

Guidelines for the Gamification in Mobile Social Networks

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Abstract. Among those responsible for the large amount of content on the internet are the social networks. With the popularization of the mobile devices there has been the emergence of the so-called mobile social networking, which has changed the way the users relate to applications. In the quest for improving the user experience in mobile social networking, the gamification (the use of game design elements in non-related games) has played an important role. This article presents an analysis of data from two case studies and, from the results, suggests guidelines for the use of gamification in mobile social networks.

Keywords: Gamification; Mobile Social Networks; Foursquare; GetGlue; Design Guidelines.

1 Introduction

Among the major contributors to the flow of content on the internet are the Social Networks (SN). Along with the SN, mobile devices have changed the way users relate to applications, since mobility introduces a number of technologies specific of such devices. From the concepts of SN and mobile networks emerged the Mobile Social Networks (MSN).

Thus, according to [11], the user's concept has changed from a cog in an organizational machine to a partner in an interactive system, a final consumer and, more recently, a producer of content. Due to this change, a strong and new focus is the user engagement in using the system [11].

On the other hand, the popularity of videogames has grown dramatically in recent years and the videogame industry has become the fastest growing entertainment. To [2], the digital games occupy leading role as an element of culture, especially in places like the United States, Europe and parts of Asia.

According to [11], the use of techniques from other areas that support the design of interaction between user and application has a rich tradition in Human-Computer Interaction (HCI), and design-based games, despite having originated in the early 1980s [12], is a strong trend in HCI, especially when the goal is to create engagement and improved user experience.

In the search for techniques that increase user engagement with the application, gamification techniques, have been proven to be a viable alternative.

Gamification is the use of game-design elements in non- game contexts [7]. This concept rapidly called the attention from the fields of interaction design and digital marketing. Several applications have been launched in areas such as finance, health, education, sustainability, news and entertainment [7]. However, according to [7], little academic attention has been given to the way these game-like applications are built. Most of the systems considered “game-like” only repeats the formula of points system and rewards used in Foursquare [7].

To better understand, not only the gamification concepts, but also the best way to develop new game-like applications, it is necessary to understand the features derived from the games that the current applications use, as well as the users’ behavior in face of these elements.

In this sense, this article seeks to identify the users’ perception of the game elements on MSNs, and from the results obtained, it proposes guidelines for the use of gamification in this context. As examples of MSN, we use the applications Foursquare and GetGlue.

Foursquare is a MSN based on geolocation. The application has four main elements of user interaction: Check-ins (action that the user performs to post their locations at a venue, using the GPS of the mobile device); Mayorships (given to the user with the highest number of check-ins into a venue); Badges (virtual rewards won according to the accomplishment of certain challenges); Scores (rewards for each check-in performed). The scores are listed in a ranking and are compared with the friends’ scores in the social network. The user who has the highest number of check-ins becomes the “mayor” of the place and his profile is shown to all other users who performed the check-in in that place. The system also has some methods to prevent misuse of the tool. In order to perform the check-in contextual elements are performed, such as the GPS, cellular antenna triangulation and the network location where the user is.

The GetGlue is a social network-based entertainment content, such as films, books, video games and television programs. The focus of the application are mobile devices, but the system has a web version with all the features. On GetGlue, the main elements of interaction with the user are Check-ins (action performed by the user to post what entertainment is being consumed); Scores (won in every check-in); and Stickers (virtual rewards won for fulfilling certain challenges).

In order to reach this goal, two case studies are performed initially, the first using the Foursquare application and the second using the GetGlue and Foursquare applications. The first case study seeks to diagnose if there is a relationship of interest in the score by users, especially when related to sharing in the social networks. The second case study investigates how the elements of games influence the motivation for the use of the applications and which of these elements may be relevant to design interaction.

2 Related Work

Most of the current research on gamification has been focused on the user’s perception in relation to the elements of games. [18] removed the game elements from a

social software, aiming to analyze behavior of users who were already accustomed to the gamification. The authors obtained a significant negative impact of user activity on the system, achieving a significant drop in the amount of collaborative content placed on the software. [1] studied the social and psychological effects triggered by the use of badges in applications. Among the effects listed are the setting goals, capacity for instruction, creation of status and self-assertion, building reputation and identification with the group.

