JOURNAL of MASON GRADUATE RESEARCH

Innovations in Education

Volume 1 Issue 2
April 2014

Journal of Mason Graduate Research
Volume 1 Number 2 Year 2014

ISBN: 2327-0764
Pages: 49- 69

Using Video Games in Education

MEGHAN ARIAS

George Mason University

This paper is a review of the literature examining articles related to the use of video games in education. Forty different studies were identified for inclusion based on various criteria, including, age range, date published and academic subjects studied. The review first examines positive aspects of video gaming, such as cognitive benefits and game usage in the subjects of social studies, math, science, language learning, and physical education. Potential barriers and risks associated with video games such as violence, addiction and parental and teacher attitudes, are also examined in this paper. Finally, the implications of the available research are discussed. While there are limitations, the findings show that there is some support amongst scholars for using video games in educational contexts.

Using Video Games in Education

According to a Pew Research Center study, 97% of children 12-17 in the United States have played video games (Lenhart, Jones & Macgill, 2008). With this staggering number of children involved, it is not surprising that a large body of literature surrounding video games exists. While researchers have devoted a significant amount of attention to negative aspects of video games, such as violence and addiction (Bushman and Anderson, 2002), they are also beginning to examine potential benefits of video games, such as in the context of education (Nie, Roush, & Wheeler, 2010; Steinkuehler & Duncan, 2008) and cognitive flexibility (Colzato, Leeuwen, van den Wildenberg, Hommel, 2010).

Steinkuehler (2007) immersed herself in a two-year ethnographic study on a massive multiplayer online game. She noted that the full guide for the game was almost 300 pages long, yet many players were able to operate the game capably within a few hours. How many teachers dream of students absorbing educational information that quickly? What is it about video games

that make this kind of intuitive learning possible? Gentile and Gentile (2007) argued that video games display many hallmarks of an ideal learning environment. These include establishing clear objectives, offering multiple difficulty levels, and consistent feedback.

Considering the significant number of children from various ages that do play video games, the following review of literature is meant to identify the possible barriers, as well as benefits that using video games in the classroom may present.

Video Games

What is a video game? Juul (2005) explains, "a game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable" (p. 36). This definition allows for a variety of different types of games including simulations such as the *Sims* series of games and *Second Life* (SL). While neither of these simulations have defined goals assigned by the game designers, players may create goals for themselves, and are certainly invested in the outcome.

Methods

The initial literature search was conducted in three databases: Academic Search Complete, ERIC, and PsychINFO. The reference lists from initial articles were used to identify further articles of interest. Search terms included computer game, video game, serious game, learning, education, motivation, engagement, classroom, academic achievement, and violence.

The initial search on Academic Search Complete using the listed search terms and no qualifiers resulted in over 3,000 articles. Additional restraints, such as changing search terms in title, peer reviewed journals only, full text, published from 2005 to present, resulted in 54 articles. This created a more manageable list. The same restraints in ERIC resulted in 26 matches and 22 from PsychINFO (with a date range from 2007 to present).

Using the abstracts and author supplied key-words, articles were sorted into six categories: education, general benefits, addiction, violence, implementation, and outside scope of review. The articles dealing with education were then further sorted into subcategories of math, science, physical education, language, social studies/history, and art. Research focused on pre-elementary school aged children or children with special needs (e.g. learning or emotional

disabilities) were excluded. Previous literature reviews (Young et al., 2012) on this topic have identified a lack of quantitative research in this field, so qualitative and mixed methods studies are included. While the general date limit for published studies was 2005, older works identified during bread-crumb searches were included for important authors and seminal research.

Results

This review will examine research investigating the positive aspects of video games, including general benefits and possible educational uses. All resources have been compiled into a table for reference (Table 1). It will then examine potential barriers and risks associated with video games. Finally, the reviewed benefits and risks will be used as a framework for discussing future use and implementation of video games in classrooms.

Benefits

General. Several studies have reported cognitive benefits in relation to the fast-paced nature of video games. Dye, Green and Bavelier (2009) found that video game players as young as seven responded more quickly than non-players during an attention task, but did not make more errors. Colzato et al.'s (2010) study found similar benefits. Video game players showed stronger cognitive control skills during a task-switching paradigm activity. The authors "speculate that VGPs [video game players] are more efficient in controlling episodic memory structures and, thus, in selectively activating and updating task sets" (Colzato et al., 2010, p. 3).

In addition to increased attention, research shows video games offer a potential learning environment. One study examined a *World of Warcraft* (WoW) discussion board and found evidence of authentic opportunities for empirical thought (Steinkuehler & Duncan, 2008). Players discussed the pros and cons of different types of characters and magic available in the game, sometimes even using complex mathematical formulas or outside resources to support their arguments. The authors noted only one in five Americans are proficient at this type of empirical thinking.

Also, studies have shown positive results in utilizing *Second Life* (SL) as a virtual learning environment. Atkinson (2009) believes that a strongly constructed learning environment in SL may increase deeper learning. In one study, professors assigned a project in SL for an interdisciplinary graduate course. Students found that they could go beyond the bounds of a simple fifteen-minute PowerPoint presentation that instructors assigned in previous

courses. The authors explained that "the affordances of the 3-D virtual world learning environment led to experiential activities that not only helped achieve learning outcomes but also surpassed course objectives" (Jarmon & Mayr, 2008, p. 166). Utilizing opportunities to expand supported learning outside the classroom walls could help motivate student participation in the learning process. The broad reach of online games such as SL also offers a unique opportunity for students to interact with people outside of their immediate area. Nie and colleagues (2010) reported that their participants, digital photography students, appreciated the increased exposure their work received in SL compared to if they had displayed their work locally.

Social Studies. One case study examined this idea of taking learning outside of the traditional classroom setting by analyzing a high school history class using a video game called *Making History* (Watson, Mong, & Harris, 2011). The teacher in this case study used this game in previous classes and had developed clear learning goals and a strong methodology for integrating the experience with the course material. Groups of students played the game, each controlling a country during World War II. The authors noted that while not all students benefited from the time spent playing the game, the class environment went from a teacher-centered lecture to one that focused more on the learners. Students could interact with each other and ask the teacher questions while thinking critically about decisions made leading up to WWII by being there in the video game. Watson et al. (2011) emphasized the excitement students felt at participating in the game: students actually discussed strategies for the next round outside of class! Some students often lack this kind of excitement and motivation to learn in traditional classrooms.

Squire, DeVane and Durga (2008) found similar results using *Civilization III* during an afterschool program. The popular *Civilization* series of games allows players to take over a civilization at varying points of history. Players are able to "explore the relationships between geography and politics, economics and history, or politics and economics" (Squire et al., 2008, p. 242). Many of the students involved in the program were generally apathetic about school work, and had mediocre grades. After playing the game with their peers, students were able to recognize and define academic language associated with the ancient cultures in the game, such as "hoplite" a military unit in ancient Greece. Some of the students even began actively seeking out information outside of school, watching documentaries and reading books on their favorite

cultures. Students for whom grades had been reported saw an increase in not only their history grade, but across all subjects.

While the students playing *Making History* and *Civilization III* reported having fun and enjoying the game, another video game focused on social studies, *Pax Warrior*, does not seem to have the same level of enjoyment. *Pax Warrior* was designed for high school students and was used by Carpenter, Lundell and Rubin (2007) in a graduate level public policy course. This game allowed students to act as participants in the United Nations decision making during the genocide in Rwanda. Students seemed frustrated by the game because it was unwinnable; no matter what decisions they made as UN officials, many people still died. However, the researchers noted that the simulation did allow students to discover novel solutions they had not thought of in previous decisions of the topic. This research shows that a game does not necessarily have to be fun to enhance learning.

Each of these studies suggest strong motivational effects of video games in social studies classrooms. Rather than simply listening to a lecture or viewing a power point presentation, these video games can allow students to immerse themselves in a different world. They become invested in understanding this world, as seen when the students pursued outside material to improve their *Civilization III* skills (Squire et al., 2008). While the evidence is limited that this increased motivation translates to higher academic achievement, the evidence does suggest that it encourages deeper learning. Unfortunately, because academic achievement is often measured in test scores and grades, instead of depth of understanding, further research is required to appreciate the full impact of video games on social studies learning.

Math. Also, video games have been used successfully in mathematics classrooms. *Deal or No Deal* is a popular TV show where contestants choose a briefcase which could be worth anywhere from one cent to one million dollars. As the show progresses, the contestant opens the other briefcases to show which amounts they have not chosen and the "banker" offers the player money to quit, which may or may not be higher than the value in the chosen briefcase. A control group received a lecture and worksheets about statistics, specifically the definition and formula for expected value. The experimental group played *Deal or No Deal* as an in-class activity after the same lecture, calculating the expected value of the chosen briefcase (Chow, Woodford & Maes, 2011). A week later, 95% of students who played the game were able to calculate the expected value on a post-test versus only 59% of the control group. The students in the

experimental group were able to apply their knowledge of statics by playing a game rather than simply completing paper worksheets. This seems to have allowed for better recall of the material, perhaps because the students learned it in a more meaningful way.

