Cultural Values' Influences on Users' Preferences for Gamification Techniques

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Short Paper

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Abstract

Gamification techniques such as badges, levels, roles, are widely adopted in information systems (IS). Though researchers have noted that cultural values may influence users' usage of IS, there is a lack of research regarding the relationship of cultural values and gamification techniques. Our study aims to contribute to this area. We propose that users' cultural values may influence how they are motivated and further influence their preferences toward specific gamification techniques. In this research in progress, we review cultural values, examine the currently adopted gamification techniques, and then propose how cultural values influence users' preferences toward specific gamification techniques. We encourage designers to cater the adoption of gamification techniques in IS according to the users' cultural values, and researchers may further investigate the relation-ship between culture and gamification techniques. We propose a research agenda to investigate IS users' preferences toward different gamification techniques through an experiment with cultural values primed and a survey with participants from different cultural settings.

Keywords: Cultural values, gamification techniques, user preferences

Introduction

There has been a noticeable increase in the design and deployment of applications for use in various spheres of human endeavour. Personal applications assist us every day; in banking, shopping, exercise, learning, etc. Many applications utilize gamification techniques to persuade users to adopt and continue to use these systems. Users of information systems (IS) in recent times are no longer motivated only by the utilitarian values it provides but are attracted more to systems that have gamification elements that create hedonic user experience (Gartner 2011). Gamification, the employment of the capabilities of information technology (IT) to develop motivational concepts that constantly fascinate users in utilizing products, services and information systems, reflects an important trend that will perform an essential function for IT planners and CIOs eventually (Blohm and Leimeister 2013). In order for users to adopt and use IS, there has to be some form of motivational factors that would encourage usage. Gamification techniques can trigger goals and hence motivate users.

Previous studies on gamification have focused on how social factors influence users' attitudes towards gamification (Hamari et al. 2014); how different gamification techniques may influence users' perception of competence, autonomy, social relatedness (Sailer et al. 2017); how gamification can be used to change users' behavior (Blohm and Leimeister 2013); how a user's personality will determine their reaction, negatively or positively to specific gamification techniques (motivational affordances) (Jia et al. 2016). To the best of our knowledge, there is a lack of research about how cultural values may influence users' preferences towards specific gamification techniques, though cultural values are considered as important factors influencing user requirements and user preferences (Tuunanen and Kuo, 2015).

Cultural values may influence how users adopt and use IS (Srite and Karahanna 2006), and influence users' requirements about information systems (Tuunanen and Kuo 2015). Cultural values are also related with motivations, and motivations further influence users' adoption and usage of IS. In this study, we propose that users' cultural values may influence how they are motivated and their preference towards specific gamification techniques. Specifically, we are interested in the research question: how cultural values can influence users' preferences of gamification techniques? We examine gamification and identify current gamification techniques, and establish the link between cultural values as motivational drivers and gamification techniques.

The research in progress is organized as follows. The literature review section discusses the relevant literature, i.e. gamification, specific gamification techniques, culture, and cultural values as motivational drivers. We then discuss how cultural values can influence users' preferences towards different gamification techniques. It is followed by research design, discussions of potential contribution and future research.

Literature Review

Gamification

Gamification has received growing attention from researchers (Seaborn and Fels 2015). A widely adopted definition of gamification is "the use of game design elements in non-game contexts" (Prince 2013; Mekler et al. 2017). Hamari et al. (2014) defined gamification as "a process of enhancing services with (motivational) affordances in order to invoke gameful experiences and further behavioral outcomes". In this article, gamification techniques are treated as motivational affordances, which will result in certain psychological outcomes.

Gamification techniques are usually used in combination, e.g. a level system might include experience points as the foundation of level calculation. However, they can be broken down into basic "game elements". Seaborn and Fels (2015) listed 8 gamification techniques, along with their definition and alternatives. These techniques are: points, badges, leaderboards, progression, status, levels, rewards, and roles. Hamari et al. (2014) combined achievements with badges, remove status and roles, add story/theme, clear goals, feedback, and challenge, however without providing any definition on these techniques. Sailer et al. (2013) investigated motivational mechanisms of nine game elements, using six principal perspectives theory. This research helps us to discover the link between cultural motivational drivers and gamification technique. We identify gamification techniques and conclude their psychological outcomes mainly based on the work by Hamari et al. (2014) and Seaborn and Fels (2015), then describe gamification technique with motivational mechanisms based on the work by Sailer et al. (2013).