On the other hand, more recently, researches started to emerge with proposed guidelines and frameworks for the implementation of gamification in various software. [17] proposes a framework of gamification for virtual learning environments, applying the framework presented in an existing tool whereas [9] proposes a generic architecture, based on gamification for corporate application. [15] seeks to identify good practice examples of successful applications by using gamification, however concluded that such standards and best practices are not well established in the industry.

However, besides having only initial results, such studies are based only on the existing literature, without regard to case studies with users of existing applications. Furthermore, these studies have not produced guidelines and do not address mobile applications or the MSN.

3 Initial Case Study

To analyze the behavior of users in applications that use gamification, a questionnaire was carried out using a MSN, Foursquare, which was selected as one of the most popular applications using gamification [19] and is considered one of the main contributors to the use of gamification [7].

The questions were elaborated based on previous works on the subject, especially the researches by [13] and by [19]. [13] investigates the experiences gained by users of a system for sharing images using a system of points and achievements, focusing on the analysis of the system as a whole and not only the perception of the game elements. Whereas [19] relates the elements of games to the user's status in relation to social group, regardless of the kind of application of game elements.

The data analysis was performed through a qualitative approach and the participants of the research were identified with the letter "P". Twenty-three users were analyzed and three users of MSN with ages from 16 to 40 years. From the users analyzed, seventeen were male and six female, and divided between occasional users of the Foursquare (eight) and frequent users (thirteen), and ten users accessing the system more than twice a day.

Among the users who answered the questionnaire, the majority (fourteen) do not believe that the points system on Foursquare is something relevant as shown in Picture 5. Among the reasons raised P5 said that "There is no impact outside Foursquare", citing the fact that the score is not shared on other social networks, unlike Badges and Mayorships. P19 said "I do my check-ins aiming to share my location with my friends", reinforcing even more the importance that users give to the social aspect of the tool.

Among the users that believe that the Foursquare score system is something relevant, more than a half (twelve) of the users attributed the relevance of the points system to the competitive aspect of the tool on Foursquare. P20 said that "The points create a health competition among users, encouraging me to use Foursquare more". P14 said that "Points are important to me because they show how popular I can become (not only among the friends added) in environments/places that I go more often".

Although the majority of users do not believe the scores of application as something relevant, 70% (sixteen) of the users describe a positive feeling, like a sensation of victory and enthusiasm, when they are given a Badge. The same is true for Mayorships, where 78% (eighteen) of the users describe the same positive feelings.

The initial case study showed that the score, despite being a major game mechanics applied to Foursquare, is not as significant for this group of users. According to some users analyzed, this is due to the fact on Foursquare, there is no score sharing functionality in other social networks. This result may be related to the work carried out by [13], in which it was observed that part of the users of systems that use gamification are indifferent to the elements of games, but not opposed to them.

Badges and the Mayorships, which can be shared with external tools, showed that there was a relationship of interest in the score when the information is shared in the users' social networks. These results can be related to the status that the individual has in relation to the social group that, according to [19], is the most important reward for the user in an application which uses gamification.

4 Final Case Study

For the final case study two questionnaires were designed and applied to the users of the Foursquare and GetGlue MSN. Both tools were selected because they are two of the MSNs with the largest community of Brazilian users.

The form applied had similar characteristics, just adapting questions to the specific features of each application. The forms had five questions about the user's profile, three questions on the frequency and how the application is used, seven on the users' perception of the game elements and one question about privacy concerns when using the applications. The questionnaire was designed based on issues raised in previous works and researches. Particularly, it took into account researches by [4] on how gamification can disrupt other ways to instill motivation in applications. As in the previous case study, researches by [13] and [19] were considered when designing the questionnaire.

