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Learning in Context

Digital Games and Young Black Men

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The authors present an exploratory study of Black middle school boys who play digital games. The study was conducted through observations and interviews with Black American middle school boys about digital games as an informal learning experience. The first goal of the study is to understand the cultural context that Black students from economically disadvantaged inner-city neighborhoods bring to playing digital games. The second goal of the study is to examine how this cultural context affects the learning opportunities with games. Third, the authors examine how differences in game play are potential factors in the discrepancy between White male gamers and Black male gamers in science, technology, engineering, and mathematics. Finally, the authors address several opportunities within the field of informal learning to augment game play by bridging the learning that takes place within game play to the real world.

Keywords: *race; African American; gender; games; informal education*

Digital games are increasingly being viewed as a potential opportunity for learning in many different content areas because of their ability to capture children's interest. Players willingly devote large amounts of time and focused attention to games. Some have speculated that games may already be influencing who pursues science, technology, engineering, and mathematics (STEM): Girls game less often than boys and therefore may be less interested, knowledgeable, and comfortable with STEM than are boys (Cassell & Jenkins, 1998; Gorritz & Medina, 2000). We think these correlations between gaming and STEM success are interesting and may yield causal connections in future work. However, for now, we think that they present at least an ad hoc argument for exploring more about the gaming contexts for audiences who are not White men. In this article, we present an exploratory study of Black middle school boys who play digital games.

The need to address Black male participation in STEM is clear. African American males are currently underrepresented in STEM, and the educational system is not growing the scientific and quantitative literacy of African Americans to reverse this situation (Commission on Professionals in Science and Technology, 2003). The low

number of Black males taking Advanced Placement science and mathematics limit the options for them to gain access to STEM careers. Yet STEM fields offer some of the greatest opportunities for advancement in communities that traditionally have a high proportion of less-educated Black males (Edelman, Holzer, & Offner, 2006).

Developing an early interest in STEM fields makes it easier to continue involvement in these fields and to follow those career paths later in a student's education. A greater presence of Black American men participating in the STEM workforce will provide them with higher salaries and status, greater access and opportunities for career advancement (Hesse-Biber & Carter, 2000), and opportunities to present the specific needs and perspectives of this subpopulation in STEM fields.

Because the formal education system is not accomplishing STEM literacy for Black Americans, we need to look to informal learning and activities that take place outside of school. Several researchers have examined the benefits of *bridging* the worlds of formal learning and the communities in which children live (Dyson, 1997; Lee, 1991). The goal is to bridge the interest that children voluntarily participate in outside of school and show them the applications of their interest, knowledge, skills, or accomplishments in more formal settings.

One area of informal learning might be in the form of digital games. In October 2005, the Federation of American Scientists (FAS), the Entertainment Software Association, and the National Science Foundation convened the National Summit on Educational Games. At the summit, they identified a set of skills players develop while using video games that employers are and will be seeking in technology driven fields (FAS, 2005). The summit report asserted that some of the skills learned include practical skills training, training individuals for high-performance situations that require complex decision making, reinforcing skills seldom used, teaching how experts approach problems, and team building. Henry Kelly (2005), the president of FAS, outlined critical learning strategies frequently found in digital games, including struggling to accomplish a difficult but highly motivating task that requires new knowledge; carefully scanning a complex, changing environment; and seeking individualized help from experts and friends. All of these elements can be found in many of the complex games found on consol platforms and personal computers (Gee, 2005).

With the American public spending billions of dollars and hours on digital games, it is not surprising that much media attention and research are focusing on game play. Yet with all of this attention, very little has addressed minority gamers and even less has specifically addressed educational gaming in regard to minorities (Leonard, 2006). Yet according to the Henry J. Kaiser Family Foundation (2002), African and Hispanic American youth are more likely to play digital games than are Caucasian American youth. Market research supports these findings and indicates that, on average, 8- to 13-year-old African American boys spend more than 1 hour per day playing video games (Children NOW, 2001; Kolko, 2003).

