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Video Games and the Classroom: A Learning Connection

A Senior Honors Thesis

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for Graduation in the Honors College

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students a model example of an Honors senior thesis project.*

Abstract

Today, many adolescents invest significant amounts of time and energy playing video games, even when games are difficult, tedious, and complex. This phenomenon has led educators to wonder: What import if any do video games hold for learning and instructional design in classrooms, grade 9-12? Two scholarly works in particular explore this topic, including *What Video Games Have to Teach us About Learning and Literacy* (Gee, 2007) and “Cracking the Code of Electronic Games: Some Lessons for Educators” (Alexander et al., 2010). This paper explores the learning principles behind games as noted by these two scholarly works and how these principles can be used in the secondary English classroom to foster motivation, engagement, and successful learning among adolescents.

Introduction

For many adolescents, games are a part of their everyday lives. In *Teens, Video Games, and Civics* (Lenhart et al., 2008) a survey of American teens reveals some statistics concerning the massive popularity of video games among teens:

- 97 percent of American teens surveyed play video games of some kind.
- 31 percent of teen gamers play games every day. Another 21 percent of teen gamers play games three to five days a week.
- 24 percent of teen gamers report playing video games for at least an hour at a time. 13 percent report playing for two hours and another 13 percent report playing for three hours or more.

These findings reveal that adolescents are willing to spend significant amounts of time and energy playing video games. As adolescents are willing to devote so much time and effort to

video games, it seems that these games are doing something right in order to keep such dedicated players and fans.

To be fair, not everyone agrees that the time and resources that teens invest in gaming are worthwhile. Some argue, in fact, that gaming can be more harmful than useful to teens. In recent years the debate as to whether video games have negative effects on teens has been repeatedly brought up. With teens spending so much time playing video games, which is more often than not an activity which requires little physical activity, people are worried that video games could be linked to the growing obesity trend in young Americans (Vandewater et al., 2004). Some argue that video games promote poor social behavior in teens, causing everything from a lack of social skills to outright violence. It has even been suggested that the 2012 Sandy Hook shooter, Adam Lanza, was inspired by the many violent video games he spent time playing (Jaslow, 2013). Video games are said to not only allow teens to be anti-social, but also to allow them to take part in “anti-social behaviors,” questionable content, and age-inappropriate activities in games, content that some people believe could affect teen behavior outside of games (Munoz, El-Hani, 2012). These are just some of the most prominent arguments against teens playing video games, of course, and it is an issue that is justly controversial.

With all of this controversy surrounding gaming, it's fair to say that educators should be cautious about promoting and encouraging these activities in teens. Yet it also seems unwise to ignore a behavior that many teens spend considerable time, energy, and money on, especially when it is a behavior that pushes teens to repeatedly take part in often complex tasks. Having said that, just as video games have their detractors they also have their defenders. In “You Can Increase Your Intelligence: 5 Ways to Maximize Your Cognitive Potential” Andrea Kuszewski (2011) argues that people can increase their fluid intelligence. She defines fluid intelligence as

“your capacity to learn new information, retain it, then use that new knowledge as a foundation to solve the next problem, or learn the next new skill” and she believes that by implementing five principles in their lives, including seeking novelty, challenging oneself, thinking creatively, doing things the hard way, and networking (2011) people can actually increase their intelligence. How does this relate to gaming? Gabe Zichermann (2011) references all of these principles as occurring in successful video games, arguing that video games can actually help to increase the fluid intelligence of their players. He also believes that video games are effective at creating and guiding learning in their players (2011). This ability to instill learning in players through a series of gaming and learning principles is what educators might be able to benefit from most in this area.

One educator and scholar – James Gee – has already taken up this task. In his book *What Video Games Have to Teach us About Learning and Literacy* (2007) Gee explores the relationship between video games, learning, and literacy. He posits several central truths about the human mind “are well represented in the ways in which good video games are learned and played” (p. 9). He also argues, however, that “These truths are often less well represented in today’s schools.” As a future teacher of English, I want to help students to be inspired and to persist in learning. If video games are utilizing more effective learning principles than schools, it stands to reason that other educators could benefit from taking a look at gaming principles as well. Given these aims, in this paper I explore and expand upon Gee’s work in conjunction with other scholarly research in order to discover not only what all adolescent educators can take away from game learning (GL), but specifically how this can be used in the English classroom to help foster deeper learning for teens.

