

Chapter 11

Motivational Aspects of Gaming for Students with Intellectual Disabilities

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ABSTRACT

The attention to learners with special needs, in particular those with intellectual disabilities, is an area of continuous development. It is considered important to develop adaptive educational solutions for the integration of people with educational difficulties according to their needs. Digital games provide an attractive and direct platform in order to approach students of every intellectual level. However, practical game based learning application in the special education classroom is still regarded with skepticism by educators, or has been treated solely as an extrinsic reinforcement. Moreover, the design and usage of digital games as a motivational tool for students with intellectual disabilities has not been thoroughly documented. This paper presents a review of the motivational theories and research findings regarding the usage of digital games in the educational experience of users with intellectual disabilities, with a scope to define the potentials, prerequisites and possible limitations of such an intervention.

INTRODUCTION

Over the past years, serious games have been documented at the literature review as a promising educational tool with motivational perspectives towards de-motivated students or students who

deal with low self esteem and special educational needs. However until recently, gaming had been used in the educational environment almost solely for recreational purposes or purely as an extrinsic reinforcement.

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Game-oriented software has been used in typical school classrooms almost since the introduction of the hardware (typically the PC) on which it runs and academic research has verified the educational and motivational possibilities of gameplay in a classroom setting. Some titles have been widely acclaimed as effective tools for inducing highly motivated, profound, collaborative learning (Kirriemuir, 2005). Other titles have been less successful, often being shown up as tedious, expensive and repetitive drill-based games (MacFarlane et al., 2002).

Regarding students with intellectual disabilities, games under specific conditions seem to provide appealing human-computer interaction methods in order to enrich the learning process of the students, while helping to improve social relationships, raise the communication level and ease the integration of new concepts that improve the learning process, while they attract the player's engagement in a straightforward fashion (Gonzalez, 2005; Saridaki et al., 2009).

All these features portray digital games as a highly promising learning tool, in both formal and informal settings of special education. However, what has not been documented are the motivational qualities of serious games integration in the learning experience of students with intellectual disabilities and whether it can be used as a motivational tool of educational value or solely as another medium of extrinsic reinforcement.

In the following, by presenting findings from literature review and field observations, we will try to present the association between game based learning and the intrinsic motivation of students with intellectual disabilities.

MOTIVATION AND LEARNING

Motivation is a fundamental concept in most theories of learning and is closely related to arousal, attention, anxiety, and feedback/reinforcement. When we motivate ourselves, we are able to

develop incentives, thus setting up conditions in order to start or terminate certain behavior. Especially when it comes to learning and education, motivation deals with the problem of setting up the conditions that will augment the learning performance of the students.

In most forms of behavioral theory, learning can depend on the strength of the drive and its underlying motivation. Studies show that in general people prefer tasks of intermediate difficulty and there are various factors that might increase or decrease our will to learn and participate. For example, a person needs to be motivated enough to pay attention while learning, whereas anxiety can decrease our motivation to learn. Receiving a reward or feedback for an action usually increases the likelihood that the action will be repeated but at the same time this doesn't mean that when the reward will discontinue the action will be repeated. And this issue brings us to the distinction between intrinsic and extrinsic motivation and we will accept the simple definition of Malone and Lepper (1987) that intrinsic motivation is what people will do without external inducement.

In behavioral theory, motivation is a matter of primary drives such as hunger and comfort, and tends to focus on extrinsic motivation and rewards rather than goals and craving for achievement. On the other hand, in cognitive theory, motivation to achieve is a function of the individual's desire for success, the expectancy of success, and the incentives are provided in order to create intentions and goal-seeking acts. Cognitive theories deal with intrinsic motivation rather than with external incentives (Ames & Ames, 1989; Atkinson & Raynor, 1974; Weiner, 1990).

According to Rogers, all individuals have a drive to self-actualize and this motivates learning processes (Rogers, 1968), while Malone argues that intrinsic motivation is created by three qualities: challenge, fantasy, and curiosity. Challenge depends upon activities that involve uncertainty due to variable levels, hidden information or random situations. Fantasy should depend upon

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