

Chapter 6

Reimagined Higher Ed Classrooms: Meaningful Learning Through Culturally Unbiased Virtual and Augmented Reality

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ABSTRACT

Institutions of higher learning are facing increasing demands for technology-based programs that would service the needs of the changing 21st century populations. In today's amalgam of differences, education that is independent of cultural biases is more than difficult to author. Virtual and augmented reality (VR) technologies offer a possible solution but come with a host of other challenges. Content made for VR can easily be tailored to demonstrate educational concepts to bring people into the same space, but despite being able to provide this, we are left with another issue: Where do we get this media? This chapter will explore ways for businesses and organizations to build pedagogical VR content to foster more immersive learning that is culturally unbiased. The authors also explore costs and potential revenue and develop a clear picture of what it would take to startup such an enterprise in today's US economy.

INTRODUCTION

According to the U.S. Department of Education (2017), today's average student is no longer the 18-year-old whose parents drive them to the campus. Instead, the "new normal" student may be a 24-year-old returning veteran, a 40-year-old single mother, a part-time student juggling work and college, or the first-generation college student athlete. The faces we picture as our college hopefuls can't be limited by race, age, income, zip code, disability, or any other factor.

DOI: 10.4018/978-1-5225-9232-7.ch006

Virtual higher education has never mattered so much and to so many as a means of social mobility and economic growth. For higher education to fulfill its promise as a great equalizer, we need continued innovation that can move us toward increased access, affordability and equity. This innovation will develop an ecosystem that will include a range of opportunities for a variety of high-quality educational experiences and credentials with marketplace value suited for the differing needs of students (Rio, 2017).

Computer Science as a field of research continues to change and evolve at lightning speed. Artificial Intelligence (AI) is reaching a breaking point where its applicability is being realized. There is a growing expectation that AI will play a much larger role in how we teach our students, but no one really knows where it will lead us. Another paradigm changing technology coming to maturation is Virtual (VR) and Augmented Reality (AR) (Penland, Lavers, Bassham, & Nnochiri, 2018).

Virtual and Augmented Reality are now a very affordable and viable option for most people to own at home. These have long been an abstract idea, mostly seen in futuristic scenes in the movies until recently. If you think about what VR and AR are, an artificial environment created by computer hardware and software, and presented in such a way that it appears to be a real environment, you can make the quick assumption that the entertainment industry has been a player in this space for years. Enterprises are still learning how to leverage both AR and VR to improve business processes and gain a competitive advantage (Foundry, 2018). The possibilities are endless, and it is natural to expect our computer science teachers to be leading the charge in implementing these new, jaw dropping techniques. These concepts will become normalized.

It is nearly impossible to explore any corner of social media and not discover elements of criticism about the Millennial Generation, often unfairly; coupled with very little consideration regarding what makes them exceptional. Critics of Millennials need to begin thinking about creating new pathways to communicate with and teach the newest generation of learners who will become tomorrow's community leaders. It is essential that the schools of higher education begin to disrupt the Industrial Age model for learning and move forward with progressive strategies to meet the needs of the Millennial education consumer; the "Net" Generation. This new generation of learners has a different way of demonstrating mastery than the learners of the past. The 21st century learner responds to instructional opportunities at a far more rapid speed than generations past and progressive educators have learned to make the most of the talents, skills and interests of today's learner in both real world and virtual educational settings.

To meet the needs of a rapidly changing and growing global economy, schools of education must pursue adoption of a global business perspective to be able to teach marketable 21st and 22nd century skills. Schools need to focus on shifting from the concept of a local economy to a global economy; a cultural disruption of traditional "Industrial Age" pedagogy for teaching and learning. They must respond to the radical changes introduced in the 21st century workplace to meet the needs of the complex world economy. Schools must shift from the old model of learning where teachers would broadcast information and shift to new instructional models for virtual reality, virtual learning, and interactive real-world situations in a safe online environment. The Net Generation learner is shifting from being a recipient of instruction to a learner focused on collaboration, interactive learning, and reflective research, practice and work (Tapscott, 2009).

According to the National Conference of State Legislatures (NCSL), there are at least five states that are requiring an online or virtual reality/virtual class as a high school graduation requirement (2017). Schools need to move from the one room schoolhouse way of thinking to successfully meet the needs of the Net Generation learner; from the teacher as a sage on the stage to a teacher who is "a guide on the side" not the "sage on the stage" (Tapscott, 2009). Institutions of higher learning need to think about

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