Selection and Analysis of Literature

Inspiration for this investigation began with Gee's book. Gee is a seminal scholar of video games and their relation to the classroom, having written the original edition of this book in 2003, a time when very little literature had ever been written connecting video games and learning. Through Gee's work, I was inspired to seek out other works which discussed the learning principles behind games and how they might potentially be used in the classroom.

It should be noted that Gee's book is mainly anecdotal. He explains his own exploration of video games to the reader and discusses the learning principles that he observed in the games. From his work, however, I was able to discover more scholars who were interested in games and their potential for good. Some of these sources were equally anecdotal (e.g., McGonigal 2011) and provided interesting insights to games, but little of the more quantitative or qualitative research that I needed to create a coherent argument. I still took some of these sources into consideration, only to a lesser extent than Gee's work.

I found a number of qualitative and quantitative sources discussing video games and their intrinsic motivational or learning devices, though only a few of these specifically connected games to the education of teens (e.g. Alexander et al., 2010). Much of the research that I discovered provides statistics from surveys which link teens and their extensive play time on video games (e.g. Lenhart et al., 2008) and discussed how this might affect teens either positively or negatively. Many of these studies are included in this paper. If, however, the literature focused in too specifically on only one small group of teens, such as only young boys (e.g. Bijvank, et al., 2012) I excluded it from this work. After working through this literature, literature which specifically discussed the link between American teens and video games or video games and learning remained.

Analysis of the chosen research soon revealed that two pieces of literature, Gee's book (2007) and a study from Alexander, Eaton, and Egan titled *Cracking the Code of Electronic Games: Some Lessons for Educators* (2010), had many similarities that I found significant for my research. Both of these pieces of literature discussed video games as they might possibly relate to learning and schools, with the work of Alexander et al. specifically focusing in on my own content area, English. These scholars all argue that video games have a nearly unexplored potential for learning which should be considered in the classroom, though their findings are fairly distinct from one another.

As I considered these two sources with the other research I have selected, I noticed a couple of significant intersections that most of the literature came together on. Whether for the good or the bad, video games have the power to produce strong motivation and deep engagement in teens, which according to Gee and Alexander et al., translates well to the classroom.

Findings

In all of the research I selected and analyzed, the authors seem to agree that games can contribute to learning by creating two very important aspects of learning. First, game learning (GL) motivates and inspires people to learn. Some aspects of GL can help to not only spark the interest of students, but push them to work on complex problems and think creatively. Hoffman and Nadelson (2009) describe the motivation people feel when gaming by stating, "the escalating difficulty [of multi-level games] requires persistence, overcoming in-game obstacles, and application of strategies to be successful at accomplishing game objectives." In other words, games inspire players to persist, even in difficult moments, which is a feeling that every teacher hopes to discover in his/ her students when learning. Second, GL can help promote deep

engagement in the classroom and between students. Hoffman and Nadelson describe engagement as “psychological investment in a task” (p. 248), where people are deeply interested and involved in what they are doing. In schools, students are pushed to learn with and from each other and to take an active role in their own learning.

In *What Video Games Have to Teach us About Learning and Literacy* (2007) and in “Cracking the Code of Electronic Games” (Alexander et al., 2010) potential learning principles are brought up that the scholars have discovered through the study of video games. Gee identifies a number of learning principles which can be extracted from games and used to promote motivation and engagement in the classroom. Alexander et al. also take a look at some of the lessons that games can teach educators about learning in the classroom. Though these scholars have some differences in their beliefs as to what the most useful learning principles from games are, they all agree that the principles do exist and that they can be implemented in the classroom to promote motivation and engagement in learning in teens. Following, is a general breakdown of the learning principles discussed by both pieces of literature as they relate to motivation and engagement in learning.

Motivation

Gee sees video games using specific tools to help teach learners at all stages, and also focuses on how games begin to teach important skills to learners with basic steps in the earliest stages. He believes that people cannot effectively learn with a text alone, especially not in the early stages of learning, and that teachers can find ways to incorporate tools and allow for just the right level of independent learning throughout the learning process. He also claims that the earliest stages of learning are critical for later learning. Students need to have both the chance to

explore the new things they are learning and to do so without great risks. Teachers should build instruction in a way that allows their students to first complete simpler forms of a complex issue. In this way, students can receive rich feedback without worrying about getting a bad grade or feeling inept.

