Super Mario and Its Effect on the Emerging Teacher

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 Videogames have become an integral part of many students’ lives. With the numbers of “gamers” growing rapidly, the emerging teacher must consider the role that video games play in shaping those that they teach. In fact, according to the Seattle Times, out of their surveyed group, 97% of the young respondents said that they played video games (Irving, 2008). This parallels the growing trend, as “today’s video game industry approaches yearly revenues of $15 billion and approximately 3.38 billion hr of game play (Entertainment Software Association)” (Annetta, 2008). It is easy to see then with the growing popularity of video games that teachers must evaluate what video games have changed in the fundamental subjects such as literacy and literature that help students to begin to grasp the bigger subjects such as English, Mathematics, Science, and more. In evaluating video games’, teachers must look at video games’ influence on the brain, their positive and negative effects, and whether or not they should be considered for the technologically advancing classroom?

 When attempting to figure out the brain’s reaction to video games several key concepts must be established first. First, “Human cognition depends on a number of distinct mental components, with spatial, verbal, and analytic capacities being the most important” (Spence and Feng, 2010). This then is the reason that it is far more difficult to try to pin-point positive or negative effects on the brain. Science has discovered though, that “spatial abilities are essential to represent, organize, understand, and navigate the environment, to attend to specific objects, to manipulate objects, and to communicate information about objects and the environment to others, among many other functions and tasks.” (2010). This means then that the basic level at which we communicate is dependent on our spatial abilities. This also means then that any improved spatial ability could possibly help with greater communication through means such as conversation, writing, and overall literacy. So in order to understand the effects of video games, we must look to any differences found in spatial abilities.

Another key element in understanding the brain’s reaction to video games is actually found in the different types of video games. “Video games exercise a wide range of sensory, perceptual, and cognitive functions. Some games require a high degree of skill in performing relatively basic perceptual and cognitive tasks whereas others demand higher level cognitive skills, such as the ability to solve difficult logical problems. Certain genres yield greater training benefits than others (Achtman et al., 2008). For example, Fenget al. (2007) demonstrated that participants who played an action video game for 10 hr obtained significant performance improvements on both attentional and spatial tasks, whereas participants who played a maze game for the same length of time showed no gains.” (2010). Therefore, it can be seen as well that the kind of video game being played really does matter after all. In order to develop a certain skill then, one must look to whether the game being used actually effectively targets that skill. So for example, if one was working to improve attentional tasks, such as possibly using it to train students to read a full novel, one would need a game that trained for attentional tasks, not necessarily just any video game on the market.

 Considering this information then, one must ask do the effects of video games make them more beneficial or harmful? Video game data frequently is difficult to determine positive or negative effects because many times instead of testing one group specifically for gains based upon video game playing, most tests have simply tested gamers and non-gamers. “Of course, as Green and Bavelier (2003) have noted, a difference in favor of players is just as likely to have been an artifact of selection as to have been produced by playing video games. Those individuals who chose to play video games may have done so because they possessed superior spatial (or other) skills that made playing the games relatively easy and appealing” (2010). As well, many common misperceptions are found regarding video games. For instance, “Ferguson found that violent games may increase aggressive thoughts, but these thoughts do not appear to lead to aggressive behaviors” (Ferguson, 2007). So the idea of video games as triggering violence is not altogether true. Therefore, in order to determine effects one must look to controlled data with differences such as those mentioned above accounted for.

 Taking these factors into consideration, one must look first to positive effects video games bring to the user. First, “almost any video game that incorporates dynamic visual presentation and a fine motor control component is likely to be effective in producing improvements in visuomotor coordination (Griffith, Voloschin, Gibb, & Bailey, 1983), although the amount of improvement may vary with the game, depending on the kinds of activities required” (2010). This means that overall motor skills will improve helping student’s overall performance thereby increasing their willingness to participate in activities so overall reading, writing, and other key concepts will improve. As well, recently scientific studies such as Spence and Feng (2010) have suggested that video games also improve spatial attention. Secondly, “these educational games commonly require the use of logic, memory, problem-solving, critical thinking skills, visualization, and discovery” (Annetta, 2008). This indicates then that these games are actually helping to improve critical skills that will be instrumental in developing the young student’s literacy skills which will ultimately help to impact each student’s overall success.

These skills are considered important because “the workers of the 21st century must have science and mathematics skills, creativity, information, and communication technologies skills, and the ability to solve complex problems (Business-Higher Education Forum, 2005). (Annetta, 2008). In preparing for the future then, teachers must look towards tools that work to develop such skills. Frequently, skills such as the ability to communicate well are taught as early as first grade and video games could be helpful in giving teachers an effective tool to motivate children towards literacy and other communication elements. If for example, the teacher could use video games to motivate first graders to read, then the teacher may have already set them upon a path towards academic success. As students recognize their understanding of basic skills, the new concepts become far less intimidating as one skill simply builds on another. An example of this would be the alphabet and its sounds. If for example, a student was struggling with the alphabet, but video games could motivate them to practice the letters for long periods of time then, the student would learn their alphabet quickly, which would lead to a better understanding of word sounds, which eventually leads to a better reading ability.

