Learners and learning contexts: New alignments for the digital age

September 29th - October 2nd, 2019

Québec City, Canada

Thematic Working Group 3
-
Creativity for Teachers and Teaching

Members of the group:
Danah Henriksen, Arizona State University, USA (group leader)
Michael Henderson, Monash University, Australia (group leader)
Ana Amélia Carvalho, University of Coimbra, Portugal
Miroslava Cernochova, Charles University, Czech Republic
Edwin Creely, Monash University, Australia
Deepshikha Dash, Indian Institute of Technology Kharagpur, India
Trina Davis, Texas A&M University, USA
Punya Mishra, Arizona State University, USA
Erkko Sointu, University of Eastern Finland, Finland
Paolo Tosato, Ca' Foscari University of Venice, Italy

Background

Creativity for Teachers and Teaching

Creativity has been highly touted as a central concept for 21st century thinking, teaching, and learning (Beghetto & Kauffman, 2007). It is widely noted in both academic literature and popular discourse as being essential to the types of thinking skills and approaches to the world that students will need for the present and future (Craft, 2010). Moreover, creativity is vital in teaching because students learn and adopt creative habits of mind and body when these are part of the environments, they learn in. There is a deep intersection between technology and creativity, and the potential of both to inform each other in learning settings. Yet the intersections between creativity and technology are complex and involve pedagogy, thinking skills, risk taking, failure, ideation, problem solving and more. Thematic working group 3 (TWG3) explores the intersections of these constructs and provide insight into how we can develop creativity in teaching and learning.

Developing Our Focus

Consideration of the intersections between creativity and technology is an expansive field of inquiry—requiring focus on an area which is feasible in scope and rich in practical relevance to education. Having reviewed the literature and building from previous EDUsummIT events, this year we focused our attention on risk taking and the notion of productive failure. At the EDUsummIT in 2015 the focus was on situating creativity within the field of educational technology and developing a systemic model (Henriksen, Mishra, & Fisser, 2016. In 2017 TWG3 considered how creativity is instantiated with technology across international contexts (Henriksen et al., 2018). For 2019, we have focused more specifically on risk taking and productive failure, which combine to shape how creativity emerges and develops in creative practices in teaching and learning.

Creativity is positioned as a vital part of education for digital futures, and for the technology-driven learning settings and work lives that students will inevitably face (Craft, 2010). However, the rhetoric about creativity often fails to account for the link between creativity, risk and failure. Risk and failure are essential in creative processes, and grappling with uncertainty in learning can lead to more reflexivity in a learning situation, and enhance the ability to manage ambiguity (Swanson & Collins, 2018). Risk taking and productive failure have always been noted as fundamental components of creativity (Glover, 1977); and a small but growing base of research literature also suggests that digital technologies and practices can both support or inhibit (for both teachers and learners) these aspects of creative practices (Manalo & Kapur, 2018), through opportunities for trialling and experimentation, as well as creating, sharing, and communicating in new ways.

To understand the importance of failure and risk taking in creative teaching, TWG3 has focused on critical questions around these issues, including:
1. How do teachers and learners develop the capacity to fail productively in classrooms? And how might technologies support this?
2. How do teachers and students develop skills for creative risk taking? And how might technologies support this?

At EDUsummIT 2019, we began the work of developing our group's thinking, creative products, outcomes and recommendations around these questions. The group did this through multiple rounds of collaborative and interactive discussions, hands-on making, design-based ideas and mini-workshop sessions. We aimed to refine our collective thinking by iterating on rounds of activities designed to elicit ideas about alignments and misalignments in the field, as well as recommendations for stakeholders. Our particular topic—while focused on teaching and learning—has also required us to consider these issues through the lens of multiple stakeholders in education, in terms of current alignment issues, challenges and opportunities for the future.