It is important to note that playing an educational video game more often does not necessarily result in stronger educational gains. Kim and Chang (2010) found that non-English language learners and female English language learners (ELL) students who played a math game every day showed lower performance compared to students who played math games sometimes (once a month to twice a week), or not at all. Interestingly, this pattern did not hold true for male ELL students, who showed the same performance when playing math games sometimes or every day.

Not only do video games improve math performance and aid in knowledge retention, but also there is evidence that these games can improve student attitudes towards the subject. For example, students playing a video game designed to teach math reported a more positive attitude to math than the control group (Huang & Ke, 2009). Ke (2008) found that students with lower socioeconomic status displayed more positive math attitudes after playing a cooperative math game compared to competitive or individual game situations. For students that were not in the lower socioeconomic category, all three math game conditions showed gains in positive attitudes towards math.

Science. Significant attention has been given to the game *Quest Atlantis* (QA), an educational video game created by researchers at Indiana University funded by the National Science Foundation (Barab, Sadler, Heiselt, Hickey & Zuiker, 2007). In QA, students navigate through different worlds interacting with other players and non-player characters (NPCs) to complete educational activities called Quests. The scripted responses from NPCs give students information needed to help them complete their Quests and, hopefully, learn the intended academic lesson. Some of the worlds in QA focus on science content, but other worlds emphasize different content areas. Barab et al. (2007) found that 4th grade students completing Quests in a science-focused QA world "demonstrated rich insights in terms of their submitted work, were clearly engaged, and participated in rich scientific discourse. Further…students developed a rich perceptual, conceptual, and ethical understanding of science" (p. 76).

When Hickey, Ingram-Goble and Jameson (2009) first implemented the same Quests in a 6th grade science class with a teacher who had never used the game before, they found that

students who played QA did show improvement in the post-test measures. However, these gains were not statistically significant when compared to the gains of students using a traditional curriculum. After revising the teaching procedure to provide students with more formative feedback during the Quest process the experimental group gains increased, but were still not statistically larger than the control group gains. In the second stage of their study, the researchers saw that even though they provided detailed feedback to assist students, not all of the students bothered to utilize their assistance. In the QA environment, students had to navigate away from the main game environment to view the Quest feedback. This could be one reason students did not access the feedback as many popular video games embed feedback directly into the game. Student engagement with the learning aspect of the video game is vital. Lim, Nonis and Hedberg (2006) note that students in their study who reported the highest engagement also showed the most significant improvement from pre-test to post-test scores. By ignoring the feedback, it seems the participants in Hickey et al.'s (2009) study were not engaged enough with the academic content to realize greater benefits.

Other games have been studied for use in science education, such as *Dr. Friction*, a game developed to teach fifth graders about forces and motion (Annetta, Mangrum, Holmes, Collazo & Cheng, 2009). In this game, students needed to complete puzzles to regain their stolen building blocks, with hints from an in-game avatar assistant, Fulcrum, if needed. Fulcrum offered hints if the students requested them and they did not need to navigate away from game play to access Fulcrum's help, unlike the feedback system in QA. The researchers found that the male students were more likely to seek help from Fulcrum during the game than the female students. Though a few students scored lower on the post-test, overall the participants showed significant gains on post-test scores about friction and motion after playing *Dr. Friction*. All but one student reported feeling that playing the game had helped them learn about the topic.

The research on video games in science education seems promising, but there are still issues. Consistent feedback is one of the ways video games create a strong learning environment (Gentile & Gentile, 2007). If students are not accessing this feedback, it may limit the game's effectiveness as a learning environment. However, game designers need to be careful not to give the answers away. When Annetta et al. (2009) asked one student why he used Fulcrum's hints so often, he replied "He's there to help so why not" (p. 1101). This shows that there needs to be a balance between providing students the support they need versus doing all the work for them.

Language. Think about the number of ways you can greet a person in English alone: hello, hi, hey, how are you, etc. As Johnson (2010) points out, a language learning game must be able to distinguish between all of the possible variability in the language to provide useful feedback. This is one reason researchers have begun examining the effectiveness of simulations and other types of games in language learning.

In *The Sims*, players control a virtual family through day-to-day situations. While the characters do not speak English, the everyday nature of the game brings players in contact with common objects and situations that could offer a useful opportunity for language learning. Ranalli (2008) provided students with supplementary material, such as a list of target vocabulary, and notes about culture and weekly quizzes. Students were grouped in pairs of different native languages in order to encourage communication in English. While most students felt the game and supplemental materials were helpful for developing their English skills, one student noted that they did not have to understand English to be able to play the game. This student reported enjoying the game and not paying much attention to the learning aspect. While simulations like *The Sims* could be useful, it seems the focus should be on games that require players to engage with the language. It is important to note, however, this sort of virtual immersion experience could limit the usefulness for those in the early stages of language learning who may not have enough vocabulary to interact with the game effectively.

The game QA, described earlier, does require this engagement with language. Zheng, Young, Wagner and Brewer (2009) studied the interaction between two English speaking students and two Mandarin Chinese speaking students completing co-quests through QA in English. The authors explain that "rather than focusing on practicing language for the sake of practicing a language, learners…collaborate in achieving a goal, thereby learning the language by using it" (Zheng et al., 2009, p. 502). Both native Chinese speakers reported that the co-questing in QA improved their English skills.

Classrooms are not the only place language learning takes place. Johnson (2010) examined the Tactical Language and Culture Training System (TLCTS). This system is being investigated for use by the U.S. government to teach native languages to military personnel preparing for deployment. TLCTS is an extremely complex learning system designed to handle the ambiguity and variance in language. One group of Marines used the TLCTS system before deployment and was interviewed regarding the effectiveness of the system after returning. The

officers of the unit felt the language skills learned through TLCTS improved the unit's effectiveness. Of the Marines interviewed, 76% percent reported using their new language skills on a daily basis and 50% believed those skills contributed to their ability to carry out their missions (Johnson, 2010). Although one Marine scored the training as "worthless" because the system, originally designed for the Army, did not teach participants to say "I am a U.S. Marine," overall, TLCTS appears to be an effective learning tool.

Physical Education. A new wave of motion-controlled games may allow video games to increase physical activity in gamers. Three well-known game systems utilize active game controls: Nintendo Wii and PS3's Move use motion sensitive controllers, while Xbox's Kinect uses a camera to input player movement into games. A pilot study compared the physical activity of children provided with an active video game package to that of a control group (Ni Mhurchu, Maddison, Jiang, Jull, Prapavessis & Rodgers, 2008). Participants provided with the active game package showed higher levels of physical activity and smaller waist circumferences than the control group.

Vernadakis, Gioftsidou, Antoniou, Ioannidis, and Giannousi (2012) examined college students using the Nintendo Wii during a balance-training program. Thirty-two physical education majors either completed a traditional balance training program or used the game *Wii Fit Plus*. Both groups showed increases in balance measures, with the experimental group showing better scores on many post-test measures. The Wii game allows users to track daily progress and activities as well as set progress goals. The authors suggested that the "Nintendo Wii gaming console allowed students to become active participants in the training process" (Vernadakis et al, 2012, p. 203). This engagement along with the specific feedback the system offers to players may have been factors in improving their balance. This is supported by preliminary results from Manley and Whitaker (2011), which suggested that students in a sport psychology course found class sessions which included a Wii game more fun and engaging than sessions with physical games than class sessions without such games. (e.g. a Wii dart game versus a dartboard).

Vernadakis et al.'s (2012) study lasted 8 weeks and Ni Mhurchu et al.'s (2008) lasted 12 weeks, so the question of long-term effects remains open and needs further research. However, the results are certainly promising considering that 89% of teen gamers play video games on console systems such as the Wii, PS3 and Xbox (Lenhart, Jones & Macgill, 2008).

Barriers

So far, the studies reviewed have shown video games to be strong potential tools for increasing engaged learning or, at worst, harmless yet ineffective. However, some research has suggested a darker side to video games.

Violence. Several studies examined violent video games through the lens of the General Aggression Model (GAM) developed by Bushman and Anderson (2002). According to the GAM, exposure to violent media, such as video games, results in increased aggression due to stored aggression-related scripts in an individual's memory. In support of this theory, Bushman and Anderson (2002) found that students who played a violent video game supplied an aggressive ending more often when asked to complete a story. However, the authors do not specify their criteria for classifying an ending as aggressive. One story is about Jane, who spent almost an hour waiting for food at a restaurant after a long day. Some of the aggressive responses listed in their appendix included Jane feeling "frustrated with the service" and thinking that she should "write to the newspaper about this place" (Bushman & Anderson, 2002, p. 1685). Neither response seems unusual for a rational person to make when forced to wait for service. In comparison, another aggressive response was "I should set this table cloth on fire" (Bushman & Anderson, 2002, p. 1685). A large gap exists between the levels of aggression in these two responses. The fact that the researchers simply classify both as "aggressive" during data analysis could severely skew their results to demonstrate more aggression than actually exists. Also, Gentile, Lynch, Linder & Walsh (2004) also reported results supporting the GAM, including a relationship between violent video games and physical violence. However, Ferguson (2010) noted that if Gentile and colleagues (2004) had controlled for gender, the correlation between violent games and aggression would have been significantly smaller.

