

Chapter 41

Andragogy and the Learning– Tech Culture Revolution: The Internet of Things (IoT), Blockchain, AI, and the Disruption of Learning

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ABSTRACT

The present tsunami of technological change is causing disruption across everything from business, transportation, finance, government, entertainment, and relationships, just to name a few. This disruption has only just begun to exert influence on the learning process and formal education. In much the same way that these industries are experiencing disruption from the digital revolution, andragogy may also be on the verge of what could be called a learning-tech culture revolution. This chapter describes three emerging technology categories that could help to produce such innovations include (1) the internet of things (IoT), (2) blockchain, and (3) artificial intelligence (AI). While there is a bevy of writing and expert commentary presently emerging about these technologies, there is very little supposition so far about their potential impact on learning culture and adult education. The following pages will include a brief explanation of each of these technologies with discussion about the ways they could be leveraged to make a momentous impact on andragogy as we know it.

INTRODUCTION

The present tsunami of technological change is disrupting everything, including business, transportation, finance, government, entertainment, and relationships—just to name a few. This disruption has only just begun to influence the learning process and formal education. Some might still view this merely as shift from classroom instruction to online courses or forums, which remain controversial among traditional educators (Pirosca & Mohanu, 2009; Smith, Ferguson, & Caris, 2002; Tanner, Noser, & Totaro, 2009). Others seem to focus on the shift from the pedagogical approach of the traditional classroom to

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distinctions in evolving andragogical adult learning methods. However, these changes could arguably be characterized as nominal harbingers of a completely new paradigm for human learning and in the way that knowledge is captured, stored, and applied by those who facilitate learning for others. In much the same way that the financial services industry is experiencing disruption from financial technology firms (fin-techs), andragogy may also be on the verge of what could be called a *learning-tech* culture revolution.

What if curriculum content could be packaged differently for every learner in a way that aligned with his or her individual learning style, level of competence/confidence, and intended application of the learned material? What if learner comprehension and synthesis could be confirmed while individuals learn in a way that adapts in accordance with their progress? What if cheating or fraud were to become both unnecessary to learners and, at the same time, virtually impossible? What if learners and their guides were learning about themselves along with the particular discipline being studied? What if the uninformed curiosity of dilutant learners could help to advance the most complex aspects of a field of study? These are all questions that a learning-tech revolution may potentially help answer with new ways to capture and analyze real-time data about the learning process, authenticate proof of work, and connect directly to the knowledge frontier for focal disciplines.

Of course, technology has limitations and should only be viewed as a vehicle to enhance and advance learning, not as a replacement for rigorous and intentional curriculum design, founded on tested and proven learning methodologies. Therefore, this chapter explores some emerging technologies that have the potential to disrupt traditional approaches to learning, yet still incorporate fundamental principles of development. These include foundational learning concepts like those characterized in Bloom's taxonomy to help learners to remember, understand, apply, analyze, evaluate, and create (Anderson & Krathwohl, 2001, p. 31). However, emerging technologies applied in innovative ways to andragogy include new capabilities that can guide learners through this process while simultaneously adapting content and method to each individual learner, reducing instances of cheating or fraud, and creating more sophisticated tools to increase the efficacy of a learning program.

Three emerging technology categories that could help to produce such innovations include the Internet of things (IoT), blockchain, and artificial intelligence (AI). While a bevy of writing and expert commentary is emerging about these technologies, there is very little supposition so far about their potential impact on learning culture and adult education. This chapter includes a brief explanation of each of these three technologies with discussion about the ways they could be leveraged to make a momentous impact on andragogy as we know it.

TECHNOLOGY AND CULTURE

Before delving into the impact that these three specific technological phenomena are having on andragogy, there is a need to establish some foundational connections between technology and cultural change. Hofstede (2001) posited technological change as a significant cause of cultural change, often occurring as an external origin of change to a given culture:

As all countries are gradually exposed to the products of the same scientific discoveries in the form of modern technology, and as these play an important role in culture change, some authors have concluded that all societies will become more and more similar. (p. 34)

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