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Designing Opportunities for Transformation with Emerging Technologies

George Veletsianos

In this article, the author argues that technology use in education has focused on combating instructional problems and inefficiencies. While technology use for such purposes is viable and important, the author proposes that practitioners and researchers in this field utilize emerging technologies as a means to provide opportunities for personally relevant and meaningful transformation. The author discusses strategies for providing such opportunities and presents examples of potentially transformative learning activities and environments. The article concludes with caveats regarding the pursuit of transformation in technology-enhanced learning environments.

Introduction

Online and blended education research and practice historically have focused on cognitive concerns, such as how to best structure learning materials for effective and efficient retention. This approach to online/blended learning focuses on using technology to combat inefficiencies within a mode of education that is best described as delivery-based. In this article, I propose a broader vision of technology-enhanced learning: blended and online education that provides experiences and opportunities that can be more fulfilling, meaningful, inspiring, and aesthetically appealing than those afforded by traditional instructional designs. To do so, I present a rationale for this argument, strategies for providing such opportunities, and examples of transformative opportunities and experiences in online and blended education.

The use of media and technology in instructional

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design dates back to the conception of the field (Reiser, 2001a, 2001b). More recently, the use of the Internet and participatory technologies for education have received increasing attention (Greenhow, Robelia, & Hughes, 2009), with both K–12 and higher education institutions seeking to expand their online course offerings (Allen & Seaman, 2010; Setzer & Lewis, 2005). Attempts at integrating technology within education, however, have often focused on enhancing the efficiency and effectiveness of the status quo, replacing traditional instructional approaches with ones that are technologically reinforced, yet qualitatively similar (Cuban, 1988; Hughes, 2005; Wilson, Parrish, & Veletsianos, 2008).

Transformative learning experiences are rarely sought in instructional designs (Spence, 2001), and the use of technology to enable transformative learning is even more infrequent (Blin & Munro, 2008). This phenomenon has been observed despite the fact that researchers and practitioners in our field have called for greater emphasis on powerful and transformative learning outcomes (e.g., Rowland & DiVasto, 2001; Wilson et al., 2007). The challenge set forth in this article, then, is to veer away from using technology to replace traditional teaching and learning processes, and to move towards technology use to provide the opportunities for personally relevant and meaningful transformation.

Research continues to show that access to technology alone has limited impact on learning outcomes and instructional methods (Bednarz & van der Schee, 2006; Cuban, 2001; Schrum et al., 2007) and is often used to support passive, teacher-centered, and didactic instruction (Herrington et al., 2009). Over the last several years, however, our field has seen calls for technology use in education that (a) broadens its foundations, and (b) meets higher-level objectives and outcomes. For instance, authors in this issue discuss learning that impacts learners' identities and sense of being in the world; Hilton et al. (2010) discuss the provision of education to learners not formally registered in a course; Dunlap and Lowenthal (in press) discuss the use of Web 2.0 technologies to support self-directed lifelong learning; and Rutherford (2010) discusses user-driven social media platforms as locales for informal professional development. Within these developments, the role of the instructional designer is also changing: McDonald (2009), Hokanson & Miller (2009), and Rieber in Hirumi et al. (2010), for example, envision aesthetic and artistic roles for instructional designers by exploring fields such as storytelling and craftsmanship. Additionally, Peacock et al. (2009) predict learning technologists'* role to expand to include support for

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* Learning Technologists is the term traditionally used in the UK to describe instructional designers.

faculty who conduct technology-enhanced research (e.g., virtual focus groups).

While educational technology and instructional design have traditionally focused on the use of technology as a tool in instruction (e.g., to afford visualization and to enable linking of Web-based content), recent literature on emerging technologies highlights the negotiated and symbiotic relationship between pedagogy and technology, noting that technology sculpts educational practice *and* educational practice molds technology use/implementation (Veletsianos, 2010b; Whitworth & Benson, 2010). At the core of recent theoretical and technological advances in online learning is the notion of utilizing technology as an impetus for designing novel learner experiences and opportunities for engagement with online communities. For instance, Couros (2010) describes how he designed a course that enabled his students to learn by interacting with professional educators that were part of the online communities to which he belonged.