Learning through experience is also critical for motivation according to Gee. This could refer to students using what they already know about the world to enhance their learning, but it could also refer to the way that students make meaning out of anything they hear or attempt to learn. Gee believes that students cannot learn anything without using their past experiences to understand it. Text, according to Gee, is always first understood with the use of a person's background knowledge and experiences. For example, if a student has never read a science fiction text before all they have to compare it to is what they know about the elements of the story in their own lives. Perhaps he/she has seen a science fiction movie or TV show and can compare it in that way to other forms of the genre. Perhaps the student never knew science fiction was its own genre. The only way this student has to understand the text might be from his/her personal experiences in the world. In this student's life cars probably do not fly and people do not have robotic servants, and so the student can create some meaning based on how this story is different from or similar to his/her own life.

A student's identity while learning also contributes to motivation. Gee believes that a student needs to have the ability to understand his/ her identity, which is created through his/ her past experiences in life. He also believes, however, that a student needs to be able to set aside that identity to take on other roles in learning. By taking on a new identity students have the ability to look at an issue from a new set of eyes, without his/ her past experiences and beliefs biasing or changing his/ her perception of the issue. Taking on a new identity can be challenging

for some students, as putting aside experiences for entirely new ways of thinking can be difficult, but Gee believes that the practice of changing identities in the classroom can be highly beneficial.

Reflection on learning is another area which Gee believes is often based on past experiences. After learning through a particular semiotic domain or in a certain affinity group, students should have the chance to reflect. This experience may or may not line up with their own cultural models of learning. A student in an English class may come from a place that highly values reading and books or may come from somewhere that does not. This student should not in any way put down his/ her cultural identity, nor should he/she necessarily wholly praise it. When students merely look at what they've learned and try to understand it based in a particular semiotic domain versus based in their own community, they can begin to create new meanings and feelings about what they have learned.

Finally, Gee suggests that learning with individualization is supported by game learning. In Gee's principles he states that classrooms should take into account the various levels of student learning and areas of student knowledge, rewarding each at the appropriate level and allowing students to make some choices based on their areas of experience or inexperience.

One concept in this area that Gee discusses is the idea of input and reward. In order to create an environment where all students can learn together, Gee believes that students should be appropriately rewarded for their efforts, typically with intrinsic. A student who creates a larger more creative project and a student who follows the guidelines and does only what is required both deserve to be recognized and receive credit for what they have done. They have both put in effort and taken some risks. Each student, however, should get out of the project something some intrinsic reward relating directly to his/her abilities and performance on the project. The first

student may have been at a higher level of learning than the other student or may simply have had a creative skill that the other did not, but both students' levels of learning can still be catered to and appropriately rewarded.

Alexander et al. have a much simpler idea of how game learning can promote classroom learning through motivation. The authors find narrative structures, heroic human qualities, vivid images, exotic locations, and binary conflict to be aspects of games that can be easily implemented in a classroom to promote motivation in teens. In an English classroom, it might be said that these aspects of engaging games are much like the aspects of stories in the classroom. A good plotline, an enticing setting that the reader can readily imagine in his/ her mind, and multi-sided conflicts often make for interesting stories. The same is true of games. These are the aspects of games or stories which exist to shape the way a reader or player looks at and feels about the space in which the story takes place. In a classroom, these parts of a text can create motivation in students by enticing them to press on in a subject matter that they might not normally find interesting enough to put in effort with.

Engagement

Gee believes that games promote learning through relationships This refers to learning taking place both between and within various groups of people, but also within groupings of ideas. In his studies Gee has found that learning takes place when students can talk about an idea within a group where members hold similar interests and knowledge. Furthermore, a person is learning when he/she can recognize and understand the ideas that work behind a concept to make it function.

Two concepts that Gee frequently brings up are the ideas of semiotic domains and affinity groups. Gee describes semiotic domains in a simplified manner by explaining them as “an area or set of activities where people think, act, and value in certain ways.” In other words, people make meaning in their learning by relating new concepts to other concepts and thinking about them with a similar cognitive lens. For example, one specific semiotic domain might be adolescent English education. In this semiotic domain, people might think about schooling as involving novels and short stories and they might value a student having knowledge of various literature terms such as conflict and plot. Understanding schooling through the semiotic domain of adolescent math education, on the other hand, is very different. Through this semiotic domain, a person might think of schooling as involving formulas and numbers and one might value a student who knows the quadratic equation. The different semiotic domains shape the way a person thinks about a concept through relationships in meaning.