Gamification techniques and psychological outcomes

Through a review of prior work, we identify the following gamification techniques in Table 1:

Table 1. Summary of Gamification Techniques	
Techniques	Definitions
Points	Seaborn and Fels (2015) defined Points as "numerical units indicating progress." However, whether points collection is a progress needs further discussion. Its alternatives are experience points and scores. Its psychological outcomes are enjoyment, engagement, motivation, happiness, time-flow and task involvement (Cheong et al. 2013; Montola et al. 2009; Witt et al. 2011).
Achievements/ Badges	Seaborn and Fels (2015) defined Achievements/Badges as "visual icons signifying achievements." Its alternatives are Trophies. Its psychological outcomes are enjoyment, pride, motivation, fun and social comparison (Denny 2013; DomíNguez et al. 2013; Fitz-Walter et al. 2011; Grant and Betts 2013; Hamari et al. 2014; Montola et al. 2009).
Leaderboards	Seaborn and Fels (2015) defined Leaderboards as "display of ranks for comparison." Its alter-natives are rankings and scoreboard. Its psychological outcomes are enjoyment, engagement and motivation (Cheong et al. 2013; DomíNguez et al. 2013).
Progression/ Status	Seaborn and Fels (2015) defined Progression and Status as "milestones and Textual monikers indicating progress" respectively. Its alternatives are levelling, level up, title and ranks. Its psychological outcomes are enjoyment (Flatla et al. 2011).
Levels	Seaborn and Fels (2015) defined Levels as "increasingly difficult environments." Its alternatives are stage, area and world. Its psychological outcome is motivation (Gustafsson et al. 2009).
Rewards	Seaborn and Fels (2015) defined Rewards as "tangible, desirable items." Its alternatives are incentives, prizes and gifts. Its psychological outcomes are satisfaction, engagement, motivation and enjoyment (Downes-Le Guin et al. 2012; Flatla et al. 2011; Li et al. 2012).
Story/ Theme/ Roles	Flatla et al. (2011) defined Theme as "vicarious aesthetic representation and theme." Its psychological outcomes are satisfaction, engagement, enjoyment, motivation (Downes-Le Guin et al. 2012; Flatla et al. 2011; Gustafsson et al 2009; Li et al. 2012)
Clear goals	Dong et al. (2012) defined Clear goals as "providing structured and guided exploration". Its psychological outcomes are engagement, fun and motivation (Dong et al. 2012; Fitz-Walter et al. 2011; Hamari et al. 2014; Li et al. 2012).
Challenge/ Mission	Challenge/Mission is defined as "tasks that need to be completed with some difficulties". Its psychological outcomes are enjoyment, engagement, fun and motivation (Cheong et al. 2013; Dong et al. 2012; Flatla et al. 2011; Gustafsson et al. 2009; Li et al. 2012).
Feedback	Cheong et al. (2013) defined Feedback as "explicit feedback of achievements". In their case feedback refer to the score in the quiz. Its psychological outcomes are enjoyment, engagement and motivation (Cheong et al. 2013; Gustafsson et al. 2009; Li et al. 2012).

Table 1. Summary of Gamification Techniques

Sailer et al. (2013) introduced the motivational mechanisms of gamification techniques from six principal perspectives. The perspectives are:

1) Trait perspective: motivated by achievement, power, and affiliation.
2) Behaviorist learning perspective: motivated by immediate feedback or rewards.
3) Cognitive perspective: motivated by a clear goal.
4) Perspective of self-determination: motivated by needs for competence, autonomy, and social relatedness.
5) Perspective of interest: motivated by the feeling of flow or interested.
6) Perspective of emotion: motivated by negative feelings decreasing or positive feelings increasing.

Among these perspectives, we noted that some motivations are emotional, contextual, while some are related with cultural relevant values, such as achievement, power, and social relatedness. Below we will review cultural values, and how cultural values can be motivators.

Cultural values as motivational drivers

Cultural values

There is a plenitude of studies on culture and it has consequently also been defined in many ways. Kluckhohn (1954) proposed "culture is to society what memory is to individuals". This concept means that culture includes the aspects that has worked in the experience of a society and is worthy to be conveyed to coming generations. Triandis and Suh (2002), on the other hand conceptualized culture as "shared standard operating procedures, unstated assumptions, tools, norms, values, habits about sampling the environment". The above definition suggests that "perception and cognition de-pend on the information that is sampled from the environment and are fundamental psychological processes". This means that experiences in a society influences the mental process through observation and reasoning.

