

# Chapter II

## Games, Claims, Genres, and Learning

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### **ABSTRACT**

*We offer a framework for conducting research on games for learning. Building on a survey of the literature on games, we suggest a categorization scheme (physiological and psychological) of the range of claims made for games. Our survey identifies three critical issues in the current scholarship. They are: a lack of authentic, situated research studies; a lack of sensitivity to the pedagogical affordances of different game genres; and a lack of emphasis on the importance of acquiring disciplinary knowledge (i.e., content). We offer the Technological Pedagogical Content Knowledge (TPCK) framework as a way to address these concerns and guide future research in this area. We argue that assessment on learning from games needs to consider the specific claims of games, as they interact with genre and content knowledge. Finally, we introduce an ongoing study that utilizes this approach.*

### **INTRODUCTION**

The nature of technology and the way we socialize ourselves has changed over time (Johnson, 2005) and the effects of these changes are reflected in the myriad of arguments about technology integration in schools (Cuban, 1986). Electronics games form a large part of the media environment of today's

children. In 2006, 30% of the most frequent computer game players and 40% of console game players were under 18 years old (Entertainment Software Association, 2006). Further, American children between 8 and 18 years old play video games for an average of seven hours per week (National Institute on Media and the Family, 2005). It is evident that games capture children's

attention and engage them in important ways. Clearly, designers, educators, and researchers need to develop a better understanding of how to integrate electronic games in classroom teaching. This requires knowing that the value of electronic games for learning comes not from merely inserting games into the curriculum, but rather on how different game genres reflect underlying pedagogical strategies that allow for learning in different content areas.

This advent of games in everyday life comes at a time of perceived crisis in education. For instance the President of the Federation of American Scientists, Henry Kelly, says that education in the United States is facing a critical problem in that it must educate students to face the challenges of the 21st century (Federation of American Scientists, 2005; Kelly, 2005). International studies, such as Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA), and national assessments such as the National Assessment of Educational Progress (NAEP) show that U.S. students are not performing up to standard in mathematics, science, or literacy (Gonzales et al., 2004; Hampden-Thompson, Johnston, & American Institutes for Research, 2006). The report by the Federation of American Scientists argues that video games may be a powerful way of helping students learn what they need in order to succeed in a globalized world.

Video games capture children's attention and imagination because they challenge, present fantasy, and generate curiosity through interactivity and intelligent design of game-play (Malone, 1981). Thus, it is not surprising to hear that games present a unique opportunity to educators to use the interests of children as a way to educate them. The use of video games for learning is argued by many to arise from the affordances of video games—in particular, video games allow learners to immerse themselves in highly interactive and engaging experiences. Such experiences can lead to contextual learning of complex activities

and the development of understanding, skills, and innovativeness (Fabricatore, 2000; Greenfield et al., 1994; Subrahmanyam, Greenfield, Kraut, & Gross, 2001).

Based on increased possibilities for learning from video games, it is not surprising that a great deal of attention is being paid to the role of video games in education (Foreman, 2003; Kelly, 2005; Shaffer, Squire, Halverson, & Gee, 2005). There are a wide range of claims made about games, both positive and negative. On one side are positive claims, such as a recognition of the power games have to motivate learners, while on the other are negative claims, such as the idea that playing violent video games can lead to increased aggressive behavior. The wide diversity of these claims makes it difficult to engage in a rational discussion about the effects of games because different groups can have wildly divergent conceptualizations of the kinds of games (and their effects) they are talking about. It is clear that we need to develop a way of classifying or categorizing these claims in order to develop a shared frame from within which to discuss these issues. In the section below, we discuss and elaborate on the various types of claims made by people designing, using, and studying video games, with the goal of developing such a categorization scheme.

## **The Claims of Games**

Proponents of games say that we should be preparing students to be innovative, creative, and adaptable in order to deal with the demands of learning in domains that are ill structured (Federation of American Scientists, 2006; Gee, 2003, 2005a, 2005b, 2007a). They (e.g., Gee, 2003; Prensky, 2001) go on to argue that games provide many of the essential affordances that are needed for learning in these contexts (Foreman, 2004). Games, according to these scholars, are a medium in which students are intrinsically motivated to be competent, autonomous, cognitively flexible risk takers (without serious consequences of taking

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