Alignment issues and challenges

Creative risk-taking and productive failure are essential in the conduct of creative processes, both in terms of iterations of failure that lead toward ultimate successand reflexivity about a given problem and its possibilities. Yet there are few existing guidelines, supports, tools or examples to help practitioners build risk-taking, productive failure and creativity into their teaching. Systemically, educational environments are often unsupportive of risk-taking and failure (Meyer & Turner, 2006). However, it is rare that good, original, creative work or ideas come together or succeed on the first try (Swanson & Collins, 2018). Therefore, teaching and learning settings need to integrate risk-taking and productive failure in teaching and learning in order for creativity to develop and flourish among both teachers and students.

Popular discourses about 21st century education denote creativity as a critical approach to thinking, acting, living and being in the world. At the same time, there is limited support and few guidelines for implementing the elements of creative risk-taking and productive failure (Clifford, 1991; Cropley, 2015). Many educational environments focus on practices that seem to run contrary to creative risk-taking and productive failure (e.g. high stakes testing, "curriculum crush", "teacher-proof" or scripted curricula, rewards/punishment-based

approaches to grading). While there is some variability in how this plays out across international contexts, and examples of systems that support creativity do exist (Henriksen et al., 2018), these are often exceptions. More commonly, as evidenced in our group's prior 2017 focus, most educational policy does not systemically support creativity—and, in fact, education systems often adopt a punitive stance toward risk taking and failure.

This systemic breakdown between educational rhetoric about creativity, and grounded policy and practice represents a significant misalignment and challenge in education internationally. Most of our group's work and thinking at EDUsummIT 2019 frequently returned to this overarching problem of misalignment, and to seeking ways to address this challenge across research, policy and practice.

Possible actions and areas to overcome misalignment

Despite this concern about misalignment, TWG3 was able to identify several areas of possible emerging new alignments between policy and practice.

New opportunities for creative risk taking and productive failure have arisen because of digital technology (e.g., Virtual Reality, Augmented Reality, robotics, coding). By virtue of the fact that such technologies are emerging, the implications for creativity, risk and productive failure are not fully clear as yet, but we suggest that there is a productive open space here to realign how we think about technology, pedagogy and content. By infusing these constantly evolving areas of technology, such as VR, AR coding, and robotics into open-ended project-based work, teachers can create more space for creative risk and failure. But in order to do so, these areas must receive attention in research, in policy and in curricula oriented to practice.

Also, new forms of organization of teaching and learning offer opportunities for creative risk taking. For instance, transdisciplinary/cross-curricula teaching, require teachers to discover new ways of working and new curriculum designs that in-of-themselves involve creative risk-taking behaviors. Furthermore, there has been increased recent interest in entrepreneurial thinking in education (Kirkley, 2017; Studdard et al., 2017), and this area naturally has an orientation to creative mindsets, including that of design and iterative development (Laurillard, 2018; Nash, 2018). By engaging more transdisciplinarity in curricula and classroom practices and allowing space for entrepreneurial thinking and focus in student work, schools and classrooms can support creative risk and failure in authentic ways.

These new emerging alignments should receive more attention broadly across educational research, policy and practice, as spaces to make connections to and allow for creative risk and failure—particularly in systems where disconnections have typically prevented risk-taking and failure.

Key insights from other TWGs

Other TWGs worked on ideas highly relevant to creativity. For instance, TGW4 focused on machine learning, and their work suggested that educational futures might be aligned to artificial intelligence (AI). There are significant possibilities in utilizing AI in managing risk-taking and productive failure, and this is a key area for future development around creativity

and educational technology. Our group also was able to connect with TWG9 whose work on advancing models of technology integration was particularly interesting—given that there are no existing models or theories that directly link and explain the enactment of creativity with technology in teaching and learning settings. The fact that there is also no agreed-upon mechanistic model of how creativity works is a challenge for creativity scholarship. This lack of consistent scholarly theory has hampered the inclusion of creativity in conversations around educational policy and practice. The work of TWG9 highlighted for our group the need to work toward model-building around creativity, technology and educational contexts. We were also inspired by TWG2's work on leadership, which brought forth group conversations about the fact that innovative leadership (with and through technology) is an inherently creative stance, as it requires a mindset toward finding new and better approaches to learning, technology and innovation.

