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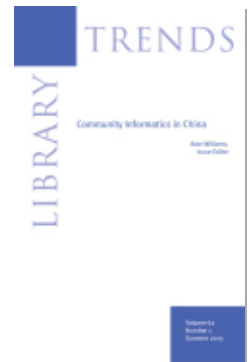
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Library Trends, Volume 61, Number 4, Spring 2013, pp. 755-778 (Article)

Published by The Johns Hopkins University Press

DOI: 10.1353/lib.2013.0012



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The Fusion of Literacy and Games: A Case Study in Assessing the Goals of a Library Video Game Program

RON T. BROWN AND TAMARA KASPER

ABSTRACT

Recent developments suggest video games will be critical tools for engaging twenty-first-century learners. One indication of this shift is the growing number of video game clubs being instituted in libraries across the country. Participant observation was conducted on a library's video game club to determine the impact it made in the lives of the youth and to evaluate how the program met its goals. Using a grounded theory framework, data were analyzed for dimensions and themes related to the program's two primary goals: improved learning and improved behavior. Three overarching themes emerged from the data analysis: staff, game club members, and assessment. Staff had a positive impact on youth using their strengths to create an innovative game program. Game club members improved academic, life, and game skills through game club interactions. Library video game programs have unique opportunities as informal learning environments. These programs have the potential to reengage disinterested learners in the educational process through a reward-based system of play. In addition to tracking attendance information, newer assessment tools could explore reading, library anxiety, and information literacy. Video game programs might be improved with respect to measuring literacy and learning. This case study builds on the foundation of previous work by suggesting additional measures that programs might track.

INTRODUCTION

In recent years, libraries have increased their outreach programs by revising and building new programs designed to incorporate electronic video games and board games into the library space. The rationale for these

new gaming programs can be attributed in part to the work of Patricia Brevik, James Paul Gee, Marc Prensky, and other researchers at the forefront of the multiple literacies, or “multiliteracies,” movement. Leaders of this movement argue that current educational systems view learning and literacy from the traditional viewpoints of reading and writing; these narrow perspectives fail to encompass the complex cultural and technological frameworks of our modern day society (Gee, 2003; Prensky, 2001).

Detractors make various arguments against the use of video games, citing adverse effects such as addiction (Leung, 2004) and violence (Engelhardt, Bartholow, & Saults, 2011; Hall, Day, & Hall, 2011). Researchers with the traditional viewpoint suggest the trend toward video games will hurt society because it encourages people to move further away from reading books in print form, thereby reducing one’s ability to think linearly.

Video game supporters address the decline in reading skills by suggesting they have been declining for a long time and that this fact cannot be blamed on the introduction of video games into society (Abrams, 2009; Crewdson, 2009; Danforth, 2009; Neiburger, 2007). They believe and provide supporting evidence that the media of the future will require people to think laterally and visually and that video games provide a platform in which to learn these skills. Supporters further argue that video games encourage critical thinking and make the point that games provide users with situations in which people are more willing to take risks.

Many studies provide evidence that games can have positive outcomes under certain conditions. These studies suggest games can have a positive impact on teaching mathematics (Ke, 2008; Kebritchi, Hirumi, & Bai, 2010), on promoting health behaviors (Biddiss and Irwin, 2010; Guo, Liang, & Huang, 2010), and on other domains (Annetta, Minogue, Holmes, & Cheng, 2009; Rosser et al., 2007). There are also a growing number of studies in library and information science (LIS) that are investigating how games affect reading, learning achievement, information literacy, and library use. This report explores the following questions:

- What do participants in a library’s video game program learn?
- How do library gaming programs assess participants?
- What steps can programs take to improve their assessment?

We begin with an overview of the literature, followed by the design of the study, findings, and implications for library game programs and researchers.

LITERATURE REVIEW

A search in the database Library Literature Information Science Retrospective for “games” and “library” demonstrates the ongoing conversation LIS professionals have been engaging in since the beginning of the twentieth century surrounding the use of games in the library. The search

results affirm that librarians have long believed games to be a part of the library mission. In 1910, *Public Libraries* reported that libraries were circulating board games with books ("Circulation of Games," 1910). Reports of various kinds have discussed how to teach library skills through the use of games (Crump & Crump, 1979; California School Library Association, 1958; Wilhelm & Wilhelm, 1982; Willoughby, 1935). More recent reports have discussed how to improve media skills with the use of games (Cheatham, 1979; K. Smith, 1980). Professionals today continue to discuss how to select and use board games, online games, and video games in library settings (Higgins, 2010; Mastel & Huston, 2009; Neiburger, 2007; Phillips, 2006). For the purposes of this article, the terms "games," "gaming," "gaming program," and "gaming in the library" refer to games in their entirety. This includes all console-based video games, online games, puzzles, board games, card games, role-playing games, and other games that could be used in library settings.

Despite the long history of games and gaming in libraries, one could argue the evaluation of gaming programs is relatively new to the field. Scott Nicholson's book *Everyone Plays at the Library* (2010) stresses the importance of assessing gaming programs to determine how they meet a library's goals and its mission. Nicholson explains that the larger context in which the library offers gaming needs to be taken seriously and that one must establish clear goals for the gaming program. In essence, Nicholson advises that library staff should be able to answer the question: why is the library spending money on games?

Nicholson (2010) provides some examples of prevalent goals of gaming programs in libraries, including increased attendance, improving the library's role as a community hub, and providing additional services to regular patrons. He encourages libraries to consider gaming as a marketing tool and use it to entice patrons into the library.

Nicholson (2010) further advocates that, on the lowest level, many games require reading to play. He argues, as do Prensky (2001) and others, that games require gamers to develop their ability to manipulate, interpret, and evaluate symbolism within the context of game rules.

