Work-in-Progress

Avatarians: Playing with your Friends' Data

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Abstract

This article describes a new game mechanic called Game Entity Social Mapping (GESM) based on using social networking data fetched from a remote site about the player and his contacts to create characters, items or scenarios. A preliminary evaluation consisting of applying this mechanic to three different games was conducted. A small number of users tested those games to measure the enjoyment and learning about their contacts information.

Keywords

Game mechanics; Playable Data; Social Networks

ACM Classification Keywords

H.5.m [Information Interfaces and Presentation]: Miscellaneous.

General Terms

Design, Human Factors, Experimentation

Introduction

Social games attract millions of players using the infrastructure offered by the social networks. Even casual players are captivated by the idea of playing alongside their friends or competing against them. The social mechanics employed in the most popular

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Facebook games have been extensively studied [6]. Nevertheless these games are strongly criticized by the community of developers and also by some traditional players. The main reason is that they use social information only to monetize the product and therefore there are no social mechanisms that improve the gameplay or fun beyond that [3].

In the last years many websites are being created using data from external sources, such websites are called mashups [9]. These sites fetch and combine data from several external sources to create new services. These mashups sites use technologies such as REST, JSON or RSS to access remotely data sources from other services and integrate such data on real time into the application. A few games have also used this paradigm and technologies to implement novel games such as SalubriousNation [5], HangMan [7], PhotoGrab [8] and TweetLand [11].

Furthermore social networking sites provide access to data of users and their contacts through the same technologies, we propose to explore how to use this social networking data fetched from social networks services to improve the gameplay or fun and possibly, to create new serious game applications. Our approach is a new mechanic called GESM "Game Entities Social Mapping" consisting in mapping over game entities (player, Non Playable Characters, enemies, items or levels) data available from the contacts of the player through one of their social networks (name, photo, gender, age, language, friends or hobbies). Considering that it is possible to apply the mechanic in a variety of ways and over different types of games, three mini-games were developed. A study with a small group of users was conducted in order to measure the enjoyment and learning about your contacts information on each of the games.

Related Work
Salubrious [5] uses public government data to create levels or tests which make aware or inform the user. Despite of being related to GESM and sharing some of their difficulties [4], it does not work specifically with social data close to the people and is based on tabular data.

TweetLand [10] is a collection of games which its most distinctive feature is that they fetch different keywords from the Twitter message sharing site in real time to trigger certain actions in the game. Although it uses real data, it does not provide complex knowledge or facts related to the people around the player.

HangMan [7] is the classical game of the hangman but the sentences to be guessed are fetched from a live news feed. PhotoGrab [8] is a collection of puzzles in where the pieces are customized with pictures of your friends.

Design and Implementation
In order to test this new mechanic three mini-games have been designed and implemented, all of them accessed from a single application called Avatarians[1], this way we will prove with which game genre does GESM work best. We decided to use the Facebook social network as it is the most popular one and provides tools for querying the platform.

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1 Playable version at http://apps.facebook.com/avatarians

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The implementation was made using the AS3 programming language for the Flash Platform because it provides the functionality needed to develop a videogame and easily distribute it from a Web page. It also has a specific API to query the Facebook platform and to manage user authentication.

The purpose of the games is to test the mechanic, so aspects that do not assist in this objective have been simplified. The stage on where the different game elements are shown is a static image completely covered by the camera, the entire game scenario is displayed on the screen this eliminates the need for mini-maps or more complex navigation systems. The playable characters called avatarians are designed to maximize the area available for placing the profile picture and to allow the player to recognize his contacts more easily.

When the player enters the game's website, either from Facebook or through the direct URL, his browser executes the application. Then he is asked to authenticate and permissions to access his friends' information are asked, not only with informational purposes but also as the OAuth 2.0 protocol requires. Once done, the game downloads the player's friends list, presents information about it, and displays a main menu in where you can choose between the three available minigames.

Considering all the game entities in which the contacts could be mapped, we have decided to map player contacts into playable characters. Furtermore in the game *PhotoTwister* photos are mapped to surfaces in where tagged people have to be entered; in the game *Friend's Quest* information about language, sex, age or

location is used to create various challenges and in the game *Fight your Hobbies* each of your friends hobbies become an enemy to defeat.

Facebook Data ➔	Game Entity
Friends identity and profile picture. →	Characters
Photos of friends and photo tags. →	Challenge Items
Friends languages, age, gender and location. →	Challenge Items
Friends groups and likes. →	Enemies

Figure 1. Social Mapping of Facebook Data into Game Entities in initial Avatarian games.

The objectives of each implemented game are as follow: in *PhotoTwister* (figure 2) in order to advance in the game you have to move into the picture those avatarians which are labelled on the current photo. The goal is to identify persons who appear in five photos in the shortest time. When any of the characters inside the picture is correct a green frame highlight the photo, when all of them are correct they get immobilized and a button to go to the next photo is shown.

In *Friends Quest* (figure 3) to overcome each of the challenge it is necessary to send into them characters that have a particular skill or attribute. Whenever a test is solved another one is immediately spawned at a random position, consequently there are always three active tests. Each time a test is passed the game score will get increased and a text message indicating why it has been correctly solved will be revealed. If the test is failed, some points may be subtracted and a popup indicates the reason of the failure. The objective of the game is to score as many points as possible in one minute. Some tests are programmed to be passed using only one avatarian whereas others need two of them. Only those tests which are solvable by the current team of contacts are elected to appear.