Quite logically then, another important benefit of video games is increased student participation. “Educators and scientists repeatedly return to the conclusion that one advantage of educational games is that games tend to generate a much higher level of students’ positive emotional engagement, thus making the learning experience more motivating and appealing (Rieber et al., 1998) improving participation and achievement (Jayakanthan, 2002). Games can motivate passive students to contribute more than they would in a traditional learning environment (Tanner & Jones, 2000)” (Annetta, 2008). Many times this is because “games really allow you to experiment on the edges of things, to try out novel ideas, approaches, and strategies. For some players, it’s just as pleasurable to fail in trying so exorbitantly strange task as it is to get the right approach on the first try” (Debolt, 2008). Video games’ fun nature allows for children to try whatever they wish without the social stigma of failure. For example, a student can attempt to create an elaborate character profile within the context of a video game without the social cues that might hinder a brand new idea or in this case, an exceptionally unique character in a story the student would write.

Another benefit stemming from video games comes as a result of an increase in English knowledge. “There was a significant positive association between the amount of time spent playing video games on weekdays and English test scores, which runs counter to the findings of previous studies. Because video games require players to successfully understand the language used in the gaming narrative to navigate the gaming environment properly,14 it is possible that children who spend more time playing video games on weekdays have a better command of the English language” (Skoric, 2009).

 One must also consider the possible drawbacks of technology such as video games. First, “Video games in the classroom are not a replacement for good teaching. They are merely a supplement that engages students in the content and provides an avenue for them to learn difficult concepts of the real world in an environment in which they are comfortable” (Annetta, 2008). It would be quite easy indeed for teachers to begin using video games as an alternative to teaching. Likewise, schools may be tempted to simply use video games as a replacement for a teacher when money becomes tight within a district. However, video games should never be used to teach instead of the teacher. Instead they should simply serve as reinforcement to concepts that have already been introduced. If for example, a teacher simply attempted to have a student play a game to understand word sounds, the student may quickly become confused about the concept if the sounds had not previously been heard within the classroom.

 Another problem that video games can develop is a loss of creativity as children’s ideas are forced to be confined within the rigged structure of a game. “When children write, they can create infinitely rich microworlds- worlds limited only by their imagination. In the computer-based environment of video games-at least as currently designed- potential to create such microworlds is much more limited”. (Provenso, 1992). This is because in most video games there rarely are very many choices. Instead, students are limited by what the suggested path is. This is particularly troubling when it comes to student’s writing. If, a video game were to limit students to a specific format, subject, or writing style, then the students might never learn creative writing or anything beyond how to write an MLA format collegiate style essay. This is especially troubling because it might eliminate the truly great authors of our time, simply because there writing does not fit the programmed norm.

 Another troubling aspect of video games is the frequent occurrences of sexual bias, gender stereotyping, and other dehumanization within the confines of the game. “Women-when included in the games-usually are acted upon rather than initiating action. The games socialize girls to be dependent and condition boys to assume dominant gender roles” (1992). In doing so, we encourage young girls to simply accept that they will never become highly successful. In doing so, these girls are then limited within perceived societal expectations. This discourages overall participation as girls see themselves as less important. If for example, this had been occurring during the United State’s history, then the world might have lost the voice of such incredible authors such as Harriet Beacher Stowe and Emily Dickinson.

 In looking at the different advantages and disadvantages, one can see that video games seem to come to a mixed conclusion. The benefits can be enormous, but likewise, the drawbacks can be insurmountable. Therefore, the implication for using the technology such as video games in the classroom is that it can be used, but should be carefully managed. Video game addictions can develop and have previously shown “a consistent negative association with academic performance” (Skoric, 2009). So in conclusion then, video games can be an incredibly useful tool but must be monitored for the many drawbacks they might present. Video games are by their nature not evil or good, simply a tool. If for example, a teacher can use a video game to reinforce the concepts of characters, then the tool would be helpful. If though, a teacher relies on the game to teach a child the concept of characters then the children will be very limited. Therefore, in order to use video games correctly, the teacher must simply use the game as another tool that should be planned for in order to help students experience the most good.

 Video games growth has prompted many questions and it can be seen that video games’ creation has led to positive and negative results. In truly seeking to understand the generation that the emerging teacher faces, one must look not only to the books that children read, but also at the video games swiftly integrating themselves into student’s lives. The effective teacher then will use video games to reinforce concepts, develop enthusiasm for a subject, and engage those in the class who previously might have remained disengaged. In doing so, video games can then be evaluated accordingly within the classroom. Leonard Annetta described it best when he stated, “it is critical to expose and challenge the Net Generation in environments that engage them and motivate them to explore, experiment, and construct their own knowledge” (Annetta, 2008).The emerging teacher must reach beyond the tools of the past and work towards the future, which seems to suggest that video games can and will play a vital role in teaching the children of the future.

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