Furthermore, numerous educators, librarians, and scholars believe that pairing books with video games is, in fact, a good way to encourage people to keep reading print. Ann Crewdson (2009) went so far as to incorporate the importance of video gaming skills in her description of a new early literacy skill. National Academy of Education member and video game advocate James Paul Gee describes video games as teachers of critical thinking. In his book *What Video Games Have to Teach Us about Learning and Literacy* (2003), Gee suggests video games provides youth with a practice environment that is not boring. He and other education professionals are working diligently to incorporate the concepts of video gaming into school curricula.

Some research has been done comparing traditional lecture-style education to a style that is more active and incorporates games. Smith incorporated cross-word puzzles, tic-tac-toe word finds, and other activities into one of two literacy skills sections; the other section used a lecture-only format (F. A. Smith, 2007). Using a survey, Smith asked participants which style they preferred and whether the active learning techniques were distracting. Eighty-six percent of students reported the activities were engaging and not distracting, and 95 percent preferred the active learning format to the lecture-only format.

Research into video game use is supported by and informed by computer-use studies. Dresang, Gross, and Holt (2007) call into question many of the gender stereotypes related to boys and technology. In particular, their research suggests three important things:

- Girls are just as confident as boys when it comes to using the computer.
- Girls desire to find and play games at approximately the same levels as boys.
- Both girls and boys have a desire to work and play collaboratively.

This particular study suggests that as assessments of video game programs develop, programs will need to make an effort to market those programs to young girls and find ways to make gaming programs appealing to both sexes. In addition to exploring questions of gender, it is also important to explore what people learn from games and how to measure it effectively. Adams (2009) addresses this question in more detail.

Adams (2009) used participant observation to evaluate instances of information behavior and meaning making related to interactions in the online role-playing game *City of Heroes*. Adams opted for this method because “the nature of information exchange in the game environment requires the immersion allowed by participant observation because of the unique character exchanges involved” (p. 684). The researcher devised a framework of dramaturgy and everyday-life information seeking to investigate players’ information-seeking strategies and use of theatrical memes. She found information behaviors and meaning making were occurring while people participated in the online game. Adams found evidence of several types of information practice, including active scanning, nondirected monitoring, and seeking by proxy. From the lens of dramaturgy, Adams reflected on how immersing herself in the game changed her self-concept: “While I feel like a fairly competent hero by this point, being alone on a difficult mission may put me in the position of hiding and avoidance, even though I do not prefer to present my ideal self as one who hides and avoids” (p. 691). This example represents meaning making because, through interaction with the game and performance of her character, she arrived at a mutual definition with her environment. In conclusion, she states, “Gaming in the library could be an important way to understand information behaviors and promote effective information

seeking in the library" (p. 691). Adams's research partially answers the question of what people learn from specific gaming contexts and how future research might explore measuring what people learn.

In a similar study, Moline (2010) used participant observation to investigate what teens learn from playing console-based games in their homes or, in the words of the author, "how teens made sense of their gaming" (p. 4). Moline used data from her observations to create rich descriptions reflecting gamers' preferences and their specific environments. These descriptions were analyzed for themes through a recursive process of data and category reexamination. Teens emphasized a strong preference for specific game genres and platforms. Cognitively, teens used a variety of skills to solve problems encountered in their games and emotionally did not express frustration while being observed. Learning was viewed as a developmental process that needed time and practice. As a result, many teens were confident about mastering video games. Moline offers several implications, primarily for those in the school library setting:

- Sample the video games children play in order to transfer learning from video game play to formal learning.
- Evaluate the aspects of video games that foster inquiry.
- Promote creativity by fostering a sense of agency in gamers with games that require challenging interactions.
- Provide scaffolds for teens to use that are matched to their learning levels.
- Ask teens about their experiences to develop information literacy skills.
- Encourage the use of multiple resources and evaluation of resources for accuracy.

In addition to being useful for those in school library settings, these implications are useful benchmark evaluation points for those engaged in building gaming environments in libraries with a strong assessment focus.

In another study on video games, Gumulak and Webber (2011) used structured interviews to examine young peoples' game preferences, motivations, and learning from their video game interactions. They found that interviewee responses mapped relatively well onto the seven pillars of information literacy but were weakest for pillar number three, constructing strategies for locating. Participants in their study played video games for two primary reasons: for the challenge and to be entertained. The participants described instances where they learned specific things from games (i.e., historical facts or information that helped on a test at school), and they described cases where reading helped to improve their game experience. Perhaps most interesting was that some participants did not identify their game-seeking habits as being equivalent to the skills needed for information literacy. The researchers asked one participant if he sought information in his game, and the participant's response was,

"No, I just keep going, or if I don't know, I ask my brother" (p. 248). The response indicates information seeking is indeed occurring with the use of people sources. Overall, the findings from this study indicate there is evidence that learning occurs in the process of playing video games. Gumulak and Webber (2011) observe that affective dimensions are not a primary consideration of the Society of College, National and University Libraries (SCONUL) information literacy model (published in 1999) and conclude that affective aspects should be considered in future research (pp. 243, 252).

The findings from Gumulak and Webber (2011) suggest learners could be asked to link their gaming experience to their experiences with various assignments. Affective dimensions of the learners could be observed or the learners could be asked about their emotions while gaming. In addition, specific exercises could be developed with certain games in mind, or new games could be developed that teach information literacy concepts. The beginnings of this type of research are already under way.