In addition, researchers have investigated the different effects of virtual violence versus real violence. Another study used the GAM model in relation to participants' heart rate and galvanic skin response to test for desensitization to violence (Carnagey, Anderson, and Bushman, 2006). They found that participants who played a violent video game showed a lower physiological arousal in response to a video tape of real violence than participants who played a nonviolent game. On the other hand, Barlett and Rodeheffer's (2009) research suggested that playing an unrealistic violent video game results in lower aggression than playing a video game with realistic violence.

In direct contrast to the GAM studies, Unsworth, Devilly and Ward (2007) found that some participants with low starting anger and a pliable personality did show short-term increases in anger; these small increases were not enough to warrant concern. Additionally, participants with strong personalities did not show any increase in anger and those participants with pliable personalities and high start anger actually demonstrated a cathartic effect with reduced anger after playing a violent video game. Despite Anderson et al.'s (2010) urging that the debate over whether violent video games cause aggression has ended, such divergent results show that more work needs to be done on this topic.

Addiction. Addiction is a large concern surrounding newer technology such as video games. One study examining addiction in WoW players used a go/no-go behavioral measure similar to one validated with alcoholics (Decker & Gay, 2011). In this study, researchers asked participants to distinguish between traditional English and WoW related words with positive or negative connotations. For example, if a participant has a target of "good," he would click a button whenever a positive word (target) appeared but refrain from pressing the button for a negative word (distracter). WoW players showed faster reaction times than non-players in this task. WoW players also better distinguished between targets and distracters on both neutral English words and WoW related words. This contradicts findings in other addiction studies where the addicts showed a bias towards words related to their addiction. Other video game studies supported the findings that playing action video games increase speed, cognitive response times etc. (Dye et al., 2009). However, Decker and Gay (2011) cautioned that the WoW players also showed more bias toward responding in general, which may indicate poor impulse control.

There seems to be a fine line between definitions of gaming addiction and high levels of game engagement which may have resulted in an overly pessimistic view of the number of people afflicted with video game addiction. Charlton and Danforth (2010) examined personality factors in conjunction with addiction scales to determine if certain personality traits are related to addiction versus engagement for individuals playing a massively multiplayer online role playing game (MMORPG) *Asheron's Call*. They found that factors such as lower levels of attractiveness, emotional stability, agreeableness, and extraversion were indicators of video game addiction. The authors reported that these traits have also been found to be predictors of other types of addiction (e.g. gambling and alcoholism). However, high levels on the engagement scale did not show any correlation to these characteristics.

It is easy to see how playing an MMORPG could lead to addiction when coupled with these traits. Playing a game online would allow people with low levels of attractiveness, agreeableness and extraversion to interact with others from the safety of their own home, displaying the face of the character, or avatar, they choose to portray in the game world. Additionally, the ability to escape into a fantasy world would certainly appeal to individuals with lower emotional stability. These traits are also common in individuals with other addictions. Video games, like gambling, can be enjoyed by many responsibly, but can have negative consequences if done in excess.

Some researchers suggest that understanding the motivation behind addictive gaming behavior could help prevent that addiction. Przybylski, Ryan and Rigby (2009) looked at harmonious versus obsessive engagement using self-determination theory (SDT). Obsessive engagement was defined as interfering with one's regular life, while with harmonious engagement an individual is able to enjoy the activity without disrupting other aspects of his or her life. SDT suggests that motivation stems from the opportunity to satisfy basic needs for competence, autonomy and relatedness (Ryan & Deci, 2000). The authors found that individuals who felt these needs were satisfied by video games were more likely to show harmonious engagement. Also, the reverse was true, with participants who reported low need satisfaction showing evidence of obsessive engagement. Przbylski et al. (2009) suggested that knowing this relationship can help researchers develop ways to support the needs identified in SDT and perhaps prevent obsessive engagement with video games.

Attitude. The final barrier to the use of video games in classrooms is the attitude parents, teachers and administrators have towards those games. For example, teachers in the Republic of South Korea identified a number of reasons why they were unable to effectively integrate video games in the classroom, including inflexible curriculum and limited budgets, negative effects of gaming, students not being ready and lack of supporting material (Baek, 2008). Kenny and McDaniel (2011) found that only 42% of pre-service teachers in their study played video games regularly. According to Kenny & McDaniel (2011), this number seems small when compared to a 2008 report from the Entertainment Software Association (ESA), which estimates that 80% of people in the same age range play video games regularly.

A number of things influence parental attitudes toward video games. Bourgonjon, Valcke, Soetaert, de Wever and Schellens (2011) examined some of these factors such as gender,

experience with and preference for video games, and perception of the negative effects or learning opportunities provided by video games. The researchers found that "parents express rather negative beliefs about video games and are reluctant when it comes to using video gaming in educational settings" (Bourgonjon et al., 2011, p. 1440). Experience playing video games was negatively correlated with perceived negative effects of gaming, however, only 13.9% of respondents reported playing and enjoying video games.

It seems that few parents and teachers have experience with games, making them less likely to be open to the potential value video games have as learning tools. Not much can be done to remedy this situation if these decision makers are not willing to expose themselves to video games. According to a report by the ESA (2011), 45% of parents play video games with their children occasionally. Gee (2003) notes that his own introduction to gaming was trying to learn a video game so he could help his son play. After having some difficulty mastering a game his four-year-old could handle, Gee began to investigate video games more closely. Perhaps more parents and teachers will have similar revelations as they are exposed to more video games.

Conclusion

While there are still hurdles to overcome, this review shows that video games have the potential to be strong learning tools in the classroom. There are several limitations to the studies reviewed here with sample size and research design being the most notable. Additionally, ethical concerns, such as socioeconomic status and gender differences, as well as implementation difficulties contributes to limitations on realizing the full potential of video games in the classroom.

One of the biggest problems with many of the studies reviewed is sample size. Many of the studies included fairly specialized populations and small sample sizes (see Appendix. For example, Zheng et al.'s (2009) study on language learning in QA only included four participants. Also, while Squire et al.'s (2008) study began with 12 participants, attrition led to in depth analysis for only 2 students. These small, focused samples limited the researchers' ability to say that video games would be beneficial to students in general rather than just video games were beneficial to this particular type of student. Additionally, the majority of children in the age ranges examined would have been exposed to video games prior to participating in these studies. While a few of the games used are only available in educational settings, many of them are

popular games available for purchase by anyone. The participants could have been exposed to the games prior to study, making it difficult for true control and experimental conditions.

Many of the studies included primarily qualitative analysis. While qualitative studies are useful in some circumstances, qualitative results do not generalize well to the larger population. Both the small sample sizes and primarily qualitative study of educational video games, limits the field's generalizability. It is difficult to firmly declare that video games are effective learning tools with these limitations. Unfortunately, it seems this field will continue to struggle with this limitation as it is not well suited to quantitative, generalizable analysis. If a researcher conducts a large, quantitative study on *Quest Atlantis'* effect on science grades, that research may still only be generalizable to that particular game in that particular subject.

Cost is another factor that can greatly limit video game implementation in schools. Limited resources afflict many schools and interested teachers may lack the funds to purchase copies of a video game or appropriate technology to play the game. Even assigning students video games as homework or long-term projects could present an issue, as students with a lower socioeconomic status may not have access to a compatible computer or game console. Students that do not have regular access to such technology, or students who are just not "tech-savvy," may also feel uncertain using such tools. When assigning a video game as a long-term project, teachers should ensure that students have sufficient opportunities to use school-based resources in case they do not have access to such resources at home. In addition, a strong support system must be in place to assist students with technological difficulties. The instructor should have enough experience with the game system to answer questions and help students overcome problems. As mentioned earlier, many teachers do not have enough familiarity to help students navigate educational games effectively.

In Manley and Whitaker's study (2011), one student commented that it was boring waiting for the other students to take their turn at the Wii game. While cost may prohibit being able to provide each student their own console, there are few possibilities to keep students engaged. Depending on the number of machines available and the type of games, teachers could put students in small groups to work together. Teachers could also provide alternate, supportive activities for students not actively participating in the game. These activities should contribute to the learning goal, but require minimal supervision so the teacher would still be available to assist students needing help with the game.

Many seem to consider video games a largely male domain; however, according to the ESA (2011) almost half of regular game buyers (48%) are female. The female students in Annetta et al.'s (2009) study reported spending more time on computers than their male counterparts, though the boys did report more time playing games on the computer. The authors argue that the way these two groups use computers differs in that boys use the systems more for gaming and girls more for relationship building. It is interesting to note the 2006 ESA report cited in Annetta et al.'s (2009) study states that only 38% of game players are female. It is possible that the gender gap in video games is closing, but it is still necessary for teachers to be aware that this gap still exists. It would be beneficial to incorporate a paradigm like "universal design" when designing educational video games. While universal design generally deals with creating products that are accessible to both people with or without disabilities, a similar concept could be applied to incorporate game features that could be beneficial to both genders. While girls may generally use social features more, boys could also benefit from a collaborative social learning/gaming environment.

