Chapter 13

Inverted Constructivism to Leverage Mobile–Technology–Based Active Learning

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ABSTRACT

The classroom environment in the 21st century has increasingly utilized many types of technologies as supplemental tools for teaching and learning including instructional design, development, and delivery. The level at which schools are encompassing more technology is often restrained by financial constraints and rapid advances in the static equipment, making the equipment outdated within a short period of time. However, the use of relatively low cost mobile technologies such as tablets and cell phones in the classroom setting have reduced the social and logistical barriers in education and enhanced the creative active learning processes. The primary objective of this chapter is to offer insights into the importance of using mobile technology to educate students in today’s connected society and to identify the multi-faceted advantages of mobile technology within an active learning curriculum design to encourage a meaningful learner-centered experience.

INTRODUCTION

With one click on a smart phone, students can read about the effects of an unhealthy diet and the lack of exercise on a heart, watch a video demonstrating open heart surgery showing the fatty deposits encompassing and limiting its ability to function, and listen to podcasts on scientific debates on what is considered a healthy diet. The tools, boundaries, and expectations of learning are rapidly changing for both learners and teachers alike as we progress through the digital industrial revolution. With the exponential increase of mobile technology within society, learning has become ubiquitous and is no longer restricted by time, location, or the limitations of formal in-class education. Our environment and experiences, augmented

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Inverted Constructivism to Leverage Mobile-Technology-Based Active Learning

by the digital brain of our cell phones, has become the classroom. How to incorporate this new view of learning into the classroom that allows for meaningful, teacher-facilitated learning is the challenge formal institutions of learning will need to address to ensure future success in educating the students of tomorrow. Insights provided by the Speak Up surveys of Project Tomorrow in collaboration with the US Department of Education report that “a majority of school leaders (54 percent) say their biggest challenge with digital learning is how to motivate their teachers to change their instructional practices to make better use of these engaging and contextually relevant resources” (Project Tomorrow, 2017, para. 4).

As educators and parents, it is our responsibility to educate the “whole child” to prepare them for an unknown future with jobs and resources yet to be discovered. Some may ask how we achieve such a daunting task. The answer is simple, don’t overthink it too much; instead of teaching to the test of life, it is the job of educators to help the learners become empowered with the knowledge of “how to learn” effectively and become continuous, lifelong, and self-directed learners. By fostering a self-image of ownership in students regarding their educational journey, students will be able to practice and enhance the necessary abilities to be skilled constructivist thinkers. Increasing students’ capabilities to become self-directed learners will allow them to easily adapt in the rapidly changing environment of the 21st century. Armed with the ability to mentor and guide our students and the advances in mobile technology as well as the ubiquitous learning opportunities with the use of mobile learning tools, educators are poised to lead the next generation of citizens into self-exploration and collaborative citizenship.

The primary objective of this research is to offer insights into the importance of the use of mobile technology to engage with the students of today’s connected society. Additionally, this research identifies the multi-faceted advantages of the use of mobile technology within the active learning curriculum to encourage a meaningful learner-centered experience. By sharing the research findings, it is our intention that educational professionals will find the information to be a beneficial asset in the reflection and implementation of mobile technology including active learning strategies in constructivist-based inverted curriculum design.

BACKGROUND

Reviewing the history of the emergence of digital technology and the implications of its growth within our society can help educators understand the future importance of embracing technological advancement and growth. Delving into the assumptions of the important pedagogical dynamics of mobile learning, this chapter discusses the criticality of how they are interconnect, their effect on the development of educational design, and the implications for the learner. This historical look shows signs of foreshadowing the future needs of implementing mobile technology-based learning and implementation of current views of technology-based learning tools.

Emergence of Mobile Learning Technology

Although many of us are not digital natives, it is difficult to remember a time without electronic mobile technology. As teachers, classroom technology has always been a coveted tool with the expectation that it would help decrease students’ struggles in the classroom, making the teaching process smoother if even in a small way. Early devices such as overhead projectors, photocopiers, hand held calculators, and Scantrons became standard technologies in the classroom and foreshadowed what was to be expected