SPLASH: Perspectives on Mobile Socializing, Playing and Content Sharing

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Abstract
Social computing applications have empowered users to create and share content. Users are able to share rich location-based multimedia information by harnessing the phone capabilities such as Global Positioning Systems and wireless networking. An emerging line of inquiry has focused on the blending of social computing features with mobile gaming. In this paper, we introduce SPLASH (Socializing, PLAying, SHaring), a multiplayer, pervasive social gaming and content sharing application. SPLASH users are able to share location-based content, play games and, at the same time, interact with other users in a virtual extension of a physical space. SPLASH was evaluated in two focus groups to elicit users’ perspectives on the concepts of socializing, playing and sharing on the mobile platform. Our finding suggests that the participants were attracted to the novelty of the application, but felt that there were some improvements that could be done. Implications related to the game design drawn from the evaluation are discussed.

Key Words: Mobile content sharing game, social computing, Games with a Purpose, evaluation.

1. Introduction
Social computing applications have empowered users to create and share content. More of such applications are emerging for the mobile device by taking advantage of the capabilities available in mobile devices such as Global Positioning Systems, cameras and wireless Internet access. As mobile devices become pervasive, users are able to share location-based information without having the need to be behind their desktop computers. Furthermore, by harnessing the multimedia functionalities available in the mobile devices, location-based applications are able to offer media rich information to the user on the go [6].

An emerging line of inquiry has focused on the blending of social computing features with mobile gaming aspects, termed games with a purpose (GWAPs). Put differently, the distinguishing feature in such games is the interweaving of content sharing with game play. The ESP game [1] was one of the earliest Web-based games that were conceptualized with a purpose in mind. The game requires two unrelated players to contribute matching labels to a randomly presented image. The Gopher Game [2] takes this idea further by utilizing location features together with content sharing and game play on mobile devices. Players complete location-based tasks that either requires them to take images of the area or leave textual one-liners about the area. In addition, the Gopher game adds a socializing aspect where players have to cooperate with one another in order to complete the tasks.

The socializing aspect in the games is implicit within the game features. As a consequence, the sense of community among the players is not well cultivated, unlike other game genres such as Massively Multiplayer Online Games (MMOG), which provide avenues for players to be part of the community [4]. At the same time, the tasks in these games are repetitive. The players do the same tasks time and again that would cause them to lose interest and stop playing altogether in the long run.

We introduce SPLASH (Socializing, PLAying, SHaring) a multiplayer, pervasive social gaming and content sharing mobile application. This location-based application combines socializing, playing and sharing for user to explore a virtual space related to a building unit. Users are able to interact with other users, play a variety of games and share information about the virtual space at the same time. SPLASH is distinctively characterized by the fact that it appeals to gamers and to non-gamers who are satisfied with just sharing and browsing for content.

However, without understanding users’ perspectives on the combination of the three concepts could result in the failure of the application. A user-centered approach to design combines understanding the user, task and context of task. As previous works have focused primarily on user experience and the acceptance of the implementation [e.g. 2, 3, 8, 10], research on user needs are limited. The gap between users’ expectation and implementation of the
game has been illustrated in previous works which highlighted the importance in fulfilling user expectation. At the same time, the blending of the three aspects requires researchers to investigate new and innovative ways to implement them.

In this paper, we aim to fill this gap through two objectives. The first objective extends current research by introducing SPLASH. The second objective aims to elicit users’ perspectives on socializing, playing and sharing on the mobile platform. Their perspectives were elicited during two focus group sessions. The outcomes of the focus groups are presented.

2. Related work

The concept of GWAPs drew upon the need for better quality information from user-generated content. The ESP game is one of the earliest games developed with such a purpose in mind [11]. In this game, the players and their anonymous partners contribute matching labels to an image. The resulting labels are intended to be used as keywords in improving image search. Similarly, Verbosity [13] players help collect commonsense data that could be used in search engines. Players have to guess the word that had been described by their anonymous partners.