Strategies and actions

Strategies and actions for policy makers

Currently, risk taking and failure have a negative connotation within curriculum policy frameworks (Harris & de Bruin, 2018; Henriksen, Creely, & Henderson, 2019). Therfore, we suggest that policy makers should positively reframe these concepts as part of reviewing the presentation of creative learning processes within documentation.

Along these lines, it is also important for policy makers to normalize creative risk-taking as a key competence of all stakeholders in education systems and workforce—in alignment with the interests of creative workforce development, and futures thinking

Finally, assessment is a key issue in strategizing around creativity, risk and failure in policy—so reframed policy should instigate space for alternative assessments and formative assessments that encourage and promote creative risk-taking, since the current high stakes testing environment seems antithetical to risk-taking.

Strategies and actions for practitioners

For practitioners, there are key strategies and action-recommendations for teachers, which should include having teachers:
a. Build classroom environments that are supportive of creative risk-taking and make allowances for productive failure.
b. Teach students strategies to "fail forward" or turn a failure into positive iterations that are an essential part of creative work.
c. Design activities which purposely integrate opportunities to try new ideas, fail, and then regroup and persist toward learning and creative outcomes.
d. Identify how technologies, as tools to think with, can allow students to trial and practice ideas and iterations of creative work.
e. Model processes of creative risk taking and productive failure in their own practices.

Local education leaders are also central to what happens in classrooms, and they should promote creativity by valuing creative risk taking and productive failure in teachers (i.e reward or recognition structures aligned with creative risks).

In broadening the stakeholders, we suggest that teachers and administrators should recognize the role of each learners' family and peers in their capacity to engage in creative risk-taking. Communication between school and home should emphasize creative risk and potential failure for students' preparation for work and life.

Finally, teacher educators, both pre-service and in-service, must integrate conceptual and practical learning around creative risk-taking and productive failure into coursework and field experiences.

Strategies and actions for researchers

There is a lack of research around creative risk taking and productive failure in the field of education. Therefore, it is strategically important that more empirical studies are conducted to reveal how creative risk taking and productive failure enhance learning, and how they are best supported in educational settings. In particular, risk-taking and failure are grounded in context, so rich, school-based studies (including longitudinal work) to enhance understanding of these concepts within and across varied contexts.

The nature of creativity for learning, including the role of risk-taking and process of productive failure, continues to be misunderstood in educational policy and practice. This suggests that creativity researchers need to better understand why this misalignment exists, how it can be realigned in their own work, and then disseminated effectively to the field.

There is also little research relating to the role that technology can play in supporting (and constraining) creative risk taking and productive failure. Researchers might begin by connecting with existing relevant research areas such as the personal attributes of resilience, persistence and personal skills with risk-taking and a willingness to enage with failure.

Finally, assessment regimes, including the high stakes testing in most education systems, have been identified as a critical impediment to developing cultures of creative risk taking. Creativity researchers should seek to integrate their work into existing conversations around assessment. Allowances for trialing, failure and iteration are needed within assessment structures.

Actions from the TWG

Most of the members of TWG3 currently have connection to research and/or practice at an individual level, but we believe that through our collective work, we can bring a fresh perspective to scholarly research and promote change in policy and practice. Some actions which are already planned in the immediate future include:
- Preparing and disseminating to our networks (which include a mix of researchers, policy makers and practitioners) all of our EDUsummIT 2019 products and outcomes (including, but not limited to, this ebook chapter, our action plan, our group two-page summer, and our discussion paper).
- Writing a paper to be submitted to the SITE 2020 Conference Creativity SIG (to be submitted for the first call) on the relationship between creativity, risk and failure and technology in teacher practices—focusing on both the challenges and possibilities.

