Designing Culturally-Embodied Location-Based Games

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ABSTRACT

This paper provides insights for artists, designers, and technologists working within the field of location-based games (LBGs). The authors provide a cultural analysis of Uncle Roy All Around You (URAY) and Project A.P.E., in order to understand how LBGs might be designed to more deeply embody cultural context. Our analysis reveals that both games embody culture through different mechanisms: player interactions designed to negotiate narrative structure; direct player participation in hiding game content; and utilizing the existing set of social norms and practices of the larger game of Geocaching. We suggest that new LBGs can be designed to similarly embody aspects of culture by utilizing a hybrid of methods found in both games.

Author Keywords

Location-based Games, Global Positioning System (GPS), Locative Experiences, City Guide, Ubicomp, Geocaching.

ACM Classification Keywords

H.5.3 Information Interfaces and Presentation (e.g., HCI): Group and Organization Interfaces: Collaborative Computing.

General Terms

Design, User Experience

INTRODUCTION

In the book, Reality is Broken: Why Games Make Us Better and How They Can Change the World, author Jane McGonigal points out that 174 million Americans are gamers and will spend tens of thousands of hours gaming throughout their early adult years [12]. She calls this phenomena "a mass exodus to virtual worlds," one that fulfills a genuine human need unattainable in real world conditions [12]. McGonigal claims that the game industry has been quick to exploit the human need for meaning and therefore challenges designers to re-engineer the way they build games so that the skills we learn through game play can assist us in the changes we need to make socially, environmentally, and culturally [12].

Our interest is in exploring how this can be done in the context of ubiquitous computing (ubicomp), and more specifically, within the area of *location-based games* (LBGs). Location-based games are pervasive games that take place in the everyday locations we inhabit where the experience of playing is tied to these locations. While one may think that LBGs already embody culture in a rich and nuanced way, given their strong tie to location and place, most LBGs designed within the ubicomp community (e.g., [1,4]) emphasize the technology over the game's broader cultural, social, or political context. This is a concern because these games could be designed from an HCI perspective with richer nuances that bring cultural meanings to the fore.

In order to understand how LBGs might be designed to more deeply embody cultural context, we have analyzed two LBGs—each representing a different type of LBG—where the convergence of ubicomp, games, and participatory culture set the context of the study. First, we have analyzed Uncle Roy All Around You (URAY), a LBG designed as performance art by an artist group called Blast Theory. Second, we have analyzed Project A.P.E., a marketing campaign for the movie, Planet of the Apes, which was designed within the popular LBG of Geocaching. In both games, we analyzed the game designers' intent, the game's narrative, and the resulting cultural effects. Our analysis highlights important aspects of each game's design and uses this to present ideas for designing LBGs that can be viewed equally as a cultural *and* technical product.

In this paper we discuss the conceptual themes that shape the direction of this study; introduce our findings; and conclude with aspirations of future LBG designs that combine aspects of sociality, culture, and real-world exploration. Together, this contributes an understanding of two LBGs from a cultural perspective and a framework for understanding how culture might be more deeply embodied within LBG design.

BACKGROUND

Mark Weiser is often identified as the 'godfather' of ubicomp. In 1991, Weiser wrote an article for Scientific American called The Computer for the 21st Century where he described ubicomp as a technology that would emerge as the dominant mode of computer access [18]. He stated that like the personal computer, ubicomp would enable nothing fundamentally new, but by making everything faster and easier to do, it would transform what is apparently possible [18]. Over the next twenty years, ubicomp evolved to include a deeply nuanced culture, uncovered most often

through social science methods such as ethnographic studies [7]. For example, Dourish and Bell [7] and Bell et al. [2] discuss the concept of "defamiliarization" which explores alternative cultural practices in order to gain perspective on more familiar, everyday considerations. By applying defamiliarization to the subject of mobility they suggest that information technologies will provide *sites and occasions* for the development of new forms of environmental knowing. In this paper, we use the terms sites and occasions as a means of examining the social activities and the perimeters that contain them as unique architectures or models.

In their discussion of the evolution of ubicomp, Dourish and Bell [7] discuss the early visions of mass consumerism, which led to the proliferation of Internet-enabled phones, GPS devices, wireless networks, and 'smart' domestic appliances. All of which we now take for granted and this proliferation of technologies forms the substantial business of technologies today. As a result of mass consumerism, content generation tools proliferated along with Web 2.0. This provided the technical conditions for a rise in participatory culture [9]. In a discussion about these tools, Jenkins et al. [9] claim that this era can be defined as the emergence of participation. In fact, they suggest that the unique features of participatory culture supports relatively low barriers to artistic expression and civic engagement [9]. They also argue that games, especially, have developed infrastructures that support the creation and sharing of ideas, along with a type of informal mentorship whereby what is known by the most experienced, is passed along to novices [9].