Affinity groups can be related to semiotic domains in that they are the groups of people who take part in them, thinking about and discussing the domain in various ways. In adolescent English education, for example, there are multiple affinity groups who can look at the semiotic domain with entirely different purpose and interests. Educators in adolescent English education might be one affinity groups, while students taking middle or high school English might be another and parents of these students might be even a third affinity group. While all of these groups might recognize the ideas that make up the overall semiotic domain, such as novels and literature terms, each affinity group requires it’s members to discuss and understand this information differently. English teachers must know the content and how to teach it, students should know how to read it and discuss the stories in class via papers or groups, and parents might know what stories their children are reading and whether or not they feel they are

appropriate for their children. Members of each affinity group can converse with or listen to other members of their group with understanding, which can eventually lead to differing ideas about the semiotic domain as a whole.

In Gee's work he also discusses learning actively and critically. Gee believes that students need to not only take an active role and participate in their own learning, but that they must also consider the way they learn and think. In a classroom, students learn well when they have opportunities to learn actively, in that they are deeply involved in their own learning. This active learning involves active thinking about learning as well, known as critical thinking. Gee believes that every aspect of the environment in which a student learns should be set up to encourage a critical sort of thinking about learning. For example, a common theme in some high school English classes is the idea of banned books. Students read and learn about some of the many books that are frequently banned, ranging from the Harry Potter books to *The Color Purple*. In this instance, students discover reasons why these books are so often banned and debate whether or not they should be. A student may choose to take either side on the issue and can be encouraged to understand both the people who want books banned and those who do not. The student learns both sides but has the ability to critically study what they have learned. Based on prior and new knowledge the student can choose with which side, if either, they agree with.

Alexander et al. also present some ideas about GL promoting engagement in the classroom. The authors specifically list emotional engagement and role-playing as learning principles which can foster engagement in teenage students. What one person finds to be emotionally engaging might differ from another person, as could how they react to an emotionally engaging scene. Furthermore, when a player begins to roleplay in a game, taking on identities that he/she might not be able to regularly in the real world, this can also be quite

different from one person to another. People from different backgrounds will probably come from different cultures and homes with different values, and therefore might choose to take on entirely separate identities within the world of gaming. In an English classroom, the same can be said of a novel or other text. When reading a story where a parent dies, one student who has lost a parent might react very differently from a student who has not. The first student might resist taking on the identity of the character in the story who has lost a parent, or the second might choose to take it on in some ways, imagining how it would feel to be in the character's shoes. Both emotional engagement and roleplaying can exist in games and the English classroom, but are largely dependent on the viewer or participant personally.

Interestingly enough, it is these parts of games that rely on the player which connect Gee and the research of Alexander et al. While the Alexander et al. refers to certain aspects of GL as roleplaying and emotional engagement, Gee discusses these same concepts with different words. He values the importance of a learner's identity and the way a story or game might affect a person as well. Gee discusses how roleplaying, identity, and emotional engagement can be important to games and classrooms. This once again brings up the importance of a learner's background. Just as Gee believes that a person can only make meaning through his/ her experiences, Alexander et al. believe that these issues are formed by an individual's background.

Both of these articles suggest that the role of the individual person in learning is of great importance. Each individual student's background and response to learning can have a very strong effect on how they understand what they are learning. This is also partly where the idea of roleplaying gains such importance. Though a student's background might effect how he/she understands the meaning of something, his/her background is not always the most important aspect of learning. Students can roleplay, taking on identities that they have never had the chance

or even the desire to take on in order to escape the background which might affect the way they think about everything.

Discussion

Each of the above sources suggests that video games demonstrate learning principles which are successful in promoting engagement, motivation, and learning. Though no two sources entirely agree on the best principles to utilize in the classroom or even the best way to go about implementing the principles, they all agree that video games are a unique source for educators to study in order to positively affect student learning.