A widely adopted definition of culture is by Hofstede (1980), "the collective programming of the mind that distinguishes one group or category of people from another." This definition seeks to de-scribe culture as a collective experience not an individual attribute and is not directly evident but demonstrated in behaviors. It also stresses that culture might be shared by some but not all people in a society. Hofstede's (1980) first proposed four dimensions of national culture which are: individualism/collectivism, power distance, uncertainty avoidance and masculinity/femininity, and two other dimensions, namely, long-term orientation (Hofstede et al. 1988) and indulgence/restraint (Hofstede 2011) were added.

Schwartz (1992; 1994) developed dimensions of cultures based on values. Values are defined as "conceptions of the desirable that guide the way social actors, e.g. organizational leaders, policy makers, individual persons, select actions, evaluate people and events, and explain their actions and evaluations" (Schwartz 1997, p.24). Schwartz proposed seven cultural orientations and three cultural value dimensions. The first dimension is autonomy versus embeddedness. Autonomy is further broken down into two aspects: intellectual autonomy, e.g. creativity or broadmindedness, hinged more on self-direction and affective autonomy, e.g. pleasure, exciting life, highlighted more on and stimulation and hedonism. Embeddedness orientation involves encouraging people to participate in shared culture, striving towards shards goals and objectives, obedience and respect for tradition. The second dimension is egalitarianism versus hierarchy. Egalitarian, e.g. freedom, equality, social justice, expresses concern for other people's wellbeing in contrasts hierarchy power is presumed to be unfairly distributed, e.g. influence, social power, wealth and value competition. The third dimension is harmony versus mastery. In the harmony orientation, individuals are urged to attempt and fit into and value their regular and social environment, instead of to change or abuse it, e.g. protecting the environment and world of beauty, and these are valued cultural ideals. Mastery values emphasize mastery of the social environment through self-assertion: daring, capable and ambitious.

According to Schwartz (1994), these values were tested against the dimensions of culture by Hofstede (1980), saw a crucial correspondence between Hofstede's power distance and individual-ism/collectivism and his value types of openness to change versus conservatism.

Straub et al. (2002) noted that most cultural definitions seem to suggest that an individual belongs to a cultural group, such as national cultures explains the kind of values they embrace. They further explained that an individual's values can be influenced and modified by other factors such as professional, organizational, ethnic, religious and other social groups that may have their own specialized cultures and sets of values. This means there are variations to the kind of values that are espoused by individuals in any cultural setting.

Motivational drivers

We argue that cultural values can be motivational drivers and influence users' preferences toward gamification techniques. Motivation is a significant determinant of how users will perceive and use information systems (e.g. Venkatesh 2000). A considerable amount of research has been done regarding motivation and behavior in the past, including Self-Determination Theory (Deci and Ryan 1985) which explains how different types of motivation arising from contrasting reasons or goals can lead to an action.

Motivation theories point out the mechanisms that energies and direct human behavior (Zhang 2000) and a motivated person is energized and propelled towards a goal (Ryan and Deci 2000). Values and motivations are closely related, because they both are relevant to goals (Fayolle, Liñán, Moriano, 2014). As Munro (1997, p.7) says, "It has become common in the social sciences to interpret motivation in terms of desires and strategies for attaining various goals, which may be seen as having been socially constructed and internalized through the social group and culture in which the person grows". Since culture greatly influences what goals and values an individual has, and how they wish to achieve that goal, culture can serve as motivational drivers.

Cultural Values and Preferences for Gamification Techniques

The relationship between cultural values and gamification techniques and their effects on user engagement and technology acceptance has not yet been well studied in the IS literature (Koivisto and Hamari 2014). Current established practices in the design and deployment of IS with gamification techniques embedded seem to fit the narrative that gamification is "one size fits all" and end users are thought to think and act in the same way and are motivated similarly. This has led to the global deployment of IS and application without catering them in a way that will fit into the end user's cultural motivational drivers. It seems that there is still insufficient knowledge about how gamification techniques can be designed to reflect the end users' cultural motivational drivers thereby enhancing user engagement and acceptance.

The literature reviewed has shown that culture differs from place to place and that there seems to be a generally accepted view of national cultures (Hofstede 1980; 1988; 2011; Schwartz 1992; 1994) and that cultural value orientations that distinguish societies have some basic features; they are beliefs that are linked to emotions and feelings; they motivate action; they surpass particular actions and goals; they serve as standards or criteria that govern the choice of actions, people, policies, etc.; the relative importance of values govern action; etc. (Schwartz 2006). This finding is particularly important because it stresses the need for IS researchers and developers to devise means of catering different types of IS and applications by using gamification techniques that are better suited to the cultural values of the end users. There are also correlations in some of the culture dimensions of Hofstede and Schwartz, and as Schwartz himself noted, his culture dimension values of Openness to Change versus Conservatism (Embeddedness) correspond to Hofstede's power distance and individualism/collectivism (Schwartz 1994; 2006). Schwartz's value dimensions may offer some potential advantages compared to Hofstede's dimensions (Schwartz, 1994), as Schwartz's values are theoretically derived, and contain quite comprehensive value dimensions. Schwartz' cultural values were found to outperform Hofstede's cultural dimensions in predict trading, a context which is greatly influenced by cultural values (Ng, Lee, and Soutar, 2006).

