uxrconsulting

Alternate-Reality Games in Casual Gaming Environments: Exploratory Summative Evaluation of the *PHEON* Game on Facebook by the Smithsonian American Art Museum

Prepared by Jes A. Koepfler, Principal and User Experience Research Specialist, UXR Consulting, Inc. Philadelphia, PA, *www.uxrconsulting.com*

In consultation and collaboration with Georgina Goodlander, Bridget Callahan, Tierney Sneeringer, Mary Tait, and Amelia Cornfield

Prepared for the Luce Foundation Center of the Smithsonian American Art Museum, Washington, DC

February 2012

If you use materials from this report, please cite it accordingly:

Koepfler, J. A., Goodlander, G., Callahan, B., Sneeringer, T., & Tait, M. (2012). Alternate reality games in casual gaming environments: Exploratory summative evaluation of the *PHEON* game on Facebook by the Smithsonian American Art Museum. [Technical Report]. UXR Consulting, Inc. Philadelphia, PA. Available at: http://uxrconsulting.com/about/jes/publications

uxrconsulting

Contents

uxrconsulting

Executive Summary

The Luce Foundation Center (LFC) of the Smithsonian American Art Museum (hearafter, American Art or "the Museum") ran an alternate reality game (ARG) titled *PHEON* as an online game application on Facebook from October 2010 through September 2011. The game built upon the success of the Museum's previous ARG, *Ghosts of a Chance* (*GOAC*; Goodlander, 2009). In the Facebook game, players accepted missions inspired by the Museum's collections, completed them in the real world, and uploaded evidence in order to win points and progress through the game.

Despite an established audience of *GOAC* players, significant press, and a more sophisticated game design, *PHEON* struggled to attract participants from the outset. Overall, only 865 people allowed the application to access their Facebook page, 675 people completed registration, and merely 68 of those completed a mission. The online version of *GOAC*, in contrast, attracted 6,100 unique visitors to its website in just four months[1], generating more energy and participation than *PHEON*. Since *PHEON* was nearing completion, the Luce Foundation Center staff decided to conduct an exploratory summative evaluation to investigate why people had played the game and what their experiences were like, and what barriers or perceptions existed for people who had not played the game.

This report presents findings from an exploratory summative evaluation of the online version of *PHEON* conducted by UXR Consulting, Inc., (www.uxrconsulting.com) from May to August 2011. A web-based survey (Appendix A) was developed and deployed to connect with those who had played the game online. The survey also targeted non-players, individuals who did not play the game, but whose responses might provide insights into the challenges that the game faced in adopting users.

Key Findings & Lessons Learned

The Museum staff believed that they and the broader museum community could learn as much from a project's challenges as from its successes. The complexity of developing and implementing ARGs make them a difficult game genre to get right even on the second or third try, as some of the most experienced developers will acknowledge (McGonigal, 2010). Below, we have listed the lessons learned from *PHEON* based on key findings from the evaluation, as well as staff experiences developing the game.

- **Narrative**: *PHEON's* story was designed for use across multiple Museum institutions, although it was only ever deployed at the American Art Museum. Because of this, the narrative did not connect directly to the Museum. Blurring the lines between reality and fiction is a critical component of an ARG, so future games should carefully consider a storyline that connects directly to the real world of the Museum in some way to facilitate better engagement.

  Further, the game platform should allow for enough branding and control by the game developers so that the narrative is not affected by extraneous factors. The Facebook interface detracted from players' total immersion into the world of Terra Tectus, and the casual, drop-in nature of Facebook use also limited the extent to which players could immerse themselves in a world that was somehow connected to their reality.

---

[1] *GOAC* did not require players to register in the same way that *PHEON* did, so we do not have exact comparative measures. In general, the activity and energy around *GOAC* was much higher than it was for *PHEON*.

uxrconsulting

- **Facebook**: The results of this study suggested that perceptions of what Facebook is used for and how they typically use it were barriers to participation. These findings do not mean a successful combination of ARGs and Facebook cannot be achieved, but they do suggest that there are several perceptions and attitudes that an ARG on Facebook will have to overcome from the outset in addition to challenges of adopting players to a new game. Prior to developing an ARG or transmedia game on Facebook, consider incorporating game features from casual games (like *Farmville*, *Mafia Wars*, or *Bejeweled*), which require quick bursts of player effort and take only a little time to understand. This approach would maximize the benefits of the Facebook platform and individuals' understanding of how games work within that casual space. Avoid complex storylines or concepts that stray too far from user perceptions of what Facebook is and what social network games "should" be (in the minds of current social network gamers).

- **Marketing**: Results from this study indicated that there were people who had not heard of *PHEON*, but who were interested in the concept, suggesting that some potential pockets of target audience members were missed by the marketing campaign. There were few people in this study who had heard of or played *GOAC*, *PHEON*'s predecessor, and whose alumni were targeted in the marketing efforts. It seems that the marketing and/or *PHEON's* narrative concept did not appeal to *GOAC* players.

  Online communities depend on the commitment and retention of their members. The more committed people feel to a community, the more likely they are to provide content that others value (Farzan et al., 2011). Since a large online community is critical to the success of an ARG like *PHEON*, and there was a known audience of potential players from *GOAC*, a user-centered design approach might have been useful and is an advisable strategy for the development of future games. User-centered design approaches are structured design methods that involve users from the target audience and other key stakeholders throughout all stages of a project's development (U.S. Dept. of Health and Human Services, N.D.). One of the main benefits of these design methods is that it generates early adopters, which is important for games whose success is based on the community of players.

  Consider engaging potential users in the design process by conducting rigorous front-end evaluation and market research; tapping into an existing online community for ideas; developing a user advisory group to connect with at regular intervals; connecting with users on an as-needed basis throughout the design process; and/or partnering with users throughout the entire project (for examples, see Koepfler, 2010, 2011; Koepfler & Koepfler, 2011; Schaller, 2009). Involving players from the outset in a deep and meaningful way may make them more invested and committed, which could in turn lead to more content that others value.

uxrconsulting

Introduction

The Smithsonian American Art Museum (hereafter, American Art or "the Museum") contracted User Experience Research Consulting, Inc. (UXR) to conduct an exploratory summative evaluation of *PHEON* during the summer of 2011. The Museum wanted to evaluate the strengths, weaknesses, opportunities, and challenges of *PHEON* in both its forms (in-museum and online through Facebook) with an eye toward uncovering lessons learned and best practices to inform future programs and to share with the broader museum community. UXR worked closely with Museum staff from the Luce Foundation Center (LFC) during the evaluation period, relying on staff members' extensive knowledge of and experience with game-based learning for museums. Museum staff and interns assisted UXR with observations and interviews in the museum, web survey dissemination, qualitative data coding, literature review efforts, and reviewing multiple drafts of the final report.

This report focuses on the version of *PHEON* played via a Facebook application in the form of a mission-based alternate reality or transmedia game with a narrative involving two warring factions of the secret world Terra Tectus, the Staves and the Knaves. Players joined the game by allowing the application to access their Facebook page. Players then proceeded at their own pace reviewing the list of missions, completing them for points, and voting on other players' submissions.

The research protocol for this study was approved for individuals 13 years of age and older by the Smithsonian Institution Human Subjects Institutional Review Board (#HS11032) prior to beginning the investigation.

Background

The Museum implemented *PHEON*, an alternate reality or transmedia game (ARG), in September 2010 following the success of their first ARG, *Ghosts of a Chance* (*GOAC*; 2008). They contracted CityMystery to develop the game. *PHEON* received partial funding for its development from a central Smithsonian "innovation fund".

ARGs
Alternate reality games (ARGs) are a game genre that brings together multimedia and storytelling by extending a narrative across media (Jenkins 2006). ARGs initially gained popularity due to their use in marketing campaigns. *I Love Bees* was designed to generate excitement prior to the release of Halo 2, a popular video game. The *Lost Experience* game helped keep loyal viewers of the television show *Lost* involved between Seasons 2 and 3.

ARGs have recently been used for formal and informal learning experiences in museums (e.g. *GOAC*, *PHEON*), public libraries (e.g. *America 2049*), and schools (e.g. the *Arcane Gallery of Gadgetry*). The front-runners in educational ARGs or transmedia games are the games created by Jane McGonigal (2011), such as *World without Oil* (www.worldwithoutoil.org) and *Evoke* (http://www.urgentevoke.com/), which require players to imagine potential real-world problems, such as an energy crisis or world hunger, and try to solve them.

Narrative
PHEON involved a secret world, Terra Tectus, which existed at the heart of our world and was inhabited by clairvoyants, or seers. In the story, seers have existed in all facets of life throughout history. With the

power to predict the future, they controlled it. Some chose to remain quiet participants, while others surged toward power and conflict. Through the game, a battle raged between two warring factions of seers: the Staves and the Knaves. Staves were idealistic conservators and protectors. Knaves were pragmatic, self-interested seekers of wealth.

Game players competed as either Staves or Knaves. The outcome of their competition in *PHEON* determined who controlled the fate of Terra Tectus. The narrative was replete with characters from history. For example, Hans Christian Ørsted, the 18th-Century Danish physicist and father of electro-magnetism, was the mentor of one of the main characters. *PHEON* was developed with the intention of having multiple museums participate, though only American Art did, so the narrative was not tied explicitly to the Museum's collection.

