Chapter XLII
Self-Regulated Learning in Video Game Environments

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ABSTRACT

Video games engage players in rapid and complex interactions of self-regulatory processes. The way individuals regulate their cognitive, affective, and behavioral process while playing electronic games, relates to their ability to cope with the onslaught of information that electronic games require for their mastery. The psychological factors that produce self-regulated learning are explored as they relate to a player's intentionality, interest, aptitude, motivation, goal-setting, and affect while playing games. A discussion of video games as authentic learning environments looks at the roles of student initiated learning in authentic contexts and specific design strategies are outlined. Practical learning strategies that promote SRL are presented to facilitate the use of conscious self-regulatory skills that students can implement in these authentic learning environments. This chapter opens the discussion of the role of self-regulated learning in video game environments and its impact in the field of educational gaming.

INTRODUCTION

Video games engage players in rapid and complex interactions of self-regulatory processes. The way individuals regulate their cognitive, affective, and behavioral process while playing electronic games, relates to their ability to cope with the onslaught of information that electronic games require for their mastery. As a player interacts within the gaming environment, the game responds forcing the player to adapt and react. The responsiveness, adaptability, and interactivity of electronic games are unique in that they initiate self-regulatory processes through their inherent design. This responsiveness also serves as a conduit in which game players can explore, discover, and reveal new abilities before they are actualized in other contexts (Johnson, Christie, & Wardle, 2004). The transfer of declarative, procedural,

conditional, and self-regulation strategies are situated in learning approaches that game players use for learning. These strategies are developed through the unique characteristics in games that promote self-regulated learning.

Video games possess at least eight characteristics that make them ideal environments for facilitating and promoting self-regulated learning. Games are: (1) interactive, (2) repetitive, (3) adaptive, (4) cumulative, (5) scaffolded, (6) affectively situated, (7) intrinsically oriented, and (8) based on both player-centered and game-based goals. These characteristics, whether in the classroom, online, or through play, are recognized qualities of enriched learning environments. As electronic games can also be recognized as enriched learning environments, we now have the ability to evaluate video games as an educational tool. This recognition allows researchers, educators, and students to exploit these key features to promote self-regulated learning (SRL).

Self-regulated learning, while both implicit and consequential in most recreational gaming, provides a grounded context in which both tacit and conscious learning can be studied. Although implicit learning in games does not represent an efficient environment for learning curricular objectives, there are strategies that can be implemented that make the implicit content of the game explicit. Facilitating game players' abilities to regulate their motivation, goal achievement, engagement, and emotions while playing games, promotes conscious and reflective student learning. These practices and strategies are needed for educational gaming to make an impact in the classroom. Although there has been much promotion of the idea of games in education (see Gee, 2003; Prensky, 2001; Schaffer, 2007), few researchers have addressed the wide ranging psychological issues involved in marrying recreational games with learning. Addressing the psychological aspects of gaming as it relates to the psychology of the player, interactions in the game, and the players' ability to learn in a gaming environment, provide some reference as to why the psychological logistics of educational gaming are greater than the technological limitations. As video games have profound implications in the study and facilitation of the self-regulatory processes for learning, this chapter opens the discussion of the role of self-regulated learning in video game environments and its impact in the field of educational gaming.

In this chapter, we address the unique psychological challenges of implementing video games as environments for learning. We start with a brief overview of self-regulated learning (SRL) based on current research, models, and frameworks. Due to the space constraints of the chapter, this is not intended to be a comprehensive review of the psychology of self-regulated learning (for a review, see Baumeister & Vohs, 2004; Boekaerts, Pintrich, & Zeidner, 2000), but rather an integrative review and orientation to the concept of self-regulation as it applies to video games for learning. Next, the psychological factors that produce SRL are explored. Aspects of intentionality, interest, aptitude, motivation, goal-setting, and affect are discussed to draw some inferences about the psychology of the player within this new learning context. A discussion of video games as authentic learning environments looks at the roles of student initiated learning in authentic contexts and specific design strategies are outlined. Finally, implications and applications of SRL in electronic gaming environments are formulated. Practical learning strategies that promote SRL are presented to facilitate the use of conscious self-regulatory skills that students can implement in these authentic environments. The overall aim of this chapter is to explore self-regulated learning in the context of electronic games and to promote a critical dialog and evaluation of the complexities of implementing both recreational and educational games as tools for learning.