Glitch Game Testers: African American Men Breaking Open the Console

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ABSTRACT
Glitch Game Testers is a research project to develop a sustainable high school job program to train and employ high school students as game testers [1]. Our goal is to leverage the passion that young urban African American men have for video games into agency with technology. The first step is to encourage these young people to see the computation behind digital games and the second step is to offer a contextualized computing curriculum [2]. In this paper, we will present findings from formative work on the play practices of young African American men, introduce the Glitch Game Testers project, and report on preliminary findings from workshops. By looking at the intersection of race and gender in gaming practices, we have developed Glitch to specifically meet the cultural needs for young African American men.

Author Keywords
African American, Quality Assurance, Game Testing , Education, Play Practices

INTRODUCTION

> *Initially I came just to get knowledge and some money. But now I know what I want to do with a computer. I plan on programming a lot more. Taking it as far as it can go, and I know it can go pretty fricking far.*

Glitch Game Testers is funded by the National Science Foundation Broadening Participation in Computing initiative. Glitch is a job program to train and employ high school students as game testers [1]. Our goal is to leverage the passion that young urban African American men have for video games into agency with technology. The first step is to encourage these young people to see the computation behind the games through bug identification. The second step is to offer a contextualized computing curriculum [2] focused on games and game testing. Glitch Game Testers program hopes to provide these teens with an authentic [3] experience: testing real games under development for real game companies. We propose this not as an apprenticeship for future work as game testers, but as an introduction to the game industry, and a way to look inside the black box of video games to see the power of computation in their lives.

In 2008, we ran two preliminary game tester training programs to gauge the interest of students and opportunities to contextualize computational learning in game testing. Training for testers was based on the Quality Assurance training at EA Tiburon. Using EA Tiburon training materials and games, we introduced basic elements of game testing and bug reporting. Additional experience testing was gained through early-beta testing of Cartoon Network's game *Fusion Fall*.

Based off of these preliminary programs we developed the Glitch Game Testers. This program began in June 2008, and will continue for the next three years. In the program, students are paid to test games and participate in computer science (CS) education.

In this paper, we will present background on the cultural play practices of African American males and how understanding these practices lead us to a unique educational intervention. We will also outline our findings from preliminary programs and introduce the Glitch Game Testers. Our findings suggest that by utilizing research on cultural play practices, research can create opportunities for educational interventions using digital games for specific audiences.

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BACKGROUND

The possible relationship between playing computer games and an interest in CS has been of particular interest to researchers considering gender inequities in CS [4-6]. Research showed that males were more likely to frequently play video games than females [5, 7, 8]. This had led a number of outreach and research projects to focus on developing girls' interest in gaming and making games [9-12]. But as females gaming frequency begins to match males and as we look at the gaming frequency of other groups underrepresented in computing [13] this relationship appears more complex. Young African American males, in particular, are underrepresented in CS but they game as much, or more frequently, than other groups [7, 8, 13]. We suggest that the relationship between playing games and interest in computer science is more than just a gender issue: it is impacted by cultural play practices and can be better examined by the intersection of gender and race.

Jackson et al. [13] explore the intersection gender and race in technology use. This work highlights African American males as the group with the least experience with information technological (IT), except in their use of video games. They suggest that future research concentrate on bringing IT to young African American men by leveraging their interest in video games.

> *With respect to the intensity of IT use, African American males were the least intense users of computers and the Internet, whereas African American females were the most intense users of the Internet…Overall, our findings suggest a new digital divide based on the interaction of race and gender. African American females have embraced IT, often surpassing in use the presumed technophile, the Caucasian American male, especially in use of the Internet. However, African American males lag behind other groups in their IT use, with one notable exception: videogame playing.*

As Gaily [14], Ito and Bittani [15], and Leonard [16] note there has been little exploration of race in game studies, and even less that explores the intersection of race and gender with gaming . In 2006, DiSalvo, Crowley, and Norwood [17] conducted a study to explore race, gender, and gaming with young urban African American males from underserved neighborhoods. In this study, researchers conducted interviews and observations at a summer youth program that served middle school children in an economically disadvantaged neighborhood in Pittsburgh, Pennsylvania. All participants were African American males between the ages of 11 and 14. Before interviewing the participants, the researchers spent four sessions getting to know the young men 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.

In these observations and interviews DiSalvo et al. found that there were play practices that differed from observations of Caucasian students. These differences centered around five primary findings.