The one area regarding race that has received some attention, particularly from the community-based organization Children NOW (2001), is the lack of racial diversity in gaming characters and the negative stereotypes of the few minority characters that do appear. Hip-hop music and fashion, professional sports, and comic book characters dominate the games most popular with Black Americans (Woodruff, Woodruff, & Saulter, 2004). It would seem that there would be a relationship between characters of color and the games that are popular with Black Americans. However, the question remains as to the kind of informal learning environment that digital games can be for Black American boys.

The University of Pittsburgh Center for Learning in Out of School Environments worked with CORO Community Problem Solving Fellowship for African American Leaders during the summer of 2006 to develop and conduct observations and interviews with Black American middle school boys about digital games as an informal learning experience. The first goal of the study was to understand the cultural context that Black students from economically disadvantaged inner-city neighborhoods bring to playing digital games. The second goal of the study was to examine how this cultural context affects learning opportunities with games. The third goal was to examine how differences in game play are potential factors in the discrepancy between White male gamers and Black male gamers in STEM fields. The final goal was to address several opportunities within the field of informal learning to augment game play by bridging the learning that takes place within game play to the real world.

Method

Researchers conducted interviews and observations at a summer youth program that served middle school children in an economically disadvantaged neighborhood in Pittsburgh, Pennsylvania. The program had no requirements for its participants except that they live in or have some association with the neighborhood and that their parent or guardian pay a nominal fee or volunteer 4 hours per month. All participants were Black American males between the ages of 11 and 14.

Interviews were conducted by the third author, a Black American male graduate student in the School of Social Work at the University of Pittsburgh. The graduate student had worked with this summer youth program in the past, although not directly with any of the participants interviewed, and grew up in a nearby demographically similar neighborhood. The first author, a White female researcher, observed and audiotaped the interviews. Before interviewing the participants, the researchers had spent four sessions getting to know the boys by playing video games with them on an Xbox and a PlayStation 2. Students appeared comfortable and forthright in their interviews. The interviews were held in two group sessions, one group of three and one group of five.

Results

Background on Gaming Habits

The students indicated that they began playing console games between the ages of 4 and 6. Online market research by the NPD Group (2007) with a general demographic of children has suggested that on average children begin playing digital games at an older age, 6.7 years. The students indicated that a family member introduced them to video games, and several mentioned that their mother originally began playing with them:

I was born into it, my mom—my mom she was holdin' me and playin' this old game, she played it all the time. Then like as I got older, I learned how to play, that is how I got started.

The first games they played were competitive in nature, with fighting games such as *Mortal Combat* or racing games being among the most popular. The next most popular first game was *Sonic the Hedgehog*, an action-adventure game. The early entry age to games and high family involvement can be opportunities to set a context for gaming that encourages children to gain more from playing. Because their parents are gamers, the dynamic between parents and children and their digital games is changing from those parents who know little about games. This dynamic could mean earlier exposure, more permissive attitudes toward games, or more family intervention with use of digital games.

Their current game preferences were centered on sports games or games that featured characters from other aspects of their lives—sports figures, rappers, and comic book characters. In many ways, the students used games to narrate stories about these characters, talking about them interchangeably between what would happen in the “real world” and game situations. All of the students interviewed had one or more console systems, with the PlayStation 2 as their platform of choice. Only one of the students had a computer in his home, and he indicated that the computer was his platform of choice. Others played games on computers, but rarely and only at school.

When we asked an open-ended question about whether they had ever played an educational game, more than half of the participants responded that they had not. No participants could recall the name or details of any specific educational games that they had played, although many were sure they had used educational games and software in school. When asked if they would like to play educational games, the students indicated it would depend on the game offered. Few said they would buy an educational game. One reason may be that console systems, the preferred gaming systems for these students, do not offer many educational titles for players past early childhood.