Markey, Leeder, and St. Jean (2011) report on their evaluation of *BiblioBouts*, an online game for teaching information literacy skills. They support the use of games and argue that "library education and information literacy instruction can benefit from the potential of games to motivate and engage, as students may feel that traditional IL [information literacy] training is irrelevant or uninteresting" (p. 48). Their analysis evaluated two classes that were playing *BiblioBouts*. The Video Games and Learning class focused on writing a paper related to "work life quality," and the Introduction to Information Studies class focused on writing a paper related to "game play reflection." The researcher found that students "spammed" the system with sources to increase their score instead of diligently following the desired behavior of using multiple sources during their literacy process. Despite flaws found in the game design, students reported several benefits of the game, including hands-on practice conducting research, exposure to a greater corpus of sources than students could find on their own, and reinforcing that Web sources are of lesser quality than information found in library databases. Overall, the results of their study provide further support that games and learning can be a successful pairing. The strength of their research is in the continuous assessment and evaluation the researchers conduct related to their information literacy game. Furthermore, Markey et al. suggest that during game development, the games should undergo more rigorous testing to identify problems with the software and loopholes that players may take advantage of when the game is released.

The rich history of gaming in libraries and current research suggest games are important tools for motivating learning. Primarily qualitative methods, such as participant observation, surveys, and interviews, have been used to study the types of informal learning that occur while young

adults play games. Although previous research has stressed the learning aspects involved in the act of gaming, fewer studies in LIS have tackled how to assess learning that occurs in library game programs.

RESEARCH QUESTIONS

The purpose of this exploratory research is to understand what members in a specific video game program learn and what are some best practices and ways to improve assessment of library game programs. This report adds to and establishes groundwork for future empirical investigations of video games by the library community.

The library game program had four broad goals: increasing literacy, encouraging positive behaviors, fostering the development of new skills, and promoting critical thinking. Each goal was accompanied by a list of outcomes that allowed the program to gauge how individuals were doing with respect to program goals. For example, to demonstrate literacy, game club members were required to get a library card and check out at least four books a month. To demonstrate positive behavior, members were required to follow the dress code and other rules such as playing quietly and courteously with other game club members. Assessment of the last two goals, developing new skills and promoting critical thinking, was measured by participation in workshops, tournaments, and other opportunities. Game club site supervisors and invited guests conducted workshops on topics such as leadership, academic success, technology, and career opportunities. During tournaments and other special club gatherings, game club members were asked to participate in projects designed to build skills in critical thinking and other areas.

Description of Setting

Research was conducted in two libraries in South Carolina. In Library A, the gaming club area is a freestanding room closed off from the rest of the library. During site visits, at least one, and most often two, game club staff members were present and supervised the activities of the game room. The staff at Library A were dedicated to the game room and rarely performed duties outside the parameters of gaming club. Therefore, because staff required little assistance, site visits frequently consisted of observing, interviewing, playing with, and conversing with game club members, staff, and patrons. The physical space and staff for Library B were quite different.

The Library B facility was a smaller library with no dedicated area available for the club to exist exclusively. The gaming area for Library B was located directly to the right of the main entrance. This location was fully visible from the circulation desk. The placement of the gaming area in this location, although not ideal, was a direct result of the small space and number of library staff on hand. The library staff at Library B performed dual roles of supervising the gaming area and managing the other

areas of the library. In Library B, the researcher assisted with library tasks, supervised the gaming area, and conducted activities as required by the research.

The facilities supported their programs with a variety of games. Both locations contained each of the major console-based video games such as the Wii, Xbox, and PlayStation systems. Members also had access to computer games, board games, and role-playing games. During the study, the majority of the members displayed a preference for console-based games.

METHODOLOGY

This case study explores what participants in a specific video game program learn and what best practices and assessment techniques can improve overall assessment of library game programs.

The data collection method chosen for this project was participant observation. Wildemuth (2009) discusses two primary benefits of observation studies: (1) participation studies can provide an in-depth understanding of the people and social processes that take place in the observed setting, and (2) an improved understanding of the people and phenomenon can serve as a foundation on which better theories can be built (p. 199).

Between June 16 and October 12, 2010, the researcher conducted ninety hours of observation at two separate facilities of the Elizabeth County library system. To protect the identity of the participants, pseudonyms will be used for library staff, game club members, and facilities. During each research visit, the researcher observed the actions and behavior of the game club members and staff. While events were fresh, the researcher recorded field notes that reflected the experiences of the day. Observations were conducted on staff, game club members, and assessment practices, with an emphasis toward trying to understand the following questions:

- How do game club staff support program goals and assessment?
- What positive outcomes, skills, and behaviors do game club members exhibit from participation in the program?
- What measures and assessments do the library program use to track participant progress? How can these measures be improved?

The researcher gradually gained entry into the setting by participating in events. During daily interactions, the researcher primarily assumed various roles as required by the setting. Field notes from the observations were later compiled, analyzed, and coded according to the grounded theory framework outlined by Strauss and Corbin (1990, p. 73).

The first stage of data analysis proceeded with open coding of the field notes. In the open-coding process, field notes were analyzed at the sentence level, and assigned codes represented more abstract concepts of the sentence. For example, the sentence, "Lisa engages her in discussion about the various books when she returns to ensure that they have been

read" was coded as "reading" and "staff" because the sentence captures the interaction between a staff member (Lisa) and a game club member. In this excerpt, the game club member is reading material to earn more game-playing time. After analysis of all the field notes, the codes were analyzed for similarity in content or concept. Similar codes were combined and merged into categories, and like categories were collected together and defined by the salient theme that connected each of the subcategories. The salient themes were formed into a model, and excerpts from themes and categories were selected to represent the voice and diversity of the study participants.