A significant challenge when designing games for the classroom is finding the right balance between the learning content and the game. Shelton and Scoresby's (2011) student game designers chose to remove some "neat" effects in their game to make the educational content more prominent. On the other hand, the students felt that it was important to include all of the short stories in the book their game was based on. They chose to remove some of the stories from the main content of the game so players would not be distracted from the primary learning goals. Instead, they included the unused stories in a bonus level that they could access after completing a final puzzle.

This balancing act is important to keep in mind when designing educational games. If a designer takes out too much of the game aspect, the motivational potential decreases. However, taking out too much learning content and the game loses its educational value. Educational game designers should have experience in the realm of education, or work closely with someone who does. Fortunately, more schools are offering instructional technology training programs, which could help close the gap between teacher and game designer. The current research seems to point to the fact that the most important aspect in serious game design is to keep the learning goals in mind to ensure you do not go too far with "neat" features that add nothing to the learning experience without losing the motivational enjoyment of gaming.

There are still a number of barriers to overcome before video games will see widespread acceptance as educational tools. Violence, addiction, gender and socioeconomic differences are serious issues that need to be fully addressed before parent and teacher attitudes towards video games will improve. Despite the issues, this review suggests that using video games in education offers strong potential for learning. Though there are limitations with the current body of research, the results show that further investigation in this area is warranted. Future studies will need to address these limitations to further explore the effects of games on education and allow serious games to become more fully integrated in today's classrooms. While these games may not be effective learning environments for all students in all subjects, they can provide teachers with an additional tool for motivating and engaging students.

References

Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., … Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin, 136*(2), 151–173. doi:10.1037/a0018251

Annetta, L., Mangrum, J., Holmes, S., Collazo, K., & Cheng, M.-T. (2009). Bridging reality to virtual reality: Investigating gender effect and student engagement on learning through video game play in an elementary school classroom. *International Journal of Science Education*, *31*(8), 1091–1113. doi:10.1080/09500690801968656

Atkinson, T. (2009). Second Life for educators. *Tech Trends*, *53*(4), 23–25.

Baek, Y. K. (2008). What hinders teachers in using computer and video games in the classroom? Exploring factors inhibiting the uptake of computer and video games. *CyberPsychology & Behavior*, *11*(6), 665–671. doi:10.1089/cpb.2008.0127

Barab, S. A., Sadler, T. D., Heiselt, C., Hickey, D., & Zuiker, S. (2007). Relating narrative, inquiry, and inscriptions: Supporting consequential play. *Journal of Science Education and Technology*, *16*(1), 59–82. doi:10.1007/s10956-006-9033-3

Barlett, C. P., & Rodeheffer, C. (2009). Effects of realism on extended violent and nonviolent video game play on aggressive thoughts, feelings, and physiological arousal. *Aggressive Behavior*, *35*, 213–224. doi:10.1002/ab.20279

Bourgonjon, J., Valcke, M., Soetaert, R., de Wever, B., & Schellens, T. (2011). Parental acceptance of digital game-based learning. *Computers & Education*, *57*(1), 1434–1444. doi:10.1016/j.compedu.2010.12.012

Bushman, B. J., & Anderson, C. A. (2002). Violent video games and hostile expectations: A test of the General Aggression Model. *Personality and Social Psychology Bulletin, 28*(12), 1679–1686. doi:10.1177/014616702237649

Carnagey, N. L., Anderson, C. A., & Bushman, B. J. (2007). The effect of video game violence on physiological desensitization to real-life violence. *Journal of Experimental Social Psychology, 43*(3), 489–496. doi:10.1016/j.jesp.2006.05.003

Carpenter, R. C., Lundell, V., & Rubin, B. (2007). Serious games in the global affairs classroom. *Journal of Information Technology & Politics*, *4*(2), 117–129. doi:10.1080/19331680802076181

Charlton, J. P., & Danforth, I. D. W. (2010). Validating the distinction between computer addiction and engagement: online game playing and personality. *Behaviour & Information Technology*, *29*(6), 601–613. doi:10.1080/01449290903401978

Chow, A. F., Woodford, K. C., & Maes, J. (2011). Deal or No Deal: sing games to improve student learning, retention and decision-making. *International Journal of Mathematical Education in Science and Technology*, *42*(2), 259–264. doi:10.1080/0020739X.2010.519796

Colzato, L. S., van Leeuwen, P. J. A., van den Wildenberg, W. P. M., & Hommel, B. (2010). DOOM'd to switch: Superior cognitive flexibility in players of first person shooter games. *Frontiers in Psychology*, *1*(8). doi:10.3389/fpsyg.2010.00008

Decker, S. A., & Gay, J. N. (2011). Cognitive-bias toward gaming-related words and disinhibition in World of Warcraft gamers. *Computers in Human Behavior*, *27*(2), 798–810. doi:10.1016/j.chb.2010.11.005

Dye, M. W. G., Green, C. S., & Bavelier, D. (2009). The development of attention skills in action video game players. *Neuropsychologia*, *47*, 1780–1789. doi:10.1016/j.neuropsychologia.2009.02.002

Entertainment Software Association. (2011). *Essential facts about the computer and video game industry: Sales, demographic and usage data*. Retrieved from http://www.theesa.com/facts/pdfs/ESA_EF_2011.pdf

Ferguson, C. J. (2010). Blazing angels or resident evil? Can violent video games be a force for good? *Review of General Psychology*, *14*(2), 68–81. doi:10.1037/a0018941

Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. New York: Palgrave Macmillan.

Gentile, D. A., & Gentile, J. R. (2007). Violent video games as exemplary teachers: A conceptual analysis. *Journal of Youth and Adolescence*, *37*(2), 127–141. doi:10.1007/s10964-007-9206-2

Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance. *Journal of Adolescence*, *27*(1), 5–22. doi:10.1016/j.adolescence.2003.10.002

Hickey, D. T., Ingram-Goble, A. A., & Jameson, E. M. (2009). Designing assessments and assessing designs in virtual educational environments. *Journal of Science Education and Technology*, *18*(2), 187–208. doi:10.1007/s10956-008-9143-1

Huang, K. H., & Ke, C. J. (2009). Integrating computer games with mathematics instruction in elementary school - An analysis of motivation, achievement, and pupil-teacher interactions. *World Academy of Science, Engineering & Technology*, *60*, 261–263.

Jarmon, L., & Mayr, M. (2008). Understanding project-based learning in Second Life with a pedagogy, training and assessment trio. *Educational Media International*, *45*(3), 157–176.

Johnson, W. L. (2010). Serious use of a serious game for language learning. *International Journal of Artificial Intelligence in Education*, *20*(2), 175–195.

Juul, J. (2005). *A casual revolution: Reinventing video games and their players*. Cambridge, Massachusetts: The MIT Press.

Ke, F. (2008). Alternative goal structures for computer game-based learning. *International Journal of Computer-Supported Collaborative Learning*, *3*(4), 429–445. doi:10.1007/s11412-008-9048-2

Kenny, R. F., & McDaniel, R. (2011). The role teachers' expectations and value assessments of video games play in their adopting and integrating them into their classrooms. *British Journal of Educational Technology*, *42*(2), 197–213. doi:10.1111/j.1467-8535.2009.01007.x

Kim, S., & Chang, M. (2010). Computer games for math achievement of diverse students. *Educational Technology and Society*, *13*(3), 224–232.

Lenhart, A., Jones, S., & Macgill, A. (2008). *Teens, video games and civics*. Pew Research Center. Retrieved from http://pewresearch.org/pubs/1048/

Lim, C. P., Nonis, D., & Hedberg, J. (2006). Gaming in a 3D multiuser virtual environment: Engaging students in science lessons. *British Journal of Educational Technology*, *37*(2), 211–231. doi:10.1111/j.1467-8535.2006.00531.x

Manley, A., & Whitaker, L. (2011). Wii-learning: Using active video games to enhance the learning experience of undergraduate sport psychology students. *Sport & Exercise Psychology Review*, *7*(2), 45–55.

Ni Mhurchu, C., Maddison, R., Jiang, Y., Jull, A., Prapavessis, H., & Rodgers, A. (2008). Couch potatoes to jumping beans: A pilot study of the effect of active video games on physical activity in children. *International Journal of Behavioral Nutrition and Physical Activity*, *5*(1), 8. doi:10.1186/1479-5868-5-8

Nie, M., Roush, P., & Wheeler, M. (2010). Second Life for digital photography: An exploratory study. *Contemporary Educational Technology*, *1*(3), 267–280.

Przybylski, A. K., Ryan, R. M., & Rigby, C. S. (2009). The motivating role of violence in video games. *Personality and Social Psychology Bulletin*, *35*(2), 243–259. doi:10.1177/0146167208327216

Ranalli, J. (2008). Learning English with The Sims: Exploiting authentic computer simulation games for L2 learning. *Computer Assisted Language Learning*, *21*(5), 441–455. doi:10.1080/09588220802447859

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivation: Classic definitions and new directions. *Contemporary Education Psychology*, *25*, 54–67.