Missions
Players selected missions from a list at their level of play and then completed them for points in order to advance through the game. Appendix B includes the full list of mission names for each level. By the end of the game, there were two levels of play – neophyte and acolyte. A third level was planned, but due to low player adoption and a limited number of players who made it to the acolyte level, the third level was never implemented. Overall, only 10% (n=68) of the people who completed registration for the game through the Facebook application completed a mission.

Incentives
In May 2011, the game designers and Museum staff decided to add external incentives, encouraging people to invite their friends to play the game, with the goal of increasing overall participation. Facebook games rely on the participation of people with large networks of friends and acquaintances, and these incentives were one approach to drive that (Losh, 2008). By successfully inviting *one* friend, the Museum would display selected images of the player's mission completions on a digital frame in the LFC. As a result, their work would be 'featured' in the Museum, and they would be credited for it. From feedback received during *GOAC*, LFC staff knew that the opportunity for players to have featured work in the Smithsonian, albeit as part of a game, was a big incentive for participation. By successfully inviting *three* friends, the Museum would send the player an "artpak" – an original artwork worth $5 – from the Museum's Art-o-mat machine.

The Museum promoted these incentives through the *PHEON* website (www.pheon.org) and through the *PHEON* application on Facebook. The Museum also posted information about them through their various social media channels. Though it is hard to know if anyone attempted to invite friends to play *PHEON* through Facebook after these incentives were introduced, no one *successfully* invited friends (i.e. no friends of *PHEON* players downloaded the *PHEON* app as a result of being invited), so no incentives were distributed.

Methods
To gather data from both players and non-players, UXR developed and deployed a web-based survey in consultation with LFC staff (see Appendix A). We hosted the survey on SurveyGizmo (www.surveygizmo.com), a web survey-hosting site, from July 26, 2011 to August 25, 2011. We recruited participants to the survey through several outlets:

- the game's main website, www.PHEON.org

uxrconsulting

- the *PHEON* application on Facebook
- American Art's and LFC's social media outlets
- people who played *PHEON* and/or *GOAC* in the Museum and provided their email afterward
- and at the bottom of an email for an upcoming exhibition targeted at gamers – *The Art of Video Games* (http://www.americanart.si.edu/exhibitions/archive/2012/games/)

The survey's questionnaire contained mostly multiple-choice and Likert-type scaled questions. The survey also included a subset of questions for individuals who had never played the game and a subset of questions for players who had played the game. Both sets of questions included two to three open-ended questions asking those who played the game to reflect on their experiences, and asking those who had not played the game to consider their thoughts on what playing an ARG on Facebook might be like. The questions asked participants to describe their social media use and weekly activities, preference for game types, awareness and use of various ARGs, knowledge and experience with *PHEON* (if any), and demographics.[2]

Analysis
Two researchers coded the qualitative data from the open-ended questions. Each researcher read through 20% of the data from each open-ended question separately and identified categories that emerged. The two researchers then came together and compared their categories, merging related concepts and then clearly defining them. Each researcher then coded the entire dataset using the established coding rubric. Once all coding was completed, the level of agreement between the two researchers was tested by calculating Cohen's Kappa statistics. Cohen's Kappa is a commonly used measure of inter-coder agreement, which approaches a value of 1 as inter-coder agreement increases, and goes to zero when there is no agreement beyond that which would be expected by chance (Stemler, 2001). Landis & Koch's (1977) benchmarks were used to interpret the Kappa values and a level of κ=0.61-0.80, substantial agreement, was set to determine if researchers could proceed with interpretation. This level, or higher in many cases, was met for all variables on the first round of complete coding.

Sample
A total of 271 individuals participated in the survey[3]. Table 1 presents a summary of the demographics for this sample as well the subsamples of survey respondents who played the game (players n=36) next to survey respondents who did not play the game (non-players n=235).

Demographic information was not available for non-responders, so it is not clear to what extent self-selection bias is present in this sample. Forty-eight participants left the survey prior to completing the demographic questions. Most of these individuals were those who indicated that they had never played *PHEON*. The sample of survey respondents who played the game skewed slightly younger on average than the sample of survey respondents who did not play the game. Those who did not play the game were also skewed with a higher proportion of individuals from the arts and cultural heritage sector, likely due to the dissemination efforts to listservs and social media outlets to which other cultural

---

[2] A series of questions was also asked about participants' associations with the Museum and LFC, which are not included in the results of this report because they were primarily added for market research purposes.
[3] An additional 11 individuals indicated that they were not sure whether or not they played the game, and were not included in this analysis.

heritage workers and enthusiasts subscribe. The total sample was skewed in terms of gender (more males) and age (more young people).

Table 1. Summary of demographics for sample (n=271)

Demographic	Played *PHEON* (n=36) % (n)	Did not play *PHEON* (n=235) % (n)	Total sample (n=271) % (n)
Age	*M*=23.7 years*, SD*=7.3*, Min*=13 to *Max*=46	*M*=28.2 years*, SD*=11.2*, Min*=13 to *Max*=68	*M*=27.5 years*, SD*=10.9*, Min*=13 to *Max*=68
Gender			
Male	56% (20)	54% (137)	54% (147)
Female	31% (11)	26% (62)	27% (73)
Prefer not to answer	0% (0)	2% (4)	2% (4)
Missing	14% (5)	18% (42)	17% (48)
Do you consider yourself to be a gamer?			
Yes	67% (24)	60% (141)	61% (165)
Sort of	14% (5)	14% (32)	14% (37)
No	6% (2)	7% (17)	7% (19)
I'm not sure	0% (0)	2% (3)	1% (3)
Missing	14% (5)	18% (42)	17% (47)
Do you work/study in the arts or cultural heritage?			
No	75% (27)	58% (137)	61% (164)
Yes	8% (3)	21% (49)	19% (52)
I'm not sure	3% (1)	3% (7)	3% (8)
Missing	14% (5)	18% (42)	17% (47)
Art Museum Visitation in last 12 months			
0 times	33% (12)	27% (64)	28% (79)
1-2 times	33% (12)	29% (69)	30% (84)
3-4 times	14% (5)	15% (35)	15% (42)
5-6 times	3% (1)	3% (7)	3% (8)
7+ times	3% (1)	8% (18)	7% (21)
Missing	14% (5)	18% (42)	17% (47)
Aware of the in-museum version of PHEON			
No	64% (23)	63% (149)	64% (172)
Yes	19% (7)	15% (35)	16% (42)
I'm not sure	3% (1)	3% (6)	3% (7)
Missing	14% (5)	19% (45)	19% (50)

Notes. Some columns may total greater than 100% due to multiple responses and/or rounding error.

The majority of participants were from the United States (72%, n=195). Of these individuals, 35 states, the District of Columbia, and one US territory were represented: California (n=24), Virginia (n=25), Maryland (n=15), New York (n=15), D.C. (n=9), Pennsylvania (n=9), Florida (n=7), Michigan (n=7), Ohio (n=6), Texas (n=7), Georgia (n=6), Indiana (n=5), Louisiana (n=5), Massachusetts (n=4), Oregon (n=4), Wisconsin (n=4), New Jersey (n=4), Washington (n=3), Oklahoma (n=2), Arizona (n=2), Connecticut (n=2), North Carolina (n=2), South Carolina (n=2), and n=1 from Alabama, Arkansas, Colorado, Delaware, Kentucky, Maine, Minnesota, Nebraska, New Hampshire, South Dakota, Tennessee, Wyoming, and Puerto Rico.

The remaining participants represented the following countries: Canada (n=9), Australia (n=3), Sweden (n=2), and n=1 from Argentina, Belarus, Belgium, Brazil, Czech Republic, Denmark, France, Germany, Mexico, Serbia, Singapore, South Korea, Thailand, Turkey, United Arab Emirates.

Limitations
Due to the use of convenience sampling, the results from this study cannot be generalized to online visitors to Musuem-related Facebook pages or to game players more broadly. The findings highlight a specific set of experiences that represent a range of ages, group types, and interactions among people who have played *PHEON* or who have not played PHEON, but were willing to complete the survey. The findings do, however, point to lessons learned and potential best practices that may be transferable across institutions and in other game settings.

Findings & Discussion
The survey asked all participants about their knowledge and experience with social media and ARGs before branching into player-specific questions and non-player questions. Because this was an exploratory evaluation, the team did not develop statistical hypotheses to test and thus the thrust of the analysis is primarily descriptive and explanatory. The two main groups of interest for the analysis were people who played *PHEON* on Facebook, referred to as "players" throughout the report, and people who responded to the survey who had not played *PHEON*, referred to as "non-players". Throughout this report, I show the results of each group (sometimes separately, side-by-side when possible) in order to illustrate the characteristics of each group in comparison to the other. Although we cannot determine causation from these findings, we can highlight practical significance of the findings and speculate on what worked and what did not for *PHEON*.

I have organized this Findings & Discussion section thematically to guide the reader through the exploratory questions that the research team proposed prior to conducting the evaluation. Each section describes the survey questions that were asked, summarizes the results, and discusses the implications of the findings. Each section is accompanied by a table of descriptive statistics or illustrated by quotes for readers who wish to examine the results in more detail.

Social media
The survey covered a range of topics that might account for one's predisposition to play or not play a game like *PHEON* on Facebook. Because *PHEON* was embedded into a popular social media site, the research team investigated to what extent players and non-players used such tools on a regular basis and what sorts of activities they engaged in when they were online. Table 2 shows the social media sites and associated activities, such as texting and uploading photos, engaged by each group. In each case,

uxrconsulting

the survey questions asked participants to reflect on the extent to which they did these things at least once a week.