The idea of catering gamification techniques for users according to their cultural values is not completely novel. Sailer et al. (2013) acknowledged that gamification techniques can be used to trigger different motivation mechanisms; they matched different gamification techniques to different mechanisms and argued that in the analysis and designing of gamification environments; the end user, the gamification environment and the context or overall situation should be considered. While supporting their arguments, we believe that this conversation needs to be expanded to include the matching of gamification techniques to the psychological needs and motivations of groups and societies, which are driven by their cultural values. Most of the commonly used gamification techniques appear to be geared towards personal achievement, personal enjoyment, having fun or rewarding in-dependence of thought and action, relatively few of them reinforce or reward collaboration, collective effort or social cohesion. Societies that are already culturally oriented towards personal success, personal achievement, personal fun and enjoyment might find it easier to adopt applications and IS designed with gamification elements that reinforce and reward these drives and motivations than societies that are culturally oriented towards collectivism, social cohesion, interdependence. The situation can be improved by designing gamification techniques that reinforce and reward these cultural tendencies and increasing gamification tools available for developers and designers.

Taken the theoretical lens of motivational drivers, we propose four propositions to investigate the relationship between cultural values and users' preferences toward gamification techniques. They are summarized in Table 2.

Proposition 1a & 1b Mastery values emphasize the mastery of the social environment, and to attain goals. People having mastery values move ahead through mastering and changing the environment, through

active self-assertion. Mastery values include value types such as daring, capable, success, independence, etc. People who are influenced by mastery values may prefer gamification techniques which provide them with clear goals, show their progresses and achievements, and present their rankings among the group.

Proposition 2 Intellectual autonomy values emphasize pursuing own ideas and intellectual directions, and include value types such as broadmindedness, and creativity. People with intellectual autonomy values may thus prefer gamification techniques that provide them with opportunities to learn and explore.

Proposition 3 Affective autonomy values are about individuals pursuing affectively positive experience, and include values types such as exciting life, varied life, pleasure. People with affective autonomy values may thus prefer gamification techniques that provide them with interesting experiences, and pleasure.

Proposition 4 Hierarchy values are about acceptance of an unequal distribution of power, roles and resources. This is similar to Hofstede's power distance. People who are influenced by hierarchy values will be quite comfortable with the unequal distribution of power, and ranking based on power or achievements.

Table 2. Cultural Dimension, Motivational Mechanisms and Gamification Techniques

Propositions	Cultural Dimensions	Motivational Mechanisms	Gamification Techniques
1a Mastery values influences users' preferences towards the gamification techniques which show their success: achievements/ badges and leaderboards.	Mastery values	Motivated by achievements and success	Achievements/ Badges, Leaderboards
1b: Mastery values influences users' preferences towards the gamification techniques which give them clear goals and show their progresses: levels, clear goals, challenge.	Mastery values	Motivated by growth and goals	Levels, Clear goals, Challenge
2 Intellectual autonomy values influences users' preferences towards the gamification techniques which provide them with opportunity to learn, such as feedback technique, challenge/mission.	Intellectual autonomy values	Motivated by opportunity to learn	Feedback
3 Affective autonomy values influences users' preferences towards the gamification techniques which provide them with varied experiences and pleasure, such as rewards, story, roles.	Affective autonomy values	Motived by varied experiences and pleasure	Rewards, Story/ Theme / Roles
4 Hierarchy values influences users' preferences towards the gamification techniques which allows for unequal distribution of power and resources, such as badges and leaderboards.	Hierarchy values	Motivated by unequal distribution of power	Achievements / Badges, Leaderboards

Table 2. Cultural Dimension, Motivational Mechanisms and Gamification Techniques

Research Design

Study 1

In study 1, we adopt the experiment methodology to examine the effects of cultural values on users' preferences towards gamification techniques. We adopt the priming technique to make different cultural values accessible in working memory. Priming is a technique widely used in social (Bargh, Chen, and Burrows, 1996), and IS researchers are starting to adopt it (e.g. Bhagwatwar et al. 2018 examined how priming using 3D objects in the virtual environment influence idea generations). When using priming, participants are asked to perform certain tasks (for example, to highlight all the "we" in the texts), and they are not aware of the researchers' intent to active certain concepts or values through the tasks (for example, activate "we" relevant concepts, collectivism. For details of different types of priming, see Bargh and Chartrand 2014). Since priming can only make accessible what are already in mind (Oyserman and Lee 2008a), we will invite international students from different countries studying at a Nordic university to

participate in the study. In this way, the students are already aware of different cultural values. The priming task will be pilot tested to ensure that it can activate cultural values.