Shelton, B. E., & Scoresby, J. (2011). Aligning game activity with educational goals: Following a constrained design approach to instructional computer games. *Education Tech Research Dev*, *59*, 113–138. doi:DOI 10.1007/s11423-010-9175-0

Squire, K. D., DeVane, B., & Durga, S. (2008). Designing centers of expertise for academic learning through video games. *Theory Into Practice*, *47*(3), 240–251. doi:10.1080/00405840802153973

Steinkuehler, C. (2007). Massively multiplayer online gaming as a constellation of literacy practices. *E-Learning*, *4*(3), 297. doi:10.2304/elea.2007.4.3.297

Steinkuehler, C., & Duncan, S. (2008). Scientific habits of mind in virtual worlds. *Journal of Science Education and Technology*, *17*, 530–543. doi:10.1007/s10956-008-9120-8

Unsworth, G., Devilly, G. J., & Ward, T. (2007). The effect of playing violent video games on adolescents: Should parents be quaking in their boots? *Psychology, Crime & Law*, *13*(4), 383–394. doi:10.1080/10683160601060655

Vernadakis, N., Gioftsidou, A., Antoniou, P., Ioannidis, D., & Giannousi, M. (2012). The impact of Nintendo Wii to physical education students' balance compared to the traditional approaches. *Computers & Education*, *59*(2), 196–205. doi:10.1016/j.compedu.2012.01.003

Watson, W. R., Mong, C. J., & Harris, C. A. (2011). A case study of the in-class use of a video game for teaching high school history. *Computers & Education*, *56*(2), 466–474. doi:10.1016/j.compedu.2010.09.007

Young, M. F., Slota, S., Cutter, A. B., Jalette, G., Mullin, G., Lai, B., Simeoni, Z., et al. (2012). Our princess is in another castle: A review of trends in serious gaming for education. *Review of Educational Research*, *82*(1), 61–89. doi:10.3102/0034654312436980

Zheng, D., Young, M. F., Wagner, M. M., & Brewer, R. A. (2009). Negotiation for action: English language learning in game-based virtual worlds. *The Modern Language Journal*, *93*(4), 489–511. doi:10.1111/j.1540-4781.2009.00927.x

Appendix

Table 1

Research design, sample size and data collection

Author(s)	Research Design	Sample Size	Data collection
Annetta, Mangrum, Holmes, Collazo & Cheng (2009)	Mixed methods	74 students 20 students	Content knowledge pre-test/post-test, observation Focus groups
Baek (2008)	Quantitative	444 teachers	Survey
Barab, Sadler, Heiselt, Hickey & Zuiker (2007)	Mixed methods	28 students	Field notes, observations, interviews Classroom assessment
Barlett & Rodeheffer, C. (2009)	Quantitative	74 participants	Questionnaires, Word Completion Task, physiological arousal
Bourgonjon, Valcke, Soetaert, de Wever & Schellens (2011)	Quantitative	858 parents	Survey
Bushman & Anderson (2002)	Quantitative	224 students	Story stem completion task
Carnagey, Anderson & Bushman (2007)	Quantitative	257 students	Heart rate, galvanic skin response
Carpenter, Lundell & Rubin (2007)	Qualitative	41 comments	Blackboard discussion
Charlton & Danforth (2010)	Quantitative	388 video game players	Addiction scale, engagement scale, personality measure
Chow, Woodford & Maes (2011)	Quantitative	2 classes, about 30 students in each	Classroom assessment
Colzato, van Leeuwen, van den Wildenberg & Hommel (2010)	Quantitative	34 total; 17 video game players, 17 non players	Task switching paradigm

Table 1 Continued

Author(s)	Research Design	Sample Size	Data collection
Decker & Gay (2011)	Quantitative	12 WoW players, 30 non players	Go/no-go task, questionnaire
Dye, Green & Bavelier (2009)	Quantitative	131 total; 56 video game players, 75 non game players	Questionnaire Attentional Network Test
Gentile & Gentile (2007)	Quantitative	430 elementary school children, 2048 adolescents	Survey
Gentile, Lynch, Linder & Walsh (2004)	Quantitative	607 students	Survey
Hickey, Ingram-Goble & Jameson (2009)	Mixed methods	6 classes over 2 semesters with 1 teacher; about 170 students	Content knowledge test, class assessment, open-ended problem solving assessment
Huang & Ke (2009)	Quantitative	64 students	Content knowledge test, attitude measure, student teacher interaction observation system
Jarmon & Mayr (2008)	Qualitative	5 students	Student journals, focus groups
Johnson (2010)	Mixed methods	385 total participants	Content knowledge pretest/posttest, open ended surveys
Ke (2008)	Quantitative	160 students	Pre-test/posttest on math attitudes and math knowledge
Kenny & McDaniel (2011)	Quantitative	58	Pre-test/post-test Video Games Preference Inventory
Kim & Chang (2010)	Quantitative	170,000 students	Survey
Lim, Nonis & Hedberg (2006)	Mixed methods	8 students	Science concepts pretest/posttest, observation, interviews
Manley & Whitaker (2011)	Qualitative	74 students	Student essays, open ended survey

Table 1 Continued

Author(s)	Research Design	Sample Size	Data collection
Ni Mhurchu, Maddison, Jiang, Jull, Prapavessis & Rodgers (2008)	Quantitative	20 students	Accelerometer & activity questionnaire
Nie, Roush & Wheeler	Qualitative	6 students	Personal interviews, focus group
Przybylski, Ryan & Rigby (2009)	Quantitative	6 studies, 2977 total participants	Surveys on Player Experience of Need Satisfaction, game enjoyment and trait aggression
Ranalli (2008)	Mixed	9 students	Language pretest/posttest, open ended survey
Shelton & Scoresby (2011)	Qualitative	7 graduate student game designers, 2 ninth grade English classes	Game-play transcripts, observation, interview
Squire, DeVane & Durgas (2008)	Qualitative	12 total, in-depth analysis for 2 students	Observation, interviews
Steinkuehler & Duncan (2008)	Qualitative	1984 forum posts	Content analysis of online *World of Warcraft* discussion forum
Unsworth, Devilly & Ward (2007)	Quantitative	107 participants	Gaming and personality trait questionnaires, trait anger pretest/posttest
Vernadakis, Gioftsidou, Antoniou, Ioannidis & Giannousi (2012)	Quantitative	32 students	Balance assessment pretest/posttest
Watson, Mong & Harris (2011)	Qualitative	98 students	Observation, focus groups, student essays
Zheng, Young, Wagner & Brewer (2009)	Qualitative	4 students	Chat logs, interviews, observation

Journal of Mason Graduate Research
Volume 1 Number 2 Year 2014

ISBN: 2327-0764
Pages: 70-82

The Impact of Mentoring Programs for African American Male Community College Students

YOLANDA BARBIER GIBSON

George Mason University

Retention and graduation rates among African American male community college students have received considerable coverage in recent years. African American male students enroll in community colleges at a steady pace, yet graduation and retention rates are the lowest among this group. In this paper, the author will review the literature pertaining to the implications of mentoring programs for minority male college students. The author will begin by defining mentoring programs, exploring major arguments associated with mentoring programs, and addressing implications that mentoring has on retention for African American male students. In the final part of the paper, the author provides practical recommendations to effectively implement a mentoring program, summarizes current arguments, and reemphasizes the significance of mentoring programs for African American male students in community colleges.

Low graduation and retention rates particularly among African American male community college students are becoming an epidemic in community colleges across the nation. This is an issue because the educational underachievement among African American males not only impacts society but also impacts the social positioning of African American men, as degree attainment is directly attributed to the workforce, income, social mobility, decreased likelihood of incarceration and increased life expectancy (Bush & Bush, 2010). Currently, nearly fifty percent of African American male students are enrolled in community colleges but struggle to obtain academic success (Toldson & Morton, 2011). African American male academic success rates (e.g., grade point averages, [GPAs], course completion, course attendance, and graduation rates) are also alarming in comparison to other male groups (Perrakis, 2008). Data indicates that African American males have the lowest mean GPA among male students in community colleges. According to the U.S. Department of Education (2006), African American males have

an average GPA of 2.64 (cited in Wood, J. & Turner, C., 2006). In contrast, the average GPAs of their American male counter- parts are as follows: White males 2.90, Hispanic-Latino males 2.75, and Asian males 2.84 (Wood, J. & Turner, C., , 2006). Hence, African American men have low retention and persistence rates which are prohibiting them from obtaining a degree. According to Majer (2009), 67% of African American male students who begin college never obtain their degree. This illustrates that there is significant potential growth for increased degree conferral rates among African American male community college students (Toldson & Morton, 2011).