The students made a number of suggestions for how to design educational games that would appeal to middle school students. Many involved utilizing sports or comic book characters. The key element was that the “educational” part of the game would

need to be short. They suggested short tests that players would have to pass to move on to the next mission. They seemed to think the game would be more appealing if at first it did not appear to be educational or just had small segments of educational content.

When asked why they like to play video games, the students indicated that it was relaxing and something to do when they are bored. A number of students felt that gaming was something to do when they could not go outside because of bad weather or because they were grounded. One child indicated that video games were a reward for finishing homework or chores. These reasons for playing are important because although all students interviewed played games, frequently it was not their first choice of activity.

Social and Competitive Play

All of the students indicated that family members introduced them to digital gaming, purchased games, and acted as playmates for console games. Many played with their mother, brothers, cousins, and uncles. From our observations of this group and other gamers, the offline social aspect of playing seemed to be more important for this group than for a primarily White male demographic. The students did not differentiate a social group that they gamed with; their playmates were family members, neighbors, and schoolmates. Market research supports this “offline” social play, suggesting Black youth play video games more often in a social setting. In 2003, Forrester Research reported that 36.4% of Black youth spend half or more of their time playing with someone else in the room, compared to 25.1% of White youth (Kolko, 2003).

When students were asked if they prefer playing alone or with others, students indicated that they enjoyed playing with others because it was more challenging. One student summed up why he enjoyed playing with others:

I play by myself, but if it gets to the situation where like I'm always winning one, or have the challenge of somebody else, I'll just play somebody else.

Talking or bragging about being good at the game was another motivator for playing in a social setting, as another student said when asked why he enjoyed playing with others:

If you need a challenge or if like you have braggin' rights on a person after you beat 'em or something.

Game talk was a large part of the playing experience. Students indicated that beating the game and strategies became less important topics as they got older and competitive talk became more important. When asked about conversations regarding video games, one student described his change in conversations as he got older:

Back then when I was playing Nintendo, it was more about just beating the game, getting to the highest level, or saving the princess or something. Now I'm real competitive as well, so it's probably more about talking trash or who's the best . . . how I'm going to beat this person or likewise.

Bragging and “smack talk” in the conversations that we observed among gamers are strong indicators of identity, but the games gave the students nothing to talk about except whom was beating whom. Could there be more content to these conversations? Smack talk seemed endemic whenever these young men were playing. There is nothing wrong with healthy competition. But if we recognize that there is a time for talk and a need to talk, could we not do a better job at suggesting some topics?

As the interviews progressed, it became apparent that the competitive element of the games was critical to players' social status and an important motivator for game play. The middle school students played games in primarily group settings, although one child preferred to play alone. With peer pressure to play and to be good at playing the current popular games, it was important to the students to spend time playing on their own to increase their skill level and thus social status.

Perceptions of “Game”

When asked what other activities they enjoyed outside of games, the middle school students all mentioned sports and playing outside. Only one mentioned other interests, church and working on his computer. For these students, the sports video games, such as the NBA Live series, became an extension of their interest in sports. When asked what he liked better, video games or sports, one boy responded that they were not two different things:

Yeah but what I'm saying is—so video games have something to do with sports. They're basically like video game sports, but not you actually doin' 'em. It's the fact that you controlling another person doin' 'em.

Some mentioned that games were a way to play sports when the real-world option was not available, such as when it was too warm or cold to play outside or when no one was available to play with.

When asked if they learned anything from playing games, they mentioned rules of play for sports and specific moves and techniques for sports and for self-defense. However, none mentioned learning anything that would be applicable to their academic success. When talking about what he learned from basketball games such as NBA Live, one boy talked about a specific move:

Like I learned how to put the ball between my legs, like in second grade by myself, so what I really like learned from like a game, I learned from a video game how to do slip and slide.

In another group, students agreed that sports and self-defense could be taught by games:

Child 1: And some video games teach you how to fight, and for some video games that might not be good for ya'll, but I'm sayin' like you might need to, and like other video games, they might teach you something else like. . . .

Child 2: Like football.

