essential (Cropley, 2003; Sternberg, 2006). Teacher educators, first and foremost, will be faced with helping future teachers develop the skills and knowledge required of them in 21st century classrooms.

That said, the role of creativity in education has not received the level of scholarly or research attention it deserves. This is partly because creativity has often been viewed as being "fuzzy" or subjective in nature, and thus less amenable to quantifiable measurement (Fox & Fox, 2000; Sternberg, 2006). In addition, we believe that part of this gap is because much of the existing research (focusing on psychometric measurement of individual variables, or historical analysis of creative people) has little to offer to practicing educators and the specific contexts they work within. Thus it is not surprising that research in the field of teacher education has lagged behind in this area—despite clear indications of its importance.

Matters get even more complicated when we bring technology into the mix. Digital technologies have powered a tremendous burst of innovation. From Google to Twitter, from mobile devices to streaming video – new tools, devices, and applications alter our lives, changing how we work, communicate, and how we learn and teach (Mishra & The Deep-Play Research Group, 2012). The intelligent use of technology for teaching is a complex domain, in and of itself—even before bringing creativity into the mix. We have argued that the most effective uses of technology for teaching and learning must be grounded in a creative mindset that embraces openness for the new as well as intellectual risk-taking (Koehler, et. al., 2011; Mishra, Koehler, & Henriksen, 2011; Mishra, Henriksen, & The Deep-Play Research Group, 2012).

It is clear however, that teachers and teacher educators in this emerging world must focus more on these connected issues of technology and creativity—more importantly, on ideas at the intersection of these domains. This is a major challenge for most new teachers, and something that has not been addressed in depth by most teacher education programs or professional development opportunities (De Souza Fleith, 2000).

This special issue, therefore, is a unique opportunity to explore this important space that lies at the intersection of creativity, technology and teacher education. The work presented in this special issue examines themes and ways in which these topics dynamically interact within a range of teacher education contexts.

Organization of this Special Issue

This special issue is organized thematically around eight articles that explore these ideas from a rich range of perspectives. The first article from Brennan provides us with a sense of the context for creativity in education and technology. Her study of classroom cultures for creativity (in an example of Scratch programming) explores these issues in terms of a teacher's relationship to their own identity, to the student, and to the culture. Following this, Tillman, An, and Boren delve into classroom creativity and the work of teachers towards designing creative learning with technology – through a study that examines how pre-service teachers infused more creativity into the teaching of STEM disciplines, by employing more STEAM (arts-infused) lessons. The next two articles extend this focus on digital arts. First, Smith describes a graduate level course for in-service teachers (focused on digital fabrication), in which the teachers were encouraged and supported

to develop their own creativity, and emphasizes the importance of failure and persistence for creativity. We must add, that the value of failure as being important for creativity is a theme that appears in several of the articles, though it is most clearly fore-grounded in Smith's work.

Next, Halverson, Lowenhaupt, and Kalaitzidis focus on informal learning spaces for digital/creative arts instruction through the lens of distributed instruction. The next chapter by Doering & Henrickson also looks at an informal learning space (through a virtual adventure learning environment) but with a focus on the role of the teacher and the learning environment as core influences for creativity in the classroom. The sixth and seventh articles in this issue, by Deschryver and Yadav, and Stansberry, Thompson and Kymes, respectively, analyze and describe master's level courses in educational technology programs, aimed at in-service teachers. In their work, Deschryver and Yadav emphasize the importance of new literacies and computational thinking to promote creative thinking skills in a transdisciplinary manner. The article by Stansberry, Thompson, and Kymes, describes an online course experience (and research/data gathered in this experience) in which in-service teachers were engaged in pedagogies and technologies associated with creativity, innovation, and invention. They argue that by providing an atmosphere of openness and play, the course did not just help practicing teachers develop their own creativity, but also in looking forward, helped identify tools and develop practices to promote creativity in their own students. The final article by Henriksen, Mishra, & Mehta develops a rubric for evaluating products of creative activity – showing how it has been used in a master's course for in-service teachers on creativity. Though preliminary, this line of work is of significance as more educators start incorporating creative or open-ended assignments in their classrooms.

