Strategies for Adopting COTS Games-Based Lessons in the K-12 Classroom

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Abstract

Video gaming is both a highly popular participatory activity and an integral part of popular culture (Watkins, 2009). Previous work conducted by our research team has indicated the educational benefits which can arise from playing the highly popular commercial-off-the-shelf (COTS) video games (Engerman, Mun, Yan, & Carr-Chellman, 2015; Engerman & Carr-Chellman, 2014). In this paper, we take our research one step further to highlight possible strategies for adopting COTS games-based lessons, in the hope of inspiring K-12 teachers.

Keywords: Gaming/Simulation, Games-Based Lessons, Technology Integration

Background

It is common to hear that in the K-12 classroom, adolescent boys are unable to keep up with the quality and standards of work that adolescent girls often put forth. In fact, when compared to their female schoolmates, boys are quickly falling behind. Essentially, when it comes to academics, girls have risen to the top, while boys have been left desperately trying to catch up. Girls tend to not only have higher grade point averages and educational expectations (Mortenson, 2003), but they are also less likely to be suspended or sent to detention (Fortin, Oreopoulous & Phipps, 2015; Mortenson, 2011). When it comes to the literacy classroom, boys continue to underperform on national assessments (Rampey, Dion, & Donahue, 2009). Moreover, the Language Arts classroom poses similar challenges, as boys feel that their interests are not recognized by the curriculum and the course content (Steinkuehler, 2010), and it has been found that, when given the option to opt out of literacy related classes, boys often do so (Steinkuehler, 2011).

To expand on the comparison of girls versus boys, Mortenson (2011) found that for K -12 age ranged boys and girls:

- For every 100 girls suspended, 215 boys are suspended
- For every 100 girls expelled, 297 boys are expelled
- For every 100 girls who participated in an academic club, 83 boys participated

- For every 100 tenth grade girls who played some form of video or computer games for at least one hour per day, 322 boys played a video or computer game for at least an hour per day.

As a dark cloud has been painted over adolescent boys' achievement level in the K-12 classroom, there is a chance for hope. What stands out from these daunting statistics is not only that boys are falling behind, but that they are dedicating time to things which are not currently considered school related. For many boys, video games seem to be a common activity, and the popularity of video games is not going unnoticed. In 2014, the video game industry sold more than 135 million games, generating roughly twenty-two billion dollars in revenue, and of those consumers, twenty-six percent reported being under the age of eighteen (Entertainment Software Association, 2014).

Several studies have indicated the educational benefits of playing commercial-off-the-shelf (COTS) video games. Steinkuehler and King (2009) believe COTS games can leverage students' interests in school practices, Gee (2007) has found that playing COTS games can result in players learning skills which can potentially aid in the learning of school curricula (see also Steinkuehler & Duncan, 2008), including the likes of World History (Squire & Barab, 2004), and digital literacy skills as well (Steinkuehler & King, 2009; Steinkuehler 2004, 2007). Recently, researchers have also aligned skills learned in video games with specific Common Core Standards (Engerman, Mun, Yan, & Carr-Chellman, 2015; Engerman & Carr-Chellman, 2014), and National Literacy Standards (Steinkuehler, 2007). Further, Steinkuehler (2011) proposes that video games can be the solution to the problem which involves adolescents struggling with literacy, because they can engage youth in something they are *interested* in, while at the same time providing opportunities for participation in extensive reading related activities, some of which are comparable to those found in the traditional classroom (p. 13).

Commercial games-based-learning approaches have the unique ability to leverage students' interests and knowledge (Steinkuehler & King, 2009), that these popular games have cultivated over the last twenty to thirty years. Commercial-off-the-shelf games based learning has potential to shake up the mundane routine of the everyday classroom, as this type of learning requires students to take on an expert role within their own educational trajectories. Furthermore, these COTS games-based-learning approaches not only have the potential to provide favorable outcomes for both the teacher and learner, but more importantly, for the disengaged learner. As video games have been a hot topic for research as of late, several scholars have indicated the potential for COTS games based learning spaces in improving New Literacy skills, especially when it comes to adolescent boys (Engerman, Yan, Mun, & Carr-Chellman, 2015; Gerber & Abrams, 2014; Steinkuehler, 2011).

