Chapter 2
Gamification and Behaviour

Alaa AlMarshedi, Vanissa Wanick, Gary B. Wills and Ashok Ranchhod

Abstract Gamification is applied as a tool to encourage behavioural change and promote desired attitudes in many fields. However, people with different backgrounds are influenced by gamification in different ways. This suggests that cultural influence can also impact the way gamification is best implemented within a particular context. This chapter starts by discussing how behaviour can be influenced by gamification. It then considers how culture in its different manifestations influences behaviour. The chapter then discusses motivation and its role in gamification. Finally, the key issue of the behavioural change capabilities of gamification combined with an understanding of behavioural change methods, the individual and the cultural and social context are discussed.

2.1 Introduction

Gamification is a design process that applies play, fun and user experience elements to different applications/services in non-gaming contexts (Deterding et al. 2011). Since gamification is a relatively new area, many of the current approaches focus on the gaming elements. To just concentrate on gaming elements would be wrong as a large aspect of gamification is about psychological issues (Zichermann and Cunningham 2011). This means that to get the most out of gamification and its

A. AlMarshedi · G.B. Wills
School of Electronics and Computer Science, University of Southampton, Southampton SO17 1BJ, UK
e-mail: aaa3g12@ecs.soton.ac.uk

G.B. Wills
e-mail: gbw@ecs.soton.ac.uk

V. Wanick (✉) · A. Ranchhod
Winchester School of Art, University of Southampton, Winchester SO23 8DL, UK
e-mail: v.w.vieira@soton.ac.uk

A. Ranchhod
e-mail: a.ranchhod@soton.ac.uk

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application in business, education, or healthcare, the behaviour of an individual and the cultural context need to be understood. Often concepts from cultural psychology are incorporated into games to influence consumer behaviour and alter particular behaviour patterns in areas such as healthcare and education. Consumer behaviour is the relationship between the user and the applications/services that are being offered or have been purchased. This includes individual or collective attributes, emotional attachments, communications understanding and decision-making (Britt 1966). Moreover, this behaviour is often tempered by cultural nuances and these may vary across cultures (Usunier and Lee 2005). Therefore, actions that involve behavioural change do not occur in a vacuum. At the same time, differences between individuals and groups in gamification need to be studied, particularly in different cultures as there are certain cultural norms that can further affect gamification's effectiveness. Some studies have considered age and gender (Koivisto and Hamari 2014), however, culture has rarely been examined.

This chapter discusses theories and methods that are part of gamification. It includes a discussion of the application of gamification for behaviour change, together with an understanding of the differences and similarities across cultures. Cultural dimensions and social aspects in gamification are also considered. The knowledge about individual behaviour and the incorporation of cross-cultural differences could potentially enhance gamification's impact in different fields.

2.2 Influencing Behaviour

One of gamification's goals is to influence a user's behaviour. It shares some similarities with persuasive technology: technologies that are designed to influence a user's behaviour without forcing the change (Hamari et al. 2014). Moreover, behaviour change is the process in which an undesired behaviour is abandoned in favour of a better one. There are some methods and theories to assist in changing the behaviour of an individual or a community (N.I.C.E. 2007). Moreover, it has been proven that online behavioural change methods are successful in influencing user's behaviours (Cugelman et al. 2011).

In order to influence behaviour, we need to understand how behaviour is created and what affects behaviour. This includes behavioural change methods (interventions to affect an individual) as well as cultural and social influences.

2.2.1 Motivation

Motivation is an important factor to consider in gamification (Nicholson 2012), particularly because it drives human behaviour (Xu 2012). Several studies investigating motivation and behaviour have been carried out throughout history, and we have a number of theories that explain motivation and how it affects behaviour.

Motivation is the desire to do something and it could be explained in two ways: intrinsic and extrinsic. Intrinsic motivation is defined by an internal desire to do things out of enjoyment or love (Ryan and Deci 2000). On the other hand, extrinsic motivation is about doing things solely for their outcome (Ryan and Deci 2000).

The understanding of how behaviour is created is crucial in the design of gamification applications and services. This helps in creating effective gamification that can influence consumer behaviour, changing behaviour in healthcare situations and learning. A number of gamified applications and services today focus on motivation, especially the extrinsic type (Sudan 2013). However, extrinsic motivation by itself does not create a sustainable gamification affect (Koivisto and Hamari 2014). Thus, understanding the difference between extrinsic motivation and intrinsic motivation is important when designing gamified applications and services.

In gamification, motivation is used to start an activity. When users perform a task they might realise the intrinsic value of this activity and might want to do it without rewards or extrinsic motivations. It is important to mention that tangible rewards or extrinsic motivation cannot be used as the only way to change behaviour. This is because extrinsic motivation can wax and wane depending on individual characteristics (Hamari et al. 2014). Thus, change in behaviour could be temporary before the individual reverts to his/her original behaviour. For example, while individuals feel motivated to exercise and look for positive outcomes, they may lose the desire for these outcomes over the course of time. Thus, an individual's behaviour reverts to its original state and the behaviour change results are lost.