FINDINGS/RESULTS

The Model

The overall model developed during the data analysis consisted of three parts: observations related to staff, observations related to game club members, and observations related to assessment. The development of the model reflects the larger categories the research questions attempt to explicate. As such, the larger model is a descriptive model and not a predictive one; it tells the story of what we saw. The staff node of the model captures observations related to staff. "Staff" has a broader definition in the sense that the term also includes observations of library staff who may have come into contact with the researcher. Generally, observations related to staff focused on how they supported the program and the characteristics that made them more effective in interacting with the youth.

The game club member node consists of observations of the youth and adults who the researcher interacted with or observed during the course of the study. In the strictest sense, these were not always game club members. These participants were also parents of youth or transient participants who were observed only a few times. This cluster of observations focused on evaluating how the game program affected the participants and included all outcomes for youth, especially those related to program goals. Participant motivation and emotion developed into large themes for this node. Motivation was included in this node, as opposed to the assessment node, because motivation and engagement are key factors that vary according to participant. In addition, motivation and engagement play critical roles in gaming programs because youth who are not motivated and engaged will not participate.

The assessment node was the largest and consisted of observations related to the researcher's evaluation of the program and ideas for measuring assessment of gaming programs.

The nesting of the categories and themes began underneath each model node. The salient themes emerging from staff observations were role models, rules, and innovation. The salient themes emerging from

game club participant observations were community, motivation, and emotion. Last, themes emerging from assessment were skills and literacy. In the next few sections, the setting for the observations will be described in more detail, and each of the salient themes will be defined and further explored.

Themes Emerging from Interactions with Staff

Without exception, all staff expressed pride in the gaming program and its equipment. The staff as a whole expressed conviction that the program is a good service for the patrons and the community at large. They also expressed pleasure in the members' achievements and admiration of the project manager for establishing the program.

These responses could be due to some bias in the population of the staff. It stands to reason that staff who would work for a gaming program would value it, believe in the use of games, and want the program to succeed. However, observations included not just the game club staff but also other staff outside of the game club. While the staff may have consciously or unconsciously tried to portray the library and the program in a positive light for the benefit of the researcher, these types of bias were unavoidable. To account for the presence of these remarks, special attention was paid to the actions of the staff to see if their actions contradicted their positive reports. Some informal interactions with patrons were also conducted to gauge their reaction to the program. No contradictions were found, and the program received positive reports from a variety of sources. Primary themes from the staff were role models, rule enforcement, and innovation.

Role Models. The staff observed for this study were consummate role models. They took an interest in the welfare of the game club members, and they were able to use their friendships to create a safe environment for learning new things and games. Staff effectively mentored youth through their knowledge of games and through the constant enforcement of positive social behavior. The following observations demonstrate this theme. "We chat for a few minutes, and Lisa shows me her new Microsoft phone and demonstrates its capabilities." Also, "Danny spends a good portion of his time at work playing the games with the kids, giving them advice, helping them through difficult maneuvers and discussing with them which games are good or not and why."

In the first observation, Lisa demonstrates her proficiency with technology. During observations, staff often modeled learning technology and new things to the game club members in different ways. One way staff modeled this was by learning new games themselves so they could lead game club members in exploring new games. Learning new games also had the added benefit of providing staff with an idea of what skills the game might help youth build.

The theme of the second observation was the individualized attention

and the "big brother" mentoring that all staff provided to game club members. This theme was present in a variety of other observations. "Lisa assists Sean by having him read the reviews aloud to her. She helps him to organize his thoughts into a written document." Staff frequently looked for ways to relate games to the skills youth would need in the future. In this particular case, Lisa provides extra reading help to Sean to help him improve his reading and writing skills. The gaming program presented many different opportunities for the youth to build their skills. The concepts of literacy and skills were recurring themes. These topics were tightly interwoven and appear both in the staff node and in the game club member node. Each will be discussed in more detail during a review of the game club member node.

Another way staff were effective role models was through the use of teachable moments. Whenever there was an opportunity to teach game club members about hard work, education, or the importance of information literacy, staff would pause to discuss the importance of the event that just occurred. One such event occurred when students were participating in the creation of their own videos. "Larry takes advantage of a 'teachable moment' by introducing them to the Wilhelm Scream, a stock sound effect in the movie and video game industry that has become something of a cliché. He gathers the participants around his computer and looks up the Wilhelm Scream online." In this excerpt, the game club learned about video effects and created videos using editing software. After some individual time exploring the topic, Larry brought everyone's attention to focus on the interest of a specific game club member. Here, Larry models information literacy through his search and selection of resources. Students learned information literacy and a variety of other skills important to students' academic performance.

Rules. There were several observations and comments related to rules. This was not surprising given that rule enforcement was a major role of the staff involved with the game club. The purpose of the rules was to reinforce the goals and objectives of the program. These rules stressed behavior, dress code, and learning.

The rules helped the game club program to promote positive behavior and encouraged the development of youth into good citizens. Regarding behavior, members were expected to be respectful, to dress appropriately for a public setting, and to be disciplined with their approach to participation.

To participate in the game club, youth were required to obtain a library card and check out at least four books per month. To earn playing time, members also were required to present an acceptable report card. Acceptable report cards were those that had no more than one "D." If a member met these requirements, they were allowed to play two hours per day. If a member did not have remaining time, he or she could earn extra time

by performing assigned duties. Assigned duties varied, with most tasks involving reading books or assisting staff. On the other hand, members not meeting the requirements were restricted from playing or, in the worse cases, were banned from the game room.

The majority of the observations related to rule enforcement deal with rowdiness during game play. Noise levels generally increased with larger crowds, and staff often needed to offer numerous verbal reminders for the game club members to play more quietly. "We all have fun playing, but we have to be reminded several times to quiet down. Finally, Larry tells us that we must all quit playing because we are being too loud."