In the book *City of Bits: Space Place and the Infobahn,* William J. Mitchell explains when considering physical sites, buildings are distinguished from one another by their differing uses, and that the inventory of those uses have manifested in the social division and political structures of the real world [11]. In a similar nature, since the beginning of the Internet, virtual architects have built sites for people to assemble online, and are designed for various uses and these have mimicked the prevailing social and political structures. Consequently, ubicomp's inherent infrastructure as a technology intertwines virtual and real world sites and recognizes the occasion as the perimeter of the interactions. By analyzing the sites and occasions, we can develop a clearer understanding of the social behaviour driving the activities that, within themselves, could form unique architectures.

Turning to LBGs, we again see similar concepts emerge where games have the potential to construct a "place" with rich social and cultural meaning for players. Benford et al [5] introduce a concept called the *performance frame,* in which the stage is set and the techniques used to introduce the audience to the performance are clearly defined. They give an example based on conventional western theatre that employs rituals (ticketing, calls and so forth), a complex spatial structure (the foyer, auditorium, stage, proscenium arch, wings and backstage), and other technical effects (sound and lighting) to frame a performance [5].

Whether we use the term: framework; model; performance frame; or narrative structure, the purpose of this study is to identify design strategies for creating culturally-embodied LBGs.

CULTURAL ANALYSIS
We chose to focus our analysis on two LBGs—Uncle Roy All Around You (URAY) and Project A.P.E.—because of their stated differences in intended goals. URAY was a performance art piece meant to cause critical reflection on trust and strangers [5,17], while Project A.P.E. (documented on various websites, e.g., [15,16]) was a marketing campaign in order to promote the movie, Planet of the Apes. In the next sections, we describe both in more detail and analyze the ways in which they embody culture through sites and occasions.

Artist and Game Intent
URAY was a collaboration between a collection of artists at Blast Theory and the Mixed Reality Lab at the University of Nottingham [5,10,17]. The game was primarily designed as a research platform for the study of LBGs in general. URAY was a mystery game in which Street Players, carrying only a PDA, embarked on a journey through an urban setting to find an auspicious character within a one-hour time limit [5]. Along their way, Street Players received messages from Remote Players (playing online) who helped guide them through various tasks, e.g., retrieving a postcard from a bicycle, visiting an office [5,17]. Conversely, Remote players had to build an alliance with the Street Players to accomplish tasks [5,17]. Through these mechanisms, the game explored trust between strangers [5,10].

Geocaching is a LBG, organized by a company called Groundspeak, where players utilize GPS-enabled mobile devices to try and locate containers, called geocaches or caches, which are hidden at specific GPS coordinates [8,13,14]. Once found, players log their experiences online for others to read about [13,14]. Unlike URAY where players have a fixed time of one hour to complete the game, Geocaching has an unlimited duration, where players can hunt for geocaches at any point in time. Geocaching supports various types of caches, including 'traditional' caches (e.g., hidden as Tupperware containers), multi-caches (with multiple waypoints), and even puzzle caches which require players to solve a series of clues in order to locate the hidden container [8,13,14]. Anybody can create a geocache and it is through this mechanism that the game has grown to such large proportions [13]. There are currently over 1.5 million geocaches and over 5 million geocachers worldwide [8].
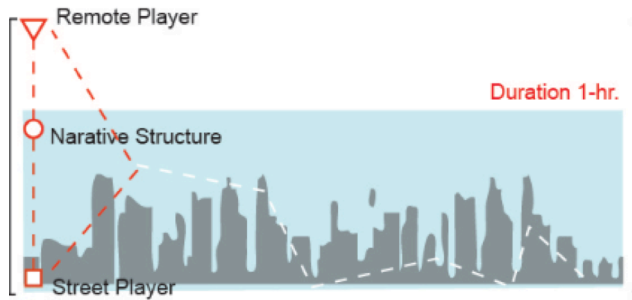
Figure 1. URAY Game Model

Figure 2. Project A.P.E. Model

In 2001, *20th Century Fox* approached Groundspeak with the idea of creating a themed Geocaching event that would coincide with the launch of the new *Planet of the Apes* movie. The event's subplot introduced the discovery of a group of scientists trying to reveal an "Alternative Primate Evolution (A.P.E.)" theory by placing artifacts around the world. Fourteen different artifacts were then hidden as a series of geocaches located in the United States, Australia, Japan, and Brazil. To hide the containers, 20th Century Fox contacted some of the most experienced geocachers and asked them to hide the caches as a community endeavor [16]. This further solidified the event's tie to the existing activity of Geocaching.

Narrative in Uncle Roy All Around You
Based on our analysis of the narrative structure, we can see that both URAY and Project A.P.E. are deeply influenced by scale and the artist's intent.

In URAY, performers and locations were all extensions of an emergent dialogue between the Remote and Street Players over a fixed hour-long period. Street Players faced the challenges of exploration with a Remote Player who offered direction. The negotiation between these two players became the actual narrative of the game and it was through this negotiation that the cultural understanding of trust and relationships emerged. The PDA was the mediator: The game started when it was handed to the Street Player and ended with its removal. People's experiences of the game varied dramatically [5,17]. Street Players reported apprehension in negotiating wayfinding with Remote Players (or strangers) and many players reflected on the game experience as being a part of a cultural event, like an interactive artwork [5,17]. In this way, we see *both* technology (as mediated by the PDA) and culture emerge as core aspects of the game. We hypothesize that because of the game's fixed duration and narrative tie between two players, the game did not reach an epic scale, as suggested by McGonigal [12].