2.3 Cultural Influences

Culture has many definitions and it shapes people's responses and preferences for computer systems and communications. For example, Hofstede (1997) defined culture as a system of patterns that differentiates people of one group from the other. Usunier and Lee (2005) argued that culture is a combination of shared habits and meanings, interpreted within a particular context. The context and environment shape different cultures.

A few aspects of consumer behaviour are influenced by culture: perception, motivation, learning and memory, group influence, social class, female/male roles, attitudes and decision-making (Usunier and Lee 2005). The result of this is a very complex set of variables that need to be understood in the field of consumer behaviour. Considering individuals from different cultures, consumer values and needs can differ and influence behaviour differently. For example, individuals from China can place more value on experiential characteristics while buying clothes, whereas South Korean individuals may desire functional product features (e.g., product quality) (Kim et al. 2002).

Furthermore, habits play an important role in culture, as they facilitate choices during everyday life decisions (Usunier and Lee 2005). This means that habits could be immersed within social contexts such as social habits. In addition, decision-making can be grounded on behavioural biases, based on heuristics or mental models (Hamari et al. 2015). This means that the consideration of behavioural and cultural patterns is crucial for an effective application of gamification in consumer behaviour. Hence, it is possible that cultural biases could guide users in the decision process when interacting with gamified applications.

Cultural models and dimensions have been mentioned before in order to investigate cross-cultural differences in several applications (Khaled 2015; Chakraborty and Norcio 2009).

Concisely, cultural dimensions and models can be summarised as follows:

- Hofstede's (2011) cultural dimensions: Power Dimension, related to the degree of how well a society understands inequalities among people; Individualism vs. Collectivism, represented specifically by an individual or collective way to see relationships in society; Masculinity versus Femininity, related to preferences among achievement, rewards, competition and cooperation; Uncertainty Avoidance, describing the way society deals with the future; Pragmatic vs. Normative (e.g., in normative cultures, people usually explain things as much as possible, while in pragmatic cultures situations, context and time are more important); Indulgence vs. Restraint, related to enjoyment of life and social norms that regulate society.
- Trompenaars and Hampden-Turner's (1998) dimensions: Universalism-Particularism (e.g., for Universalist cultures, rules are more important than relationships), Individualism-Communitarianism (individual-group relationship), Specific-Diffuse (related to involvement), Neutral-Emotional (e.g., expression of emotions, body language and attitudes), Achievement-Ascription (related to status), Sequential Time-Synchronous Time (time management), and Internal Direction-Outer Direction (connection and link to the control of the environment).
- Hall's (1989) four cultural categories in communication: Time (e.g., time management), Space (e.g., personal or shared spaces); Context (e.g., explicit and direct messages vs. implicit and indirect messages); Information Flow (e.g., message speed).
- Schwartz's (2006) structures of individual values (e.g., benevolence, tradition, security, power, achievement, hedonism, stimulation, self-direction and universalism), which correspond with seven national-level value types (e.g., egalitarianism, harmony, embeddedness, hierarchy, mastery, intellectual autonomy and affective autonomy).

The list of Hofstede's (2011) cultural dimensions is usually used in comparisons across cultural aspects in different nations. The spectrum between individualism and collectivism has been one of the most explored areas within cultural research. In

general, individualist cultures tend to have an independent view of the self and collectivist cultures have an interdependent view of the self (Aaker and Maheswaran 1997).

In gamified applications/services, culture could also influence the way people relate to each other. Specifically, Khaled (2015) presented at least six components of relationships between people enhanced by gamified applications/services, such as competition, information sharing, normative activities, interdependence and sense of community. Moreover, Khaled (2015) utilised Schwartz's (2006) model as a starting point, supporting the argument that people from different cultures tend to have different psychological beliefs and this could be expressed by dynamics promoted by gamified applications/services.

When considering cultural aspects and gaming, there are at least three classifications to explore: appropriation, cultural representations and the creation of subcultures (Khaled 2015). Culture and design could be combined to create serious games. For example, cultural appropriation could be employed in order to support the game's mechanics, storyline and interface by designers from a different culture (Vasalou et al. 2014). This strategy could also be also associated with representational variations amongst different cultures by using a diverse range of colours, icons, symbols, pictures, time formats, jargon and abbreviations (Bourges-Waldegg and Scrivener 1998).