Child 1: Yeah, that's informational.

Their perception is that digital games are like sports, that the rules of digital games are very specific and should not be subverted or modified. When asked if they used cheats or strategy books to augment their game play, most of the participants did not have a positive attitude about the use of cheats or strategy guides. This would appear to be different from the attitudes of many gamers who have developed an entire industry around cheats, strategy guides, and modifying games.

Keeping the game competitive for themselves seemed to be a priority, and if the cheats would make the game easier, most participants reported that they were not interested in using them. One student, who used cheats to unlock things only after completing a game, summed up the group's view on using them before winning:

In my book, if you need cheats to win the game you're weak.

For these students diving below the interface of the game and "cheating" or modify it was not acceptable before winning the game once on their own. When asked when they used cheats or strategy guides, one group of students agreed that it was best only after finishing the game once.

Child 1: Oh, we go through the game first, but. . . .

Child 2: I go through the game first.

Child 1: But after I did it once I went ahead to try something new.

Child 3: I might—I might have to try—like if he did one way I'll try to do it like a different way.

Child 1: And sometimes it makes it more challenging, *sometimes* when I learn the cheats.

They were learning strategies from friends (in person, not online) or getting cheats from older relatives, cousins, or brothers who looked them up online. They did not indicate that they had participated in modifying (*modding*) the game, and only one had looked up cheats online on his own. In one student's case, he felt that looking up cheats might be breaking some rules or be dangerous in some way.

My cousin, and he's got a connection with other people who look online, but he don't feel like goin' on. Well he—he doesn't—I don't know, he's just scared that his mom—will call somebody or something like that.

Uncovering cheats and hints is one of the ways that players engage with a larger online social group, exploring the way that the mechanics of the game and technology works. Unlike in organized sports, digital gaming cheating can be a positive experience.

It is part of pulling back the curtain to understand the engineering and design of the game. If these young Black men perceive the game and its rules as something unchangeable, they are playing a predetermined experience instead of creating their own experiences. Their perception of a game as a fixed set of rules and procedures limits more than just their use of cheats. This perception limits conversations around strategies, engaging in modifying the game, and participation in technology communities built around games. These types of gaming activities are ways that gamers become more comfortable with technology and perhaps are the gateway to STEM interest instead of just gaming itself.

Discussion: Educational Opportunities in Games

The informal learning experiences that are happening in games are extending into the everyday lives of these students. Are these extensions outside of the games being applied in a productive manner? What methods can we explore to give these students a bridge to connect the skills and knowledge they acquire by gaming to the requirements of formal learning? Examining the differences in game play with specific subpopulations may help us understand how to use gaming as a motivator and method for learning.

The backbone of many of the educational and training games used in schools and industry is about building specific skills. Games are used to develop skills such as hand-eye coordination or to exercise more abstract abilities, such as thinking quickly in stressful situations. In one example, the classic educational game *Oregon Trail*, players manage all aspects as a group of pioneers trekking across the Oregon Trail. In games such as *Oregon Trail*, there is direct intent to teach decision making and problem solving. Within economically disadvantaged Black American communities, these types of educational games are not an option outside of school because children do not have access to computers necessary to play them. Furthermore, the lack of characters of color and the general themes have little crossover or relevance to them or their community.

It should be noted that although our interviews reflected a low use of educational gaming in this community, it might be an issue of accessibility to the computers and computer-based educational games rather than a reflection of interest in educational gaming. In research by the Henry J. Kaiser Family Foundation (2002), African Americans were reported as more likely to purchase educational games than Caucasian Americans. It may be that with greater availability of console-based educational games, there could be an increase in Black Americans playing educational games. However, there seems to be a resistance in the gaming industry to creating educational games in general and specifically for console gaming systems.

