Chapter 54
Using Design Thinking Practices to Create Technology-Driven Adult Professional Development Programs

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ABSTRACT

Instructors are encouraged to train their students to be creative, critical thinkers, and innovative future leaders; unfortunately, most have not been trained in the same way as they are expected to teach. Instructors need to learn how to inspire innovation and 21st century skills by practicing and teaching those skills themselves. One way to do that is by learning the design thinking process, incorporating it into instruction, and using it to develop students' knowledge, skills, and attitudes/beliefs (KSABs) in similar ways. Understanding and employing the design thinking process and combining those tools with relevant and authentic instructional technologies can prepare instructors to develop the skills of tomorrow's workforce, innovators, and future leaders. This chapter discusses the importance of training teachers to use the design thinking process while using the design thinking process to instruct them. Best practices and examples of such professional development are offered.

INTRODUCTION

As a teacher educator of instructional technology and learning design, I encourage my students to look forward - to look beyond today's skills, tools, and technologies - and prepare their students for the future. I often begin my courses by asking my students, "What will the world look like in 5 years? In 10? In 20? And what knowledge, skills, and attitudes/beliefs (KSABs) will our students need to be successful

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when navigating and working in that world?" Now, I cannot take credit for these questions; I first started exploring them after reading Trilling and Fadel's (2009) book describing the future of 21st century skills. And truthfully speaking, it has been incredibly hard for us all to contemplate the answers. Regardless, I still encourage my students to consider these questions in preparation for an unpredictable future when designing their lessons and teaching their students.

We do not know what tools and technologies the future will bring us, and we cannot properly predict the skills that we (and our students) will need to use them. We do know, however, that we are not getting less technology, we will not become less globally connected, and the pace of technological change, innovation, and integration is more rapid than it ever has been before (Lemoine, Seneca, & Richardson, 2019; McLeod & Graber, 2019; Rosefsky Saavedra & Opfer, 2012). Similarly, technological integration no longer includes simply the consumption of tools that boost productivity and improve our lives. We are now able to interact more deeply and feed information back to their developers. The street has become two-way and consumers are "no longer passive receivers" and users, but stakeholding participants in the planning and design of future technologies and innovations (Leboff, 2014, pg. 101). All of this is important when considering the design of learning and teaching for the future. It appears that encouraging the development of 21st century skills can help prepare students for such innovation, interaction, and change (Trilling & Fadel, 2009).

I am frequently asked by teachers how to better prepare their students for this unpredictable future filled with change. While I am all too excited to encourage innovation in the curriculum and in classrooms, primarily with regards to technological integration, there are several issues with the way that educators often approach the subject. All too often, folks believe that technology is a "magic bullet" (Van Dusen, 1998) - the key to getting students motivated in their learning and that *any* technological integration will help prepare students for the future. Unfortunately, this is not the case. Technology is indeed an important motivator; the novelty of technology-based activities and lessons can capture students' attention and engage them in their learning (Keller, 2010; National Academies of Sciences, Engineering, and Medicine [NASEM], 2018). However, if the technology overshadows the learning, is too challenging or complicated to use, or is not interesting or is overly repetitive to them, the students will become distracted by it and learning will not occur (Bayaktar, 2001; NASEM, 2018; Selwyn, 2016; Vallera, 2019). Similarly, simply integrating technology into existing lessons or activities will not improve 21st century skills, make students technologically competent, or encourage mastery of the subject-matter content (Hamilton, Rosenberg, & Akcaoglu, 2016; Inan & Lowther, 2010; NASEM, 2018). Integration must be performed thoughtfully, with purpose, and with the intention of both motivating and instructing the audience (NASEM, 2018).

The U.S. educational system is not prepared for what students will need to know in the future, and students need more engaging opportunities for deeper learning (Blackley & Sheffield, 2015; McLeod & Shareski, 2018; Rosefsky Saavedra & Opfer, 2012). Our current "business-as-usual" approach using didactic instruction that includes content delivery through textbooks, lectures, and standardized testing does not encourage deep learning and 21st century skills development (Benade, 2017; Blackley & Sheffield, 2015; Garet, Porter, Desimone, Birman, & Yoon, 2001; Lemoine et al., 2019). Because of the advancements in technology and the availability of information (McLeod & Shareski, 2018), students can find the answers to most questions in their pockets at any time of day or night (Prensky, 2012; Tapscott, 2009). Many students turn to Google, YouTube, and other online resources to gather information or gain skills, and educators must teach students how to evaluate the sources of information for accuracy, credibility, and legitimacy (McLeod & Shareski, 2018; Trilling & Fadel, 2009). Instruction must include an