Furthermore, considering culture and interactive systems, other theories and applications could be expanded, such as:

- Semiotics: the study of signs and symbolic representations as references to a particular idea (Pierce 1991). For example, in gamification, semiotics could be used as a way to build the bridge between the desired behaviour and the actual behaviour, respecting people's abilities to understand the codes of the system.
- Symbolic interactionism: the understanding of meanings as products from social activities, in which people's actions, norms and rules comprise the concept of culture (Blumer 1986). For example, the study of gamified applications could be expanded to the meaning that people give to systems during their interaction and experience.
- Metaphors: related to analogies or familiarity (Carroll and Thomas 1982). This is consistent with the principle that before performing a task, users try to find connections in their mind and associative memory (Lang 2006). For example, the replication of metaphors inside the gamified system could make the application more intuitive and easy to understand. Those metaphors could be visual or interactive representations, depending on the audience and on the objective of the gamified system.

The possibilities for the incorporation and study of culture and gamification are vast. However, as members of a group often share cultural values within a context, it is important to open the discussion to social factors and influences.

2.4 Social Influences

Social factors could also influence behaviour through social norms (Ajzen and Fishbein 1980; Ajzen 1991). For example, people and communities are often ruled by norms through which members behave in a particular way, influencing their opinion adoption (Hsu and Lu 2004). In addition, social behaviour can differ across cultures, particularly in high individualist cultures where individuals behave socially according to personal preferences (Aaker and Maheswaran 1997).

At least four models incorporate social and environmental influences in behavioural studies:

- Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980): Intentions are formed because of attitudes, norms and perceived control over individual behaviour.
- Theory of Planned Behaviour (TPB) (Ajzen 1991): An extension of the Theory of Reasoned Action (TRA) that includes the variable of perceived control over the behaviour (i.e., perception that someone is responsible for his/her behaviour).
- Needs, Opportunity and Ability Model (NOA) (Gatersleben and Vlek 1998): The environment, comprising technology, economy, demography, institutions and culture, influences needs, opportunities and abilities, which therefore impact motivation and behavioural control. This model expands cultural influences to a wider level, such as government politics.
- Theory of Interpersonal Behaviour (TIB) (Triandis 1977): The relationship among attitudes, contextual factors, personal capabilities and habits. This model contributes by emphasising the role of beliefs and habits on behaviour.

Compared to Fogg's (2009) model of behaviour, where he discusses *motivation*, *ability*, and *trigger* as behavioural components, the TIB, TRA, TPB and NOA tend to integrate social and external influences (e.g., environment, norms and laws) into behaviour design. For this reason, it is possible that Fogg's behavioural model could be combined with social, cultural and external factors. In gamification, this could be another way to provide a holistic and inclusive experience for the user.

2.5 Behaviour Change Theories and Methods

To influence a user's behaviour, one must understand how behaviour occurs and what contributes to it. Fogg (2009) proposed a model that explains how behaviour occurs. The Fogg Behaviour Model (FBM) shows that human behaviour is an outcome of three elements. The first element is *motivation*, which describes when the person has the desire to act in a certain way. The second element is *ability*, which describes when the person has the capacity to perform the behaviour. The last element is *trigger*, which describes when the person is triggered to perform the

behaviour through different cues. Fogg (2009) stated that these elements must happen at the same time in order for behaviour to result.

Furthermore, influencing behaviours is a two-step procedure (Wu 2014). It requires both, creating a new behaviour and eliminating the undesired habit. There are a number of situations where people are internally motivated to change their behaviour. On the other hand, behaviour change could result from self-realisation, change in environment, or developing a new behaviour through a sequence of steps. The latter is called 'Tiny Habits' where a planned sequence of small changes in daily routine results in the adoption of tiny habits to reach a desired behaviour (Fogg 2013). The Tiny Habit method has been shown to be successful in changing behaviour (Fogg 2011). It relies on the fact that small changes are easier to accept than big shifts in daily behaviour.

The 'Flow State' is the mental state of absorption and engagement in an activity or a game (Csikszentmihalyi 1997). In this state, the user becomes intrinsically motivated and immersed in the activity. In order to get the user into the flow state the game must be compatible with the user's skill level. One way of achieving this is by gradually increasing the difficulty of each task/level as the user's skills increase (Cugelman 2013), which ensures the sustainability of the flow state. If the game is too simple the user will get bored, and if it is too difficult the user may quit.

Additionally, Pink (2009) maintained that motivation is intrinsic and it is driven by three elements: *autonomy*, *mastery*, and *purpose*. *Autonomy* occurs when people have full control over when and to what level they want to carry out the activity. In games, one of the components of autonomy is entering the flow state. *Mastery* is about getting better at a certain activity. For example, a sense of mastery can be reached through improvement in playing and progressing towards goals (McGonigal 2011). The final element *purpose* is when people have a reason to do an activity. Furthermore, *status* is another powerful motivator because people care about their image (Ariely et al. 2009). One example of this is the use of badges and leaderboards that indicate how a person is performing relative to others.