In other instances, rules such as the dress code needed to be enforced. "Lisa requires three boys to remove their head-coverings and pull up their pants before playing. The two older boys scoff at this and state they are just watching. Lisa replies that anyone in the area, whether playing or not, must follow the dress code."

There was also the sentiment that not everyone was happy with the rules. However, in a bizarre turn of events, it was not just some of the game club members who were unhappy with the rules. "Danny brings to the table the issue that parents are complaining that kids must show their report cards in order to play video games. Larry reaffirms that report cards must reflect no more than one 'D' and explains that some parents become upset if their children have not met this requirement and are not allowed to play."

Another case where rules became very important was related to age. To be game club members, participants were required to be at least ten years of age. "Two patrons under the age of ten are in the gaming room. One plays the Tony Hawk skateboarding game for a least two hours straight and the other child is brought in by an adult to play Hulk. The adult leaves the child unattended in the room for approximately forty-five minutes. The rule is that children under ten are allowed in the room with parent or guardian supervision."

Staff were generally advocates and mentors for the game club members. Perhaps due to this relationship and due to their belief in the overall goals of the program, the boundaries for some rules, such as the age requirement, were flexible. This flexibility and the nature of the strong relationships the staff developed helped them to foster an informal environment of risk and fun that was appealing to the youth.

Innovation. The staff also seemed very comfortable in their roles as innovators and change agents. In particular, the staff adeptly folded in real-time events to ensure that game club members were exposed to a variety of projects and tasks that challenged them beyond their normal game activities. In one such case, the researcher was involved in the start of a new club. "Today, we somehow get on the topic of Legos, and I am pleased

to discover that Earl enjoys this activity. I tell him about the FIRST Lego League my son participated in last year at his school, and his interest is piqued. He asks me about the robotics challenges and missions—this is apparently a special interest area for him. He is very inquisitive about the kits they use and searches online to show me the Lego robotics kit he has. He wants to know if the Lego League has more advanced sets.” There were numerous examples where staff used the interests of the game club members to prompt them to start special clubs. Staff provided guidance during the initial planning phases, but club members assumed leadership and accountability roles.

Staff-led activities often modeled “methods of inquiry.” Over the course of projects, game club members participated in tasks that increased their scientific literacy. Staff prompted students to form questions, collect data, create reports, and share results. Lisa was the most adept at getting game club members to use primary source materials. These projects improved members’ knowledge of history while introducing them to technology and research methods. “Lisa also conducts a digital arts program, in which most, if not all, of the members participate. During weekly meetings, the participants gather to work on a digital scrapbook documenting the history of the Library B. This includes gathering photos and written works published throughout the years about the library, interviewing patrons and past librarians, creating films and digital images, editing all materials, and creating a finished product using camcorders and digital cameras, with Apple computers and software.”

Staff overwhelmingly drew game club member attention from console games with tasks that helped to foster the community. In one such task, Larry invited the game club members to develop art for the game club room in an effort to reinforce the idea that the game club is owned by its members. “Larry has involved the club members in art activities with the purpose of contributing to the décor of the gaming room. Upon entering the room today, a mess of paper, paints, water bottles, and Styrofoam was noted. He explained that patrons of the room on Saturday had been enlisted to work on creating frames for the various posters in the room by carving and painting Styrofoam. Today, when three of the gamers have reached their two-hour limits, Larry has them work on a painting of Mario, after first researching online what he should look like.”

The staff demonstrated they were capable of establishing an innovative gaming program by incorporating best practices from the field, strengths from the staff, and ideas from the game club members. Overall, staff were flexible role models who enforced rules and ensured that game club members were involved in tasks that regularly required them to think innovatively. In the next section, themes from game club members will be explored.

Themes Emerging from Interactions with Game Club Members

The game club members as a whole were respectful and grateful for the unique opportunity the game club program represented. The majority of the game club members were male, but there was one female member. From an affective standpoint, there were a few observations of game club members being aggressive, frustrated, and overwhelmed. Themes related to interactions with the game club members were community, motivation, and emotion.

Community. The game club members were a close-knit bunch, and in some ways the game club represented an extended family. Library staff represented extended aunts and uncles. Fellow game club members represented close brothers, sisters, and cousins. There were several observations that drove the community aspect home. In one instance, Library B was shut down over lunch, and several of the game club members had nowhere to go. Without a "home," it appeared to the researcher that the game club members were effectively displaced until the library reopened.

Another example of the community aspect was the territorial response some club members had concerning game club activities. As members, the youth can earn extra time playing video games that is exclusive to the game club members only. This time is awarded for achieving certain milestones or completing certain tasks. "When Larry left for lunch today, he told the four club members in the room that they could stay in the room with me while he was gone. A while after he left, a patron I had not seen previously came in to play a game. Before I could even say anything, all four of the kids in the room yelled out, 'Dude, you can't be in here right now! This is Game Club Member only time!' I had to follow the boy out to encourage him to come back when Larry was present." This territorial aspect was beneficial to the community because the resources of the club were not unlimited and this behavior helped staff to ensure the security of video game materials.

One intriguing aspect of community that emerged from the data was the positive social aspect of the game club. During the course of the observation, several game club members revealed they owned the games at home, but they preferred coming to the library because the library provided an opportunity to play games together as opposed to in isolation. "Walter also has most of the games and systems at home; when I ask him why he plays at the library, he says that he comes in once in a while to play with the other kids." These comments suggest that the shared experience of playing together was preferred over playing games individually.