There are many factors that negatively influence retention for African American male students enrolled in community colleges. These factors include destructive campus racial environment, insufficient financial aid, lack of college funds for intervention programs, lack of institutional research on minority student retention and achievement, lack of minority faculty and staff, and lack of social and cultural activities (Opp, 2002). In addition to the factors listed above, there are other factors that serve as retention barriers for African American male students such as the lack of academic and social integration, guidance, and support (Opp, 2002). However, recent studies suggest that when support systems are in place, African American male students are more likely to succeed in higher education (LaVant, Anderson & Tiggs, 1997).

Parker & Scott (1985) contend that in order for minority male students to succeed in higher education, a connection must be established between the student and the university personnel (i.e. faculty/staff) by providing a warm, supportive, and nurturing environment the moment that they step on campus (LaVant et al., 1997). Aggravating these problems is the lack of institutional commitment to providing African American males with academic support services (e.g. mentoring) (Zell, 2011). These factors, in turn, affect the graduation rates of African American men, who are not only the least likely to enroll in college, but are also the most likely to drop out without earning a college degree (American Council on Education, 2003; Cuyjet, 2006, JBHE, 2007; cited in Zell, 2011, p. 215). Thus, mentoring programs designed specifically for African American male students have potential to increase retention and graduation rates.

The next section will discuss the definition of mentoring programs, major arguments associated with implementing a mentoring program, address implications that mentoring has on retention for African American male students and provide recommendations to effectively

implement a mentoring program. Finally, it will conclude with a brief summary of the arguments and reemphasize the significance of mentoring programs for African American community college male students.

Background

This paper argues that mentoring programs can increase academic success, provide a sense of community, and build positive relationships for African American male college students. In order to fully understand the importance of a creating a mentoring program, the term mentoring must be defined. Mentoring can be defined as an intentional process between two or more people in which the mentor can serve as the guide, the reality checker, and introduce the mentee to the new environment in which the person is about to enter (Shandley, 1989, as cited in LaVant et al., 1997). In higher education, mentoring is increasingly looked upon as a retention and enrichment tool for undergraduate education (Jacobi, 1991, as cited in LaVant et al., 1997). Mentoring can take shape in many forms other than face-to-face. Some colleges and universities utilize technology as a way to connect African American male students with a mentor. According to Grant and Hines (2009), many colleges utilize web-based mentoring as an innovative solution for African American male students to increase their social and technology skills. These web-based mentoring methods include chat rooms, email, instant messaging, blogging, video chats, and video clips.

Participants in mentoring programs tend to be open to new experiences, take constructive criticism, and develop critical thinking skills (Whitfield & Edwards, 2011). The goal of a mentoring program is to further develop and refine the mentee's skills, abilities, and understanding (LaVant et al., 1997). Thus, mentoring programs could have a real, practical solution to increasing graduation rates in this population and could therefore simultaneously increase African American male student representation on community college campuses.

Literature Review

There are several benefits of implementing mentoring programs as a mechanism to increase retention among African American male community college students. Hoffman & Wallach (2005) argue that minority male students who participate in mentoring programs show higher self-esteem as well as higher levels of academic motivation and performance. Jaswal &

Jaswal (2008) conducted a study that revealed that the earlier a student connects with social and academic systems in the college, the greater their academic achievement, thus their commitment to graduate. In addition, they found that students being mentored typically feel more comfortable sharing their concerns and issues with a mentor rather than faculty or an administrator. Mentoring programs enable students to connect with professionals and develop relationships that can lead to increased retention, graduation rates and potential employment beyond their college career.

Successful operating models

There are several successful operating models that are currently in place to improve retention rates among minority male students. According to Jaswal &Jaswal (2008), Compton Community College created a Tiered Mentoring Program (TMP), which is a peer mentoring program that assists all new students in fall, spring, and summer semesters. TMP mentors assist new students with their transitional needs to the college environment and provide leadership experience, guidance, and support. These mentors attend new student orientation, assist students the first three days of school, and participate in quarterly phone calls. Also, TMP mentors connect students to professional industrial workers and assist with academic planning for the following semester (Jaswal & Jaswal, 2008).

In addition to TMP, a Vice-President of Student Affairs created a minority male mentoring program at Montgomery County Community College which found that "out of the young black men in the college program 73% stayed in school for the 2010-2011 academic year in comparison with 63% for those not enrolled in the program" (Giordano, 2012, para. 6). This particular mentoring program at Montgomery County Community College is an example of a mentoring program that has the potential to do the same elsewhere to make a difference in the lives of young African American male students.

Because the trend of low retention and graduation rates among African American male students continues to increase, many community colleges are beginning to take a stance by implementing mentoring programs designed specifically for African American males. For example, Forsyth Tech, a community college located in Winston-Salem, North Carolina, instituted the James A. Rousseau minority male mentoring program (Forsyth Tech, 2012). The program provides appropriate support services and other incentives to enable more minority students to successfully complete their educational objectives without dropping out or

interrupting their course of study. Components of this mentoring program include: providing an open forum for minority males to discuss issues and concerns, giving structure and support to promote goal-setting and positive choices in decision-making, increasing the awareness of support services available at the college, and assisting students with practical knowledge of budgeting, investments and savings. The mentors consist of Forsyth Tech's minority faculty and staff. Since the implementation of the James A. Rousseau minority male mentoring program, graduation rates have increased among African American males at Forsyth Technical Community College (Forsyth Tech, 2012).

In addition to providing students with a faculty/staff mentor, the literature also suggests that educators should link undergraduate African American men to older men who model appropriate ways of expressing masculinity, such as college-educated members from the local community (e.g. business leaders, clergy, or community leaders) for mentoring and role modeling. According to Harris, Palmer, & Struve (2011), such mentoring programs model more traditional, socially accepted forms of behavior, such as the ability to speak candidly about their experiences and challenges pertaining to their academic environment without feeling disheartened. In order to provide equitable opportunities for African American male students and enable them to become successful students, community colleges must provide mentoring programs as a way to engage African American male students and increase retention.

Because of the detrimental trend of low graduation rates among African American male students, non-profit organizations and federal agencies have created initiatives and programs to ensure that institutions have the resources and tools to alleviate this problem. For example, the Knights Foundation created the Black Male Engagement (B.M.E.) initiative which strives to provide resources and programs for black males. One of the programs under the B.M.E. initiative is the "Rising to the Occasion" program which seeks to increase the retention and graduation rates among black male students enrolled at the University of Akron (Thomas, 2012).

In addition, there are many conferences, institutes, seminars, and workshops that occur to encourage faculty, administrators, and staff to have conversations in hopes of finding a solution to address the problem of low graduation rates among African American male students, such as the annual QUEST Conference: Minority Male Higher Education Conference, which takes place at Baltimore City Community College. With the support of government agencies, non-profit organizations, and local businesses, mentoring programs could make a positive impact on

African American males' lives and increase their ability to become successful during their college careers (Cuyjet, 1997).

More recently, the Minority Male Community College Collaborative (M2C3) was developed to advance four objectives: to support a national consortium of minority male initiatives to facilitate collaboration and information sharing; to serve as a clearinghouse for federal, state, and institutional data on minority male student outcomes; to conduct and disseminate empirical research on the experiences of minority male community college students; and to facilitate capacity-building among minority male initiatives by integrating assessment, evaluation, and sustainability planning into their efforts (M2C3, 2014).

Benefits and hindrances for developing mentoring programs

There are several benefits and hindrances for developing and implementing mentoring programs for African American male community college students. The American Council on Education released an annual status report on minorities in higher education which indicated that African American males have the lowest graduation rate among other groups (Ashburn, 2007). The assumption for this claim is that African American male students lack sufficient support and guidance which prevents them from successfully obtaining a college degree (Pope, 2002). Additionally, African American male students enter college often lacking the social and academic skills needed to be successful in a college environment (Opp, 2002).

There is significant data to support the argument that African American males have the lowest graduation rate among other groups. According to the U.S. Department of Education (2006), African American male students have the lowest grade point average among other male groups. There is evidence that suggests that African American males take fewer notes in class, spend less time writing papers, participate less frequently in campus activities, and report lower grade point averages (Harper, 2012). These may be factors that prevent African American males from completing their degree.

Benefits of mentoring programs

Mentoring programs provide support systems which enable African American male students to succeed. For example, African American males in mentoring programs tend to show higher self-esteem, higher levels of academic motivation, and performance. Also, their social skills improve because participants gain confidence and feel more comfortable communicating with faculty and university staff (LaVant et al., 1997). In addition, evidence shows that when

African American males have been given the opportunity to participate in higher education, and when well-conceived and formatted support systems such as mentoring programs are in place, they have been successful (Harris, 1996, Morgan, 1996, as cited in La Vant et al., 1997). Therefore, mentoring programs increase access and equity for African American male students.

African American males who attend predominately white institutions often feel alienated and increasing the number of mentoring programs with college faculty and staff for African American male students can potentially increase retention rates (Grant-Thompson & Atkinson, 1997). African American males also require successful role models that they can identify with to promote academic competence and self-esteem. Hence, African American male college students connections must be established between the student and college personnel during the early stages of enrollment such as new student orientations (Grant-Thompson & Atkinson, 1997).