Figure 1 depicts our cultural analysis of URAY and the relationship between players and narrative. On the top, we include the Remote Player whose path through the game across various locations (from left to right in the Figure)
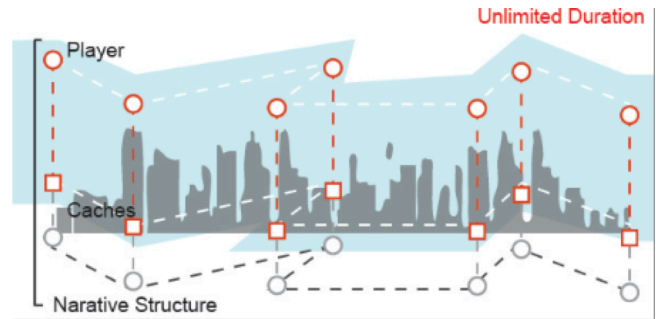
intersects with the path of the Street Player (emerging from the bottom-left of the Figure). Together, they create a path through the game, the white dashed line in Figure 1, which provides the narrative structure for both players. This in turn embodies aspects of culture and reflection in the game.

Narrative in Project A.P.E.
In Project A.P.E., the narrative structure was pre-created by 20th Century Fox and mapped on to physical artifacts placed at various locations chosen by actual end-players. Thus, there was collaboration between the studio and actual game players. For players hunting for the geocaches, the actual subplot was unknown and, instead, was linked to the discovery of each geocache. Players could participate at any point in time and, thus, unlike the case of URAY, participation in Project A.P.E. was much more episodic.

Because Project A.P.E. was embedded within a larger game with a well-established player-base, the existing customs and culture of Geocaching [13,14] served to foster the culture of Project A.P.E. itself. For example, the established Geocaching community negotiated the processes for searching and finding geocaches, the risks involved in locating each cache were communicated through the existing channels of the Geocaching website as players recorded and commented on their hunting activities, and a form of mentorship was displayed through each geocache's webpage and the details of logged visits.

Because of this, and unlike URAY, the orchestration of Project A.P.E. was of an epic scale: It brought together thousands of players and recognized top placers for their skill within the community. What this also means, however, is that the cultural aspects of player participation were not necessarily the result of the sub-plot alone. Instead, cultural meaning and understanding came at least partially from the pre-existing culture found in Geocaching.

Figure 2 depicts our cultural analysis of Planet A.P.E. and the connections between players, game content (caches), and the narrative structure. First, the dashed line at the bottom shows the narrative structure as planned by 20th Century Fox. There are several points (circles) that contain particular portions of the sub-plot—these reflect each of the hidden movie artifacts. In turn, each of these is mapped on

to a geocache depicted by squares in the line above. The top white dashed-line shows a player who can be tied to the caches either by hiding them or finding them. When hunting, the player can visit any of the geocaches much like s/he would within the normal game of Geocaching. Yet these are in turn linked to the narrative structure. When hiding a cache, the player is also linked to the sub-plot of the narrative.

DISCUSSION AND CONCLUSIONS

In order to understand how LBGs might be designed to more deeply embody cultural context, we have analyzed two LBGs, Uncle Roy All Around You and Project A.P.E.

Our analysis reveals that URAY embodies culture through a two-step process. First, the designers of URAY (the artists of Blast Theory) create a situation and series of events that players can work through where the events are carefully structured to focus on a particular cultural aspect. In this case, trust. This provides the framework for the narrative structure of the game. Second, as players work through this framework they negotiate a narrative together. This negotiation creates new cultural understandings about trust, relationships, and strangers.

On the other hand, Project A.P.E. embodies culture through two different mechanisms. First, game players help create the culture of the game by hiding game content that is tied to a larger sub-plot created by the game's designers (at 20th Century Fox). This type of end-user creation is not found in URAY. Second, Project A.P.E. was placed within the already existing culture of Geocaching to draw on its pre-existing social customs and norms and large player base. This created a sense that one's own experiences were tied to a much larger community of players.

We see value in both these approaches as they offer unique ways to utilize participatory culture to create compelling cultural experiences within LBGs. Our suggestion for creating new culturally-embodied LBGs is to combine the approaches found in both games to create a hybrid model. Here it is important to incorporate the use of a core technology (as both games did) to ensure the game is a technical product, yet this should be coupled with mechanisms to also construct the game as a cultural product. This would involve selecting a core cultural theme to investigate (e.g., trust in URAY), constructing game play to draw out that theme (e.g., player negotiation in URAY), allowing players to be a part of game content creation to tie them more strongly to the cultural theme (e.g., geocache construction in Project A.P.E.), and then embodying the game in a larger pre-existing social context (e.g., the existing community found in Geocaching).

Our future work involves exploring this model through our own LBG creation and we welcome others to experiment with this approach as well.

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