Overall, the two groups shared similar distributions of social media use and related activities, but a couple of differences stood out. More than one-quarter of the players indicated that they do not log into any social media site at least once a week. For these people, *PHEON* would have had to engage them in a way that encouraged them to log in to Facebook more regularly, since it was not already a habit for them. Non-players sent a text message, posted status updates to a social network site, provided a consumer review, linked to a social bookmarking site, or shared their location using a location-sharing service in higher proportions than players.

Table 2. Social media use and weekly activities (n=271)

	Played PHEON (n=36) % (n)	Did not play PHEON (n=235) % (n)
Social media site that participant logs into at least once a week		
Facebook	67% (24)	73% (172)
Twitter	28% (10)	41% (97)
LinkedIn	14% (5)	15% (36)
Google+	8% (3)	11% (28)
MySpace	3% (1)	3% (7)
Other *(Tumblr, Ravelry, Formspring, Wordpress, YouTube, DeviantArt, LiveJournal, Steam, Orkut, Friendster, Bebo, etc.)*	17% (3)	12% (27)
No SM site that s/he logs into at least once a week	28% (10)	17% (40)
Social media behaviors engaged in the last week		
Sent a text message	67% (24)	80% (188)
Posted a status update on a social network site	50% (18)	64% (151)
Posted a status update on a microblogging site	33% (12)	35% (82)
Posted a photo to a photo-sharing site Worked	31% (11)	31% (72)
on a personal blog post	17% (6)	20% (48)
Posted a video online	17% (6)	20% (46)
Provided a review on a consumer review site	8% (3)	18% (43)
Shared links on a social bookmarking site	8% (3)	12% (27)
Shared personal location on a location-sharing site	8% (3)	19% (44)

Notes. Some columns may total greater than 100% due to multiple responses and/or rounding error.

Game preferences

ARGs are a unique type of immersive game experience that bring together elements of the real and the fictional. *PHEON*, like other ARGs, also incorporated elements of other game types. Similar to massively multi-player online role-playing games (MMPORGs), it involved many players and required collaboration to some extent. *PHEON* likewise included qualities found in serious games, such as asking players to use

uxrconsulting

their creativity to solve problems connected to the real world. With Facebook as its platform, it also may have inspired casual gamers to play.

Though the majority of players and non-players in this sample perceived themselves to be "gamers", they may not have been the right types of gamers for ARGs. The survey questions asked participants to consider how interested they were in playing a variety of game types ranging from serious games to casual games on Facebook on a scale from 1-7, where 1=*not very interested* and 7=*extremely interested*. Participants could opt out of the question if they were not familiar with the game type. Table 3 summarizes the descriptive statistics for these questions and provides examples of each game type.

Both players and non-players rated console games and computer-based games highest by a margin of nearly 2 points on a 7-point scale, which is substantial. ARGs were rated third by the players and fourth by non-players. Both sets of respondents rated casual games on mobile devices substantially higher than casual games played through Facebook, with the latter category rated the lowest by both subsamples. These findings suggest that the combination of an ARG with the Facebook interface might not have been a popular combination.

Table 3. Preferences for game types (n=271)

How interested are you in engaging in each of the following types of activities, if at all.	Played *PHEON* (n=36) M (SD)	Did not play *PHEON* (n=235) M (SD)
Console games or computer-based video games (e.g. *Call of Duty*, *Portal*)	5.78 (1.93)	6.02 (1.67)
Massively multi-player online role-playing games (MMPORG; e.g. *World of Warcraft*, *Club Penguin*)	3.97 (2.35)	3.81 (2.11)
Alternate reality games (ARGs; e.g. *SFZero*, *America 2049*)	3.79 (2.22)	3.88 (2.00)
Serious games (e.g. *Peacemaker*, *WolfQuest*)	3.46 (2.30)	3.89 (1.90)
Scavenger-hunt style games online or offline (e.g. geocaching)	3.41 (2.12)	3.43 (1.94)
Casual games on a mobile device (e.g. *Angry Birds*)	3.36 (1.81)	4.09 (1.99)
Casual games on Facebook (e.g. *Farmville*, *Mafia Wars*)	1.56 (1.16)	2.25 (1.71)

Notes. Scale from 1-7, where 1=*not very interested* and 7=*extremely interested*.

Alternate reality and transmedia games

The team was also interested in how familiar players and non-players were with ARGs. The ARG genre can be difficult to fully understand for those who are not familiar with the concept, and the team wondered if this might have contributed to the low adoption rates. We asked respondents to indicate whether they had heard of or played a series of ARGs related to museums and other informal learning institutions, as well as a handful of recently popular ARGs. Table 4 summarizes the descriptive statistics for each group's responses to the list of ARGs they had heard of and/or played.

Half of the players had not heard of any of the games listed, including *GOAC*. For those who had heard of the games, they <u>heard of</u> two or more on average (ranging from one to seven games). For those who had <u>played</u> some of the games, they played one or more on average (ranging from one to four games played). Seven players listed additional ARGs or transmedia games that they had heard of or played. Common responses included *Alternate Reality Games for Orientation, Socialisation and Induction*

(*ARGOSI*), ARGs associated with the *Lost* television series, *The 39 Clues*, and *Why so serious?*, a precursor to the Batman movie, *Dark Knight*.

Similarly, nearly 40% of the non-players had not heard of any of the games. Those who had heard of some of them indicated that they had heard of two or more games on average (ranging from one to eight games) and played approximately two games on average (ranging from one to seven games). Thirty-six (15%) of the non-players listed additional ARGs or transmedia games that they had heard of or played. Their common responses were similar to those listed by the players.

Only a small percentage of individuals in each group had heard of *GOAC*, the Museum's first ARG, and an even smaller percentage had played it. One might have expected higher numbers here since *PHEON* was motivated by the success of that game. Though targeted, it appears the marketing for *PHEON* did not appeal to a large population of *GOAC* players, which may have been due to the Facebook platform, other factors related to the game's narrative, or time constraints for the potential players.

Table 4. Awareness and experience with ARGs (n=271)

	Played *PHEON* (n=36) % (n) Heard of / % (n) Played	Did not play *PHEON* (n=235) % (n) Heard of / % (n) Played
I Love Bees precursor to *Halo 2* by *42 Entertainment*	47% (17) H / 14% (5) P	37% (88) H / 7% (17) P
World without Oil by Ken Eklund, Jane McGonigal et al.	19% (7) H / 6% (2) P	23% (54) H / 5% (11) P
SF Zero by Playtime	17% (6) H / 0% (0) P	16% (37) H / 3% (8) P
Ghosts of a Chance by the Smithsonian American Art Museum	14% (5) H / 3% (1) P	19% (45) H / 6% (14) P
America 2049 by Breakthrough	11% (4) H / 3% (1) P	15% (36) H / 5% (11) P
Find the Future by the New York Public Library	11% (4) H / 8% (3) P	16% (37) H / 3% (6) P
Evoke by World Bank Institute	11% (4) H / 0% (0) P	12% (28) H / 4% (9) P
Vanished by the National Museum of Natural History	8% (3) H / 3% (1) P	15% (36) H / 2% (5) P

Notes. Some columns may total greater than 100% due to multiple responses and/or rounding error.

Following these questions, the survey asked participants to indicate whether they had ever joined the *PHEON* game through Facebook. Those who had joined the game were asked a series of questions about their experience playing the game, including when they first joined (if ever), when they stopped playing *PHEON*, which missions they participated in (if any), and their opinions on how challenging, complicated, and enjoyable they felt the game was. The respondents who never played the game were asked to describe why they never played the game, or, if they had never heard of *PHEON*, what they thought about playing a game like *PHEON* through Facebook. The next two sections describe the experiences for each group in turn.

Game play experiences for PHEON players (n=36)

Survey respondents who had played *PHEON*, represented game play from early in the game's launch in 2010 up through the time of the evaluation in August 2011. No respondents indicated that they had started the game in November 2010 or June 2011, leaving those two months underrepresented in this

study. There were no substantial differences made to the game in either of these months, so it is unlikely that the responses or experiences of these individuals would have been significantly different from those in the report. Nearly one-quarter of the players could not remember when they had joined *PHEON* on Facebook (n=8).

One-third of the players indicated that they stopped playing in the same month that they had started or within one or two months of starting the game (n=11). Several players could not remember when they had stopped playing (n=7) or did not complete the question (n=6). A small number of individuals indicated that they were still playing the game at the time that they took the survey (n=5). Overall, the individuals in this sample were not very engaged by the game. Only a few individuals in the survey indicated that they played the game for several months.

Marketing

The most common way that players said that they had heard about *PHEON* for the first time was through word of mouth from a friend or family member (n=9), followed by Facebook announcements (n=6). Players also first heard about the game through the Luce Center or American Art websites (n=5) or advertising for the game once they were already in the American Art building (n=5). Only a small number of players had heard about *PHEON* through advertising associated with *GOAC* (n=3). These findings once again point to a potential gap between the eager *GOAC* players, who the Museum anticipated would form a strong player base for the game, and the reality that the marketing of the game did not seem to reach or attract those players.