Hindrances of mentoring programs

While there are many benefits to offering mentoring programs, there are hindrances as well. For example, relationships between African American male students and faculty are often weak (Harper, 2012). Thus, it is harder to measure the effectiveness of mentoring programs if faculty-mentee relationships are weak. The number of minority faculty in colleges and universities is typically low. According to the U.S. Department of Education National Center for Education Statistics (2011), in the fall of 2009 approximately 7% of college and university faculty were black and 79% were white. Whereas at community colleges, due to the limited amount of minority male faculty, recruiting faculty to serve as mentors is often a challenge. In addition, the number of African American males in colleges outweighs the number of minority faculty employed at colleges and universities (Grant-Thompson, & Atkinson, 1997).

Another hindrance is that mentoring programs can be costly, as well as time consuming to implement, assess, and monitor. Although, mentoring programs benefit students and institutions, there is a perception that mentoring programs are expensive, time consuming, and typically benefit a small percentage of students (Jaswal & Jaswal, 2008). A successful mentoring program requires more than just matching a student with a mentor. It requires having well-trained and professional staff to develop the program, quality mentor training, and mentoring recruitment campaigns. According to a report published by the National Mentoring Partnership (2010), the average cost for a mentoring program is $1,500 per student. Although, mentoring

programs can be expensive and time consuming they can be successfully implemented at a low cost if institutions seek external partnerships.

Impact of Mentoring Programs

In addition to the increase of retention and graduation rates,, African American male students' level of self-esteem may increase due to mentoring programs (Whitfield & Edwards, 2011). Mentors influence their behavior and emotions as it pertains to dealing with difficult situations. Thus, mentors help participants to manage their cognitions and beliefs about success and overcoming obstacles which may translate to increased graduation and retention rates (Whitfield & Edwards, 2011). Moreover, mentoring can result in a student's ability to have a more positive attitude toward school, perform higher academically, have higher self-confidence, and express their feelings in a positive way (Curtis & Hansen-Schwoebel, 1999, as cited in Dappen & Iserhagen, 2005).

Mentoring programs can also increase the likelihood that African American male students will transfer to a four-year college. For example, the Compton Community College (CCC) mentoring program revealed that students successfully transferred to a four-year university by fostering relationships with mentors from California State University Northridge (CSUN) (Hoffman & Wallach, 2005). Students in the CCC mentoring program showed higher self-esteem, significant increases in self-report measures of internal locus of control, and higher levels of academic performance and motivation (Hoffman & Wallach, 2005).

Community colleges that use web-based mentoring programs enable African American males the ability to enhance their communication skills. By utilizing technology as a tool for mentoring, African American male students are able to learn new ways to communicate with faculty, peers, and potential employers (Grant, D. & Hines, R., 2009). This method of mentoring is particularly beneficial for male students who attend school on a part-time basis and work full-time, who otherwise would not have the ability to participate in a mentoring program (Grant, D. & Hines, R., 2009).

African American male students who participate in a mentoring program will have a structured program that provides support, guidance, and academic assistance, which will enable them to be successful academically. In other words, relationships between faculty and students would improve and grade point averages would increase (Stromei, 2000). In addition, African American male students could develop social skills, seek leadership opportunities, and become

more civic-minded (Opp, 2002). As a result, enrollment among African American male students would be more likely to increase on community college campuses, as they would feel a sense of inclusion and feel valued. Also, awareness of cultural sensitivity would likely increase, and lastly, the number of minority faculty and staff employed at colleges and universities would likely increase.

If mentoring programs for African American male students do not prevail, then higher education could change significantly. One long-term effect that could possibly occur is that African American male students give up on the higher education system and seek alternative ways to earn a living that are not productive. For example, African American males might sell drugs or do other illegal activities as a mechanism to provide for their family. Another long-term effect might be that African American male students would continue to enroll in college but drop out before earning a degree. Dropping out of college prior to earning a college degree could potentially put the African American male student at risk of having to pay back student loans, or incur other debts.

On the other hand, short-term effects for instituting a mentoring program could include the strengthening of relationships between African American males and faculty as well as their peers. In addition, the campus environment could become more welcoming, nurturing, and supportive for African American male students. The level of alumni and external support to the institution could also increase, causing a renewed sense of community and pride for the institution. In addition, African American males who participate in a mentoring program are more likely to seek other leadership opportunities on campus and their overall collegiate experience could improve. It is strongly recommended that community colleges take a stance on this issue and implement mentoring programs for African American male students in an effort to increase retention and human capital development.

Recommendations

A study conducted at Kennedy-King Community College during 1992-93, indicated that outside encouragement and support from non-college personnel increases persistence (Mason, 1998). In addition, the results suggested that encouragement from alumni and mentors is invaluable in improving student persistence. External partnerships and institutions can utilize technology and web-based mentoring as a way to engage African American male students. Mentoring programs should also be multi-layered and designed for individual groups. An

example would be students with 20 or more credits serving as peer mentors to assist incoming African American male students to ensure that they are connected. The peer mentors could serve as student volunteers, which would not cost the institution any money.

Another example of a low cost mentoring program is the Arranged Mentor for Instructional Guidance and Organizational (or Other) Support (AMIGOS). The AMIGOS model focuses on both the mentor and the protégé, together interacting with the four centers of the model: the IDEA (Individual Diagnosis, Evaluation, and Assessment), TIPS (Training Instruction Practical Tips), COPE (Center for Organizational Problem Enlightenment), and FUN (Friendship, Understanding, and Nurturing) (Stromei, 2000). Instead of providing mentors with a stipend, perhaps institutions could provide them with credits toward their degree, special recognition ceremonies, or special privileges (i.e. free parking pass or free admission into special events).

Conclusion

Community colleges serve as a gateway into post-secondary education and career readiness for many African American males. As mentioned previously, nearly fifty percent of African American males enroll in community colleges to earn either an associate's degree, certification, or certificate (Toldson & Morton, 2011). However, there is a significant disparity among the number of African American males who persist and actually earn an associate's degree in comparison to other groups (LaVant et al., 1997). While many interventions and initiatives have been implemented in an effort to increase retention for African American male students, few accomplishments have been achieved based on the current state of graduation rates among African American male students. It still remains true that many African American male students arrive at college campuses confused, intimidated, and experience feelings of isolation (Mason, 1998). Hence, they lose interest in the collegiate experience due to the extreme adjustments often felt in a college environment due to the need to acculturate to a new, different, and unfamiliar environment (Cuyjet, 1997).

Enrollment and graduation rates for African American males can improve if colleges and universities take an institutional approach to addressing the issue. Mentoring programs geared towards African American males can be a way of addressing this issue because it provides a structured support system that could enable them to be successful academically and ultimately

increase retention and graduation rates. In addition, institutions must remember that African American male students need a warm, supportive and nurturing environment to facilitate their long-term success (LaVant et al., 1997). In order to effectively increase retention among African American male college students, additional minority faculty is needed to serve as mentors.

The establishment of a mentoring program designed specifically for African American male students can enhance their career and professional development, self-esteem, academic and social skills, and increase their likelihood of obtaining a college degree. In addition, mentoring programs can improve retention rates for community colleges. Mentoring programs can also increase the likelihood that African American male students will successfully transfer to four year universities. The establishment of a mentoring program for African American males can increase human capital by providing more African American men with the skills, tools, and resources needed in order to be a productive citizen. Without a college degree, the career choices and possibilities are extremely limited (Cuyjet, 1997). If mentoring programs are not established future issues such as lack of career readiness, diversity in the workplace and graduation rates will decline.

References

American Council on Education (2003). Minorities in Higher Education. Annual Status Report, 2002-2003. Washington, D.C. In Zell, M. (2011). I am my brother's keeper: The impact of a Brother2Brother program on African American men in college. *Journal of African American Males in Education, 2*(2).

Ashburn, E. (2007). Two-year colleges leaders discuss achievement gaps and accountability. *The Chronicle of Higher Education, 53*(34), A46. Retrieved from http://chronicle.com/article/2-Year-College-Leaders-Discuss/35902/.

Bush, E. & Bush, L. (2010). Calling out the elephant: An examination African American male achievement in community colleges. *Journal of African American Male Education, 1*(1). 40-62.

Cuyjet, M.J. (1997). Helping African American men succeed in college. *New Directions for Student Services*, 80, 5-96.

Cuyjet, M.J. (2006). African-American college men: Twenty-first century issues and concerns. In M.J. Cuyjet and Associates (Eds.), African-American men in college, 3-23. San Francisco, CA: Jossey-Bass.

In Zell, M. (2011). I am my brother's keeper: The impact of a Brother2Brother program on African American men in college. *Journal of African American Males in Education, 2*(2).

Dappen, L. & Isernhagen, J. (2005). Developing a student mentoring program: Building connections for at-risk students. *Preventing School Failure 49* (3).

Forsyth Technical Community College. (2012). Retrieved July 30, 2013, from http://www.forsythtech.edu/services-students/student-resources/james-a.-rousseau-ii-minority-male-mentoring-program.