- Devising a proposal for a symposium at the SITE 2020 Conference Creativity SIG (to be submitted for the second call). In this symposium each presenter from our group (and possibly a couple of other relevant scholars invited from our networks) will share aspects of both our EDUsummIT 2019 groupwork and their institution-based work on the relationship between creativity, risk/failure, and technology.
- Offering a group-level set of case studies on creativity, risk/failure, and technology in education, in which each member presents a written case example of these issues in an instance of grounded teaching and learning.
- Submitting a paper on our work for the EDUsummIT special issue of the *Canadian Journal of Learning Technology*.
- Submitting a paper on our work for the EDUsummIT special issue of *Educational Technology Research and Development*.

Other products and outcomes that link policy, practice, and research around creativity, risk/failure and technology in education will also emerge from our groupwork. Our group has a strong collaborative working relationship, and there are strong alignments between our interests and goals. This is likely to for produce multiple outcomes in coming years as we disseminate our work to the field.

References

Beghetto, R. A., & Kaufman, J. C. (2007). Toward a broader conception of creativity: A case for "mini-c" creativity. *Psychology of Aesthetics, Creativity, and the Arts*, *1*(2), 73.

Clifford, M. M. (1991). Risk taking: Theoretical, empirical, and educational considerations. *Educational Psychologist*, *26*(3-4), 263-297.

Craft, A. (2010). *Creativity and Education Futures: Learning in a Digital Age*. UK: Trentham Books.

Cropley, D. H. (2015). Promoting creativity and innovation in engineering education. *Psychology of Aesthetics, Creativity, and the Arts*, *9*(2), 161.

Henriksen, D., Mishra, P., & Fisser, P. (2016). Infusing Creativity and Technology in 21st Century Education: A Systemic View for Change. *Journal of Educational Technology & Society*, *19*(3).

Harris, A., & de Bruin, L. R. (2018). Secondary school creativity, teacher practice and STEAM education: An international study. *Journal of Educational Change*, *19*(2), 153-179.

Henriksen, D., Henderson, M., Creely, E., Ceretkova, S., Černochová, M., Sendova, E., Sointu, E. & Tienken, C. H. (2018). Creativity and Technology in Education: An International Perspective. *Technology, Knowledge and Learning*, *23*(3), 409-424.

Henriksen, D., Creely, E., & Henderson, M. (2019). Failing in Creativity: The Problem of Policy and Practice in Australia and the United States. *Kappa Delta Pi Record*, *55*(1), 4-10.

Kirkley, W. W. (2017). Cultivating entrepreneurial behaviour: entrepreneurship education in secondary schools. *Asia Pacific Journal of Innovation and Entrepreneurship*, *11*(1), 17-37.

Laurillard, D. (2018). Teaching as a Design Science: Teachers Building, Testing, and Sharing Pedagogic Ideas. In J. Voogt, G. Knezek, R. Christensen, & K.W. Lai (Eds.) *Second Handbook*

of Information Technology in Primary and Secondary Education, (pp. 557-566), Switzerland: Springer International Publishing.

Meyer, D. K., & Turner, J. C. (2006). Re-conceptualizing emotion and motivation to learn in classroom contexts. *Educational Psychology Review*, *18*(4), 377-390.

Nash, J. B. (2018). Leading Information Technology via Design Thinking. In J. Voogt, G. Knezek, R. Christensen, & K.W. Lai (Eds.) *Second Handbook of Information Technology in Primary and Secondary Education*, (pp. 543-548), Switzerland: Springer International Publishing.

Studdard, N., Dawson, M., Burton, S. L., Jackson, N., Leonard, B., Quisenberry, W., & Rahim, E. (2017). Nurturing Social Entrepreneurship and Building Social Entrepreneurial Self-Efficacy: Focusing on Primary and Secondary Schooling to Develop Future Social Entrepreneurs. In *Entrepreneurship: Concepts, Methodologies, Tools, and Applications* (pp. 247-269). IGI Global.

Swanson, H., & Collins, A. (2018). How failure is productive in the creative process: Refining student explanations through theory-building discussion. *Thinking Skills and Creativity*, *30*, 54-63.