Narrative

The survey asked players a few questions about the content of the *PHEON* narrative to see if the complexity of the narrative or its 'stickiness' affected the user experience. Although most people could identify Terra Tectus as the name of the secret world in which the main characters lived in a multiple-choice question (n=19), most could not name a single character from the storyline in an open-ended text box (n=12). Several participants could also not remember if they had played the game as a Stave or a Knave (n=5), the two warring factions in the narrative. About half of the respondents were able to identify that "Staves are protectors of the planet; Knaves are consumers" in a multiple-choice question (n=11), but many people admitted that they had no idea what the difference between the Staves and Knaves might be (n=8).

Another way to learn about players' perceptions of the narrative was to ask them how they would describe *PHEON* to a friend or family member. Responses focused primarily on game play aspects rather than the narrative, however. Most responses to this question highlighted that *PHEON* was mission-based (e.g. "a fun scavenger hunt", "a game in which you take on challenges to look at art in new ways", and "mission-based alternate reality game"). Responses also noted that the game involved sharing and uploading videos/pictures or rating other people's submissions (e.g. "You share your completed missions…", "the player earns points by completing and documenting different tasks both online and in person", "you do activities and share stuff"). The game also connected with players' creativity and helped them think about art or the world in new ways (e.g. "requires thought and creativity to play", "look at art in new ways by remixing them into new objects or describing them in new ways", "look at the world through different eyes", "encourages creativity by charging players to interact with the real world in specific ways"). Only one response connected to the narrative: "You share your completed missions with other players and rate other players with the overall goal of proving our worth as creative beings (our=humanity)." Overall, these responses suggest that the logistics of the game held more

salience for the players than the storyline did. The story may not have been convincing enough at blurring the real world with the fictional world, the Facebook platform may have broken up the continuity of the storyline, or the missions may not have aligned well enough to the narrative to help reinforce it.

Missions
Fifteen individuals from the sample of players indicated that they accepted at least one of the *PHEON* missions (see Appendix B for the full list of missions). Some respondents noted that while they accepted missions, they did not always complete them. Reasons given for not completing missions included getting distracted by other things, not having the proper technology to complete the mission (i.e. taking a picture to provide documentation of mission completion), issues using the Facebook interface to upload pictures, and lack of time.

Eight people in the sample accepted and completed at least one mission. They provided the following descriptions for what they liked best about the missions they completed, if anything. Their comments revealed the types of things that ARGs are known for: the connection to real-world activities and opportunities for creativity.

- "Easy, fun"

- "I like the creative challenges. It's exactly the kind of game I like."

- "I liked how it sought to make me look at the world from a different perspective."

- "I liked the Bust a Move mission best, because getting my addition to look right in the picture added a puzzle aspect."

- "I liked the ones where I could complete it right then and there on my computer."

- "It was fun going out and doing things. Finding new things to learn about."

- "The connection to real world activities."

A few people also described what they liked least about missions they completed. A couple of the comments pointed towards issues with the narrative. As Sung and colleagues (2010) point out in their paper on audience traits of social network gamers, players like social network games that are "repetitive and easy to master" and where they do not have to spend a lot of time figuring out the rules or what the game is about. A complex or vague narrative may create a barrier to game play in this type of gaming environment. Examples representing this category include:

- "Didn't understand how or if they related to the gameplay and the storyline of Terra Tectus."

- "The user interface for uploading / exploring other people's content was quite cumbersome on Facebook."

- "They could have been tied more tightly into the narrative; as it stands, it didn't feel much different from ordinary Facebook postings."

- "Time it took to complete."

Satisfaction

The survey asked players to rate how challenging, complicated, and enjoyable they found the game. Average scores for each item were moderate to low on a scale from 1 to 7 where 7 was the highest score (challenging *M*=3.85, *SD*=1.57; complicated *M*=3.90, *SD*=1.52; and enjoyable *M*=4.25, *SD*=1.97) with only twenty people responding to this set of questions out of the sample of n=36. See Figures 1-3 below, which show the distribution of scores for the survey items that measured the extent to which *PHEON* was challenging, complicated, and enjoyable.
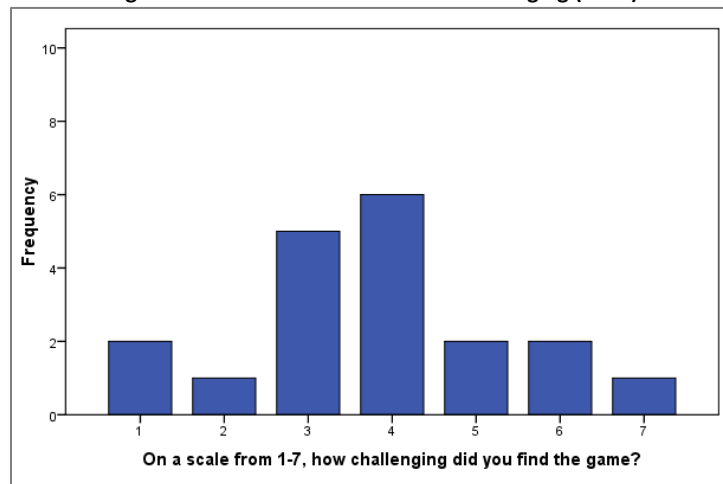
Figure 1: Distribution of scores for Challenging (n=19)

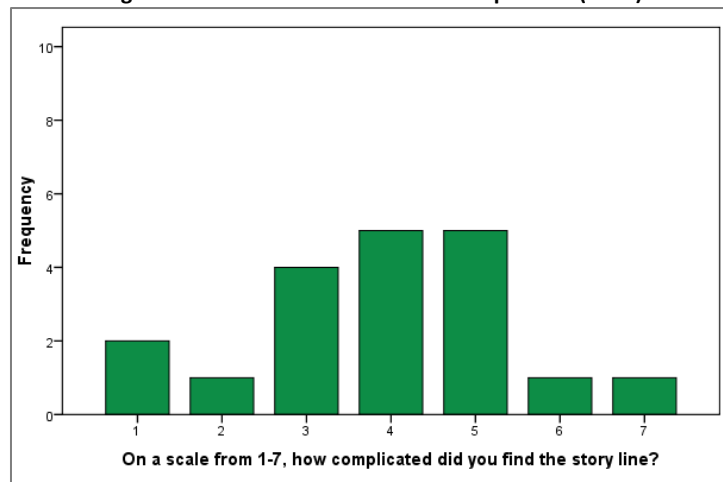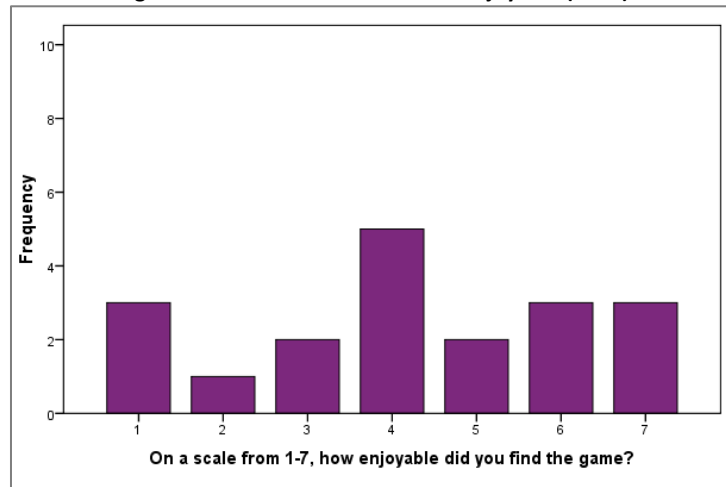**Figure 2: Distribution of scores for Complicated (n=19)**

Figure 3: Distribution of scores for Enjoyable (n=19)

Finally, participants were asked to rate how satisfied they were with their experience playing the game overall, on a scale from 1-10. If they provided a score of 9 or lower, the survey gave them a new screen which asked them to describe what would have made the experience a "10". This approach is one way to account for positive response bias, which is typical of satisfaction scales (Mittal & Kamakura, 2001). The overall satisfaction scores were moderate with a group mean of 5.70 and a wide range of responses across the scale as illustrated by Figure 4 below (SD=2.96, Min=1, Max=10).

Figure 4: Distribution of scores for overall Satisfaction (n=19)

When asked what would make the experience a "10", responses reinforced concepts that were raised during other questions, namely connection to the narrative, issues with Facebook, and time investment, highlighted by the comments below.

- "Having missions/submissions more closely tied to the narrative, better interface design, more obvious ways for players to interact - forming groups and so on to complete missions together."

- "Having more friends play with me."

- "My biggest problem wasn't the game itself, which was fun. It was mostly my own time (lack of) and I didn't actually like it on Facebook that much since I don't hang out on FB that much."

- "Not to be necessary to search and upload stuff from real life to complete missions, maybe it's just me but I like videogames because I can play them in the comfort of my bedroom."

- "Perhaps different levels of challenge or length."

- "Remembering it."

A couple of comments also highlighted how it was difficult to connect the game with the physical space at the Museum:

- "I think I am too old, or just not interested in fantasy and the story line. Also it's difficult to be in Sweden when you refer to things at the museum. I guess it should only be missions on the web, without connections to a story line or a need to visit the museum."

- "Managing to make it out to the live event(s)"

Responses from non-players (n=235)

Half of the survey respondents who never played *PHEON* heard about it for the first time by taking the survey, which was shared as a link at the bottom of an email sent to approximately 60,000 people across the world by Museum staff member Georgina Goodlander for *The Art of Video Games (TAOVG)* exhibit opening in March 2012 (n=130). Another 20% found out about *PHEON* through the LFC or American Art websites. The remaining individuals in the non-players sample found out about it through a friend or family member (n=14), advertising through Facebook (n=13), advertising on a third-party website (n=11), or advertising through *GOAC* (n=2).