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Designing Opportunities for Transformation in Online Learning Contexts

As discussed above, researchers in our field are envisioning new roles for instructional designers and for the use and implementation of emerging technology. In the next paragraphs, I discuss approaches to aid in the transition towards transformative blended and online education. These approaches are informed by social constructivist theory (Vygotsky, 1978), and aim to foster experiences and opportunities that can be more fulfilling, meaningful, inspiring, and aesthetically appealing than those afforded by traditional instructional designs.

Design Opportunities that Allow Engagement Beyond Course Activities

Contextualized and situated learning activities are valuable to learning (Lave, 1996; Lave & Wenger, 1991). This has led to calls for authentic or real-world learning where class activities resemble activities that learners may face in their life outside of the classroom. While authentic learning activities serve to bridge this gap, learning is often seen as a single and sporadic classroom activity as opposed to an endeavor that is ongoing, lifelong, and independent of educational institutions and age (Field, 2006).

Recognizing the fact that learning is a lifelong process that occurs naturally outside of the classroom, designers are advised to design opportunities for activities that allow learners to engage with course-related topics outside of the classroom. Such activities should occur in open-ended learning environments that allow for learner flexibility, self-direction, and student-centered control of learning (Land & Hannafin, 1996) to accommodate learner interests. For instance, intro-

ducing learners to communities of practice should be an integral part of higher education curricula. Communities of practice are defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 1998). By introducing learners to such communities and inviting learners to participate and engage with others who are interested and vested in similar endeavors, learning moves outside of the classroom and into the realm of day-to-day life.

In introductory instructional design courses, for example, students can be introduced to (and scaffolded into) online communities, such as the Instructional Technology Forum (http://it.coe.uga.edu/itforum/). Learners can access these communities while enrolled in the course, but more importantly, they can be given the opportunity to become part of the community, to become contributing and real members, and to continue in this fashion indefinitely.

Notably, increasing numbers of educators use Web 2.0 tools to provide opportunities for community engagement (e.g., Webb, 2009). The conversations that occur on Web logs (blogs), Twitter, and other social networking sites are relevant and immediate, and by introducing students to the tools and the community that is using the tools to engage in meaningful conversations, educators can provide opportunities for transformation that exist outside of the classroom context, outside of regular teaching hours, and outside of educators' immediate control.

The last point (transformation being outside of educators' immediate control) is important for two reasons. First, it is important for learners to understand, and instructors to acknowledge, that knowledge is distributed and that the instructor is not the sole source of knowledge on a topic. Second, while the instructor can provide opportunities for engagement and transformation, such outcomes cannot be forced or achieved unless learners exploit such opportunities. I return to this important point in the concluding section of the article.

Design for Lasting Impression

Instructional design is often concerned with defined outcomes that are functional but short-term. Imagine, for example, a course on cooperative learning theory (Johnson & Johnson, 1989). A functional but short-term outcome may be to ask learners to post a critique of cooperative learning on a personal blog. This activity allows learners to contemplate and reflect on cooperative learning practice, serving the major goals of a traditional technology-enhanced curriculum. The extent to which this activity will leave a lasting impression on learners, however, is debatable. What is the value of a learning activity if it's not memorable? A lasting impression may be more likely if the activity is extended to include added elements of interaction, such as conversations with cooperative learning experts. For example: The founders of cooperative learning theory could be invited to comment on student reflections; or teachers who have been practicing cooperative learning in their classrooms and have been recognized for their endeavors could be asked to virtually visit the classroom to answer student questions and help the learners contextualize their reflections.

Another example of a learning activity that may leave a lasting impression relates to Adventure Learning (Doering, 2006; Veletsianos & Kleanthous, 2009). Adventure Learning is an approach to education that involves learners in exploring real-world issues within collaborative and inquiry-based learning environments. The GoNorth! Adventure learning projects engage students in investigating environmental problems while they follow a team of explorers that dogsled through circumpolar regions of the world. One of the activities undertaken by a group of these students was the construction of dog sleds for the purpose of hosting an "Arctic Day" to raise funds for environmental stewardship. While fundraising by itself may be a memorable activity for K–12 students, the act of fundraising while constructing a dog sled to teach others about the impact of the changing climate becomes an activity that students will remember over time.