Thirty-one users in total, ten from GetGlue and twenty-one Foursquare users. Of the thirty-one users who responded to the questionnaire, 5 had high school and 22 had at least higher education, 9 had specialization, 2 had masters and 3 had doctorates. The average age of participants is 27,6 years, and the fashion for 24 years. The youngest user was 19 and the oldest 57. Participants were divided into the areas of Information Technology, Education, Social Communication, Civil Engineering, Management and Veterinary, where 17 users are from areas related to information technology.

Of the thirty-one users participating in the research, twenty-nine use the applications on smartphones or tablets. Of these, nine also use the browser features of the applications and just two users only access the applications through a web browser. The majority of users uses smartphones and tablets with Android operating system (eighteen users), followed by the operational system iOS (nine users). Only one user uses BlackBerry and one uses Windows Phone. This characteristic is common to the MSNs, since when they are used in mobile devices; these applications come with a series of contextual information.

In the question "What motivates you to use the application?" the answers "Share location with friends" and "get to know interesting places" were cited by fourteen Foursquare users, while the answer "Share the film, TV program I am watching, books I am reading or songs I am listening" was mentioned by ten GetGlue users. The great majority of users responded with more than two answers, indicating that motivation to use the system is not unique. These answers, especially in this order, confirm the result obtained in the initial case study, which, in turn makes reference to the study by [19].

Despite the motivation for the use of the application, according to most other participants, divided in several aspects, sixteen users indicate the game elements, as points, badges, stickers and mayorships as a frequent motivation to use the applications. Ten users informed that only sometimes the game elements motivate them to use the applications. Five users answered that the elements of games never or almost never motivate them.

In the question "How do you see the Application?", fourteen users classify the applications such as social networks, while nine classify as application to make real time information. Five users see the applications as games and three classify them as tools to receive tips from friends.

Among the users who participated in the research, twenty-four believe that the elements of games are an essential part of the applications, and nine believe that the application would not be interesting without these aspects, while fifteen believe that the game elements complement other features. Six of the users answered that they would use the applications even without the game elements.

From the total of participants, fourteen know other applications that use the gamification. As an example, the applications Alvanista, Raptr, GoWalla and LinkedIn were cited. Most of the users never cheated in the use of Foursquare to win more points or badges, whereas the users of the GetGlue analyzed have opposite behavior, being more likely to cheat an application usage. This may be explained due to the implementations by Foursquare systems against cheating, inhibiting such behavior. These security measures give more justice to the "game" created among the users, guaranteeing that the rules will be respected.

Thus, it is observed that the game elements have influence on the user's motivation, being an essential part of the applications used in the case study. Some users classified the applications as games, which emphasizes even more the need for developing mechanisms which will guarantee that the defined rules are respected.

5 Guidelines

In this session seven guidelines for the implementation of the game elements in applications having characteristics of MSNs are described. These guidelines were built based on the information collected both in the theoretical approach, mainly in the engagement profiles listed by [2], and in the results of the case studies performed. The game elements described by [11] as a basis for the description of the guidelines were taken into account, as well as the adaptation of the model to describe the guidelines used by [4], having in each one the objective, the properties, the description of the operation, the objects of interaction and the textual identification. Also, a medium-fidelity prototype to represent each of the guidelines, allowing for a better understanding of their use was built.

5.1 Guideline 1: Score

The score is one of the game elements pointed by users in the study of initial case, as responsible for creating a “healthy competition” among the users, stimulating the use of the application

Objective: to increase the engagement and foster the use of the system when rewards the users for desired behaviors within the system.

Properties: Competition, instantaneous feedback, status in relation to the social group.

Description of the Operation:

1. The system awards the user to perform a certain action within the system with scores.
2. The system shows the total score that the user has and the quantity of points obtained in the last activity.
3. The system allows for the sharing total points of the user in other social networks.

Objects of interaction: Self-explanatory icons: Self-explanatory icons which explain the need of blocks of texts.

Textual identification: The users’ score must have large fonts, enabling the reading of the mobile devices, without the need of zoom. The score must have a recreational aspect, referencing existing structures in games. The texts must be short, favoring the keywords related to the engagement profile “Predators”, such as “Win”, “Gain”, “Compare”, “Provoke”.