On the mobile platform, location-based games with a purpose are emerging. The Gopher Game [2] requires players to cooperate with each other in order to complete location-based missions by contributing either images or textual content. Gopher game also includes similar features as the ESP game such as geospatial guessing game where the players and their partners contribute matching labels, or tags, to describe their current location. The matching labels aim to provide an accurate description of the location. As for the socializing aspect, the success of the mission is judged by a group of players where points are awarded based on perceived difficulty. However, the quality of the contributed location-based information is encumbered by the lack of quality control mechanisms. Next, Indagator [8] also combines gaming elements and location based-content sharing. In terms of the content sharing features, players are able to share and browse through media rich location-based annotations. The gaming feature forms another layer over the player’s actual physical environment so that interaction with game objects and other gaming features are done within the real world. Players earn in-game currency through rating annotations, contributing annotations and engaging encounters. The socializing aspect in Indagator is, however, not examined.

Players in CityExplorer [10] challenge each other to create the most markers, which are made up of photographs, within an area segment. By taking advantage of the players’ local knowledge, a repository of location-based information is created. In order to motivate continued play, credits are given to the player who had created the most number of valid markers. Like the Gopher Game, the quality of the information created is reviewed by other players. Players are able to socialize with each other through the competition derived from the accrual of credits.

Eyespy [1] leverages on the idea of CityExplorer further by including a quality management mechanism, where players contribute photographs and other users judge the tags associated with the photographs. The difference between the two applications is that the photographs created in Eyespy are judged via the application itself. The photographs contributed are overlaid on a map to support users in orienting the map with the physical environment. The players score points whenever their photos or textual tags are confirmed.

In other mobile applications such as Four Square (http://foursquare.com/), players check into places and leave tips about the place for other players. At the same time, they are able to share their current location with their friends through Twitter. Players that frequently check into a place are given the mayorship title. Similar concepts are found in Gowalla (http://gowalla.com/) and Brightkite (http://m.brightkite.com/). The content available in these games is limited to only textual content.

3. Introducing SPLASH

SPLASH builds upon and extends an earlier game development framework named MARGE [3] to accommodate functionalities that support socializing, gaming and content sharing. By harnessing location-based capabilities, SPLASH users are able to explore their current locale with the information contributed by other users. Users are able to explore their local and share information about an area, a building or a unit in the building. Each unit in the build has its own corresponding virtual space.

These virtual spaces (Figure 1) form the crux of this application in which users interact, share content and play games. These spaces are commonly integrated in games to establish a sense of community among players [4]. We go further by enabling users to contribute items into the virtual space with the intention of instilling community ownership among them. However, the accumulation of items in the virtual space could possibly lead to clutter. Thus a mechanism to overcome this was put in place. That is, as long as there is a user who interacts with the item,
the item remains in the space. If users rarely or do not interact with the item at all, it will be removed.

Figure 1. An example of a virtual space.

3.1. Socializing features

Users are able to socialize with one another through a variety of features. These features are added with the intent for users to interact with each other to create a sense of community and are also typically found in other game genres like MMOG [5].

The virtual spaces in SPLASH provide a primary platform for users to socialize. Before the user can start interacting with others, the user has to first “ting” into the space. The user taps onto the bell icon on the top left corner of the interface (see Figure 1) and the user’s avatar will appear.

Next, the chat system in SPLASH enables the user to communicate with other users who had “ting” into the virtual space. Chat bubbles appear on screen when a message is sent. Figure 2 shows the interface for the chat system. Due to the limited screen size of the mobile device, we have incorporated a mechanism that transforms the avatars to spheres in order to overcome the problem of having too many avatars in the virtual space (Figure 3).

Figure 2. In-built chat feature
Figure 3. Transformed avatars.

3.2. Game play features

Users’ actions drive the game play elements in SPLASH. That is, users are able to earn in-game currency when they socialize and share content in addition to playing games. The currency earned could be then used to customize virtual spaces and users’ avatars. Mini-games exist in the virtual space to add variety to the gaming environment. There are two types of mini-games, namely, casual games and GWAPs. Missions are another type of games that encapsulates both mini-games.