Giordano, R. (2012). Mentoring efforts make a difference. Community colleges use personal guidance to keep African American male students engaged. Retrieved July 30, 2013, from http://articles.philly.com/2012-04-22/news/31382662_1_students-aim-african-american-male-students-young-black-men.

Grant, D. & Hines, R. (2009). Connecting with high risk black males through web-based mentoring: Potential for practice--The black male school experience. *Journal of Special Education Technology, 24*(4), 54-59.

Grant-Thompson, S.K., & Atkinson, D. R. (1997). Cross-Cultural mentor effectiveness and African American male students. J*ournal of Black Psychology, 23* (2), 120-134.

Harper, S. R. (2012). Black male student success in higher education: A report from the National Black Male College Achievement Study. Philadelphia: University of Pennsylvania, Center for the Study of Race and Equity in Education.

Harris, F, Palmer, R., & Struve, L. (2011). Cool posing on campus: A qualitative study of masculinities and gender expression among Black men at a private research institution. *Journal of Negro Education, 80*(1), p.47-62.

Hoffman, A. & Wallach, J. (2005). Effects of mentoring on community college students in transition to university. *Community College Enterprise, 11* (1), 67-78.

Jaswal, F. & Jaswal, T. (2008). Tiered Mentoring to Leverage Student Body Expertise.*New Directions for Community Colleges,144,* 55-61.

Journal of Blacks in Higher Education (2007). Black student college graduation rates inch higher but a large racial gap persists. In Zell, M. (2011). I am my brother's keeper: The impact of a Brother2Brother program on African American men in college. *Journal of African American Males in Education, 2*(2).

LaVant, B., Anderson, J., & Tiggs, J. (1997). Retaining African American men through mentoring initiatives. New Directions for Student Services, 80, 43-53.

Majer, J. (2009). Self-efficacy and academic success among ethnically diverse first generation community college students. *Journal of Diversity in Higher Education, 4*, 243-250.

Mason, H. (1998). A persistence model for African American male urban community college students. *Community College Journal of Research and Practice, 22* (8), 751-760.

Minority Male Community College Collaborative (M2C3) (2014). Retrieved February 7, 2014, from http://interwork.sdsu.edu/sp/m2c3/.

National Mentoring Partnership Report (2010). Retrieved March 25, 2014, from http://www.mentoring.org/downloads/mentoring_1282.pdf.

Opp, R. (2002). Enhancing program completion rates among two-year college students of color. *Community College Journal of Research and Practice, 26* (2), 147-163.

Parker, W.P. & Scott, A.C. (1985). Creating an inviting atmosphere for college students for Ethnic minority groups. *Journal of College Student Personnel, 26* (1), 82-87.

Perrakis, A. (2008). Factors promoting academic success among African American and white male community college students. *New Directions for Community Colleges*, 142, 15-23.

Pope, M. (2002). Community college mentoring: minority student perception. *Community College Review, 30* (3), 31-45.

Stromei, L. (2000). Increasing retention and success through mentoring. *New Directions for Community Colleges, 112*, 55-62.

Thomas, J. (2012). Akron program to increase retention and graduation of black males shows early signs of success. Retrieved July 30, 2013, from www.knightfoundation.org/blogs.

Toldson, I. & Morton, J. (2011). Editor's comment: A million reasons there're more black men in college than in prison; Eight hundred thousand reasons there's more work to be done. *Journal of Negro Education, 50*(1), 1-4.

U.S. Department of Education, National Center for Education Statistics (2006). Beginning postsecondary students longitudinal study, first follow-up. (BPS). Washington, DC: National Center for Education Statistics.

U.S. Department of Education, National Center for Educational Statistics (2011). Digest of Education Statistics. Retrieved March 25, 2014, from http://nces.ed.gov/pubs2012/2012001_3a.pdf.

Whitfield, K. & Edwards, C. (2011). Mentoring special populations. *Educational Gerontology, 37*(4-6), 422-43.

Wood, J. & Turner, C. (2006). Black males and the community college: Student perspectives on faculty and academic success. *Community College Journal of Research and Practice, 35* (1), 135-151.

Zell, M. (2011). I am my brother's keeper: The impact of a Brother2Brother program on African American men in college. *Journal of African American Males in Education, 2*(2).

Journal of Mason Graduate Research
Volume 1 Number 2 Year 2014

ISBN: 2327-0764
Pages: 83-85

The Value of Academic Journal Experience

STEFAN AMRINE

George Mason University

Although graduate work can be a tedious, labor intensive process, opportunities abound. Coursework is of central importance; however, without the proper context of professional experience, a graduate program's potential cannot be fully realized. Graduate students are wise to accompany their studies with relevant employment, internships, volunteering, conferences, professional development workshops, and other research. The lessons learned in the field can be applied in the classroom and vice-versa. Professional work outside of coursework plays another critical role as it can help guide the student in choosing a specific academic or non-academic career path.

Across disciplines, most graduate students are familiar with academic journal articles that are often required reading. Unfortunately, despite openings, few graduate students participate in the journal publication process. Journal roles include, but are not limited to the following: submitting articles, proofreading submissions, peer reviewing, and collaborating with a journal editor and/or academic on the actual publication process through platforms such as Open Journal Systems. There is a diversity of opportunities in a variety of contexts. As both a Master's and Doctoral student, I have been fortunate to participate in this process.

First, as a Master's student at the University of Michigan, I submitted an article to an online academic journal. Even though the article was not accepted, I both learned from and enjoyed the process. Reading the journal instructions, completing the article and sending it off for submission was an exciting undertaking, much different from submitting the typical course paper. Because I was boldly sending my ideas into the wider world, I took great care in reviewing each word, idea, and phrase. I took the written feedback to heart. Although my work was not published, the formal recognition was validation enough.

As a Graduate Research Assistant at George Mason University, I had the opportunity to collaborate on the journal process with a professor in the College of Education and Human Development. Through methodical data entry, case studies and literature reviews, I witnessed the systematic process required to obtain evidence for the foundation of a research article. It was a wonderful window into the real world of academia. I also had the chance to participate in the peer review process and, with the guidance of the professor, edit journal submissions. I highly recommend collaborating with faculty members on journals.

Additionally, I was fortunate to secure a research internship with a professional association: the National Association of Student Financial Aid Administrators. Although the internship offered a number of valuable experiences and helped shape my research interests, my work with the *Journal of Student Financial Aid* was most rewarding. I fondly recall the first moment I saw my name published as an editorial staffer. In January of 2013, the *Journal of Student Financial Aid* editorial board accepted a book review of mine on college cost and quality. It was not published until late September of that year, after roughly a half dozen revisions. I was able to experience, first hand, the methodical, intense process of high level research and academic writing. Just when I thought the review was finished, there was more to be done. The hard work was worth it. I will never forget sending my first published work to friends and family. Each month, I received a readership report documenting the number of downloads. I was surprised to find that hundreds if not thousands of people had read my work. It was a rich, rewarding experience.

I see my present work as a Graduate Professional Assistant with the *Journal of Mason Graduate Research* as a continuation of these efforts. It has been a pleasure to be involved in this graduate student run undertaking. Everything from the marketing and web design to peer-reviews, editing, and article submissions is done by a George Mason graduate student. We have attracted article submitters, editorial board members and peer reviewers from across disciplines. As we move forward, we continue to solicit articles, publish them on a rolling basis, and seek additional volunteers to serve on the board, copy-edit and/or peer-review.

This innovative graduate student-led journal is a living manifestation of academia's commitment to teaching, research and service. *Journal of Mason Graduate Research* participants have taught through trainings and written feedback; researched through article submissions, and volunteered their time as an act of service. Whether you decide to participate in this journal or

some other, I strongly encourage you to do so. Working for an academic journal gives one a preview for the life of a researcher. Regardless of the profession you choose, journal work develops transferable skills, a sense of community and academic relevance. Therefore, I strongly encourage you to join our team! Currently, the *Journal of Mason Graduate Research* Editorial Board is recruiting new editors, copy-editors and peer reviewers. For additional information, please contact jmgr.assistant@gmail.com or jmgr.peer.review@gmail.com.

As we conclude our first volume, let us give thanks for the four excellent articles that were published. We began with John Lunsford's "Innovation in the Tropics: An Autoethnography of a Multidisciplinary Field School" that told the story of his Anthropological field work in Bali, Indonesia followed by Josh Yavelberg's article on Art History pedagogy titled, "Questioning the Survey: A Look into Art History Survey and its Pedagogical Practices." The latest installment includes Yolanda Gibson's "The Impact of Mentoring Programs for African American Male Community College Students" and "Using Video Games in Education" by Meghan Arias. We have published a diversity of topics from a variety of disciplines. In keeping with this diversity, our next volume will contain an "emergent theme." We look forward to your contributions and thank those who made this first volume possible. Those include but are not limited to the following: Mary Zamon and Jaime Lester (faculty mentors), Anne Driscoll (library consultant), the *Journal of Mason Graduate Research* Editorial Board, volunteer peer reviewers and copy-editors and last but not least, the authors themselves.