Over the previous five years, our team has sought to unearth and describe the learning practices of adolescent boy gamers. We have investigated the experiences which adolescent boys have while playing COTS games such as *Call of Duty, Skyrim,* and *Assassin's Creed*, and believe that the learning which takes place through these games can be powerful. With the extensive amount of data gathered, we have made an effort to align the experiences of the adolescent boys while playing COTS games with the aims and methods of Language Arts and Social Studies instructors.

Theoretical Framework

Our theoretical lens for this research stems from a Cultural Historical Activity Theory (CHAT) perspective in order to make observations on the impact of boys meaning making practices (Roth & Lee, 2007). CHAT insists that the individual development cannot be separated from collaborative social activity and cultural norms. Thus, CHAT allows us to identify the subject of the activity (boy learner), the activity itself (video-game play), and the object as the motivating factors which is produced through the social activity (Foot, 2014; Jonassen & Murphey, 1999). Therefore, our study aimed at illuminating and describing that object. Throughout the study, CHAT proved to be of great assistance as we relied on its analytical powers to extract meaningful themes from the collected data (Engeström, 1987, 2001).

Methodology

For our interpretative qualitative study, we set out to investigate the lived experiences of adolescent boys. To accomplish this, we utilized Squire's (2006) notion of video games as "designed experiences" to unearth the meaning making processes and intentionalities of game play. The research team sought to accomplish this through the voices of the adolescent boys by employing a hermeneutic phenomenological approach (Van Manen, 1997). We then used Seidman's (1998) semi-structured interview process over the course of three rounds of interviews to provide voice to those live experiences. In accordance with the hermeneutic phenomenological design of this study, we acknowledge this task as an interpretive one, where the researchers assumed the role as a primary instrument.

The first round of interviewing was fixated on life history, the second round focused on game playing and experiences, and the third round of interviews – which were conducted as focus groups – allowed for our boy participants to reflect and shed meaning on their experiences. We believe that it was during the course of our second round of interviews and our third round of focus groups that we found direct relevance and correlation to Games-

Based lessons from COTS video games. Additionally, we have tied this data directly to Common Core Standards (Engerman et al., 2015).

Our research team was based out of Penn State's Learning, Design, and Technology program and consisted of both faculty and doctoral students. This team worked carefully under the guidance of an advisor with over 15 years of research experience. As this lengthy project developed, additional experts were added to the team, including former K-12 teachers, and perhaps more noteworthy, a high school English teacher who was familiar with aligning Language Arts content to academic standards.

Participants

The participants in this study included a total of sixteen boys with ages ranging from 11-19, all of whom were geographically located in Northeastern Pennsylvania. All of these boys attended the same school and played for their school's modified or varsity football team. These boys enjoyed playing the same video games, where they routinely competed and collaborated with one another. One of the authors for this paper was a coach for the school's football team, and it was through him that we were able to gain access to this population during afterschool practices and between workouts. For this project, every boy was given a pseudonym in an effort to maintain confidentiality.

Data Analysis

Our team relied on Braun and Clark's (2006) Thematic Analysis (TA) in order to provide a rich description of the boys' video game-playing experiences. Moreover, the analysis focused on the pedagogical nature of the boys' game-playing experiences. To achieve this measure, our team utilized a coding framework which was developed in the initial phase of this study and was grounded in the principles of CHAT (Engeström, 1987).

The coding framework allowed members of the research team to perform open coding initially, and then discuss and solidify emergent codes. When undergoing the coding process, team members coded separately, but once codes were initially established, interview data was then coded collectively. Careful review of the data was completed to determine how the boys appropriated various rules and tools, how they interacted within their gaming communities, and how their histories with one another and the games they played impacted their learning experiences. Upon completion of this initial analysis, interviews were then grouped together in order to analyze common codes all at once. It is important to keep in mind here that this process was both time consuming and iterative, and allowed us to refine our results in an effort to provide a trustworthy description. Furthermore, the team

embraced researcher triangulation and member-checking methods, along with a constant comparative-analysis as a means to ensure consistency among data (Hewitt-Taylor, 2001).