- Began playing video games younger.
- Played more often with parents or adult family member.
- Played competitively with others in the room (rather than online).
- Considered games similar to or as an extension of competitive sports.
- Used fewer modifications, hacks, Easter eggs and cheats

It seemed that the extension of games as a part of their sports practices included an element of good sportsmanship, which in turn limited the amount of modifications, hacking, and cheats that the player used. This practice of good sportsmanship in video game play did not encourage agency with technology. By accepting the default game setting, the rules and expected play, young men were not modifying aspects of the game to "game the system", they were not looking at the computation behind the games as something they could manipulate.

Why Game Testing

As we examined these findings, we outlined needs of an education intervention that leveraged this group's love of digital games. First, we recognized the need to respect their culture of play and honor their value of sportsmanship. Second, we saw opportunities to engage their competitive and social play practices. Third, family and peer support of gaming could be used as legitimate cultural capital to establish commitment to gaming related activities. Fourth, we needed to break the magic circle, to encourage them to see all of the elements it took to make a game rather than just accepting the game as it was presented.

These needs seem to contradict each other. The first interventions we looked at to encourage these young men to break open the game, and gain agency with the computation of games, involved practices that conflicted with their value of sportsmanship. When we realized we needed to focus on other authentic reasons for breaking games rather than changing game play practices, game testing became a line of inquiry for an intervention. Game testing also offers a way for these young men to compete with each other through bug finding. It is work that is highly social and communicative, and it provides cultural capital with their family and peers as it impacts the development of real games.

PRELIMINARY PROGRAM – THREE HOUR WORKSHOP

We conducted a three-hour workshop with middle school students and a one with high school students in March of

2008. Our goal was to gauge the interest level of participants in working as game testers and to gain a better understanding of the appropriate age groups. The workshop consisted of an introduction to game testing, a regression testing competition, a debugging problem in Python programming language, and a game concept brainstorming activity.

Both the middle school students and the high school students were excited to work on games and find out about a job where they could play games for a living. However, the middle school students found it difficult to work on bug finding when they were engage with a video game. While they still expressed positive sentiments about the idea of game testing, their excitement for the project was lower after the workshop. The high school students showed a greater ability to concentrate and focus on the work of learning to find bugs. They found that the competitive nature of the regression testing exciting and performed past our expectations. For them the idea of being paid to work at a computer was also a reason that game testing was considered a "good" job.

Both groups also found the programming challenge interesting and easy. The response of the high-school participants was enthusiastic. When asked what he learned one student responded:

> *I learned that I might take interest in that career. You know because there is a lot of interesting things that came about during that time. Let's see if I recall… With the language, I really want to learn how to read stuff like that (computer programs), to understand what it means not just letters and objects in a square, but to understand.*

Even from a one-day workshop, we saw multiple students beginning to make exactly the leap we hope for: to see video games as computation, developing an interest in how they are constructed, and aspiring to learn about computing technology.

PRELIMINARY PROGRAM - AFTER SCHOOL WORKSHOPS

After this initial session we focused on developing a longer outreach program targeting high school students. We hoped to engage 15-year old high school students who could start with the workshops, being trained as game testers. Then move to paid positions when they turned 16.

We created the program to meet once a week over the course of 8 weeks in the autumn of 2008. Initially our workshops were held at Morehouse College. Our first night, we had 8 participants who were enthusiastic about the program. We were provided with access to an early beta release of Cartoon Networks' *Fusion Fall* game and asked the students to begin getting to know the *Fusion Fall* game for next weeks testing (Figure 1).

Over the course of the next few weeks, our numbers dropped to 4 students. The transportation to Morehouse was difficult for the 15-year old students and the community groups that had agreed to transport them were overcommitted and inconsistent. We moved the program to one of the community centers where four of the students could continue to attend regularly. We began leading these participants through introductory programming based upon the Computational Media curriculum developed at Georgia Tech [2]. In the final weeks, participants were introduced to HCI (Human Computer Interaction) through activities that had them designing user interfaces for social networking sites.

Figure 1: Participant testing Cartoon Network's game *Fusion Fall*.

We had hope to train students to become game testers and to slowly develop them and the program into a sustainable quality assurance team, generating revenue that would help offset the cost of educational outreach. The attempt at a gradual start with 15-year-old participants, who were not paid, did not facilitate a slow growth and may have set a precedent where the participants did not take their work seriously. Because of this, we determined that to establish the program so that participants would feel it was authentic and important work we would need to pay them from the beginning. And we would need an ongoing, daily interaction that was similar to a work environment rather than an educational outreach program.

Finally, we found that with little feedback from Cartoon Network the participants did not experience their input contributing to the final game. This seemed to be critical to the students taking the work seriously and taking pride in the time and effort the put into testing.

While the program was not successful in providing a comprehensive outreach to students, it provided vital information in shaping the training, curriculum, logistics, and incentive program for the final project Glitch Game Testers.