Another community theme that was observed on different occasions was the "family-like" atmosphere established by the game club. The following comments explore different aspects of this. "Matthew seems to spend time hanging out in the room about as often as he plays video games. He has obviously bonded with Danny and seems to enjoy being in the room

when he is working. He has a laptop with him, and Danny helps him with some video he is interested in." The following comment also illustrates this. "Karl, who is probably the strongest leader of the club, laughs and jokes with the girl next to him. He inquires about her mother's health. They are so familiar acting that I ask them if they are related. It turns out they were not; they are just aware of each other from the community and library events." These comments illustrate the nature of the family-like relationships. Previously, this was discussed in the staff as the role model theme. The student perspective of this observation was expressed as admiration and the desire to hang out with the older members of the community. The second comment illustrates how community manifested in peer-to-peer relationships. Here and in other cases, game club members were observed using the game club as a space for social support.

Motivation. The theme of motivation was an important concept. In one observation, Larry described the gaming program as an "incentive program" that, in his opinion, encouraged members to participate in the community. By checking out books, reading, and engaging in special events, game club members were able to gain more time playing video games. As can be expected for many youth, they were not always motivated. The following quote captures this. "The patrons are often reluctant to play board games, but once engaged, they are just as likely to be reluctant to stop."

The staff learned over time how to motivate different game club members. In particular, staff had to use a variety of methods to motivate game club members to read material. "At 4:15 p.m. today, only two patrons, Richard and Thomas, are in the game room. Richard is once again reading to earn play time. He has been on task for about 35 minutes now and seems genuinely interested in his book." To motivate game club members to read, staff tried to relate reading material to the current game titles and checked to see if the material was at the appropriate reading level.

Emotion. Unlike the Moline (2010) study, during this study, there were a few instances in which game club members experienced frustration and could not control their emotions. The following excerpt captures the most egregious case of a game club member losing control of their emotions. "Alex lost the tournament and proceeded to become loud, frustrated, and generally disruptive. Larry asked him to leave the room to cool down. This infuriated Alex; he stormed out of the room yelling and slammed the door loudly behind him." In this case, staff banned Alex from the game room. Game club members who misbehaved generally had to earn their way back into the community through acts of service. Offenders were also required to apologize and were given a "time-out" from playing games.

Emotions also ran high during games, sometimes because of the difficulty of the games and other times because of the highly competitive nature of members involved. The following observation again captures how Lisa, a staff member, was aware of rising tensions and ended things

before they proceeded too far. "Sean, who has difficulty reading, found this game very frustrating; when Lisa realized that the boy was reaching his breaking point, she concluded the game and allowed the patrons to resume gaming." This interaction points out that staff needed to know game club members' thresholds for various activities and play "referee" at times to avoid conflict over play time, required activities, or everyday confrontations.

The previous cases mentioned were some of the lows of the observations. There were also numerous highs, which outweighed the moments of frustration and anger. These moments were characterized by joy, exuberance, and fun. "When the game is over, the staff set up a lunch. The meal consists of pizza, fruit, carrot sticks, and cookies. Game club members are very excited about the free lunch. Everyone is jovial and energetic. The atmosphere is definitely that of a party."

There were numerous positive outcomes for the game club members in the interactions observed. Although there were some moments where motivation was not high or when anger got the better of the game club members, the majority of the time the members were well behaved and motivated. Game club members also grew to respect and value the communities being established in their libraries. The game club impacted the game club members positively in the areas of community, maintaining composure in public settings, and literacy.

Themes Emerging from Observations-Related Assessment

The assessment observations revolved around the program's current assessment practices and collected items that library game programs might explore in the future. The game clubs had various types of assessment integrated into their programs. For example, there was ongoing assessment surrounding the video game collection. Although evaluation of the collection is important for ensuring game club members stay invested and interested in the program, we were primarily interested in assessment of the learning and behavior of the game club members.

The staff recorded the number of books each member checked out and had a report card requirement that was designed to motivate participants to maintain their academic standing. Members not meeting the report card requirement would be banned from the game room. As alluded to earlier, members were assessed on an ongoing basis related to their behavior, dress, and speech. The game club requires the members to show good sportsmanship as they participate in the games. The game club also assessed participation in special clubs. This involved measuring attendance at tournaments; special clubs; and other special events, such as a presentation by invited speakers. For special events, participants were asked to fill out an information card that asked participants the likelihood members would use the library in the future and if the participant

had a good or bad experience at that particular event. Aside from observing these baseline data collected by the game program, the themes that emerged from the observation process were skills and literacy.

Skills. The game program reinforced a mixture of academic, life, and game skills. Life skills are skills related to being a good citizen, such as dress code, manners, and time management. Game skills are those youth gained through repeated game play. It is generally held that playing video games improves hand-eye coordination. Game club members also played a variety of board games. These games challenged spelling, analytical, and other abilities. In this way, skills learned from games were closely related to academic skills. Game club members had the opportunity to improve their academic skills related to the library. "Because the patrons had spent their allotted time on the gaming systems previous to lunch, when the library reopened it was necessary for Lisa to engage them in other activities to earn additional gaming time. One of the game club members, a male, proceeded to shelve books." The previous observation describes how one game club member was able to use his time learning about how the library call-number system works. This member gained familiarity with the staff of the library and was introduced to aspects of the library career. This interaction has the potential to have a lasting impact on how this game club member views, interacts with, and values libraries in the future. Everyone in the game program received exposure to library skills at some level; whether it was through use of library computers, getting their first library cards, or through performing library work, the acquisition of these skills cannot be underestimated.