Discussion

As we have alluded to, our findings align with the theoretical work of games-based learning and literacy scholars (Gee, 2007; Steinkuehler, 2010, 2011). Our participants overwhelmingly reported being drawn to narrative-driven aspects of modern video games – often to the point of purchasing sequels and prequels simply to learn more about the game's characters and universe. Similarly, they reported having to learn new vocabulary words or to decipher text-based clues in order to progress through a game's challenges (Engerman, MacAllan, & Carr-Chellman, 2014). In addition, through our focus-group interviews, we observed them constantly discussing and debating the qualities of their favorite games. The boys were quick to adopt the mantle of critics when describing these video games, and they even naturally extended their conversations to comment on the game industry as a whole (Hein et al., 2016).

Over the last five years, we have focused on describing and interpreting the experiences of these boy gamers. Although we have discussed the many educational affordances embedded in video-game play, we have done little to actually offer teachers practical strategies based on our findings. Thus, in the following discussion, we now describe three specific ways to think about, channel, and use video games in our classrooms.

Viewing Games as Living Texts

As Jones and Hafner (2012) remind us, video games can and should be viewed as "texts" that challenge players to read and write in new ways. Specifically, and unlike the novels and films we so often champion in our classrooms, modern video gaming requires active participation; players have to interact with their digital environments, truly becoming the characters on the screen (Squire, 2006). The boys in our study repeatedly showcased the educational potential of this feature. When discussing *Skyrim* – a Beowulf-inspired role-playing game (RPG) – the boys expressed particular interest in game's branching plot, hidden side-quests, and moral decision-making. Despite all playing the same game, the boys experienced it in slightly different ways. As our participants explained during our focus groups:

Donovan: In *Skyrim*, right when you get out of prison – when the dragon attacks the village – your handcuffs fall off. You have to choose whether you're going to be a "Stormcloak" or the other society… I don't remember it right now -

Jack: Imperials.

Donovan: - yeah, Imperials. And depending on which path you take, you have to destroy villages or override other cities in order to succeed.

…

Trevor: Sometimes if I play the game one way, [...] I'll go back and play it again and try it the other way to see what happens.

During this exchange, the boys stress that the games offer them a sense of agency. Jack even goes on to claim that the games allow you to "create your own destiny." Consequently, they used our focus-group interviews as a chance to learn how their peers negotiated the game. They demonstrated an intense desire to explain why and how they made certain choices in *Skyrim's* narrative, and they were quick to describe how those moments affected their experiences. These are precisely the types of conversations that teachers should be facilitating in their classrooms.

While a game like *Skyrim* – with its massive scope and violent themes – may seem unapproachable for many teachers, there are more manageable titles that could still spark lively discussions in our classrooms. *Dear Esther* is one such game that is not only easy and quick to play but that also can run on less powerful computers. The game provides a short narrative experience that can be completed in approximately 45 minutes. Players are tasked with exploring a mysterious island and with reading written notes to learn more about the protagonist's troubled history. However, since the game randomizes these notes – as well as several flash-back sequences – it is unlikely that two players will come away from the game with an identical experience. This feature makes *Dear Esther* – and other games like it – the perfect candidate for read-and-discuss-style activities. As Ostenson (2013) elaborates, these types of games "can do more to help students see the future potential of video games as a storytelling medium" (p. 76). Teachers could structure a lesson based on *Dear Esther* to include an individual play-through that would later be accompanied by small or large group discussion. Students would thus collectively build their understanding of game's universe by sharing their own experiences and interpreting those of others.

Read-along, Play-along

Dear Esther is a relatively inexpensive and safe starting point for interested teachers. In fact, we could treat and teach the game in many of the same ways that we have traditionally facilitated short stories. However, as the boys in our study suggest, big-budget, high-octane games – like *Assassin's Creed* and *Call of Duty* – remain the real draw. As educators, too often when we attempt to tap into the indigenous practices and interests of our students, we school-ify them; we actually undermine the very qualities and features that makes gaming so powerful (Hammer & Black, 2009). Fortunately, we believe there are ways to channel the affordances of more popular and complex games without spending too much money or without misrepresenting the experience. As our participants explained, *Twitch.tv* is a popular video-game live-streaming website where gamers visit to watch their peers play through various titles. Recently purchased by *Amazon* for $970 million, *Twitch* gives gamers the chance to model their gameplay while simultaneously connecting and chatting with others. A few of our participants alluded to this rather nicely:

> *Interviewer*: So, what else what else do you like about watching Twitch?
>
> *Trent*: Just watching like other people play I think. If you don't have the game yet you can watch them play it. You know how it is.
>
> *Amus*: You can hear what they are saying.
>
> *Jester*: Watch strategies and stuff.
>
> *Amus*: Yeah
>
> *Jester*: And how they play.
>
> *Amus*: Like what's going through their mind as they are playing just to see
>
> *Trent*: (jumps in) And constantly talk out loud about what they are doing.