All in all the articles in this special issue speak to different aspects of theory, research, and practice – in attempts to go beyond the specifics or intricacies of tools, and towards providing a broader framework, or guiding ideas and takeaways that can inform the future of teacher education. One of the strengths of this special issue is the rich manner in which these key ideas are explored across different subject matters, classroom and learning contexts, technologies, teacher roles, pedagogical approaches, and theoretical frameworks.

Credits

A special issue of this scope would not be possible without the help and assistance of a range of individuals. First and foremost we would like to

thank Peter Albion, editor of JTATE for his unstinting support for this special issue. From the moment we broached the idea to him (over 2 years ago) to this day, Peter has been a rock: thoughtful, helpful and available. This could not have happened without him.

We would be remiss if we did not thank the authors who are represented in this special issue. Their original work, and flexibility in going through multiple rounds of revisions (and revisions of revisions), and their willingness to peer-review other chapters, made this process both feasible and fun.

Finally, to all the graduate student members of the Deep-Play research group at Michigan State (http://www.deep-play.com), for all the time and effort they invested in discussing, arguing, reviewing, and proofreading as these articles came together. They were often "volunteered" into these tasks by us—but they did it all in good cheer and with the approach of thoughtful reviewers, careful proofreaders, and APA style-watchers. In alphabetical order, they are: William Cain, Chris Fahnoe, Jon Good, Sarah Keenan, Rohit Mehta, Carmen Richardson, and Colin Terry.

Conclusion

We believe that this special issue will be an important step toward exploring the connections between creativity, technology and teaching, and hope that the articles in this special issue will begin to fill a gap that exists currently in the literature. In conjunction with our authors, we have tried to bring ideas, theory and strategy to the table to serve teacher educators in preparing the teachers of tomorrow.

References

Cropley, A.J (2003). *Creativity in education & Learning.* Bodmin, Cornwall: Routledge Falmer.

De Souza Fleith, D. (2000). Teacher and student perceptions of creativity in the classroom environment. *Roeper Review,* 22(3), 148-153.

Dewey, J. (1916). Democracy and Education. New York: Free Press.

Dewey, J. (1934). Art as Experience. New York: Putnam.

Florida, R. (2002). *The rise of the creative class and how it's transforming work, leisure, community and everyday life.* New York: Basic Books.

Fox, J., & Fox, R. (2000). *Exploring the nature of creativity.* Dobuque, IA: Kendall/Hunt Publishers.

Koehler, M.J., Mishra, P., Bouck, E. C., DeSchryver, M., Kereluik, K., Shin, T.S., Wolf, L.G. (2011). Deep-Play: Developing TPACK for 21st Century Teachers. International Journal of Learning Technology, Vol. 6, No. 2. 146-163.

Mishra, P. (2012). Rethinking technology & creativity in the 21st century: Crayons are the future. *TechTrends*, *56*(5), 13-16.

Mishra, P., Henriksen, D., & The Deep-Play Research Group (2012). On Being (In)disciplined. *Tech Trends 56(6),* 18-21.

Mishra, P., Koehler, M. J., & Henriksen, D. (2011). The seven transdisciplinary habits of mind: Extending the TPACK framework towards 21st century learning. *Educational Technology*, *51*(2), 22-28.

Pink, D.H. (2005). *A whole new mind*. New York, NY: Riverhead Books.

Robinson, K. (2003). Mind the gap: The creative conundrum. *Critical Quarterly, 43*(1), 41-45.

Robinson, K. (2011). *Out of our minds: Learning to be creative*. Hoboken, NJ: Capstone.

Sawyer, R.K. (2011). *Structure and Improvisation in Creative Teaching.* Cambridge, U.K.: Cambridge University Press.

Sternberg, R. (2006). The nature of creativity. *Creativity Research Journal, 18*(1), 87-98.

Vygotsky, L.S. (1960). Imagination and its development in childhood. In L.V. (Ed.), *The development of higher mental function* (pp. 327-362). Moscow: Izdatel'stvo Academii Pedagogicheskikh Nauk RSFSR .

Zhao, Y. (2012). *World class learners: Educating creative and entrepreneurial students.* Thousand Oaks, CA: Corwin.

Author Note

* The names of the editors of this special issue are in alphabetical order. They contributed equally to the editing of this issue.