GLITCH: GAME TESTERS

In June and July of 2009, the Glitch Game Testers met from 10:00 am to 5:00 pm, Monday through Friday (Figure 2). All of the students participating in the program were 16 or 17 years old and rising Juniors or Seniors in High School.

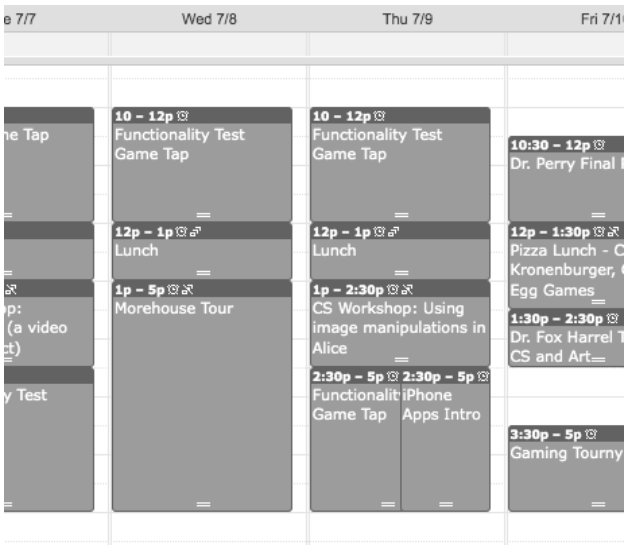

Figure 2: Sample from the weekly Glitch calendar includes testing, CS workshops and a college tour.

Recruitment

Students were initially recruited through a flyer given to high school teachers, after school program coordinators, and community organizers. The flyer was passed along to many high schools and through many informal parent networks. We received close to 100 inquiries in 14 days for 10 positions. We selected 15 students to interview based upon the date their application was received and demographic profiles of the high school they attended, with priority given to students from schools with less economically advantaged populations. While gender and race were not determining factors, the early applicants that met our other criteria were all African American males. Of the 15 students interviewed, 10 were selected to participate based upon their ability to appear at the interview on time and their interest in video games. Additional funding was later provided to add two more students at the request of administrators from both Morehouse and Georgia Tech.

Transportation

Transportation was an obstacle for attendance in our earlier session. Because of this, the program was located at Georgia Tech, which is closer to public transportation. We gave detailed information to the participants on public transportation options available and the campus transportation. Rather than arranging transportation for the participants, we placed the burden of getting to and from the location on the individual students. We stressed to the participants that similar to a real life work experience, they needed to be responsible for arranging their own transportation.

Incentives

To leverage the competitive nature we saw in the formative research, we created an incentive program. Each day the testers progress in reporting and reproducing bugs, completing CS assignments and other task was added up and converted in to points. At the end of each week, the tester who earned the most points won a gift certificate or a video game, and at the end of the semester the top two testers received Macintosh iTouch devices.

We provided $500 ever two weeks to each research subject who participated. This stipend was given with the understanding that the program would seek to prove itself by providing free testing services to companies in hopes of finding paid testing programs in the autumn to sustain their jobs. This was used as an incentive for participants to do a good job to continue and to provide quality services so companies would pay for their services in the future. With out pay, 16 – 18 year olds from less advantaged background simply cannot afford to give their time towards educational programs in the summer.

Quality Assurance Training

We began training with an introduction to game testing based upon training material from EA Games. This consisted of descriptions of types of bugs and methods of bug testing. With clips of prerelease games provided by EA Games we were able to show them many of the bugs that are found through the QA process and conduct group bug finding. We then showed the participants a simplified bug reporting system and provided them with paper copies of existing bug descriptions.

Our first client, Game Tap, also provided extensive training and feed back. They started working with the testers by walking then through diagnostics of their computers so they could provide exact information on their configurations when reporting bugs. Then they worked with students on scenarios for testing the functionality of the site.

Game Testing

Glitch Testers spent 6 weeks testing the preproduction site for Game Tap. The testers logged almost 1000 bugs and developed and conducted functionality test on the new interface for the 1000+ games available from their site. Game Tap employees worked with the testers 3 - 5 times a week to provide feedback on bugs and to help develop functionality test.

Testers spent two week testing for Cartoon Network's *Fusion Fall* and Good Egg's *Elf Island*. Testers worked in small groups with our staff walking through scenarios and

providing detail information on bugs and user interface issues. In the final week, we provided quick turn around testing on an iPhone application, Polyghost, for Last Legion Games.

