

“Are We Having Fun Yet?": Evaluation, Player Retention, and Lessons Learned from Vanished, the MIT-Smithsonian Science Mystery Game

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Abstract: Vanished was an eight-week long “curated game” modeled on ARGs and developed by MIT and the Smithsonian to draw middle-schoolers into thinking like a scientist. In an effort to understand how to attract and retain players throughout the run of future curated games, we will examine gender differences in engagement and which factors were positively associated with longer play times. Girls (who were nearly half our players) favored social and narrative based tasks, while boys favored achievement/social ranking based tasks. For both genders, accessing social data about other players and scoring high numbers of achievement points were positively associated with continued play. We recommend that designers of future curated games or other multiplayer educational games carefully design compelling narratives, “networked publics” and achievement systems that reward “science newbies” as well as experts in order to engage and retain players.

Description of Vanished and General Notes

Vanished ran in the spring of 2011 and was the first “curated game”—a collaborative game modeled on alternate reality games (ARGs), and designed to foster engagement and scientific thinking through collaborative mystery-solving. The design was inspired by conversations with Smithsonian scientists, who found that science instruction rarely modeled scientific practice. Whereas traditional scientific instruction focuses on rigidly defined processes, perfect prediction of results, and memorization, professional scientists’ work involves collaboration, experimentation, and the unexpected. To model these processes, we developed a set of diverse, collaborative activities that players would need complete to solve a science-based mystery. Middle schoolers logged into a website expecting a typical educational game, but instead found a video of MIT students saying that the site had been hacked. Embedded in this video were snippets of an encoded message. This “rabbit hole” led to broadcasts from scientists in the future, saying that an unknown disaster had destroyed the historical record and they needed the players’ help in figuring out what happened. Players had to engage in a variety of activities, all related to scientific inquiry, to unravel the mystery story. Activities included video conferences with Smithsonian scientists, in which they shared their hypotheses on what might have happened and asked for feedback; virtual archaeology digs, where players used a Flash game to navigate an area and dig up objects, some of them actual 3D scans of bones from the Smithsonian collection; collaborating with other players on the forums; and environmental data collection.

Gender Differences in Play and Demographics

Vanished players tended to come from zip codes that were slightly wealthier and better educated than the average. They were more likely to be rural and less likely to be from “majority minority” areas. Vanished attracted and retained nearly equal numbers of boys and girls, with girls making up slightly less than half of all players throughout the game. Gender and socioeconomic status was not significantly correlated with retention. Girls spent significantly more of their time than boys on social behaviors, such as composing forum posts, reading the forums, and filling out surveys. They also spent significantly more of their time accessing the secret document library, which contained “found documents” (letters, diaries) that revealed both scientific clues and narrative background to the game. Boys, on the other hand, were more likely to spend their time on achievement-oriented tasks, such as Flash games and accessing leaderboard and achievement point pages. While it appears that girls were less drawn towards these competitive behaviors, this should not be misconstrued as evidence of girls “checking out” of achievement based tasks. In fact, the average girl earned 15% more achievement points than the average boy. Given these differing preferences, we recommend designers include a variety of activities to engage a diverse player base.

Factors Associated with Player Retention and Design Recommendations

Of the 6,750 players that registered for Vanished, 10% logged in for the end of the 8-week game. While attrition is to be expected, we would certainly like to retain more players. Based on analysis of the activities that were positively associated with player retention, we feel that future curated games should emphasize two major design aspects. The first is the inclusion of skill-based tasks, with clear progress delineated by an achievement points/badge system, and significant support for players who may lack confidence or adequate background instruction in the sciences. The second is the creation of a “networked public” that allows a safe space for players to connect with their peers, learn about each other, share information about themselves, and form online identities. These activities align with two major categories (Achievement and Social, respectively) of motivating types of play as identified in massively multiplayer games by Yee (2007).

It appears that Vanished players of both genders have a strong desire to connect with and learn about their peers. Players spent approximately 12% of their time looking at each others’ online profiles, despite the fact that, due to privacy restrictions, these profiles were very basic. Furthermore, accessing player profile pages was significantly correlated with retaining players throughout the run of Vanished. At first glance, this interest in peers and community suggests that Vanished fills an empty niche for age-appropriate, science-focused “networked publics”, defined by Ito et. al. (2008) as social networks with a primary emphasis on “producing and circulating culture and knowledge” (p. 10). But, despite this apparent interest in understanding fellow members of a “networked public,” reading and commenting on the Vanished forums was negatively correlated with player retention. It may be that the limits placed of profiles hindered players in expressing their identity and connecting with others. Ito et. al. noted that “some of the drivers of self-motivated learning come...from youth observing and communicating with people engaged in the same interests, and the in the same struggles for status and recognition, as they are” (p. 11). If we could find a way for players to safely share more information about themselves, they may feel more comfortable with their identity and the community, and by extension, with communicating with and learning from their peers throughout the game.

Scoring a high number of achievement points was also significantly correlated with persistence in the game (see Table 2). This is unsurprising. An individual who excels at a task, game based or otherwise, is likely to persist. However, we want to reach less scientifically skilled players, so future games should strive to give “science newbies” that same sense of expertise and accomplishment—perhaps through a dynamic achievement system that values individual improvement over time compared to a player’s initial abilities, rather than predetermined benchmarks.

We hope that this analysis will both inform and inspire the design of improved curated games in the future. A teacher of at-risk 7th graders wrote to us about how his students developed a newfound interest in science after playing Vanished. It is our hope to create more experiences like the one his students had:

My students learned how to work together to solve problems they knew nothing about to start with. They learned how to assimilate knowledge and then apply what they had learned. They learned how science really works! I had one student...who even became very involved in cracking the codes using all sorts of different methods. Every day he would come into class thrilled to tell me what he decoded and how he did it. I overheard a few student [sic] mention that they now want to be scientists when they grow up.

References

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