Casual mini-games are essentially games which do not require to users play for a significant amount of time. Mini-games often act as time fillers or Easter eggs in games [9] and such games are suited as mobile games because these games are played in short bursts during interstitial time. For instance, mini-games such as Frogger and Snake, in most cases neither have the need to generate information, nor do they require any information from SPLASH’s database as they are played purely for enjoyment. Figure 4 illustrates an example of a casual game called Frogger. The user is tasked to bring the frog, represented by the green icon at the bottom of the screen, to the other side of the road by avoiding obstacles such as oncoming traffic.

Mini-GWAPs, in contrast, are games that use the information from SPLASH’s database to either display interesting information to the user, or generate more information after the game has finished. It follows a similar concept to the ESP game [11] which is motivated by the prospect of generating quality content. Like mini-casual games, these acts as time fillers, but are able to enrich the information environment. Figure 5 illustrates an example of a mini-GWAP.
3.3. Content sharing features

Users are able to share content about physical locations as well as about virtual spaces in SPLASH. Such content consists of tags, textual information and multimedia, are encapsulated with location-related information of the virtual space. A rating feature is added to improve the quality of content [8] as the aggregated rating score provides a measure of information quality. Figure 7 illustrates an example of a comment. At the same time, users are able to post comments on the comments that have been posted by other users. Content is accessible via a list view (Figure 8). This list provides comments that have been posted nearby, saving the user the trouble to look for useful information related to the location.

SPLASH’s content sharing feature could also be used as a socializing facility. Comments can be seen as a forum as users are able to post messages and providing a platform for users with the same interest to socialize. In order to further facilitate socializing among users, a “friend” function allows users to add other users as friends. This allows them to get updates of the comments that their friends had posted and also to send private messages to their friends.

4. Study Methodology

A study was conducted to elicit perspectives of potential users about the blending of socializing, playing and sharing into a single mobile application. This was done via two focus group sessions. The first focus group comprised technology-oriented participants while the second group comprised hard-core gamers. The aim of including different groups was to attain diversity in perspectives.

The ten participants were mobile-savvy people as eight participants reported that their current mobile phones were one of the latest models available on the market. At the same time, eight participants highlighted that they are the first to get new mobile devices while seven participants mentioned that they are the first to try mobile services. Participants also reported sharing content and using social networking applications about once a week. Finally, the participants rarely used their mobile phones to play games on social networking applications. Perhaps this is due to
the fact that there are not many social games available for the mobile phone.

Each focus group discussion started with a briefing where the ground rules were set. This was then followed by an introduction of the game concept. Here, the participants shared the mobile applications and the types of games that they play. They also highlighted the limitations of these applications. Discussion of the game’s features then followed. The questions asked were related to the usefulness and usability of the features. Participants were asked what they liked and disliked about the game. At the same time, suggestions were elicited on how the features could be improved. The hour and a half sessions concluded with a debriefing by the moderator. The focus group discussions were later transcribed and were coded for analysis.

5. Results

In general, both groups of participants found the prospect of blending all three elements of socializing, playing and sharing for a mobile application appealing. Participant B (T: Technology-oriented group) thought that “blending between gaming and sharing contents is quite interesting... it’s... motivating in a new way”. They felt this way because information sharing, as put by Participant E (T), is not usually seen as an “enjoyable activity”, in contrast to playing. Perhaps the reason for this is because the participants are new to this concept and have not eased themselves to the idea.

5.1. Socializing features

In terms of socializing features, the participants saw the importance of the chat feature as it facilitates the interaction with other users. They found the chat bubbles to be both “interesting” and “amusing”. However, they felt this feature could be further improved by making it into a chat log commonly used in instant messaging. This improvement was suggested because the chat bubbles would clutter the screen and mar their user experience.