In *Fight your Hobbies* (figure 4) when a contact fights with the representation of a hobby that he has, significant combat advantage is given to the contact, thus the player is rewarded every time he remembers the hobbies of a contact. When a hobby dies a certain amount of money is added, with the earned money new contacts that appear in the top left can be bought, the price of the contact is determined by the number of the hobbies that he have. When all of your contacts die, the game ends.

Figure 2. PhotoTwister: multiple player's contacts appear at both sides of the screen, in the centre different photos are placed. These photos are downloaded from the social network site together with information about who is present in the photo: the photo and tags were entered by a contact of the users.

Figure 3. Friend's Quest: eight player friends' will be randomly placed across the screen and also three challenges represented by items: two planets and the granny in this game play.

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Figure 4. Fight your Hobbies: two contacts start in the center of the screen, from offstage enemies appear and move towards our characters. Each of these enemies is a hobby or interest represented by their photo of the Facebook page, they can attack our characters, just as our contacts can attack them.

Preliminary Evaluation

It has been conducted a preliminary experiment with eight people, trying to gather individuals with different characteristics: age (M=38.4 DEV=12.68 MIN=24 MAX=59), gender (2 females y 6 males) and number of social network contacts (M=64.5 DEV=28.75 MIN=16 MAX=105). Two of them used the game with a Facebook account different from their own. Everyone played 5 minutes to each game, once finished the three-game tour they were asked to fill in a questionnaire scoring from 1 to 5 the enjoyment and how much they have learned about their contacts. Additionally an open question to determine the most fun aspect of each game was made for the three of them.

In the first game the most fun feature for the users was recognizing the faces in different photos and to see some pictures that they had not seen before. In the second game users commented that discovering the oldest or the youngest of a group of contacts was the most entertaining aspect. For the last game the majority agreed that the most interesting and attractive element was the closeness of the game to a real action one and the objective of survive. For the *Friend's Quest* game an extra question was made in order to determine which are the easiest and the most difficult tests. Gender tests are commented as the easiest whereas those related to ages are the most difficult to identify and overcome by users.

Although fun average of the games is not significantly higher (3.3 playing with contacts versus 2.6 when the user plays with a stranger account), in the game *PhotoTwister* GESM is especially effective because it makes the activity of recognizing faces twice more fun.

The knowledge acquired by the users has a high social component, mean learning about contacts is 3.3 compared to null when they do not play with their contacts.

There was a user who got stuck in a test while playing *Friend's Quest* game, this was caused because his youngest friend had configured 105 years in Facebook. Something similar happened in the game *PhotoTwister*, where multiple users took longer than usual since in some of the pictures in where their friends were labelled, only appeared objects: a box of cookies, a ticket for a concert or a Christmas card. Considering all of this we must be particularly careful when dealing with information coming from social networks as it may be undefined, of variable size or false. We could modify the games so that the user can at least continue

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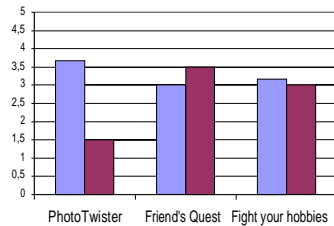
Figure 5. Average rating of fun, playing with their account (blue) and with a different one (garnet) at each game.
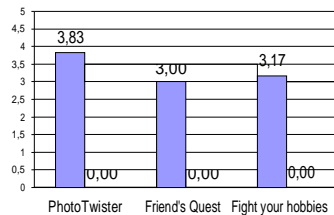
Figure 6. Learning about their friends perceived by the players, those whom did not play with their contacts could not learn or discover.

playing despite of such situations, some examples are: a skip button in PhotoTwistter, textual feedback in *Friend's Quest* and the ability to fight all the hobbies in *Fight your Hobbies*. As a more general example, in all the games users can click the pause button for browsing Facebook information without the game taking its course.

Future Work

The current results indicate that GESM is a new mechanic that developers can use to enhance their products, consequently there will be a study with more players and using a standardized questionnaire [2].The main objective will be to measure how much GESM improves the enjoyment in each different game genre.

Several users expressed interest in being able to play beyond the experiment for discovering new photos or recent contact information. Future evaluations will measure the sustained engagement of the players. The fact that a person continues showing interest in playing a game over time is of particular interest to social games developers, especially for those in where revenues come from advertisement.

All available data from Facebook has not been exploited, this is due to the scarcity of it or the complexity of adding it to game rules. Nonetheless, existing friend relations between contacts can be of great interest as shown in the Social Graph app [9].

In addition to Facebook and Twitter, other social networks provide access to user's contacts, such networks have different purposes, as making business contacts in the case of LinkedIn. Therefore we think that other kind of games could be created.

Related to the latter point, it seems particularly interesting to apply GESM in serious games. To train, teach or persuade a user is increasingly necessary to use realistic contexts or familiarly information for the player [1], we intend to explore how to make use of GESM mechanism for new serious game objectives.

Acknowledgements

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