One of the theories known to drive behaviour is the Nudge Theory. It is the positive reinforcement and indirect signals toward a non-forced action. Nudge Theory is used to drive behaviour and it has been applied in political and economical environments (Thaler and Sunstien 2009). It creates the simplest path to a certain behaviour. The use of Nudge Theory could create a good environment combined with gamification: giving rewards and incentives as well as 'nudging' users into wanted behaviours. Moreover, Wu (2011) argued that gamification in its simplest form covers the *motivation* element in FBM, and the Nudge Theory covers the two other elements, *ability* and *trigger*. Designing a nudge is similar to designing a tiny habit: it has to be simple choices. However, the Nudge Theory requires the designer to simplify the environment and the context that leads to a certain action. On the other hand, the tiny habits method breaks down the desired behaviour into easy-to-adopt small habits.

Figure 2.1 summarises the key influences in a user's behaviour in gamification and how changing the extrinsic motivation through the attention to social and cultural issues could enact behaviour change.

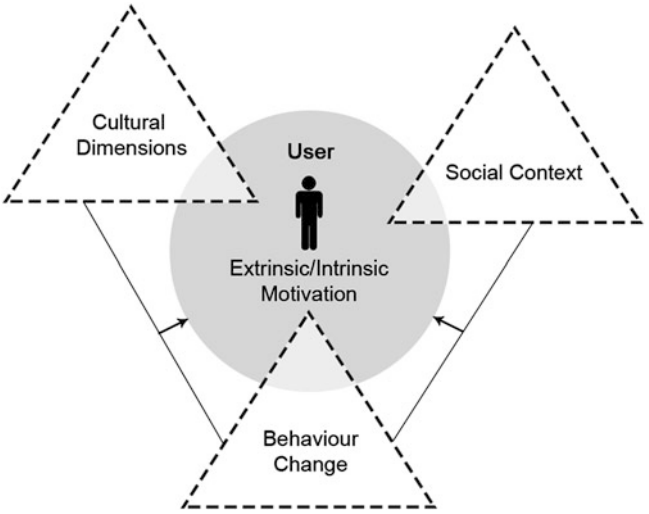

Fig. 2.1 Drivers of motivation in gamification

2.6 Discussion and Conclusion

Gamification is more psychology than technology and the development of motivation is an important factor to consider. Motivation, which is the desire to perform an action, can be intrinsic or extrinsic. Intrinsic motivation is the internal desire to do things out of enjoyment or love, while extrinsic motivation occurs when one is doing things solely for an outcome. One of gamification's goals is to drive a user's behaviour. In gamification, both types of motivators should be used to create a lasting effect, and keep the user interested in the activity. In order to change or influence behaviour through gamification, it is important to understand how behaviours occur and what motivates them. A number of theories and methods explain the nature of behaviour and how behaviours occur. Fogg, Pink, and Thaler and Sunstein created methods and processes that help in changing behaviour of an individual or a community. Fogg created the FBM, which suggested that behaviour is an outcome of three elements: *motivation, ability*, and *trigger*. According to the model, the three elements must occur simultaneously for a particular behaviour to occur. He also suggested the use of 'Tiny Habits' methods, in which a planned sequence of small changes in a person's daily routine results in the adoption of tiny habits to reach a desired behaviour. Pink argued that motivation is intrinsic and driven by three elements: autonomy, mastery, and purpose. Thaler and Sunstien's theory, called the Nudge Theory, entails positive reinforcement and indirect signals toward a non-forced action.

Furthermore, the opportunities for implementations of gamification in innovative ways are vast. The consideration of cultural patterns and behavioural biases is crucial for the development of innovation in businesses. For this reason, it is

important to highlight the possibilities of studies in cross-cultural consumer behaviour. The literature of consumer behaviour across cultures looks for an explanation of the differences and similarities of people from different backgrounds in their decision-making process. This aspect tends to be reflected in the way cognitive patterns and mental models are processed by the users. However, in cross-cultural consumer behaviour it is possible that culture could be explained through different cultural models and dimensions combined with the meaning that people give to particular applications/services.

Gamification and culture can be explored in two ways: one from the perspective of interaction with the product or system, and the other from the cultural values already planned and enhanced by the design of the system. The consideration of patterns in cultural backgrounds is an important way to help predict consumer behaviour while using gamification in services. Furthermore, strategies such as semiotics and symbolic interactionism could help to identify those patterns and models of behaviour. On the other hand, it is necessary to consider the influence that the social background has in the individual's behaviours; Khaled (2015) argued that interpersonal dynamics are crucial for understanding culture and gamification.

For future research in gamification, we suggest that the cultural dimensions applied in different fields and the methods borrowed from interactive systems could be studied in relation to the application of gamification. This includes semiotics, conceptual metaphors and symbolic interactionism.

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