Here, the boys reveal that they watch Twitch in order to improve their own game play. Jester notes that he can watch how strategies are developed and how the experts play, and Amus chimes in by adding that you can actually see "what's going through their mind as they are playing." Trent adds that you can also learn a lot by listening to the talk of the experts engaging in the game space. In later conversation Amus adds "You see any similarities that you can improve on. That they might be better than you. Try to be better." It is clear that while on Twitch the boys are active participants rather than passive, constantly analyzing the game play of the experts in the field.

Since a game like *Assassin's Creed* can cost upwards of $60 and can take as many as 30 hours to fully play and explore, the opportunity for read-and-discuss-style activities is limited. However, by channeling the tools and

strategies of *Twitch* streamers, teachers could carve out opportunities for students to "close read" excerpts from more complicated and unwieldy games. With one projector and gaming console, students – and even the teacher – could take turns playing through interesting moments in a game. Like their *Twitch* counterparts, students could explain, in the moment, why and how they are making certain decisions; they could similarly describe what they are noticing about the game's world and story. English classrooms, in particular, are not entirely strangers to this practice. After all, teachers regularly have students take the roles of various characters as a class reads Shakespearean plays aloud. However, the difference – and perhaps the greatest affordance – with gaming is the simultaneity of play and discussion. Instead of disrupting the experience of watching a play – or reading novel – by stopping to highlight important moments and themes, teachers could seamlessly draw attention to them, and students could seamlessly discuss them. Not only would this activity provide a spark for interesting conversations, but it would align with the natural practices and conventions of online gaming communities.

Legitimizing a Genre and Subculture

To successfully conduct either one of the aforementioned activities, teachers need to come to the classroom with an intimate understanding of their chosen game – just like they would with a novel, play, or textbook. However, we recognize that few teachers are gamers. Likewise, dedicating the time and energy to play through a game like *Skyrim* or *Assassin's Creed* can seem like a daunting task. Many of us are even convinced that we do not have the hand-eye coordination or reflexes to progress through these types of games. That said, our research suggests that we owe it to our students to try or – at the very least – make an effort to stay informed and aware. As one of our participants shared:

> *Josh*: Our teacher said he was playing [a historical game] at the same time [that we were studying that time period]. He was, like, "Wow, this goes along with my lesson." Mr. Irvine was pretty cool; […] I remember the one day, he was, like, "I've been playing this new game, *Assassin's Creed*, and it's ironic that we're playing – that we're learning about the Renaissance and Leonardo and Michelangelo all at the same time, cause it actually does have a lot to do with the same exact things."
>
> *Interviewer*: So, were you able to talk with him about the game at all?
>
> *Josh*: Yeah.

Josh went on to explain that those moments – of talking with his teacher about his favorite game and contributing to the class discussion – made him feel "smart." What Mr. Irvine actually did by sharing his own experiences with

Assassin's Creed was legitimize video gaming as a whole. By simply commenting on how the game appropriated historical moments, themes, and figures, he successfully bridged the divide between school culture and gaming culture. Mr. Irvine's subsequent conversations with the class illustrated to Josh that his hobbies had value. As educators, we should never underestimate the potential of such moments to reel back in disengaged students. Thus, we recommend that teachers across disciplines talk openly to their students about video games. Teachers should ask questions, and they should afford their students the chance to teach them about the games they play and love. Even teachers with no gaming experience could use this strategy to open new avenues of dialogue.

Conclusion

Our findings suggest that there can be great power in incorporating COTS games-based lessons into the K-12 classroom. We hope that teachers will see the potential learning opportunities of including such lessons, and the positive effect they have on the learners in their classroom. By simply validating connections between video game play and in-school learning – a practice which tends to be ignored in formal schooling – teachers can now inspire students who may have previously lacked interest in their classes. Thus, we encourage teachers to go out and try these games for themselves, and then adopt the strategies presented throughout this article into their everyday classroom instruction.

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