

## Chapter 5.11

# Harnessing the Emotional Potential of Video Games

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### ABSTRACT

This chapter explains the importance of acknowledging users' personalities, learning styles, and emotions in the design of educational games. It argues that the application of educational theories combined with knowledge of subjects' personality traits and an increased emotional depth offer a substantive approach to understand and improve the nature of learning in educational games. The authors hope that understanding the underlying motivation and behaviors of learners through the use of personality profiles will not only inform researchers of a better design of educational games, but also assist in understanding the intricate relationship between game design, instructional design, and users' personality at both cognitive and emotional levels.

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### INTRODUCTION

#### Background and Motivation for the Study

Since the 1970s, a new generation of students has emerged: the digital natives (Prensky, 2001). They are technology-savvy, use digital devices, process information in parallel, and play games frequently. For this generation, video games have become a medium for entertainment, for socializing, performing collaborative activities, and also for learning (Gallarneau, 2005). On the other hand, traditional teaching does not always acknowledge the needs of this new generation and, as a result, learning in traditional settings is often perceived as boring or unappealing. Furthermore, digital natives develop skills that are not always acknowledged or measured by traditional instruction. For example, the Flynn effect suggests that

young children's IQs are constantly increasing but their academic results in mathematics are still poor.

The development of educational games has served the purpose of creating content that is both appealing and educational for this new generation. Using these games, players learn by doing and by experimenting in a constructivist manner. Indeed, video games represent ideal learning environments in which users can improve their skills and learn in a safe and controlled manner. They often implement well-known instructional strategies such as social learning, discovery learning, or zone of proximal development (Vygotsky, 1978). According to Gee (2004), a variety of learning principles are built into good video games. Such skills include critical learning, design principles, semiotic principles, and semiotic domain principles.

Despite an unsuccessful start with edutainment technology (education + entertainment), serious games are now much more appealing and can compete with commercial off-the-shelf (COTS) games thanks to more affordable and manageable technology (of e.g., game engines). They are increasingly accepted as a truly potential educational medium (Van Eck, 2006). However, despite promising features, there is a lack of experimental studies on their effectiveness at both motivational and educational levels. The findings on their effectiveness are often contradictory and the evaluations anecdotal, descriptive, or judgmental (Leemkuil, De Jong, & Ootes, 2000), and there is no consensus on a common standard for the design of educational games (Squire, 2002).

The authors suggest that one of the reasons for the discrepancy in the design techniques used and the results collected is that users differ in their personalities and learning styles. They believe that, because users' personalities dictate the way they interact in the game and ultimately the way they learn, there is a need to tailor the content in a way that appeals to each user and that promotes learning activities. Because video games represent a highly emotional experience as well as a structured problem-solving system, their potential

can be employed in a "user-centred" approach, to provide educational content that individually stimulates users' emotions and cognitive skills. The expectation is that by "reaching" students and adapting to their needs, the learning activity will be seamless and more effective.

## **User-Centred Approaches to Improve Educational Games Design**

For a long time, traditional teaching methodologies focused on the content and educational objectives rather than the user. Because students have different expectations, preferences, and learning styles, a given educational content might not be effective across a wide range of students. User-centred learning offers a shift from traditional methodologies; it allows tailoring of teaching methods and content to users. In such environments, users' preferences, abilities, and reactions are evaluated and accounted for to maximise the learning outcomes (Levine, 1999).

## **Students Have Different Needs and Abilities**

Students often differ in their predisposition for particular topics. These different approaches to learning can be illustrated by the theory of multiple intelligences, introduced by Gardner (1993), who proposed the existence of eight (initially seven) autonomous intelligences: linguistic (e.g., reading and writing), logical (e.g., problem-solving and mathematics), musical, visual/spatial (e.g., arts and map reading), bodily/kinaesthetic (e.g., sports), interpersonal (interpersonal skills), intrapersonal (knowing about one's strengths and weaknesses), and more recently naturalistic (e.g., enjoy learning about plants and animals). This theory has been gradually accepted in the educational system as a means to provide different approaches to teaching. The eight intelligences allow educators to "reach" students more easily, to adapt to their learning styles, to allow them to "grow", and is

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