The survey asked non-players to explain why they did not join *PHEON*, or if they had not heard of it, to describe their thoughts on the game. Though the non-players sample is skewed towards self-identified gamers and, in particular, individuals who were interested in the Museum's upcoming *TAOVG* exhibition, the range of responses was illuminating. Seven themes emerged from the open-ended responses. Responses included one, two, or sometimes three themes, (1.3 themes per response on average). The themes clustered around four major categories: 1) Facebook as a platform for ARGs or games, 2) Marketing issues, 3) Lack of interest, and 4) Time constraints. In the following sections, I describe the themes within each category and provide illustrative examples from survey respondents in the non-players subsample.

Facebook as a platform for ARGs or games
Three themes clustered around the idea of Facebook as a platform for ARGs or other games. The overarching sentiment by non-players was that Facebook was not an ideal platform for a game like *PHEON* due to perceptions of what types of games *are* or *should be* played on Facebook; a general dislike for Facebook; and/or infrequent use of Facebook.

A) Many of the non-player responses indicated that Facebook would be a poor platform for ARGs. They perceived Facebook as a place for casual games like Farmville

(www.facebook.com/farmville) or Mafia Wars (www.facebook.com/MafiaWars), but not for more complex types of games like ARGs. This sentiment is echoed in research by Losh (2008) who found that Facebook was not the right venue for serious games. Even though PHEON was not a "serious" game in the true sense of the game genre, it was more complicated than a game like Farmville. They also did not like the idea of Facebook as a gaming platform in general, because of privacy concerns, spam concerns, or other reasons (n=59). The following comments highlight these perceptions and opinions.

- "In my opinion, I am a gamer because I like to be transported to a believable fantasy (or alternate reality) world. I play games that cater to that, mostly single player RPG's, FPS's, or adventure games that blend the two. I'm a child of point and click games like Monkey Island and Loom, so I can appreciate the throwback to retro gaming that these sites seem to want to cater to, but it seems like more and more games out there are just clones of clones with no plot and no real gameplay besides flinging a bird at a wall. Sure, that can be fun for five minutes, but I've got a life, too. If I wanted to spend an hour or two a day cultivating a fake farm just so I could show it off to all my friends, I [would] go ahead and actually plant something. Games are supposed to be an escape for me, not just a way to kill time."

- "I'm not entirely sure what an alternate reality or transmedia game is compared to other Facebook games; but besides the fact that I've never heard of *PHEON*, I've found myself using Facebook less - especially for gaming - with the rise of phone-based games and the filling of my life with console games rather than PC games."

- "Facebook games (i.e. Farmville) tend to have a lot of busywork with little enjoyment or reward, so there needs to be enough information about the game available to set it as interesting and unusual to get me into it."

B) A second theme in this category was that respondents either did not use Facebook or did not use Facebook often enough to warrant playing a game like *PHEON* (n=35). Losh's work (2008) also reflects some of these findings and helps to explain them. Losh found that players are suspicious of games with a marketing agenda, i.e. games that are driven by anything other than social relationships, which may touch on the privacy issues that some respondents mentioned. Representative examples of this theme include:

- "I had never heard of it. More importantly, I choose to not use Facebook, [because] I disagree with their privacy practices. I do not like the idea of games/contests/etc. relying on Facebook as it results in exclusion of those of us who don't like Facebook."

- "I use Facebook once a week or less, so games that need consistent interaction don't really appeal to me."

- "Could be fun, but I have left Facebook for Google +."

- "I don't have a Facebook, so I wouldn't play any Facebook ARGs. However I like the idea of ARGs in general."

- "I don't have a Facebook account, I fail to see the point of it and it holds far too much personal information (however optional) to be held on a network accessible by anyone."

- "I don't use Facebook regularly."

C) The final theme in this category came from respondents who generally did not like social networks and as a result would not find themselves playing a game on Facebook (n=12).

- "I don't like social networks."

- "Facebook sucks."

- "I don't like Facebook as a social media or gameplay platform"

Marketing issues

In contrast to the people who did not like the idea of an ARG on Facebook, there were several others who found the idea intriguing, but had simply never heard of the game. This points to a potential marketing issue. These are people who were in the target audience, but who the advertising channels never reached for some reason. This category also included a set of responses from people who did not understand the game well enough to want to play it. They found it vague or confusing. These comments suggested that the title, game description, or other components of the game's branding did not sufficiently convey what the game was about to make people want to play it. Representative comments from each of these themes are described below.

D) People who indicated that they were interested in the game on Facebook identified some of the benefits of the platform that led the Museum team to consider it in the first place (n=63). These responses supported the notion that an audience did exist for *PHEON*; the Museum simply did not reach them through the marketing channels they used. Demographically, most of these individuals perceived themselves as gamers and had a Facebook account that they logged into at least once a week. Many of them indicated having heard of *GOAC*, but most of those individuals did not play the game. Nearly half of them had heard of, though had not played, *I Love Bees* the precursor to *Halo 2*. Some of the comments from respondents relate to the publicness of the game and desire for more privacy.

- "I have seen the ads but did not pay them enough mind. Playing a game on Facebook is an attractive idea, but I would try to avert over-publicizing the fact… I would prefer less posting on the wall and more communications through private channels. And the Smithsonian is an excellent backer for such an activity!"

- "Never heard of or played the game so far. The idea is intriguing. Social media and constantly-connected devices have come a long way since I was active in the ARG world. With Facebook, ARG players can find a built-in community and organizing tool…and PMs can fiddle with players' life in interesting ways with all the profile info they'll have access too. I'd be concerned that the ARG would lose some of its magic if it was always

contained in a 'you are playing a game' Facebook-app-wrapper… or if the game was impolite about posting to the player's wall to be seen by friends."

- "I've never heard of *PHEON* until now, a quick search in Google described the game as a modified version of Capture the Flag while highlighting the Smithsonian American Art Museum's collections; it does sound mildly interesting and I've always enjoyed innovative experiences, sadly the game was rather obscure outside of DC and I don't bother too much with Facebook to notice the ads."

- "I haven't ever heard or played *PHEON*, but I think it would be interesting to play a game like this because it is based on facts and real-world concepts, but twisted into a problem. Playing a game like this would allow a player to learn about the topic the designers created by playing the game."

- "I've never really heard of Pheon until now, but as of late I am interested in alternate-reality games. When it comes to Facebook however, I'm not sure I would enjoy an alternate-reality game on that platform. If I'm involved in an ARG, I would want to share ideas and participate in some kind of open community like a message board, as opposed to a personal medium such as Facebook."

E) A small number of individuals found the game or title confusing and provided short statements conveying this confusion (n=5):
- "It didn't make sense to me."

- "I did not know of it, and this type of game seems inaccessible to me. Descriptions of this type of game are often vague, and I don't know how to get involved."

- "I'd want to know more about it. I'm still a little fuzzy on what it all means."

Lack of interest

There was also a set of responses from people who were just not the types of people who were going to play a game like *PHEON*. Demographically, they looked similar to individuals who reported in the section above that they were interested in the game. For the most part, these uninterested individuals also identified as gamers:many of them had heard of *GOAC* but not played it, and most of them had heard of *I Love Bees*. Their open-ended responses suggested that they were not interested in ARGs, they did not know much about ARGs, and they were more interested in other types of games, such as consoles games (n=85). Several stated that they had not heard of the game and provided no additional details on whether or not they thought the idea of such a game was interesting. The following examples represent the range of responses in this category. Many of the examples also show comments related to negative perceptions of games on Facebook described earlier.

F) This category had only one theme, which captured responses from individuals who were simply not interested in a game like PHEON or playing a game on Facebook or who did not have enough information to make a strong judgment.
- "I'd have to learn more about it to give this type of feedback. I have no idea what the gameplay is like."

- "I've never heard of it, but playing an ARG via Facebook seems rather lame. Kind of takes the punch out of it."

- "I do not know what an alternate reality game is and I don't know anything about *PHEON*, I just remember hearing the name on your website when looking for the Video Game voting."

- "No clue as to what it was, Facebook games are usually not well done"

- "Not heard of it, not interested."

- "Do not care about games other than on a console. I also do not have a Facebook account."

- "I did not join the *PHEON* game because I am not interested in social gaming. I believe that it is slowly killing traditional gaming as a media."

- "I don't think alternate reality games are well-developed enough to be interesting to me."

- "I just didn't like that genre."

Time constraints

A small set of responses demonstrated interesting insights into perceptions of a game like *PHEON* as being too much of a time investment or a "waste" of time for some people (6%, n=18).

G) The following comments highlight comments that represented the theme of "time":

- "It sounds a bit like a waste of time honestly. Never really been interested in the whole ARG thing."

- "Meeeh, sound like a waste of time, to me. If I'm going to play a game, I want it to be productive or mentally challenging. Hence my penchant for RPGs [role-playing games]."

- "It seemed, playing Pheon would take a lot of time, and I [did] not ha[ve] the time back then."