The participants were also keen on the idea of having avatars, particularly on the prospect of customizing them. This is because the avatars not only function as an identity but also as a virtual presence for them. As their avatars would be transformed into spheres, they were not too keen on this aspect. They felt that transforming their avatars into spheres when there were too many avatars in the virtual room would not motivate users to use the application. They justified that they had “spend so much time to earn the money to” personalize their avatars [Participant H (G: Hard-core gamers group)]. Instead, the participants suggested that users could view the virtual space at different zoom levels depending on the number of users in the space.

5.2. Game Play features

The participants welcomed the idea of having a virtual space for them to interact with other users, play games and also to share or obtain information. They were willing to contribute items into the space as it provides them a sense of ownership to the space. However, improvements were suggested to the idea of removing the items that have few interactions from the room. They felt that having the items remove with the objective to de-clutter the space would not motivate the users to contribute to the space.

As for blending content sharing with gaming, participants found mini-GWAPs to be an engaging way to learn not only about the virtual space, but also the users that frequent the space. This point is highlighted by Participant C (T), “(mini-GWAPs are) useful as in, to see the general opinion of others”. Suggestions were made to further make the games less susceptible to abuse. Additionally, the participants particularly liked the idea of having a variety of casual mini-games developed by different developers as they would not be subjected to play the same games at different virtual spaces.

5.3. Sharing features

With respect to the content sharing features, participants found value in this aspect of the application. They felt that the comments would be able to provide reliable information based on the ratings given. This is a salient feature which could further provide context dependent recommendation to the users. Participant G (G) echoed this sentiment, “(the comments) provide an idea for me to dine, (especially) when I have nothing in mind”. This function could be further improved with the implementation of a context aware recommendation feature. In turn, this feature could then provide personalized recommendations to users based on the context, such as location, time and profile of the user.

5.4. Overall impressions

At the end of the focus group sessions, the participants were asked if they would be using the application. All of the participants shared that they would use it primarily because they were attracted to the novelty of the application. Participant F (T) sums this nicely: “It’s quite interesting because I’ve never seen any (application that) combines the three (aspects)”. It is interesting to note that
the general interest in the application is from both the hard core gamers and the technology oriented participants.

6. Discussion and conclusion

Blending socializing, playing and content sharing is a new concept requiring innovative methods to be implemented into an application. Understanding users’ perspectives on the blending of the three aspects from the initial stage have not been explored in prior work. To reiterate, the first objective of this paper is to introduce a location-based application that combines gaming with content sharing and socializing called SPLASH. Its users are able to share location based content, play games and, at the same time, interact with other users in a virtual extension of a physical space. Similar to other work like Gopher [2], Indagator [8], CityExplorer [10] and Eyespy [1], we aim to investigate the use of games for content sharing. The lack of quality content in Gopher is mitigated in SPLASH by the availability of rating feature for comment and reporting inappropriate content. At the same time, the virtual spaces in SPLASH provide a platform for users to socialize which is in contrast to Indagator and CityExplorer. SPLASH also offers a myriad of games to overcome the repetitive tasks found in other games.

In addition, the second objective is to elicit users’ perspectives on socializing, playing and sharing in SPLASH. Two focus group sessions with different profiles were conducted to elicit their perspectives. Two main findings emerged from the focus group discussions. Firstly, socializing features are found to be crucial in content sharing and gaming applications as the participants found saw the importance of such features. This is because they are able to form a community of like-minded people. The socializing features need not only be those which possess characteristics like a chat feature but also those which are implicit in other features such as comments and ratings. Secondly, game design should look into creative ways in which information could be harnessed. The game has to be not only enjoyable as a form of entertainment [7], but also to motivate users generate better quality information.

Due to the nature of this study, the generalizability could be reduced as the number of participants was small and limited to those who were primarily early adopters of technology. The discussions have yielded valuable ideas that could help improve the usability and game design aspects of the application. Thus coming up with design guidelines and evaluation heuristics could be part of the future work. At the same time, this study primarily elicited the initial perspectives of the user on the three aspects. It would be interesting to investigate the motivation and behavior of the users while using SPLASH. This future work can draw upon other methodologies such as diary studies, interviews and observational methods.

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7. References