Another important skill is the ability to work together in groups. On-line multiplayer games often stress this ability of achieving common goals and brainstorming how to solve tasks. "When we enter the room, Larry informs the group that they cannot have free play; they must work on creating missions and building levels in *Halo*." The process of level design is very complex and engages game club members in a variety of skills at the same time. As members work on levels, they are designing the architecture of the entire game space, considering how locations offer protection, and determining where to place game objectives such as flags and weapon boosts. After designing levels, game club members have the added joy of playing those levels and exploring how they might revise their designs for improved play.

While collaboration is stressed by some games, competition is built into all game interactions. The following observation recorded how the staff used incentive and challenge to engage everyone in a logic puzzle game. "Larry played *Ricochet Robots* with a group of about 10 club members and regular patrons. This game is more of a puzzle; one must be the first to figure out how to get a robot to a specific point in the least amount of moves. I find it very difficult and so do most of the kids. Only a few are really good

at it. Of course, Larry is the best at it, so he challenges us all to beat him. The reward is extra game-playing time for the winner. No one can, but Earl comes close, so he receives an hour of free game play."

Games emphasize logic, competition, and collaboration. Continued participation allows the game club members to build their confidence and their skills in these areas. These skills interweave with the life skills that game club members learn, such as respect. Respect toward authority was important and so was a sense of respect for resources of the game club. In one instance, several new video games were stolen from the game club. "With the reported theft being an exception, the participants observed at this point appear to behave respectfully towards the gaming equipment and accessories. They seem to understand that losing or damaging equipment will be detrimental to the club. They are motivated to avoid actions which may prevent them from playing in the future."

The previous observation stresses the previously mentioned themes of community and emotion. Thefts affect the community in a negative way by decreasing the financial and physical resources available. The game club members observed in this study looked for ways to preserve their program and policed its resources for the good of the group.

Literacy. The game program stressed areas designed to improve specific literacies. Literacy is different than skill in the sense that the previous skill category brought together items that highlighted the social and practical contexts of knowledge. The literacy theme, on the other hand, focuses more on the behaviors that help in academic settings. The program helped members to improve their technology literacy. "The game club members were adept [in] using the cameras and editing software. As they worked, they were open to peer and instructor critique, being good-humored of any criticisms."

In addition to the complex menus game club members manipulated in games, they were challenged to use computer software and projects. These projects increased the technology literacy of the members. In some cases, game club members assisted with networking in the library and other computer problems.

The game program stressed the acquisition of information literacy skills in a variety of ways. Game club members were expected to research information for game reviews and complete other tasks that involved research. "For *Wits and Wagers*, the participants have been required to research and create four or five questions each that consist of number answers. For example, one of the questions submitted is: How many teams are in the NFL? The participants very much enjoy these games, so much so that they do not want to stop playing for lunch."

Game club members worked on a variety of skills, including test taking and information literacy. Staff incorporated activities that were strong skill builders. These practices were some of the best practices of the program.

"In addition to a gaming tournament on Saturday, Lisa has created a state history quiz to commemorate the Fourth of July. All patrons of school age were invited to participate, and a \$25 gift card was awarded to the patron who submitted the most correct answers. When three of the 'regular' club members arrived, Lisa prohibited them from playing games until they answered a few of the history questions. They spent at least fifteen minutes searching online for answers and then reported to Lisa."

In addition to information literacy, the game program worked to build skills essential to reading by reinforcing good spelling. "It is noted here that, during the spelling game *Bananagrams*, some questions were posed about the spelling of certain words. I suggested consulting a dictionary, and the site supervisor did not know where one was located. The other employee of the library was beckoned, and although she knew where the reference materials were located, she also had a difficult time finding a dictionary."

This previous observation not only stresses how the game program impacted game club members' literacy but also points out the need for the program to place literacy materials near the game club area. The issue of quality resources was related to two other observations that are shared next. "The vast majority of patrons, children through adult, do not know how to read analog time." Another instance where a low literacy was observed is contained in the following observation. "Before closing out the program in preparation to leave, I checked the log-in sheet to ensure that I had checked in all of the games used during the day. I noticed that the young man mentioned misspelled every entry on the sheet."

These observations point out the need for game club members to have literacy interventions. Most important, it stresses the need for staff to be aware of literacy skills and the need to learn how people might hide their lack of literacy. As game programs focus on assessment, staff will need to consider the appropriate interventions that can improve those with the lowest literacy. Having highly qualified staff on hand with good resources will be critical to meeting these needs. In the next section, we will explore further discussion of the findings and conclude with some of the next steps.

DISCUSSION AND CONCLUSION

The researchers found the gaming program to have a positive impact on the game club members, the staff, and the library. In particular, the game club increased the members' exposure to a variety of learning opportunities, it provided extra programming and opportunities for game club members to learn about careers, it exposed them to a wide variety of library activities, and it engaged the youth in activities designed to improve both their skills and literacy.

The meaning of "literacy" has evolved in recent years to encompass more than its traditional definition of the ability to read and write. In

fact, the word is defined by Merriam-Webster Online as “the quality or state of being literate” (<http://www.merriam-webster.com/dictionary/literacy>). As referenced earlier, Nicholson implies that literacy consists of interpreting and manipulating symbols within a context according to a set of rules. The view of literacy held by Nicholson is in line with the definition of literacy outlined by Gee (2003), which maintains literacy must go beyond the singular definition of print to include different domains of social practice (p. 14). In fact, it may be argued that behavior, skills, and critical thinking are all subsets of literacy. For the purpose of this report, “literacy” is defined as the ability to read, write, think critically, and interpret symbols and texts. This definition combines the traditional meaning of literacy skills along with newer broader definitions.

The first research question proposed by this research concerned what participants in a library’s video game program learn. “Learning” implies the game club members would gain some knowledge or improve some literacy or skill. The complexity of the task set forth by this research, to attempt to connect “literacy” or “learning” with video game playing, is undeniably a large problem to address.