- "No time to play"

Other

Twenty respondents provided vague or uncodable responses such as "I don't know", "nah", or "idk" (shorthand for "I don't know").

uxrconsulting

Conclusions & Lessons Learned

This report describes the results from a web-based survey conducted in the summer of 2011 to learn more about why *PHEON* was not attracting or retaining more players. There are a lot of perceived advantages to hosting a game through Facebook. For example, Facebook boasts over 800 million active users, of which 50% log on to Facebook every day (Facebook, 2012). For museums who are trying to meet potential visitors in their own space, Facebook seems like a good option. The Facebook application toolkit also saves on the development of a certain amount of infrastructure for the game, which is appealing for tight budgets. It provides easy access to relevant user statistics (e.g. number of users who allowed the game vs. number of registered users vs. those who actually completed a mission), which was not something the team had access to during *GOAC*. Facebook was initially chosen as the platform for *PHEON* for these reasons. The team (developers + Museum) thought it better to go to an audience than to ask them to come to a completely new platform and create a new account – typically a good practice when it comes to working with new audiences. However, many games on Facebook are casual, or sporadic; games that only require players to pop in quickly, but at multiple points during the day (e.g. Farmville, Mafia Wars). They are intentionally casual, or short-lived (Rao, 2008). *PHEON* was different from such Facebook games. The top Facebook games follow a similar format requiring online game-play rather than requiring users to go into the real world to complete a creative project. *PHEON* was more similar in scope and player participation requirements to a game like SF Zero (http://sf0.org/), which asks users to complete projects and submit them for other users to review.

The results of this study showed that perceptions of Facebook were significant barriers to adoption, likely preventing the overall success of the game. Survey participants saw Facebook as something they participated in for specific reasons (such as staying in touch with friends or for social convention). Most people had a perception of what types of games were appropriate for Facebook (e.g. Farmville). Most ARGs, including *GOAC*, have their own home site and as such game developers are able to control branding, narrative flow, and control how and when changes to the interface are made. *PHEON* had a home site, which was used as another portal to the Facebook application. This fact, in addition to the general lack of interest from survey participants to play a game like *PHEON* through Facebook, suggests that investing in a unique site might be worthwhile in the future, despite the increase in time and development costs.

The narrative of *PHEON*, which includes its branding and storyline, was not sufficient for encouraging potential players to join the game or for keeping players engaged. If a game is simple, then participants tend to be more willing to do simple, mundane tasks for minimal rewards (e.g. badges, points, etc.). If the game is complex and requires a lot of effort, participants will expect a greater reward (e.g. recognition from other game players). Further, social games are designed to be played together with friends, like playing cards or board games (Rossi, 2010). A lack of user adoption of a game early in its deployment will have the unfortunate effect of preventing new users to join. Because the narrative of *PHEON* was unclear as it was portrayed through the Facebook application and user adoption was low, there was not enough community to provide recognition for a player's creative efforts. Similar games with similar missions (e.g. SF Zero) have complex narratives, but the large community of players ensures recognition incentive is high and helps keeps players engaged, while the unique website allows developers to cultivate the narrative more seamlessly than a Facebook application. The incentives for game play simply were not strong enough for players to engage in the missions and continue to engage throughout the duration of the game, despite the Museum's attempts to use the digital frame incentive and the artpak incentive. The narrative was also not sufficient for keeping players motivated to

continue. Although using Facebook seemed like an ideal way to connect the Museum's goals with a large community of potential players, tapping into a community like SF Zero might be a more effective way to find potential players since it is a better match for the game genre.

Finally, marketing efforts were also a challenge for the game. *GOAC* launched with a pre-game teaser to generate interest and introduce players to the characters. The game developers hired a national-level bodybuilder, henna-tattooed his chest, and had him arrive unannounced at one of the sessions at the annual ARGFest-o-con event in Boston in July 2008, the type of place where a known audience of ARG players was waiting. Once the game officially launched, the storytelling began in earnest. Through the game's website and social media sites, players learned that the two main characters, Daisy and Daniel, needed to hold an exhibition in order to put to rest the spirits that were haunting them, and that they needed the players to create the artifacts for this exhibition. Each week, the team released a new challenge that directly related to the storyline. In this way, *GOAC* had a clear connection to the Museum and its collection, a relatively easy narrative to follow through the use of a separate website and social media avatars, and missions directly related to the narrative. The game and story evolved based on what players sent to the Museum for their missions. The Museum displayed players' submissions in the Museum and online temporarily, which increased the overall recognition incentive and connected the online to the offline more explicitly, helping the game to come alive and keep players engaged. This was also incredibly resource intensive.

PHEON had a major launch event similar to *GOAC*, but afterward was unable to draw such clear connections between the Museum and the online game through the narrative or its missions, for reasons described above. There was also a gap of a few weeks between the game launch and Facebook launch event while the game development was completed. This down time may have negatively affected the energy that the launch has created. Future ARGs in museums should consider the resources required to generate the success of a game like *GOAC* and further consider using ARGs as means to an end, similar to other marketing uses of ARGs. A game like *PHEON*, perhaps deployed through something other than Facebook, could be used to generate excitement for a new exhibition, perhaps something like *The Art of Video Games*, and help familiarize players with the Museum's collections and interpretive goals while generating excitement to bring visitors through the doors when the exhibition opens. Such an approach would maximize resources (allowing for a shorter stint of game play) and serve multiple purposes (visitor engagement and marketing).

Lessons Learned

The Museum staff believed that they and the broader museum community could learn as much from a project's challenges as from its successes. The complexity of developing and implementing ARGs make them a difficult game genre to get right even on the second or third try, as some of the most experienced developers will acknowledge (McGonigal, 2010). Below, we have listed the lessons learned from *PHEON* based on key findings from the evaluation, as well as staff experiences developing the game.

- **Narrative**: *PHEON's* story was designed for use across multiple Museum institutions, although it was only ever deployed at the American Art Museum. Because of this, the narrative did not connect directly to the Museum. Blurring the lines between reality and fiction is a critical component of an ARG, so future games should carefully consider a storyline that connects directly to the real world of the Museum in some way to facilitate better engagement.

Further, the game platform should allow for enough branding and control by the game developers so that the narrative is not affected by extraneous factors. The Facebook interface distracted players from total immersion into the world of Terra Tectus, and the casual, drop-in nature of Facebook use also limited the extent to which players could immerse themselves in a world that was somehow connected to their reality.

- **Facebook**: The results of this study suggested that user perceptions of what Facebook is and how it is used were barriers. These findings do not mean ARGs and Facebook cannot be combined successfully, but they do suggest that there are several perceptions and attitudes that an ARG on Facebook will have to overcome from the outset, in addition to challenges of adopting players to a new game. Prior to developing an ARG or transmedia game on Facebook, consider incorporating game features from casual games (like *Farmville*, *Mafia Wars*, or *Bejeweled*), which require quick bursts of player effort and little time to understand. This approach would maximize the benefits of the Facebook platform and individuals' understanding of how games work in that casual space. Avoid complex story lines or concepts that stray too far from user perceptions of what Facebook is and what social network games "should" be (in the minds of current social network gamers).

- **Marketing**: Results from this study indicated that there were people who had not heard of *PHEON*, but who were interested in the concept, suggesting that some potential pockets of target audience members were missed by the marketing campaign. There were few people in this study who had heard of or played *GOAC*, *PHEON*'s predecessor, and whose alumni were targeted in the marketing efforts. It seems that the marketing and/or *PHEON's* narrative concept did not appeal to *GOAC* players.

   Online communities depend on commitment and retention of their members. The more committed people feel to a community the more likely they are to provide content that others value (Farzan et al., 2011). Since a large online community is critical to the success of an ARG like *PHEON*, and there was a known audience of potential players from *GOAC*, a user-centered design approach might have been useful and is an advisable strategy for the development of future games. User-centered design approaches are structured design methods that involve users from the target audience and other key stakeholders throughout all stages of a project's development (U.S. Dept. of Health and Human Services, N.D.). One of the main benefits of these design methods are that it generates early adopters, which is important for games whose success is based on the community of players.

   Consider engaging potential users in the design process by conducting rigorous front-end evaluation and market research; tapping into an existing online community for ideas; developing a user advisory group to connect with at regular intervals; connecting with users on an as-needed basis throughout the design process; and/or partnering with users throughout the entire project (for examples, see Koepfler, 2010, 2011; Koepfler & Koepfler, 2011; Schaller, 2009). Involving players from the outset in a deep and meaningful way may make them more invested and committed, which could in turn lead to more content that others value.

uxrconsulting

References

Farzan, R., Dabbish, L., Kraut, R., Postmes, T. (2011). Increasing commitment to online communities by designing for social presence. *Proceedings of CSCW 2011*, Hangzhou, China.

Facebook. (2012). Statistics. http://www.facebook.com/press/info.php?statistics

Goodlander, G. (2009). Fictional press releases and fake artifacts: How the Smithsonian American Art Museum is letting game players redefine the rules. In J. Trant and D. Bearman (eds). *Museums and the Web 2009: Proceedings*. Toronto: Archives & Museum Informatics. Accessed September 30, 2011 from http://www.archimuse.com/mw2009/papers/goodlander/goodlander.html.

Jenkins, H. (2006). *Convergence culture: Where old and new media meet*. New York: New York University Press.

Jianqiang, D. S., Ma, X., Zhao, S., Khoo, J. T., Bay, S. L., and Jiang, Z. (2011). Farmer's Tale: A Facebook game to promote volunteerism. Proceedings of the 2011 annual conference on Human factors in computing systems. CHI '11 (May 7-12, 2011, Vancouver, BC). New York: ACM, 581-584.

