Influence of Video Games in Learning

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ABSTRACT
This topic is based on the advantages of video games in education. Video games might not always have a negative impact on children. Playing the right games may help children learn a lot and improve their thinking skills. Some innovative students create their own home based games which help them create new and easier ideas to solve certain problems of certain subjects. Many different types of games have been made for students for developing interest for studying. However, some people are against the concept that video games provide educational benefits. Yet these individuals fail to recognize that the use of video games facilitates the child’s mind and promotes strategic thinking.

Keywords: Game play, educational learning, future learning, learn math.

1. INFLUENCE OF VIDEO GAMES IN LEARNING
Traditionally, learning was centered around the conventional teaching practice where students relied on the classroom learning process to acquire knowledge. Basically, learning was focused on the teacher-student interaction in the classroom. However, in the recent past, especially in the last decades, video games have been gaining popularity not only in entertainment but also as an object of interest in academic research. As such, learners are increasingly using video games to enhance intellectual capabilities and cognitive capacity, thereby increasing the ability of knowledge acquisition and retention. Understandably, the advent of information technology, and more so use of video games that are designed for education purposes, has played an important role in the promotion of effective learning. As discussed below, video games have emerged as the best education tool, especially in the elementary and high school environment.

2. REVIEW OF LITERATURE
According to Thirunarayanan and Vilchez (2012), the use of video games in education has been increasing in the American education system. Specifically, the authors note that video games help the learners to be engaged in education. Researchers document that using video games to promote learning is an important aspect of the pedagogy and knowledge transfer, both in class and outside the classrooms settings (Thirunarayanan & Vilchez, 2012). In fact, writers such as Spencer and Feng (2010) observe that playing action video games could modify spatial attention processing in learners. This is largely because the cognitive skills required to play video games help the learners to develop attention and concentration competences, thereby promoting learning. As children undergo growth and development stage, video games enrich their ability to create a relationship between learning, conceptualization, and synthesizing the learned materials (Spencer & Feng, 2010). In support of this argument, Rebetez and Betracourt (2007) elucidate that video games influence the cognitive and psychological perspective of learners. In other words, they help the learners to nurture positive perception and visual attention as well as developing aggressive behaviors. In essence, these attributes of video games help in learning among the youthful school going children.

Although education researchers have realized that video games can grab the attention of the children and adolescents, nevertheless, it is important to examine the influence of the video games to the education performance of the children before introducing the curriculum content in digital form. In this regard, the video games have been able to transform the learning process leading to the utilization of “edu-tainment”, a term that has gained immense recognition among the scholars, researchers, and teachers (Griffith, 2002). Understandably, fundamental learning skills can be built or reinforced by video games. Evidently, through spatial visualization abilities and manipulation of two-three dimensions, video games enhance knowledge transfer. As such, while on the one hand the prevalence of the video games contribution in rising obesity and shrinking physical ability among youths, the learning perspective has integrated video playing as an essential component of the learning environment (Hayes & Silberman, 2007). As observed by several researchers (e.g. Spencer & Feng, 2010; Hayes & Silberman, 2007; Griffith, 2002 and others), video games are typically so realistic that college-level students and professionals use them for off-classroom training.

Nowadays, educators have realized that technology can be an integral component in supporting general learning in schools, and specifically in physical education. In the current educational milieu, there has been increasing development of digital content in the curriculum, both in elementary and higher education level. To underpin this notion, Kirkorian (2008) admits that the attention of children is easily swayed by
program content. Here, the author introduces the aspect of perception in determining how videos help in the learning process. Specifically, one area of cognitive development influence in the student’s ability to learn from the video games and other digital visual content is the perception of the video itself (Kirkorian, 2008). Therefore, although education and gaming is controversial due to the perception that video games play a more entertainment role (Hayes & Silberman, 2007), there is evidence that modern day games require high cognitive involvement, skills, insight, and knowledge to play (Oblinger, 2006). As such, understanding the applicability and benefits of using video games in the learning process, and more so, in the knowledge transfer, acquisition and testing of this type of instructional method would potentially help to underpin the importance of video games in education.

Considerably, Chuang and Chen (2009) note that the use of multimedia, such as video games in education, has significantly changed the people’s learning processes. Empirical research (e.g. Chuang & Chen, 2009) demonstrates that the use of appropriately designed multimedia instructions enhances student learning performance in science, mathematics, and literacy. Computer aided instruction programs have important elements that motivate, challenge and increase curiosity in children (Spencer & Feng, 2010; Hayes & Silberman, 2007; Griffith, 2002). Therefore, video games have a multimedia capability to assist in computer-aided-instruction in classes. The traditional learning methods may be limited in capturing the attention of students especially in mathematics, for example (Chuang & Chen, 2009). As observed by Cruz, Cruz, Ruiz and Hernandez (2015), digital based leaning techniques have emerged as a better alternative strategy to support teaching and learning process. In fact, the use of digital technology in education has aided in the educators abilities to enhance the traditional learning processes by introducing video games in learning. Subsequently, this methodology is able to attract, retain, and improve learners’ attention during the learning process (Chuang & Chen, 2009; Kirkorian, 2008).