After the task of priming cultural values, participants' preferences toward gamification techniques will be measured through a survey with scenarios. In the scenario, a specific gamification technique will be introduced, and subjects will be asked about whether they have experiences with the gamification technique, and describe their usage of it. Their attitudes toward the gamification technique will then be measured. The gamification techniques are those we discussed in early sections in the study, i.e. points, achievements/badges, leaderboards, progression/status, etc. (Seaborn and Fels 2015; Flatla et al. 2011). The ten gamification techniques will be shown to subjects, and the sequence of the gamification techniques will be randomized, to exclude the potential influence of presentation sequence of the techniques.

Using priming to study the effects of cultural values is quite common, for example, Oyserman and Lee (2008b) performed meta-analysis of studies which primed individualism and collectivism. We will perform more literature review in order to better design the priming tasks to activate different cultural values. Our initial review of studies which adopt priming to activate cultural values suggest that priming are more frequently used to activate certain cultural values, such as individualism vs. collectivism, and we recognize that in order to measure a more comprehensive set of cultural values' effects on preferences toward gamification techniques, survey methodology with a diverse sample of participants may be necessary.

Study 2

In study 2, we will adopt the survey methodology. For a study which investigates the effects of cultural values, sampling is very important. In order to capture the differences of cultural values, it is important to sample participants who have varying cultural values. Hence, we would like to invite participants from different countries, such as Finland, China, and Zimbabwe. These countries are selected, as in prior literature the cultural values in these countries differ significantly (e.g. Schwartz 1999). For example, mastery and hierarchy values are more acceptable in China, but are more likely to result in resistance in Finland where harmony and egalitarianism values are viewed as more important. In Zimbabwe, conservatism and hierarchy values are more accepted, and intellectual autonomy values are weakly emphasized. In addition, researchers of the current study are natives from these countries, and have the language abilities and understanding of these cultures.

The survey will be conducted in two phases. In the first phase, we measure subjects' cultural values. Subjects' age, gender, experiences with the Internet, computer self-efficacy will also be measured as control variables. After a two month time lag, subjects' preferences toward different gamification techniques will be measured through survey with scenarios, similar as in study 1. The two-phase design alleviate the concern for common method bias (Podsakoff et al. 2003), and enables us to better capture the influence of cultural values on preferences towards gamification techniques.

Discussions

Further research may test these propositions empirically using archival data of users' actual usage of systems with different gamification techniques. Adopting interview methodology may help researchers gain insights about the connections between cultural values, motivational mechanisms, and users' preferences. In addition, factorial survey method can be adopted to design different scenarios to influence cultural values (Vance, Lowery, and Eggett, 2015). Future study can also measure cultural values using both Schwartz's and Hofstede's dimensions, and compare the differences in predicting preferences toward gamifications.

Though researchers have noted that cultural values may influence users' requirements for IS (Tuunanen and Kuo 2015), there is a lack of research especially regarding the relationship of cultural values and gamification techniques. In this research we propose cultural values need to be considered in the design and selection of gamification techniques. Different from a "one-size-fits-all" approach, we argue that it is important to understand the fit between cultural values and certain gamification techniques, and to cater the design of gamification techniques for users. There may also be economic and psychological benefits with the potential for higher levels of user adoption and user satisfaction if the gamification techniques are catered for users according to their cultural values. We examine the research on culture from different perspectives, such as Hofstede (1980, 1984, 2011), Hofstede and McCrae (1994), and Schwartz (1992, 1994, 199). We adopt Schwartz's cultural values, as it highlights culture's influences on user motivation, goals and

desires. We examine cultural values and motivations and the relationship with users' preferences toward gamification techniques. We develop propositions about how cultural values influence users' preferences towards specific gamification techniques. Our study contributes to the literature of gamification techniques adoption in IS through taking into consideration of users' cultural backgrounds, and the propositions provide an approach to the design of culturally aware systems and applications.

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