Design for Intrigue, Risk-taking, and Challenge

Opportunities for transformation can also be provided by activities that are intriguing and challenging to learners. While intrigue and risk-taking are not usually features associated with conventional learning design, researchers have recently turned their attention to these in the context of educational video games and virtual worlds. For instance, video game players are asked to engage in quests in unfamiliar environments (e.g., alien lands) or explore settings that are atypical of their day-to-day life (Mezirow, 1978). Yellowlees and Cook (2006), for example, recreated a mental health treatment ward in Second Life, and gave their students a taste of what it means to experience schizophrenia in the real world. As students' virtual characters walked the virtual hallways, they were overcome by hallucinations, including "the floor disappearing from underfoot, writing on posters that morphs into derogatory words, a pulsating gun that suddenly appears on a table, and menacing voices that laugh." Such activities are challenging because they are unfamiliar, difficult to come to terms with, and involve learners taking an active role in the experience.

Importantly, intrigue is sustained by allowing learners to participate in stories and narratives that are of immediate relevance to their learning (Veletsianos & Doering, 2010). In the context of the GoNorth! projects, learners enjoyed the unfolding and intriguing

narrative of a team of explorers traversing the Arctic, with its unexpected outcomes and imaginative story-telling. In addition, the story and experience were participatory. That is, learners took an active role in contributing to the story by raising money, discussing the issues raised in the story with their family, and asking questions of experts.

Veletsianos (2010a) further demonstrated the idea of stories sustaining interest and intrigue in a study of higher education students who participated in an Adventure Learning project designed to explore open-ness in education. In this study, the unfolding narrative involved students in watching a keynote video, posing questions, critiquing answers they received, filming video vignettes, and engaging in a debate related to the efficacy of open learning online.

In collaboration with special education faculty, we designed another example of a simple activity that could be intriguing and invite risk-taking and challenge: In K–12 classrooms throughout the United States, parents and teachers convene to develop Individualized Education Programs (IEP) for children with unique educational needs. Challenges arise when parents and professionals do not agree with each other on the extent of support children need. Preservice teachers studying special education are rarely able to practice collaboration skills and how to solve commu-nication difficulties between parents and themselves. To combat this issue and embed aspects of intrigue and risk-taking, parents could be asked to contribute video-recorded challenges they have had in partnering with schools to meet their child's educational needs. Students can then be asked to identify the problem and devise a solution to improve the parent-school relation-ship.

Those solutions can then be shared with parents and other professionals who can videoconference with the class to discuss the effectiveness of the proposed solu-tions. Requiring learners to devise solutions to real problems and present their solutions to interested parties invites them to take risks, and to challenge themselves to devise solutions good enough to address competing requirements (e.g., school resources vs. parent demands).

Design for Engagement

According to Wilson, Parrish, and Veletsianos (2008), instructional designers have mostly focused on the design of efficient and effective products while ignoring deep learning engagement. Fun, excitement, creativity, and aesthetic aspects of instruction, though recognized as being facets of good instruction (Kirschner & Gerjets, 2006), are largely lacking in educational technology implementations (ibid.). By designing creative activities that invite engagement, fun, and excitement, designers can enable sustained interactions with transformative content and activities. We should aspire for learning that changes the ways a learner acts in the world. For instance, we should aspire for our students to find their school experiences engaging enough such that they talk to their friends/ family about what they are learning and attempt to implement what they have learned in their day-to-day lives. Other indicators of such "transformative" education may be student discussions of their desire to make a difference in the world, improve their skills, or become leaders in their professions.

While creative pedagogies of fun and engagement can be time-consuming, their outcomes may be worth the extra time. Some examples might be virtual competitions and debates across universities, develop-ing technology-enhanced and location-based learning activities using smartphones (e.g., Squire, in press), or involving the local community in learning activities (see Design for Reflection below).