Koepfler, J. A. (2010). NASA Goddard Space Flight Center *Citizen and Remote Sensing Observatory Network (CARSON)*: A focus on users. Institute for Learning Innovation, Edgewater, MD.

Koepfler, J. A. (2011). User-centered program development of the Koshland Youth Research Lab. UXR Consulting, Philadelphia, PA. *http://informalscience.org/evaluation/show/482*

Koepfler, J. A. & Koepfler, J. R. (2011). *Science Theater Education Programming System (STEPS)* summative evaluation. UXR Consulting, Philadelphia, PA. *http://informalscience.org/evaluation/show/324*

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*, 159-174.

Losh, E. (2008). In polite company: Rules of play in five Facebook games. Proceedings of the *International Conference on Advances in Computer Technology '08*, Yokohama, Japan, Dec. 3-5, 2008.

McGonigal, J. (2010). What went right, what went wrong: Lessons from Season 1 of *EVOKE*. *EVOKE* blog, July 26. Accessed January 12, 2012 from http://blog.urgentevoke.net/2010/07/26/what-went-right-what-went-wrong-lessons-from-season-1-evoke1/.

McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York: Penguin.

Mittal, V., & Kamakura, W. A. (2001). Satisfaction, repurchase intent, and repurchase behavior: Investigating the moderating effect of customer characteristics. *Journal of Marketing Research, 38* (1), 131-142.

uxrconsulting

Rao, V. (2008). Facebook applications and playful mood: The construction of Facebook as a "Third Place". *Proceedings of MindTrek '08*, 8-12.

Rossi, L. (2010). Playing your network: Gaming in social network sites. *Social Science Research Network.* Available online: http://ssrn.com/abstract=1722185.

Schaller, D., Haley Goldman, K., Spickelmier, G., Allison-Bunnell, S., & Koepfler, J. A. (2009). Learning in the wild: What *WolfQuest* taught developers and game players. In J. Trant and D. Bearman (Eds.), *Museums and the Web 2009: Proceedings*. Toronto: Archives & Museum Informatics. http://www.archimuse.com/mw2009/papers/schaller/schaller.html

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research, & Evaluation*, 7 (17). Accessed January 12, 2012 from http://PAREonline.net/getvn.asp?v=7&n=17.

Sung, J., Bjornud, T., Lee, Y-h., & Wohn, D. Y. (2010). Social network games: Exploring audience traits. *Proceedings of the 2010 conference on Human factors in computing systems, CHI '10*, 3649-3654.

U.S. Department of Health and Human Services (N.D.). User-centered design. From www.usability.gov. Accessed January 13, 2012, from http://www.usability.gov/basics/ucd/index.html.

uxrconsulting

Appendix A: Survey Instrument

Consent to participate in this survey
Thank you for taking a few moments to share your thoughts with us. This survey will help us better understand the ways in which people engage with the Smithsonian American Art Museum and Luce Foundation Center through our online and in-museum activities.

Provide your email at the end of the survey to be eligible for a $5.00 Amazon.com gift card. A total of 30 gift cards will be given away in a randomized drawing. No participation required. To enter the drawing without completing the survey, send your name and email address to Smithsonian Institution, P.O. Box 37012 MRC 970, Washington D.C., 20013, attn: Georgina Goodlander. We will not share your contact information. Winners will be randomly selected and notified on September 1, 2011.

The survey should take 10-12 minutes to complete. Your participation in this survey is voluntary. You may stop at any time by closing your browser window. Your responses will be kept anonymous, and your open and honest feedback will be most useful to the Museum as we move forward with the development of future games and programs.

If you have any questions about this survey, please contact Georgina Goodlander, Interpretive Programs Manager, Luce Foundation Center, at goodlanderg[at]si[dot]edu.

The Smithsonian is using SurveyGizmo, a third-party web-based survey tool to conduct this evaluation. Please note that SurveyGizmo's privacy policy and other terms apply. Any data that the Smithsonian receives from SurveyGizmo is subject to our privacy statement, which can be found at http://www.si.edu/privacy/.

If you are at least 13 years of age and voluntarily agree to participate in this survey, then please click the "I agree" button below:*
( ) I agree

Connecting online
We would like to know a bit more about what you already do online and what types of games you already play, if any.
On which of the following social networking sites do you currently have a user account that you log into AT LEAST ONCE A WEEK, if any? (check all that apply)*
[ ] MySpace
[ ] Facebook
[ ] LinkedIn
[ ] Twitter
[ ] Jaiku
[ ] Orkut
[ ] Bebo
[ ] Friendster
[ ] None of the above
[ ] Other. Please describe:

uxrconsulting

In the PAST WEEK, please indicate whether you have engaged in each of the following activities, or not.*

	No	Yes	I'm not sure
Sent a text message	( )	( )	( )
Posted a status update on an online social networking site (e.g. MySpace, Facebook, LinkedIn)	( )	( )	( )
Posted a status update on a microblogging site (e.g. Twitter, Tumblr, Jaiku)	( )	( )	( )
Created or worked on a personal blog that is shared publicly	( )	( )	( )
Posted a video online through a video-sharing site (e.g. YouTube, Vimeo)	( )	( )	( )
Posted photos to a photo-sharing site other than Facebook (e.g. Flickr, Photobucket)	( )	( )	( )
Provided a review on a consumer review site (e.g. Yelp, Chowhound, Epinions)	( )	( )	( )
Shared links on a social bookmarking site (e.g. del.icio.us, Diigo, Linkatopia)	( )	( )	( )
Shared personal location on a location-sharing site (e.g. FourSquare, Latitude)	( )	( )	( )

Games and activities
Please indicate how interested you are in engaging in each of the following types of activities, if at all, on a scale from 1-7, where 1=not very interested and 7=extremely interested.*

	1 - not very interested	2	3	4	5	6	7 - extremely interested	I don't know
Serious games (e.g. Peacemaker, WolfQuest)	( )	( )	( )	( )	( )	( )	( )	( )
Alternate reality and transmedia games (e.g. SF Zero, American 2049, Pheon)	( )	( )	( )	( )	( )	( )	( )	( )
Casual games on Facebook (e.g. Farmville, Mafiawars)	( )	( )	( )	( )	( )	( )	( )	( )
Casual games on your mobile device (e.g. Angry Birds)	( )	( )	( )	( )	( )	( )	( )	( )
Massively multi-player online role-playing games (e.g. World of Warcraft, Club Penguin, Final Fantasy)	( )	( )	( )	( )	( )	( )	( )	( )
Console- or computer-based video games, including on portable devices (e.g. Call of Duty, Portal)	( )	( )	( )	( )	( )	( )	( )	( )
Scavenger-hunt style games online and/or off-line (e.g. geocaching)	( )	( )	( )	( )	( )	( )	( )	( )

Other gaming activities that you engage in, if not listed above. Please describe:

uxrconsulting

ARGs and transmedia games
An alternate-reality or transmedia game is an interactive narrative that uses some elements of the real world as a platform to tell a story using multi-media and gaming elements. Participants' ideas or actions within the game may (or may not) have an effect on how the narrative unfolds.
Below is a list of alternate-reality and transmedia games. Please indicate which of these games you have HEARD OF and then which of these games you have PLAYED, if any. (check all that apply)

	Heard of	Played
Vanished by the National Museum of Natural History	[ ]	[ ]
America 2049 by Breakthrough	[ ]	[ ]
SF Zero (SF0) by Playtime	[ ]	[ ]
Find the Future by the New York Public Library	[ ]	[ ]
Ghosts of a Chance by the Smithsonian American Art Museum	[ ]	[ ]
World without Oil by Ken Eklund, Jane McGonigal, et al.	[ ]	[ ]
Evoke by the World Bank Institute	[ ]	[ ]
I Love Bees precursor to Halo 2 by 42 Entertainment	[ ]	[ ]

Other alternate-reality or transmedia games that you've heard of or played, if not listed above. Please describe:

Getting started with Pheon
In this section, we're interested in learning about how a specific game called Pheon. Pheon is an alternate-reality/transmedia game played online through Facebook, or off-line at the Smithsonian American Art Museum. Even if you haven't heard of it, only played it a bit, or heard about it and decided not to play it, we really want to hear from you. You'll get a different set of questions based on your response to this one.

How did you FIRST hear about Pheon?*
( ) A friend or family member shared it with me
( ) Advertising through Facebook
( ) Advertising through the Smithsonian American Art Museum website (which includes the Luce Foundation Center website)
( ) Advertising through the Smithsonian American Art Museum building in Washington, D.C. (which includes the Luce Foundation Center space)
( ) Advertising or announcement through Ghosts of a Chance
( ) Advertising through third-party website (e.g. Brightest Young Things, The Washington Post)
( ) Other. Please describe:: _____

If you joined Pheon, in which month did you first join the Pheon game through the Facebook application (even if you never ended up playing it)? If you did not join Pheon or haven't heard of it until now, please select "I never joined the Pheon game on Facebook".*
( ) January 2011
( ) February 2011
( ) March 2011
( ) April 2011
( ) May 2011
( ) June 2011

( ) July 2011
( ) August 2011
( ) October 2010
( ) November 2010
( ) December 2010
( ) I'm not sure whether I joined the Pheon game on Facebook
( ) I never joined the Pheon game on Facebook
( ) I joined the Pheon game on Facebook, but I don't remember when

Never joined Pheon
We are especially interested to hear from individuals who never joined the game.