5.2 Guideline 2: Rankings

The ranking is pointed by the users as a “popularity measure” in relation to the users of the applications.

Objective: To increase the engagement and the time of use through competition created among the users, besides providing status to the user in relation to the other members of the social network.

Properties: Competition, status in relation to the social group.

Description of the Operation:

1. The system calculates the user's position according to the score won or objectives accomplished.
2. The system shows a list of users ordered by scores.
3. The system allows for the sharing of the user's position in ranking in other social networks.
4. The system should maintain a history of the users' positions.

Objects of interaction: Self-explanatory: Self-explanatory icons which avoid the need of blocks of text.

Textual identification: The users' names must be in large fonts, enabling the reading in mobile devices. The calculate score must have recreational aspect, referencing the existing structures in games. The texts must be short, favoring the keywords related to the engagement profile "Predators", such as "Win", "Gain", "Compare", "Provoke".

5.3 Guideline 3: Progress Bar

The progress bar seeks to give the users constant feedback, meeting the need identified by [13] with users of mobile applications that use gamification.

Objective: make the progression clear for the user when performing a certain activity, providing constant feedback and stimulating to complete the tasks.

Properties: Constant feedback, feeling of progress, incentive to fulfill tasks

Description of the Operation:

1. The system calculates the progress the user had in a certain activity.
2. In case the activity is finished the system restarts or provides another level of progress, depending on the characteristic of the challenge proposed.

Objects of interaction: Progression: symbols which indicate progression in the fulfillment of the objective must be used; Visibility: the symbols of progression must be visible in all the activities, objectives and challenges that influence the user's progression.

Textual identification: The texts should inform in a short and fast way the level in which the user is and the activity that is being monitored by the progress bar.

5.4 Guideline 4: Challenges and Missions

The challenges serve as a path to guide the user, providing instruction about what types of activity are possible within a given system [1] [13].

Objective: To guide the user towards the best possible experience in the application, optimizing the use of the developed features.

Properties: Objective, Sporadic Feedback, Optimization of the experience of use

Description of the Operation:

1. The system proposes challenges to the users. The challenges must be presented in a structure of dependences, with prerequisites.
2. The system shows the user's progression.
3. The user finishes the accomplishment of an objective.
4. The system presents the next challenges available to the user.

Objects of interaction: Self-explanatory icons which avoid the need for blocks of texts; Progression: symbols which indicate progression in the accomplishment of the objectives should be used; Compact: The icons must be compact, using in an optimized way the networks of mobile internet; Non-ambiguity: the visual information must be associated to only one concept; Familiarity: symbols and/or images which are part of the users' repertoire must be used;

Textual identification: the texts must be in large fonts, enabling the reading in mobile devices. The texts must be short, favoring the keywords related to the engagement profile "Explorer", such as "Discover", "Challenge", "Know", "Visualize", "Explore".

5.5 Guideline 5: Badges

The case studies showed the importance that the sharing of the users' badges in the social networks has about the engagement in the system.

Objective: To increase the engagement through the reward in the fulfillment of small objectives, providing sporadic feedback to the user and building the status of the user in relation to the group.

Properties: Objective, Sporadic Feedback, Status in relation to the group.

Description of the Operation:

1. The system presents the objectives to be fulfilled in order to gain a badge.
2. The user performs the objectives presented by the system.
3. The system gives to the user's profile a badge indicating the fulfillment of the objective.
4. The system offers to the user the possibility to share the information related to the badge of the other social networks.

Objects of interaction: Self-explanatory icons which avoid the need of blocks of texts; Compact: The icons must be compact, using in an optimized way the networks of mobile internet; Non ambiguity: the visual information must be associated to only one concept; Familiarity: symbols and/or images that are part of the users' repertoire;

Textual identification: The texts must be short, favoring the keywords related to the engagement profile "Competitor", such as "Gain", "Win", "Conquer", "Challenge". The texts should be large fonts, enabling the reading in mobile devices, without the need of the zoom.

5.6 Guideline 6: Gifting

The game element “Gifting” searches, through the sharing of virtual items, to create and expand the users’ community. The Gifting element is an important mechanism to create an application with sustainable engagement [10].

