

Chapter 8

Teachers and Teaching in Game-Based Learning Theory and Practice

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ABSTRACT

Interest in game-based learning has grown dramatically over the past decade. Thus far, most of the focus has not included the role of teachers. This chapter first summarizes the theoretical research on game-based learning and the implications of that research for the role of teachers. The authors next review the game-based learning literature that has specifically articulated a role for teachers or achieved an empirical description of teacher action within a game-based learning context. They then connect these accounts with more general research on teachers and technology use, elaborating on points of contact and identifying differences that may signal special challenges. Finally, the authors articulate an expanded role for teachers in game-based learning practices in terms of game-based learning research and new scholarship on the psychology of games.

INTRODUCTION

Digital games are an influential and ubiquitous presence in the lives of young learners. A 2008 study by the Pew Internet and American Life Project found that 97% of teens ages 12-17 play

digital games, and 50% of them report daily or nearly daily play (Lenhart, Jones, Macgill, & Pew Internet and American Life Project, 2008). With increasing access to computers, consoles, and cell phones, young people are finding that opportunities for gaming are everywhere. The emergence of video gaming as an important leisure activity among young people called into question what

DOI: 10.4018/978-1-4666-2809-0.ch008

effects, if any, these games may have. Initially, psychologists and sociologists set out to discover whether or not video gaming is a harmful activity for children (e.g., Anderson & Bushman, 2001; Hauge & Gentile, 2003; Anderson, 2004; Skoric, Teo, & Neo, 2009); although the findings from this line of research remain controversial (e.g., Hall, Day, & Hall, 2011; Murray, Biggins, Donnerstein, Menninger, Rich, & Strasburger, 2011), there is still an enduring perception among the general public that digital games are a negative influence on young people. Not all research, however, has cast digital games in a negative light. In particular, educational researchers are increasingly interested in the positive effects of gaming. In fact, a growing body of evidence indicates that digital games can be powerful vehicles for learning. Numerous studies have linked classroom use of learning games with increased learning outcomes and improvement in students' conceptual understanding, engagement, and self-efficacy (e.g., de Freitas, 2006; Clark, Nelson, Sengupta, & D'Angelo, 2009).

The past decade has seen significant advances in the sophistication and efficacy of games designed specifically to enhance learning in a school setting. Educators who want to include digital games in their classroom activities, however, may find themselves facing significant obstacles. From the outset, game-based learning contains at its core several assumptions about teaching and learning that differ, or even run counter, to the everyday business of classrooms. Additionally, educators may feel unsupported in using games for learning, unsure about which games to use and how to use them, or they may feel they lack the knowledge or gaming experience to guide their students effectively in this activity. Taken together, these obstacles may severely constrain the degree to which games are used effectively in the classroom.

Our goal in writing this chapter is to help educators create effective strategies for implementing game-based learning activities into their classroom

practices. While educational gaming presents some elements of practice that are shared with other classroom uses of technology, educational gaming presents additional unique circumstances and opportunities that research has only recently begun to address. We will present some examples from the literature that illustrate the type of personal, technological, and structural resources that teachers need to use games effectively in their classrooms, and we will outline some of the potential advantages to building partnerships between teachers and researchers and creators of educational games.

RESEARCH ON GAMES AND LEARNING

Investigation into the use of games for learning has grown from a small niche area to a major focus of research over the past decade (e.g., Clark, et al., 2009; Dieterle, 2010; Honey & Hilton, 2011). In 2006, the Federation of American Scientists issued a widely publicized report stating their belief that games offer a powerful new tool to support education and encouraging governmental and private organizational support to increase funded research into the application of complex gaming environments for learning (FAS, 2006). In 2009, a special issue of *Science* (Hines, Jasny, & Mervis, 2009) echoed and expanded this call. Mayo (2009) characterized digital games in that issue of *Science* as “capable of delivering [science, technology, engineering, and mathematics] instruction to millions” (p. 79).

As computer games became nearly ubiquitous in the 1980s, gaming became a major cultural activity among young people in the United States, Europe, and Japan. Since that time, educators are increasingly intrigued by the potential of games to empower learning. A complete overview of the development and progress of game-based learning is outside the scope of this review. By way of a historical summary, we can say that sociologists

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