Please describe why you did not join the Pheon game through the Facebook application. If you've never heard of Pheon until now, tell us what you think about the idea of playing an alternate reality or transmedia game on Facebook.*

All about Pheon
In this section, we are interested in hearing about what Pheon and the game's story means to you.
In which month did you stop playing Pheon (if you're still playing, select "I'm still playing" in the drop-down list)?*
( ) January 2011
( ) February 2011
( ) March 2011
( ) April 2011
( ) May 2011
( ) June 2011
( ) July 2011
( ) August 2011
( ) October 2010
( ) November 2010
( ) December 2010
( ) I'm not sure
( ) I'm still playing

Did you play Pheon as a:*
( ) Stave
( ) Knave
( ) Both
( ) I'm not sure

If a friend or family member asked you to describe the Pheon game, how would you describe it to him or her in one to two sentences (or more if you need it)?*

Name two characters in the story of Pheon? If you are not sure, either guess or write "I don't know" in the space provided.
1. _____
2. _____

uxrconsulting

What is the name of the world that the main characters lived on?*
( ) Pandora
( ) Terra Tectus
( ) Lusitania
( ) Delta marus

What is the primary difference between the Staves and the Knaves?*
( ) Staves are consumers of the planet; Knaves are protectors
( ) Staves are protectors of the planet; Knaves are consumers
( ) I have no idea, honestly.
( ) Other. Please describe:: _____

Playing Pheon
In Pheon, you can accept missions, but don't necessarily have to complete them. Did you ACCEPT any Pheon missions? (Please, select "Yes" even if you didn't complete them)*
( ) No
( ) Yes
( ) I'm not sure

Pheon Missions
There are many different missions that you might choose to accept and complete in Pheon.

Can you please name or describe up to 5 missions that you ACCEPTED (whether or not you completed them) while playing Pheon. Some examples include Don't forget to look up, Recreation Re-creation, Statue Hunter, and many more.

If you can't remember the name of the mission, please describe it as best you can.
1. _____
2. _____
3. _____
4. _____
5. _____

If you accepted but did not complete any missions, can you tell us a bit more about what may have prevented you from completing them?

If you accepted and completed at least one of the missions, what did you LIKE BEST about the mission(s) you completed, if anything?

If you accepted and completed at least one of the missions, what did you LIKE LEAST about the mission(s) you completed, if anything?

Tell us what you think about Pheon
Now that we know what you did or did not do with Pheon, we want to hear what you think about it – the good along with the bad. We want you to be as honest and candid with your feedback as possible. And, we want your opinions even if you hardly ever played it.

uxrconsulting

On a scale from 1-7, how challenging did you find the game?*
( ) 1 Not very challenging
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7 Extremely challenging

On a scale from 1-7, how complicated did you find the story line?*
( ) 1 Not very complicated
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7 Extremely complicated

On a scale from 1-7, how enjoyable did you find the game?*
( ) 1 Not very enjoyable
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7 Extremely enjoyable

On a scale from 1-7, how appropriate did you feel Facebook was for playing a game like this?*
( ) 1 Not very appropriate
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7 Extremely appropriate

On a scale from 1-7, how likely are you to recommend the Pheon game to a friend or family member to play?*
( ) 1 Not very likely
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7 Extremely likely

uxrconsulting

Overall satisfaction score
On a scale from 1-10, how satisfied are you with your experience playing the Pheon game, overall?*
( ) 1 Not very satisfied
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7
( ) 8
( ) 9
( ) 10 Extremely satisfied

[if 9 or lower was chosen:]
What would make it a "10"?
What would have made the experience a "10"?

Getting to know the museum through Pheon
Before playing Pheon had you ever heard of the Smithsonian American Art Museum (also known as American Art)?*
( ) No
( ) Yes
( ) I'm not sure

Before playing Pheon, had you ever heard of the the Luce Foundation Center (a visible storage space within the Smithsonian American Art Museum)?*
( ) No
( ) Yes
( ) I'm not sure

Connecting with the museum online
How do you currently connect with the Smithsonian American Art Museum (American Art) online, if at all? (check all that apply)*
[ ] I follow American Art on Facebook.
[ ] I receive updates from American Art via an email listserv.
[ ] I access American Art's main website.
[ ] I do not currently associate with American Art online.
[ ] Other. Please describe:

How do you currently connect with the Luce Foundation Center online, if at all? (check all that apply)*
[ ] I follow the Luce Foundation Center on Facebook.
[ ] I receive updates from the Luce Foundation Center via an email listserv.
[ ] I access the Luce Foundation Center's main website.
[ ] I do not currently associate with the Luce Foundation Center online.
[ ] Other. Please describe:

uxrconsulting

Engaging with the Luce Center online

How do you feel about your current level of engagement with the Luce Foundation Center online?*

( ) I wish I were able to engage more with the Luce Foundation Center online.

( ) My current level of engagement with the Luce Foundation Center online is fine.

( ) I wish I engaged less with the Luce Foundation Center online.

( ) Other. Please describe:: _____

What are some ways that you would like to engage with the Luce Foundation Center, its staff, or its collections, either online or off-line, that you cannot currently do right now, if any?

_____

Any other thoughts or comments?

Is there anything else about Pheon, the Smithsonian American Art Museum, the Luce Foundation Center, and/or playing alternate-reality/transmedia games through Facebook that you would like to share with us? Please write your comments here. _____

More about you

Finally, tell us just a bit more about yourself. This information helps us know who the Museum is reaching with its programs and online activities.

In the past week, approximately how many hours did you spend playing a computer-based game?

_____

Do you consider yourself to be a "gamer"?*

( ) No

( ) Yes

( ) Sort of

( ) I'm not sure

In the past 12 months, how many times did you visit an art museum (if at all)?*

( ) 0 times

( ) 1-2 times

( ) 3-4 times

( ) 5-6 times

( ) 7+ times

Do you work in an arts or cultural heritage profession, or study an arts or cultural heritage field?*

( ) No

( ) Yes

( ) I'm not sure

Are you:*

( ) Female

( ) Male

( ) Prefer not to answer

In what YEAR were you born (e.g. 1982)?* _____

In which country do you currently reside?*
[drop-down list]

State
In which state do you currently reside?
[drop-down list]

Drawing for Amazon.com gift cards
If you would like to be included in the drawing to receive a $5.00 Amazon.com gift card, please provide a valid and reliable personal email address below. We will not use this information for anything else, nor will we share it with any third party sites. Winners of the drawing will receive a gift card directly from Amazon.com by email on September 1, 2011.
Please provide a valid and reliable personal email address:
Email (e.g. jane.smith@gmail.com):: _____

Pheon off-line
Were you aware that you can play Pheon off-line as an activity at the Smithsonian American Art Museum?*
( ) No
( ) Yes
( ) I'm not sure

Playing Pheon off-line
Did you ever play the Pheon game at the Museum?*
( ) No
( ) Yes
( ) I'm not sure

Want to tell us more about your off-line experience?
We are also interested in hearing from people who played the game at the Museum. If you are also interested in filling out that survey, please copy and paste this link into a new web browser window and then click the "submit" button below: http://www.surveygizmo.com/s3/595228/Pheon-in-museum-players-survey

Thank You!
Thank you so much for your feedback and ongoing support! If you have questions about this survey or the Pheon game, please email Georgina Goodlander, Interpretive Programs Manager, Luce Foundation Center, at goodlanderg[at]si[dot]edu.

uxrconsulting

Appendix B: Missions

Neophyte:
- A Useful Tree: Take a picture of a useful tree, and explain what makes it useful.
- The Missing Magician: Find Øersted's friend's journal entry.
- Don't Forget to Look Up: Show us what surprising and wonderful things you discover when you spend more time looking up.
- Find Yourself a Knave: Head out to find a Knave in the wild.
- Sprezzatura (Find A Stave): Venture out to document a Stave in the wild.
- Just Folks: Show us a piece of folk art in your home or neighborhood.
- Nice 'n' Icy: Create an ice sculpture.
- It's All In The Little Finger: Create a secret handshake.
- Statue Hunter: Tell a story using only photos of yourself with statues.
- Nature's Rear Window: Document nature from behind one window of your house.
- Lucky (?) Number Seven: Describe Stave-ish-ness or Knave-ish-ness in exactly seven words.
- Real Bloody Fake: Make some fake blood, and show us your creative use for it.
- Quick on the Draw: Quickly draw four pictures of objects within reach.
- Museum Psychogeography: Make an emotional map of the Smithsonian American Art Museum.
- Yes, it's made of tape!: Make something out of tape.
- Emergency Paint: Make a picture using paint you've created, using whatever's at hand.
- Communication Unspeakable: Communicate without speaking.
- Recreation Re-creation: Revive a lost game or sport.
- Bust a Move: Digitally insert yourself into an artwork.
- Ordinary fantastic-ness: Make something wonderful out of nothing.
- With one hand tied: Do an everyday task with one hand tied behind your back.
- Pets Rule!: For one hour, do whatever your pet wants you to do.
- Olde-Timey Armory: Make a weapon that could be used in 1260.
- Paradise Here and Now!: Take a trip somewhere with a heavenly name.
- PHEON at the Smithsonian American Art Museum: Play PHEON at the Smithsonian American Art Museum

Acolyte:
- Don't Forget to Look Up II: Go to the highest place you can get to in your town or city.
- Senseless: Spend an hour blindfolded.
- WARNING: Time Slippage Area: Create a meaning for an unexplained symbol.
- Where do the lines go? Follow a route drawn on a map by a friend.