Computer Science Curriculum

Dr. Kenneth Perry, head of the computer science department at Morehouse College, taught half of the CS workshops, using Alice, a prototyping environment program for 3D object behavior [18]. Dr. Mark Guzdial taught the second half of the workshops based off of the computational media program at Georgia Tech using Jython programming language.

Outreach

To broaden the participants exposure to different college experiences and to provide role models we had workshops and talks with faculty from Georgia Tech, Morehouse College, and local game companies. We also arranged tours of Georgia Tech, Morehouse College, Clark Atlanta College, and Hi-Rez Studios where they also participated in a play test of their new game Global Access.

In addition, we hired four African American male undergraduate students to serve as managers, computer science tutors, research assistants and role models. These students, independent of the research project, arranged for Friday afternoon game competitions and brought in their own console systems and games.

Figure 3. Participants arrived early every day to get extra time on the computer.

EARLY FINDINGS

One of the earliest indicators of the success of the program was in the attendance of the participants. After the first day one participant dropped out of the program, and we filled the position with another participant. These twelve participants remained with the program for the full 8-weeks, with strong attendance records. Another indicator is that most participants generally arrived over 30 minutes early, using this additional time to play games or work on programming projects (Figure 3).

We conducted pre- and post-interviews with the 11 participants who completed the entire program. These semi-structured interviews addressed the participants' experience, knowledge and confidence with computers, their career goals and their feelings about video games. In a preliminary analysis, we found that Glitch had an impact on students' interest in computing, their understanding of the game industry and their understanding of games as technological artifacts.

Continuing in Computer Science

Of these participants two had planned on taking computer-programming courses in their high school before they started the project. At the completion of the program eight students hoped to take additional programming classes if they were offered at their school and all of the students were open to the idea of taking programming in the future. Many participants' schools' only had the option of "technology" courses such as engineering or computer applications.

Of the 11 students, six changed their attitudes towards careers in computer science. Some of these changes were quite dramatic such as SportMan's[1] new career goals:

> *I wanted to get into criminal justices but now I am starting to like programming so I think I am going to get into programming…It is just interesting. There is always something to learn, always something new you have to do. It would never get boring. It isn't like you do the same thing over and over.*

Others were subtler, such as CenterKrew who in the pre-interview talked about becoming a pilot as his career goal. He now saw the opportunity to use computer science with his love of aeronautics. CenterKrew told us, "I will probably go into computer science and use it in aeronautics field."

Or Spock, who was perhaps the most interested in a computer career at the beginning of the program said, "I am thinking about making it (computer science) my major, before I was thinking about making it a minor."

Changes in Gaming

The way that participants perceived games also changed. All but one of the 11 indicated that they played differently and saw games in a different way than before participating in Glitch.

[1] All of the participants were given gaming aliases to be used in publications to protect their privacy.

Yea, before I just played. Now it's like you start to think about it I wonder what they did to do this. Or how did they make him do that. It is like, you just think about it more now. Like 'oh, he must have used this coding'. – Goblin

I learned certain things in Glitch, if I go home and play a football game. I used to just try to play the game, win the game, now I just take my time and mess around with the game. - DramDel

Now I know how to break a game, I am definitely going to use it to get the best score get to another level…Now I am going to pay more attention to the little details that everybody passed over. - Spiderman

These quotes indicate that participants are now looking at games as objects of inquiry, things to be explored and taken apart.

Game Testing as a Career

We had concerns that the students' perceive game testing as the only viable career options for themselves in game development. From the participant's responses, it seems that 8 weeks of testing is more a deterrent for the career than an incentive.

You must have a lot of patient and love what you do, 'cause I don't think I could do this for a living. 'Cause sometimes it could be really tedious. - SamTDFive

It (game testing) is a childhood dream job, playing games all day, but you learn it is a lot more than that. But you know it has been great here. and I really think that computer science is something I am looking forward to. – Spock

I thought I would like to be a game tester, but after this your like 'Man, no.' I am sitting here looking for the same bug for 8 hours and not find it. – Mr.Spiffy

Contributing to Game Development

Participants were proud of their contribution to the games they tested. Many of them talked about all of the bugs they reported. And all of them talked about the impact of their bug reports on the latest build of Game Tap. They indicated that it proved their value as game testers and employees.

CONCLUSION

While these finding are preliminary and further analysis will be necessary, the responses show that participants took pride in the work as game testers and their impact on real world games. There are strong indicators that both testing and the CS workshops have increased their interest in CS, but further analysis is needed to understand which parts of the intervention impacted their CS interest.

As we seek to understand the data gathered and to refine our research, we hope to understand how play practices of this group impacted their agency with technology. Moving forward we will look to apply this research on gender and race in game studies to other groups and other educational interventions.

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