Gamified Culture-aware Feedback Acquisition

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***Abstract*— User feedback is crucial to improve software quality. For example, it can be used to identify missing features and clarify user trends and preferences for future improvement. However, obtaining user feedback is not a 'one-off' process which requires that developers need to gather user feedback in an on-going approach. The problem lies here: the majority of users are generally lack motivation and interest in providing feedback, especially in a constant and frequent style. Moreover, studies have noted that the cultural difference also plays a key role in software designs which will affect how users would like to feedback requests to be designed. In this paper, we advocate that gamification is a powerful technique to maximize users' motivation and change their reaction to feedback requests. We conducted an empirical study and identified some key differences between Western and Middle Eastern users on what motivated them to provide feedback and what could have an influence on the feedback they gave. This also makes the case for the need for a culture-aware gamification in the context of feedback acquisition process.**

Keywords—Feedback acquisition; gamification; crowdsourcing

I. INTRODUCTION

The software ability to adapt to the different cultures in the users' space is not only important for achieving usability in wider context but also a key requirement for professional and ethical reasons [9]. At present, despite the availability of internationalisation, most software designs typically follow western cultural cues. This has resulted in a design gap when users from different cultures (i.e. eastern cultures) use the software within their cultural frame. An example can be easily found in the different ways people from all over the world use social networks. This is probably because software industry is largely led by western management and developers [3]. Therefore, systems that are marketed worldwide need to be localized to fit the different cultures [4] as designs which are successful in one culture may fail dramatically in others [5].

User feedback is a primary source for acquiring relevant information needed for planning software evolution and adaptation [8]. This means users need to be motivated to provide feedback frequently. However, motivating users is not an easy task as the majority of users have little motivation and interests in providing such feedback in an on-going style. Moreover, motivating people would highly depend on their culture and values. Gamification, which refers to the use of game design elements in non-game contexts [2], has been used as an effective approach to increase user engagement and provide enjoyable work experience in business environment [7]. Recent research on gamification is exploiting how it can be used in other domains with the consideration of users' cultural background [10].

In this position paper, we propose the use of gamification to increase both users' willingness to provide feedback and the quality of that feedback. We also advocate the need to design the acquisition process and its gamified version to be culturally adaptive.

II. FEEDBACK ACQUISITION AND CULTURAL DIFFERENCES

In [1] we have conducted an empirical study to understand users' perception of feedback requests and discover what motivate them to provide feedback. The study consisted of two phases: a quantitative phase and a qualitative phase. For the quantitative phase, a survey was used and 100 responses were collected. In this paper, we extend our previous work by further analysing the survey results with the focus on gamifying the feedback acquisition process and making it culture-aware. The survey questions, related to this aspect, are provided below:

Q1*: Does the visibility of other people's feedback affect your willingness to give feedback?*
Q2*: Does the similarity of your opinion to other people's opinions, shown via their feedback, affect your willingness to give feedback?*
Q3*: Does the number / volume of feedback already provided by other people on a subject affect your willingness to give feedback on it?*
Q4*: Does a social recognition / visibility of you as a feedback provider affect your willingness to give feedback?*
Q5*: Would conducting the acquisition of feedback as a social activity be interesting to you (e.g. by knowing what your friends and community think)?*

The results are presented with two cultural groups: Middle Eastern users and Western users where the percentage of the positive answers is provided in Table 1. '*Σ*' is the acronym for the overall percentage.

Table 1: Motivation to give feedback Vs. Users' countries

	MIDDLE EASTERN				**WESTERN**			
	KSA	**Iran**	**Egypt**	**Σ**	**UK**	**NL**	**Spain**	**Σ**
Q1	70%	40%	50%	63%	33%	60%	50%	41%
Q2	70%	60%	75%	69%	33%	20%	33%	38%
Q3	75%	60%	50%	73%	42%	60%	33%	50%
Q4	90%	60%	50%	84%	45%	40%	50%	38%
Q5	80%	60%	25%	69%	3%	20%	33%	10%

III. GAMIFICATION AND FEEDBACK ACQUISITION

In this section, an overview of how gamification mechanisms might be used to support feedback acquisition and how they should be considered to reflect users' cultural

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differences is presented. For this specific context, we focused on reporting our findings in four aspects: visibility and similarity (Q1 + Q2), volume (Q3), social recognition (Q4) and providing feedback as a social activity (Q5). The results also show that Middle Eastern and Western users had different views on which form the feedback should be acquired.

A. *Visibility and Similarity of Others Feedback*

Generally speaking, the responses from Middle Eastern (ME) participants and Western participants (W) are noticeably different when they were asked whether the visibility of others feedback and the similarity of their feedback to others feedback would have effect on their willingness to give feedback. In detail, ME participants seemed to be more concerned than W participants if they could see others' feedback (63.33% vs. 40.91%). This trend became more obvious when they were asked whether knowing the similarity of their feedback to others would affect their willingness (68.97% vs. 37.78%). Visibility and similarity could be designed as game mechanics fitting the Explorer category of Bartle classification of players explained in [6].

B. *Volume of Already Given Feedback*

When participants were asked whether the number of feedback already provided would affect their willingness to give feedback on the same aspect, most ME users (72.72%) agreed that they would like to provide feedback if there were only few feedback existing for the software. In comparison, 50% Western users had a similar attitude which indicated that Western users treated this as a less important factor when compared to ME users. To motivate via showing/hiding the volume, the type Explorer would be the best fit.

C. *Social recognition*

Participants were asked whether being recognized by the community as feedback providers would affect their willingness to give feedback. The responses from the two groups were noticeably different (83.78% vs. 37.84%). That is, the majority of ME users agreed that being socially recognized as a feedback provider was an influential factor that could positively maximize their willingness to give feedback. There could be still some constraints on this, e.g., some participants commented that "*it is nice to be visible only when others can see their feedback which led to some changes on the system*". On the other hand, Western users seemed to be far less motivated by the same aspect as only 37.84% would have thought in a similar way. This indicated that the design of this aspect of feedback request and its gamified version should consider the cultural cues of these two users groups. Gamification mechanism, of the types Achievers and Socializers could fit here. For example, avatars, status and badges would increase users' response rate and involvement with the system. The design, again, should take into account the background of the user to avoid negative reactions and influencing users experience with the software itself.

D. *Feedback acquisition as a social activity*

Similar to the above question, ME users showed a much higher interest in conducting feedback acquisition as a social activity as 68.97% agreed that it would increase their willingness to give feedback. Compared to this, the majority of Western users (90%) did not consider this as an important factor. Game mechanics of the types Socializer as well as Explorer would be a good fit for this category of feedback motivator. E.g. exploring what friends said about a certain feature of the software. Virality and community collaboration and badges such as "top influencer" are examples of such techniques. When applied to Western users, these techniques should be less prominent or probably not offered as a default option in contrast to Middle Eastern users.

IV. Conclusion and Future Work

In this paper, we presented an overview of how software systems should be adaptive to meet different cultural demands of users. We explained how gamification could be used to empower software adaptability to different cultures in the context of feedback acquisition and how Western and Middle Eastern users are socially motivated to provide feedback. Moreover, we gave examples of how gamification mechanisms could be employed in this context. Our work aims to initiate discussion around this area and highlight areas of study for a future research. In our future research, we will consolidate our findings by users studies and identify more precisely how gamification could aid a higher rates of response rate to feedback requests and how to male it culturally-adaptive in this context.

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