For example, the author leads the design of an adventure learning project (http://yoteach.us) imple-mented in a sociology course that aims to enable learners to explore the many roles that teachers play in the classroom while following the updates of a team of urban explorers traveling through the city of Austin, Texas. The explorers share teacher stories told to them by Austin residents and lead students in examining teacher roles via an online learning environment which includes: trail reports that present the issues, audio updates sharing the team's experiences, and video interviews. Students then ask questions, comment on findings, and discuss pertinent issues with experts. The project culminates in students conducting their own multi-modal investigations of sociological topics in their own communities and sharing their own stories within the online learning environment.

Design for Reflection

Reflective practice (Schön, 1983, 1987) is an important aspect of lifelong learning because it allows practitioners to think critically about their activities (e.g., curricular decisions) and examine the reasons, rationale, and outcomes surrounding such activities. Applied to learners and transformation, Mezirow (1978) posits that taking the time to reflect on one's learning in relation to one's experiences is important. Reflecting on learning experiences, as opposed to being a passive recipient of information, allows for meaningful and personalized learning (Schön, 1987), and this point is well illustrated in the article by Calandra and Puvirajah (this issue), who discuss how the video-enhanced reflective process has "produced lucid, holistic insight into participants' thinking about their teaching [practice]" with the result being "partici-pants [who] have shown shifts in perspectives about themselves and their teaching."

The Vital Signs project (*http://www.vitalsignsme.org/*) is an example of a learning experience that is designed for reflection. In this project, students learn science by participating in a real-life research project focused on locating and documenting Maine's native and invasive species. The nature of the project is such that reflection about the local community and its species is built into the learning experience. By documenting and reporting local species, learners reflect on and form connections to their local community and its habitat and develop their sense of place in relation to their surroundings. Importantly, this project also subscribes to ideas discussed above relating to real-world engagement.

Transformative Online and Blended Learning and Its Caveats

In this article, I propose that we employ technology as a means to provide opportunities for personally relevant and meaningful transformation. Even though formal education is grounded on the attainment of explicit goals, we are at a unique position to target specified outcomes while also providing opportunities for transformation. Nevertheless, various caveats need to be acknowledged in relation to the pursuit of transformative online/blended learning.

First, transformative learning experiences cannot be "imposed" on learners. Wilson and Parrish (this issue) make a similar argument when they claim that "deeper forms of learning can't just be made to happen; they are invited, and encouraged, and facilitated. Experience, after all is largely a subjective thing—it's how real people encounter their worlds, not how they should respond or what the materials are meant to do to them." This article is grounded on a similar premise, as technology has been described as an agent of change, within a paradigm shift, as a way to provide *opportunities* for transformation while sculpting pedagogical practice.

Second, since it is not possible to *construct* transformative experiences but to provide *opportunities for transformation*, these learning experiences are bound to encompass unknown outcomes. In other words, the outcomes associated with these opportunities *may or may not* be transformational. Consequently, the outcomes of opportunities for transformation do not lend themselves well to being evaluated using pre-defined objectives. An added complexity relates to the definition of the term *transformation* as a personally fulfilling and meaningful outcome. If transformation is personalized, it is difficult to assess it based on pre-established guidelines. Indeed, individualized assessment may be the only meaningful approach available to evaluate transformative learning.

Finally, due to instructional designers' inability to pinpoint clear-cut transformational outcomes, and

because related learning outcomes are invited (as opposed to constructed/designed), transformational learning experiences may not be replicable or even predictable. Opportunities for transformation may be acted upon with powerful results, or they may be acted upon without resulting in any inspiring outcomes. For example, reflection may enable learners to gain valuable information about themselves and to act upon their newfound knowledge; or, reflection may not lead to any new and powerful understanding of the self. The extent to which transformative outcomes can be realized depends on numerous factors, including individual learners, the scaffolds presented to them, and the design of the opportunities for transformation.

Online learning endeavors are most frequently guided by arguments of efficiency, reduced costs, expanded course offerings, and reaching more (and different kinds of) learners. Yet, technological innovations allow us to do much more. In this article, I have argued that we should strive to provide opportunities for fulfillment and personal transformation, and I have presented strategies and examples for providing such opportunities for online and blended education. Future investigations of the topic need to present evidence of how online learning approaches can foster transformative outcomes and opportunities, while at the same time delineating a more formal description of an online pedagogy of transformation.   □

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