In the education perspective, education games can be described as serious games or video games based on the instructional definition provided by Raph Koster in the book ‘a theory of fun’ (Cruz et al., 2015). From this definition, learning video games are characterized by artificial digital problem, governed by rules, and experiments with the emotional players. These fundamental conditions help in furtherance of the learning process, especially among the elementary school children (Cruz et al., 2015). In support of this argument, Becker (2005) advances the idea that the potential value of computer and video games for learning seems high despite the fact that majority of the in-classroom research has not fully integrated these learning component in the instructional design. Despite this glaring challenge, the following advantages/benefits underpin the applicability of video games in the learning process, as a way of surmounting the difficulties that are inherently experienced in teaching subjects such as mathematics and sciences.

3. BENEFITS OF VIDEO GAMES IN LEARNING

One of the fundamental benefits of using video in learning is that gaming enhances cognitive skills as opposed to the traditionally held belief that playing video games make learners lazy (Granic, Lobel and Engels, 2014). Specifically, playing video games promote skills such as wide attention allocation, spatial resolution in visual processing and high mental rotation abilities (Cruz et al., 2015). Consequently, this state of mind helps the learner to apply the same skills in school. Using video games in learning enhances these skills such that when a child is introduced to the same set of instructional materials, they tend to form a relationship with them, thereby enhancing knowledge reception and fathoming. In support of this argument, Thunarayanan and Vilchez (2009) argue that video games that mostly include role playing tend to enhance the learning abilities of the players.

Another advantage of video games in education is that for the preschoolers, watching video games such as Sesame Street promotes higher readiness for school compared to those who do not watch (Cruz et al., 2015). Kirkorian (2008) note that there is evidence to suggest that such preschoolers demonstrate effectiveness both in short term and long term, curriculum based programming for learners in diverse fields such as mathematics, science and literacy skills. Basically, the preschoolers who have a prior exposure to video games tend to exhibit high problem solving skills compared to their counterparts who never watched the video games (Cruz et al., 2015; Kirkorian, 2008). Undoubtedly, these findings suggest that video games play an immense role in education especially in furtherance to learning complicated subjects such as mathematics and science. Therefore, it would be prudent to engage technology in curriculum development where education experts develop video games as part of the education digital content. As such, it is important for the educators and the government to consider video games as learning tools or as the future approach to learning in elementary and middle level schools (Abdulla, Bakar, Ali & Faye, 2011). As the technology disrupts the traditional teaching methods, education experts should be ready to embrace and cascade the benefits of video games throughout the education system (Kirkorian, 2008).

Further, use of video games enhances challenge, curiosity and collaboration between students thus achieving the interpersonal relationship attributes which are essential in group discussion and presentations (Cruz et al., 2015). Illustratively, Squire (n.d) suggests that educators can use video games as the model of improving the learning environment by providing clear goals, challenging tasks and allowing room for collaboration using criterion based
assessment. In fact, giving students more control over their learning process and increasing the level of novelty tend to prompt them to become creative and innovative in order to surmount the challenging game. Basically, Becker (2005) admits that different levels of learning require different instructional approach. In response to this observation, the author further notes that gave creators use diverse aids to challenge the players hence improving their cognitive abilities (Becker, 2005). Enlisting the appropriate instructional methods generates the best environmental stimuli and instructional interaction, which changes the cognitive structures and operations of the learners. The modern video games not only include violence games but also role playing, simulation, puzzle and quiz, thereby utilizing the best digital micro worlds to enhance the interactivity of the player with the game itself (Squire, n.d). Thus, there are significant benefits in integrating video games in learning, especially in the lower levels and preschool stage to enhance preparedness of the school going children to explore various methods to promoting knowledge acquisition. Initially, teachers were the only source of knowledge for the learners. However, with the introduction of the digital education contents that incorporates use of video games in learning, there is increased learner attention, knowledge acquisition and retention. In addition, the recall power has been greatly enhanced as reflected in the assessment test scores (Squire, n.d).

Using video games help the learners to achieve higher test scores compared to using text based learning (Cruz et al., 2015). For instance, a survey conducted by Chuang and Chan (2009) found that computer aided games can increase the students’ learning performance. Specifically, computer aided video games help to improve factor differentiation and recall processes in the learners (Cruz et al., 2015). Surprisingly, the video game players are able to apply multiple solutions for problems, a fact that can be used in class learning especially during role playing. Besides, using video games helps in creating simulations where learners attempt to recreate real life experiences such as planning and running a corporation (Spense & Feng, 2010). This form of video game application is mainly practiced in the higher institutions of learning. Illustratively, different video games require different skills to play. Hence, to successfully know how to execute these games the learner has to develop vasomotor and dexterity acumen. Consequently, the mastery of these skills potentiates the ability of the learner to apply them in the learning process. In the adult learners, the use of education video games in terms of presentations enhances their spatial cognition, which is essential in the professional engagement (Spense & Feng, 2010). Finally, education video games must be utilized properly to achieve the envisioned learning outcome.

