The Relationship Between Student Learning Styles and Motivation During Educational Video Game Play

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ABSTRACT

Educational video games allow for a level of intrinsic motivation and engagement that is not found in other forms of learning. This study determines if students found educational video game play to be a motivating experience and if a relationship existed between student learning styles and levels of motivation. High school psychology students played two short online educational video games and, upon completion of the activity, their intrinsic motivation levels were determined using an evaluation questionnaire. The data, as determined by the evaluation questionnaire, revealed that students found playing educational video games to be intrinsically motivating. Further examination revealed no statistically significant differences between the student learning styles and the motivation experienced during educational video game play.

Keywords: Computer Assisted Instruction, Instructional Technology, Interactive Learning System, Student Centered Learning, Student Learning Styles, Student Motivation, Technology-Enhanced Learning, Video Games, Virtual Learning

CHALLENGES IN MOTIVATING AND ENGAGING TODAY'S STUDENTS

Today’s high school student has grown up using technology and has become dependent on it. From computers to cell phones, or video games, these resources have become woven into everyday life. Yet, in schools effective integration of many forms of new technology within the instructional process is lacking. The current instructional approaches in today’s high schools are primarily focused on the memorization of facts based on content standards which are designed to prepare students for a myriad of standardized exams. This method of teaching and assessment fails to consider or properly assess higher order thinking, problem solving skills, decision-making, or team-building skills needed in today’s workforce (Federation of American Scientists, 2006). This has led to disconnect between what is needed of education and what is offered by education. Motivating students, focusing on learning, and developing DOI: 10.4018/ijopcd.2011070105
higher order thinking skills continues to be a challenge in today’s high school classroom.

Educational video games may be a resource available to educators as a classroom strategy that can foster desirable traits by motivating the student who is acclimated to this form of technology. The Federation of American Scientists (2006) found that educational video games can change the learning environment by (a) improving the speed at which developing expertise is acquired, (b) increasing the depth of understanding, (c) increasing the ability of the learner to transfer expertise to the solution of practical problems, and (d) increasing the levels of motivation in learning, especially in terms of getting more time on task.

The Federation of American Scientists (FAS) criteria led to the research described in this paper which focused on discovering if there is a relationship between student learning style and level of intrinsic motivation when playing educational video games. Specifically, the following questions were addressed: 1) What is the relationship between the different student learning styles and level of intrinsic motivation experienced during educational video game play? and 2) What is the difference in the level of intrinsic motivation that the different learning styles derive from educational video game play?

EDUCATIONAL VIDEO GAME RESEARCH

Over the past decade, research on educational games has increased as studies conducted by MIT, Harvard, and Indiana University have shown that games hold the potential to promote student learning and engagement (Warren et al., 2009). Ke (2007) reported that over 600 research studies or reports have been written on computer games. From those 600, only 89 could be deemed as being supported with exemplary research. According to Ke (2007), “only 10 of 89 game studies examine the variable of learner characteristics, which confirms that studies on the interaction of learner characteristics and instructional game usage are limited” (p. 19). Simonson (2003) stated the following:

The thrust of current research is no longer on comparing computer-based learning with other media or with the teacher, but in determining what specific computer environments can best enhance student learning and in determining which instructional approaches used in conjunction with the computer are most effective (p. 51).

Groups such as the FAS (2006) support video game play in education because of the creative, engaging, and positive learning environments that are experienced by the player. Incorporating high-quality educational video games into the classroom is a relatively new approach in education. According to the FAS, “there are few reports of clear and unequivocal outcomes for using educational games, an absence of information that might encourage educators to try new and unconventional approaches to instruction” (p. 44).

Although educational video games may be an unconventional form of instruction, the FAS (2006) pointed out the following:

Students remember only 10% of what they read; 20% of what they hear; 30% of what they hear, if they see visuals related to what they are hearing; 50% of what they hear, if they watch someone do something while explaining it; but almost 90% if they do the job themselves, even if only as a simulation (p. 15).

Educational video games involve kinaesthetic, visual, and auditory experiences, meaning they will be more memorable than other forms of instruction and can potentially improve overall retention of the concepts (Jenkins, 2005). Research has shown that computer-based games can be effective for instruction; yet, motivational aspects and specific features that influence learning styles have not been fully explored (Belenich, Sibley, & Orvis, 2004).
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