Gee studies the background principles behind games that make them effective for teaching. These learning principles are “buil[t] into their very designs” or experienced through “interacting” with the source (Gee, 2007). As these principles require a bit of extraction, it’s no wonder some of them are not seen more often in the classroom. Many of Gee’s findings suggest that teachers could benefit from looking closely at not only how students learn effectively, but why they learn that way and why these methods are effective in the first place. For educators who do not have a lot of experience with video games, looking closely at their principles could be an understandably daunting task. After all, beginning a new path of scholarship is never an easy course, especially when it is an almost unfamiliar area. It is a worthwhile course, however, if it can benefit the students of today and those of tomorrow.

The two primary scholars that I studied, Gee and Alexander et al., have much in common when it comes to the study of GL, but there are a few areas in which they diverge. While Alexander et al. look at some of the same aspects as Gee, they also seem to believe that some important aspects of gaming which can be applied to learning are more external. Gee often takes

a scholarly look at the processes that work behind or within games to drive their success, such as the guidance they lend to help players learn or the relationships between people that they often foster. Alexander et al. pay significantly more attention to the outward appearance and feeling of what adolescents are learning, such as how games enhance learning through feelings and the ability to otherwise affect potential learners. To this team of scholars, these aspects are equally as important to learning in games as the background processes that make them work.

I believe that both of these strategies for learning have value for adolescent students. Gee's ideas of more traditional learning aspects used in games, such as social learning and guided and individualized learning are very practical for the classroom, especially the English classroom. In the English classroom, connections between people of all sorts are often urged by literature studies and through collaborative projects. Discussions of class material can be easily brought into such a classroom as well, where students have the ability to build and expand their own ideas both on class work and on the world based on the thoughts of their peers. Students can be variably rewarded for their unique abilities and strengths in such a classroom as well. Some classrooms, particularly middle school English classrooms, take part in silent reading or outside reading, where students have the ability to choose what they read. These students can choose to read a book within their prescribed reading ability and also within their pre-existing pools of knowledge, or they can choose to step outside of their comfort zones. Similarly, many class projects offer a variety of different jobs for students to take part in which may work to their strengths or increase their abilities in areas in which they normally struggle. Depending on the type of project, a student might be a writer, a drawer, or a speaker, allowing for each student to be valued and rewarded for a unique input.

The ideas of Alexander et al. can be invaluable to the classroom as well. Though learning can be promoted through others and through individualized learning, it can also be furthered in the English classroom through more internal aspects. In my experience in adolescent English classrooms, I've seen a number of students become engrossed in a work of literature simply due to the setting of a work. Sometimes it is because it is an exotic or unusual setting, such as a faraway place or a post-apocalyptic world, and sometimes it is a familiar or simply a relevant one, such as the American south in the 1960s or an urban environment in modern day. These aspects of learning have the ability to not only catch the interest of students but to appeal to their emotions and thoughts as well, triggering learning and memory.

Conclusion

Research on video games and the classroom suggests that the learning principles behind games can be utilized in the classroom to support motivation, engagement, and English content learning in adolescent students. While the link between video games and teens can be controversial, there are as many arguments for the benefits and positive possibilities associated with games as there are for the negative possibilities. Recent scholars, in fact, even argue that some of the reputed negative side effects of gaming on teens either are not valid or are contradicted by the good attributes games can foster in teens. As a result, depending on how educators choose to implement them, the learning principles from games have the potential to effectively promote deeper and more collaborative learning in students.

Based on the still insignificant number of studies which have been conducted in the area of video games and the classroom, more research is needed in order to come to any entirely conclusive findings. Though the principles behind games have a lot of potential for adolescent learning, more extensive studies should be conducted in the area to find more exact effects of

video game principles on adolescent learning, and to continue to flesh out this still new area of study. Considering the state of technology and interactivity woven into the lives of adolescents today, it seems unlikely that video games will stop playing a part in their lives anytime soon. Consequently, more research on the possible links between video games, teens, and learning is important to not only consider but to seriously study as a future contributor to education.

It is the duty of all educators to find the best possible way to meet the needs of a wide variety of students. Considering the sheer number of students who take part in gaming, using some of the principles they have already been taught to seek out and engage with in the classroom just makes sense. It may not be the calling of every teacher to seek out game learning for his/ her classroom, but for those who are willing to look into the opportunities presented by it there may be substantial rewards in the learning of their students. After all, it is the learning that applies most to the lives of students that they are most likely to truly learn from at all.

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