Most educational games stress the content of the game and perceive games as a better way to teach because content that is often “boring” on its own is situated in a pleasant and engaging experience (FAS, 2005). Current educational games are not

available or appealing to African Americans, so an alternative opportunity is to embed or highlight learning opportunities and educational content in existing games and successful game franchises. Placing explanations within the game using virtual signage, educational Easter eggs that open new tricks or levels, or other methods could be explored to enable students playing games that seem to have little educational value to see the STEM content built into games. In a similar endeavor, the explanatoids project placed girl-friendly signage and media about the science behind “real-world” experiences in public places around Pittsburgh. Research on the effectiveness of the signs and media showed that they were successful in stimulating curiosity and family conversations about science (Stocks et al., 2006).

But other game experiences seem to be more likely location for players to learn. Kafai’s (2006) “constructionist” method of learning with games distinguishes between just playing games and going beyond that to building games. Similar to this idea of constructing games is the idea that games teach when players are uncovering cheats and creating modifications (Consalvo, 2005).

One reason for the discrepancy in STEM interest may be that only one of the boys interviewed had a computer, thus limiting not only their ability to become more acquainted with this technology but also their ability to evolve from just playing games to hacking, modding, and developing a community that shares hacks, mods, and cheats to foster a strong technology identity. This type of peer group is similar to the audiovisual clubs of the past. When the boys interviewed played with friends, the competitive nature of their play superseded the talk of strategies, cheats, and mods that could have developed into STEM conversations. Conversations about technology could be seeded if players are empowered with tools to modify the games they are playing. In general, when games are a focal point for peer and family communication, the result is relationships and peer identities built around learning (DiSalvo, Parikh, & Crowley, 2006). Similarly, work in museums has suggested that conversations about content may be one of the most important outcomes of informal learning (Leinhardt, Crowley, & Knutson, 2002). We think games or ancillary gaming materials designed to support rich learning talk would be an important next step to encouraging STEM literacy through game playing.

Another important step would be to consider how the content of the games provides a more or less promising platform for informal education. The boys interviewed talked about games as an area of interest and as a way of interacting with other interests, such as rap music or sports. Either type of interest can be seen as an *island of expertise*. Crowley and Jacobs (2002) described islands of expertise as the considerable knowledge that children develop around topics of interest outside of school. These islands become the way to collect content knowledge that allows for a synthesis of information to illustrate larger ideas.

For example, a young child’s interest in sports can become an island of expertise. This desire to collect knowledge about sports can be extended to games about sports such as *Madden 2006* (EA Sports, 2005). But by playing a game as complex as

Madden 2006, the child will learn far more about leagues, coaching, and larger management issues of a franchise than from only playing on a school team or being a spectator. This idea of interrelated systems takes place in many games, including Madden 2006, and if bridged to the real world could provide a way for the child to apply his or her understanding of interrelated systems and execute more complex decision-making and problem-solving skills learned in the context of his or her island.

Thus, similar to what David Shaffer (2006) defines as *epistemic frames*, games offer experiences based on real-world practices that can help players deal with real-world situations including school. In Schaffer's work, the epistemic frames allow players to view the world through the lens of a field of practice. As observed and noted, epistemic frames appear to work with this subpopulation in regard to sports or fighting genres that the students are playing. So there is little question that students are learning complex content by gaming (Gee, 2003). But research has yet to provide an answer to how the interests and practices to which the boys gravitate can be connected with broader issues such as STEM literacy. Are there better practices than football coaching? Or are there ways to connect football coaching to STEM practices such as hypothesis testing or using evidence to make decisions or understanding probabilities?

When observing the students playing, it was evident that they had to acquire a great deal of knowledge and skill to win the games. It was just as apparent that although learning was taking place, the students had no idea of the powerful skills they were acquiring or of the applications outside of digital games, sports, and self-defense. To harness the power of gaming, we are looking for future work that will help these students and their parents and teachers to understand and use the potential educational tool they already possess. Learning through gaming is a homegrown educational environment. It takes place in houses among friends and families. To understand how we can tap gaming for education, we need audience-centered research that helps us understand those homes, those families, and those children who are already choosing to play.

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