Despite the complexity of the problem, we found observations to be a useful tool for gauging learning and critiquing current assessment tools. Staff played a critical role in reinforcing the process of learning for game club members by acting as role models, enforcing rules, and pushing game club members to think critically and innovatively.

Game club members were observed learning a mixture of academic skills, life skills, game skills, and literacy skills. Skills sets learned from game program activities often blended together. Overall, the program reinforced skills such as high-order thinking, familiarity with the library, time management, and group work. In addition, game club activities afforded the members numerous opportunities to work on their technology, reading, and information literacy skills.

The second research question involved how library gaming programs assess participants. The library program assessed game club members by requiring them to obtain a library card, requiring them to maintain a report card with no more than one “D,” tracking the number of books they checked out each month, measuring their attendance at special events, and surveying the likelihood they would attend future events. In an effort to improve assessment, the game program staff invited us to perform this exploratory research to assess their current practices and suggest new assessment tools that would help their library program. The program performed admirably with respect to its four broad goals: increasing literacy, encouraging positive behaviors, fostering the development of new skills, and promoting critical thinking. This report provides numerous excerpts to support how the program made progress toward each goal. However,

aside from continuous qualitative study, long-term tracking and measurement remain issues.

The third research question asked what steps programs can take to improve their assessments. Academic success in many ways is determined by positive social behavior within the educational environment. The video game club studied here did an excellent job of enforcing "social norms" and establishing a culture where game club members can be self-directed. These social skills, while not directly measured in their current assessment cycle, should be considered for inclusion in the reward system. What was observed was "punishment" for bad behavior; this could also be accompanied by reward for good behavior. Say, for example, a game club member adheres to all club rules for a month. Then, he should be invited to a special tournament at the end of the month or earn extra game club time for consistent good behavior. Alternatively, good behavior could be tracked on a week-by-week basis and folded into a point system designed to motivate youth for their good behavior with parties, food, free play, and other rewards.

In addition to having a positive impact on game club members' social behavior, the game club can take more measures to increase the impact it has on game club members' academic performance. Game club members have an added incentive to improve their academic performance because it determines whether they will have access to the game club and how much time they will have. The current system could be improved by providing the game club members with a system of feedback. One potential way to provide feedback to the game club members is to provide more gradation. The current system allows students to play if they have no failing grades or if they have no more than one "D." A revised system might reward students based on each grade they get: 25 points for an "A," 15 points for a "B," 5 points for a "C," 0 points for a "D," and minus 10 points for an "F." This, again, would have the advantage of stressing reward as opposed to punishment and could be combined with the point system previously mentioned.

Another way the game club could stress academic achievement is through the incorporation of a skill or hobby system. For example, game clubs might select a small number of skills such as art, language, writing, and math. After determining the skills, the club could encourage members to learn more about their chosen skill through books, programs, and mentoring. Members who demonstrate improved skills could be awarded points or badges similar to the system of the Boy Scouts and Girl Scouts.

Game clubs might also facilitate reading by finding ways to integrate library content within the game club space. Staff should consider creating a reference section in each branch's gaming area and integrate use of the material into club activities. Another way to incorporate content would be

to create a young adult book section and/or frequently updated display in each branch's gaming area and to promote those selections to members. The display in the gaming area could stress complementary literature with a mixture of content focused on popular games, sports, technology, films, and other topics. For example, the display might be updated to highlight comic books, films, and other material related to a recent game purchase.

Game programs have an opportunity to improve how they measure skills and literacy learned. The previously mentioned point system could be divided into the areas of behavior, academic performance, and hobbies. These ongoing measures could then be folded into assessment to illustrate each area in a measureable way to stakeholders. Furthermore, game clubs could partner with schools to offer literacy interventions and tutorial- and curriculum-based support in academic areas where particular members are not performing well. The development of "gaming" curriculum in libraries alongside educational curriculums in schools could potentially reengage disinterested students in the activities of the school day.

Game programs could also measure literacy in other ways. Initial intake surveys could be used to measure literacy when a new patron signed up for the game club. These assessment tools could use measures related to education, reading, or games that measure information literacy. Some possible candidates for assessment are the Motivation to Read Profile (Gambrell, Palmer, Codling, & Mazzoni, 1996) or the Library Anxiety Scale (Onwuegbuzie, Jiao, & Bostick, 2004). Members could be retested at regular intervals to determine how the specific measure has changed.

IMPLICATIONS AND RECOMMENDATIONS

Library game clubs are powerful community centers where youth gather in a safe environment to play video games. The game club studied here used an innovative program that benefited from the expertise, motivation, and dedication of its staff. Exemplary game programs will not only provide opportunities to game; they will also be places where young patrons can improve themselves by learning technical skills or work on hobbies that could be of value to them later in life.

The gaming program reviewed here is an excellent service that provides its communities' youth with motivation to use the libraries, learning opportunities, and a healthy outlet for entertainment. The recommendations stated in this report are provided with the goal of assisting the program to achieve a maximum level of excellence but also provide other programs with the opportunity engage in a discussion of best practices.

The importance of this program cannot be underestimated, and the administrators of both the library and the program deserve the utmost respect and appreciation for undertaking this groundbreaking project.

Research findings suggest that youth respond best to freedom of choice when it comes to games. Future programs should evaluate ways to measure the social, emotion, and community aspects of game clubs in addition to the measuring literacy and skills. Game clubs should experiment with reward-based systems of play to discover if those systems can be implemented without excessive administrative overhead.

Additional studies will continue to evaluate how library game programs measure the impact they have on the lives of youth and look for ways to strengthen the links between game play and learning.

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