Objective: To conquer new users and engage those already existent through the sharing of items and information in the MSN.

Properties: Sharing of items and information, Increase the scope of the application, Collaborative users

Description of the operation:

1. The system makes available virtual items and information to the users according to the fulfillment of challenges or objectives
2. The user shares the items gained with other users of the application or from other social networks, inviting other users to use the application

Objects of interaction: Self-explanatory icons: Self-explanatory icons which avoid the need for text blocks; Compact: The icons must be compact, using in an optimized way the networks of mobile internet; Non ambiguity: a visual information must be associated to only one concept; Familiarity: symbols and/or images that are part of the repertory of the users of the applicative and easily identifiable by users of other social networks.

Textual Identification: The texts should be short, favoring the keywords related to the profile of engagement “Socializing”, such as “Sharing”, “Gifting”, “Inviting”. The texts should be in large fonts, enabling the reading in mobile devices, without the need of zoom.

5.7 Guideline 7: Preventing cheating

To ensure the adequate use of the system with game elements, it is necessary to have mechanism in place to avoid cheating. The case studies showed that when these mechanisms are weak or non-existent, the users use to “trick”.

Objective: To inhibit non desired behaviors and cheating.

Properties: Checking of the information, Guarantee of the application of rules in an equalitarian way to all the users, Reliable system.

Description of the Operation:

1. The system verifies if the rules are being obeyed every time an action which influences to get the score or reward is performed.
2. If the irregularity is identified, the application performs the action, yet does not add the points or expected rewards.
3. The system informs the user about the break of the rules.
4. The system allows for the user to justify the breaking in the rules.

Objects of interaction: Self-explanatory: Self-explanatory icons which avoid the need for blocks of text; non-ambiguity: the visual information must be associated to only one concept; Familiarity: symbols and/or images which are part of the users' repertoire of the application and easily identifiable by users of other social networks must be used.

Textual identification: The texts must have large fonts, enabling the reading in mobile devices without the need for zoom. The texts should highlight the importance of the respect to the rules in game-like applications.

Then, as shown in Figure 1, two prototypes were elaborated to show the implementation of the guidelines "Ranking" and "Challenges and Missions", as example of use.



Fig. 1. Prototype of features showing the use of the guidelines Ranking and Challenges and Missions

6 Conclusions

The relationships between the people were extended to the cyberspace with the emergence of the social software [5]. With the appearance and broad use of the RSM these relationships have been deeper.

Thus, the initiatives to enhance the experience of the users in these environments play an important role in the current scenario. In this context, the integration between social software and game elements has been highlighted. To [14], while 2001s-2010s was responsible for the creation of the social framework, the 2011s-2020s will be responsible for the creation of the social framework of games.

The gamification, as this trend has been called, has been conquering space in the development of applications in several areas of knowledge, as well as academic atten-

tion in the areas of Human-Computer Interaction, Game Studies, Social Communication, Psychology and Education [7]. Yet, interdisciplinary approaches are required.

In this work information was collected about the perception of the users of the game elements in current applications with characteristics of MSNs. Besides, from the information collected guidelines were suggested for the implementation of gamification in new applications.

The guidelines described in this work reflect the results obtained in preliminary researches with the users, as well as related works, mainly of the area of human-computer interaction, game studies and psychology. The result obtained intends to guide the use of game elements in new MSNs, seeking the best use of these elements in the users' engagement process.

It is worth highlighting that the simple implementation of the guidelines described in this work is not guarantee of engagement creation with the user. To [4] gamification is more efficient when combined with new forms of motivation. On the other hand, [13] identified that the use of game elements, despite being indifferent for some of the users, does not hinder the use of symptoms. Thus, it is important to develop functionalities which meet the users' expectations that are not attracted by the game elements.

As subject that, from the results obtained in this work, may be explored is the application of the guidelines described in a real application, the analysis of other applications out of the spectrum of the MSNs, as corporative systems and virtual learning environments, and the comparison of the effects of other forms of motivation with the gamification, for instance socio-affective issues.

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