In the current education perspective, learning is a universal right of every citizen. This universality and availability of education institutions that have tailored their courses to accommodate all demographic clusters leverage on technology to achieve the learning outcomes. For instance, Griffith (2002) document that use of video games attract participation by all individuals across the demographic boundaries. Indeed, age, sex, ethnic extraction or level of education does not prevent students from utilizing the benefits of education video games to enhance their learning. This has been underpinned by the fact that video games help the learners to set goals, ensure goal rehearsal is achieved, providing feedback and maintain reinforcement for behavioral change. For instance, Hayes and Silberman (2007) recognize the effort made by the air force to understand the value of flight simulator. Resultantly, the authors found that 54% of the trainees who used the flight simulator scored higher test scores compared to trainee who did not use it. Basically, the flight simulator depicts an advanced technological video game that aims at imparting learners with practical knowledge before they transition to the field. This underpins the importance of education video games as an instructional learning tool not only in the elementary school but also in the higher institutions of learning (Hayes & Silberman, 2007).

Another advantage of education videos is that they promote students acquisition of declarative strategies in the learning sessions. Illustratively, athletes use education video games in learning techniques and tactics of winning races, which is a fundamental cognizance of the role that video games play in education (Hayes & Silberman, 2007). Surprisingly, 63% of the American parents believe that video games are a positive part of their children life (Oblinger, 2006). Therefore, when educators are developing instructional designs and curriculum, it would be important to understand the contribution of video games in achieving the learning objectives. As discussed in this research paper, video games have increasingly gained prominence in the education setting due to their ability to enhance understanding. Indeed, research has alluded to the fact that people remember more of what they see rather than what they hear as often (e.g. Hayes & Silberman, 2007). Therefore, encouraging students to incorporate video games in their learning activities would occasion effective learning among the school going children.

Another advantage of using education video game is contribution in education research. Indeed, with the video games research shift from the scholars to the learners, thereby enhancing their ability to generate content, share and enrich the learning environment. According to Oblinger (2006), when the learners play video games, the ability to recall the last learning will help in overcoming the present challenge thus promoting education research. Consequently, learners are transformed from passive learners to active learners. In fact, Kirkorian (2008) argues that flexibility in thinking helps the learners to strive continuously to achieve positive education outcomes. Further, Griffith (2002) observes that video games are not only a source of fun for the children but also stimulating...
participants’ contribution. The technology enabled video games help the researchers to measure performance on a very wide rate. Further, the author notes that video games help in sharing, following discussion, giving direction and having dissection on the visual aids. As learning take place, video games eliminate technophobia thus preparing them for the external competitive environment. Regressing childhood play has also emerged due to the use of educational videos in school (Griffith, 2002).

Using video games in school has helped the teachers and the learners to transition from edutainment to using mainstream technology to enhance learning. In fact, Rebetez et al (2007) notes that the education interests have evolved just like the technological developments. Consequently, the learning environment has increasingly become interactive compared to the traditional teaching strategies. With the increased interest in the video gaming among the learners, it is essential to have the school management and the key stakeholders that curriculum has changed to digital form (Griffith, 2002; Rebetez et al, 2007; Kirkorian, 2008). In addition, students were able to articulate ideas in a manner that suggested that video games are an essential component of the world’s destruction (Hayes & Silberman, 2007). Therefore, instructional video games cannot relate. In fact, video gaming is an essential fact in developing learners’ cognitive processes in readiness for schooling (Griffith, 2002).

4. SUMMARY OF LITERATURE REVIEWED

Traditional teaching methodologies have failed to excite learning interest, especially among the hard subjects such as sciences and mathematics. In addition, it is clear that education development has integrated information technology in the curriculum and instructional learning. Basically, this framework underpins the importance video games in education. Education video games have been experimented with since early in1970s by educational researchers who felt that there was a need to have a different instructional design in the classroom. In the modern education perspective, video games have emerged as the basic component of learning process as they seek to advance knowledge acquisition, transfer, and internationalization of basic education concepts such as cognitive development. Indeed, video games help in nurturing school-going children aspects such as creativity, innovativeness and organization since modern games require high level of creativity and agility to play them.

On the adult learning perspective, education videos have been advanced as the best teaching aids since it allows the learners to interact with the characters, thereby building on the skill of role playing, team work, challenge and common sense. Ultimately, students are able to apply these techniques in coming up with solutions in the class settings and beyond. In essence, video games have replaced the rational teaching where learning process was teacher-centered to the learner centered. As a result, development of cognitive skills and spatial attention capabilities form part of the basic idea why video games should be fully integrated in the education system. Finally, there are immense benefits that are accrued from using video in education. Hence, the use of video games should not be dismissed but rather, integrated in the classroom activities in both elementary and higher school levels.

REFERENCES


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