Chapter 8
Power up Learning With Mobile Games: The Educational Arcade – An Innovative Approach to Learning

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ABSTRACT
The evolution of mobile games and the subsequent evolution of designing mobile gaming experiences to support learning is captured in this chapter. The authors will address the affordances and limitations of mobile gaming as well as the learning theories and frameworks that lay the foundation for learning through mobile games. Current perceptions of mobile gaming in the classroom and the implementation of mobile games in schools are discussed. In addition, this chapter explores mobile games for social change, their prevalence, and their role in facilitating learning. The chapter also discusses differing perceptions on the issue of mobile games in and out of the classroom as well as the potential for marketability.

INTRODUCTION TO MOBILE GAMING
Trends in the gaming industry and technological advances have spawned innovative ways of gaming with new technologies. In particular, the evolution of mobile gaming has penetrated and prevailed among populations of all ages and experience

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levels. Market data shows that mobile gaming has transformed into a 4.6 billion dollar industry, with 202.8 million mobile gamers in the U.S. alone, its penetration being 61.6% (Statista, 2019). This chapter will describe the evolution of mobile games and the subsequent evolution of designing learning experiences to support learning. The chapter will address the affordances and limitations of mobile gaming as well as the learning theories and frameworks that lay the foundation for learning through mobile games. In addition, this chapter explores mobile games for social change, their prevalence and their role in facilitating learning and discusses differing perceptions on the issue of mobile games in and out of the classroom and potential for marketability.

**EVOLUTION OF MOBILE GAMES AND LEARNING EXPERIENCE DESIGN (MGAMES+LXD)**

When considering mobile games in the context of learning, it is highly important to understand the nature and concurrent evolution of media, design of learning experiences and subsequent presentation of target instructional content. One cannot differentiate educational games from the learning objectives that it is trying to accomplish.

In the last 20 years, there have been major advances in technology. The evolution and changes in the medium of delivery for games, from console to desktop to mobile, are important factors to consider in order to understand the potential of each platform. The current conceptualization of instructional technology emphasizes the significance of both the systematic design process and the technology mediums. The medium and the instructional method work conjoinedly to facilitate the learning process. Kozma (1991) proposes, “Learners will benefit more from the use of a particular medium with certain capabilities if the capabilities are employed by the instructional method to provide certain representations or perform or model certain cognitive operations that are salient to the task and situation and that the learners cannot or do not perform or provide themselves.” This view supports that learning results from the dynamic interaction between the capabilities of the media, the instruction (information), and the learner.

The most current conceptualization of instructional technology sees media as serving two primary functions: to represent information and to communicate information. Media in and of itself does not stimulate learning, but offers a way for learning to occur. As demonstrated by Collins, Neville and Bielaczyc (2002), because different types of media afford different ways of representing information, the type of media dictates how the information is delivered. This demonstrates how media functions to represent information. The authors consider this “educational technology”. Bodily, Leary and West (2019) share that there is a large presence
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