The Gamification Systems Application Elements in the Marketing Perspective

Nuno Teotónio[1] and José Luís Reis[2(✉)]

[1] ISMAI, Maia University Institute, Maia, Portugal
[2] Research Unit CEDTUR/CETRAD, ISMAI, Maia University Institute,
Maia, Portugal
jlreis@ismai.pt

Abstract. Gamification could be a useful marketing technique that involves the use of game elements and design in real-life contexts. This study seeks to understand the gamification elements used to develop meaningful experiences, and relationships between organizations and their target market, increasing their engagement. The results obtained from the analysis of studies on gamification applications in business, education and health care sectors indicate that the different gamification elements can be applied in any sector of B2C market activity, creating value and competitive advantages. The various elements of gamification are tailored to the sectors of activity that require greater involvement with the target audience, as well as greater participation of consumers in the purchasing decision process, even in areas of activity whose products are commonly purchased, such as the coffee.

Keywords: Gamification elements · Marketing · User experiences
Engagement

1 Introduction

The topic of gamification has been widely explored in recent years. The intense changes brought by the internet, not only affected the way media is provided, as also changed the means, which organizations use to reach the target audience [1, 2]. Consumers find convenient and desirable to avoid marketing messages, because they seek not only to consume products and experiences, but also to participate and connect with communities [2].

Millennials or Generation Y, e.g., individuals born between 1980 and 1994, besides being active online, on social networks and on their mobile devices, are also involved in these activities mainly through games [3, 4], seeking to satisfy needs and desires through mechanics and game dynamics, such as levels, badges and rankings, which are found in game experiences.

Gamification systems produce and deliver unique experience to their users, which motivates them to use the service several times a day, having the ability to influence consumers to perform any behavior [5], this confers gamification several benefits, both for its users and for the companies that execute it.

This work intends to study the application of the different elements, used in gamification systems, in a marketing perspective, taking into account the study of applications in three areas of activity: business, education and health.

2   The Gamification Origin and Progress

Games and playfulness are a part of humanity that helped the development in educational, social, and physical aspects. In the early 1980s, researchers in the field of Human-Computer Interaction have tried to apply game design elements in contexts that have nothing directly to do with entertainment. Early studies focused on the use of game mechanics that would allow converting user interfaces in a more pleasurable explosion of the early 90's developed a postmodern consumer that would change the way marketing would interact with them [6]. With the constant evolution of the social fabric, computers and new way ways of looking at marketing, started to emerge gamification.

Nick Pelling created the term gamification to describe applying game-like accelerated user interface design to make electronic transactions both enjoyable and fast, and used it for the first time back in 2003, and its popularity was boosted when Gartner added the term to their Hype Cycle, making it off the top trends for companies to follow [6–8]. As a scientific term, gamification was first mentioned in the year 2008 but only become popular in the year 2010 [6, 9].

Gamification can be used as a means to improve participation, and motivation of people in performing various tasks and activities that generally may not be very attractive. Its application is not restricted to any specific area, and can be used in contexts as diverse as education, the development of behavior with greater respect for a natural environment or to improve the well-being of the elderly [6].

The gamification concept will continue to progress in a context of the natural evolution of the internet, mobile and cloud services, technology and its derivatives, which includes gesture detection and control systems and augmented reality. By the year 2020, gamification will be applied in many areas integrated into the daily life of society [17, 18].

3   Elements of a Gamification System

The elements and characteristics of the games have a fundamental part in the gamification concept. The elements of the game, not necessarily all and cumulatively, can be found in most games, playing a preponderant role in the unfolding of the game and construction of the experience for the user [9]. Gamification elements have a regular pattern, that is, they HAVE tools that can be extracted from the nature and essence of the game and used in different ways to do business like games [5].

3.1   Game Dynamics

Game "Dynamics" are the big-picture aspects of the gamified systems that must be considered and managed, but which can never enter directly into the game. Game

dynamics are defined as the matrix of the video game that undergoes evolutions in response to the needs presented by the different qualities of the players, and it consists of the motivational and inspirational nature resulting from the desires and motivations of the different user's types (consumers, networkers, socializers, exploiters, achievers, etc.) [7]. Dynamics is the type of behavior that players adopt in their experience, and are based on how players use the mechanics of the selected game [5]. They also help trace the behavior in the game and the strategic interactions that take place in it. Since this construct is based on the way players adopt the mechanics, all these aspects must be considered and managed, to lead to the success of the gamification system.

3.2 Game Mechanics

Game mechanics are defined as the set of rules and techniques used as building blocks to gamify a website or an application and can be used individually or together, offering the possibility to index a high level of motivational to it. This construct consists of norms and imperatives that perform the management of user performance with incentives, feedback and rewards models [5, 9]. They are responsible for the elements that provide action on the part of the user, that is, they are the verbs of gamification experience, such as competing, cooperating, rewarding, transacting, challenging, among others. Simpler definitions consider game mechanic, as any technique implemented by game designers in order to create play [3].

3.3 Badges

Badges serve as a credentialing function, and can be considered the more "tangible" version of the points, being a visual representation of the accomplishments and goals achieved by the user in the gamified system. Often represented visually, badges show that players have completed specific tasks [3].

3.4 Levels

Levels act as guide longer-term objectives that motivate players to continue playing in an effort to reach a higher status. While standalone challenges, contests, or sweepstakes are useful for creating short-term alignment, levels help orient motivation beyond a short cycle of reward [3]. Although levels do not currently play such a preponderant role in game performance, they reflect players' progress and serve as an indicator for players to be aware of the degree of difficulty involved.

3.5 Points

Points are used to encourage people to do things by collecting them [9]. The main assumption is that people will buy more widgets or work more in exchange for points, and gamification systems have different types of points: experience points, redeemable points, skill points, karma points, and reputation points [3, 5].

3.6 Challenges and Quests

Challenges are considered missions and convey to the players the feeling that they are heading in the right direction. The general approach is to set the challenges based on the user profile and rewards them for their achievements through trophies, badges, and prizes. In the same way, challenges and missions lead the players in the gamut experience. That means that, sometimes users may enter a game without any notion of the goals or the core of it. In these cases, these elements play an essential role in providing meaning and direction to the user [3].

3.7 Leaderboards

A leaderboard gives context to progression in a way the points or badges cannot. If performance in the game matters, the leaderboard makes that performance public for all to see [5]. The most important, for marketers to know, is that the greatest power of leaderboards is that they distinctly indicate the some kind of game is being played [3].

3.8 Rewards

People are motivated by rewards, because they inherent something for completing a specific task. The reward may be tangible or intangible, and presented after the action has occurred in order to provoke a repetition of the intended behavior. In a gamification context, the reward can be managed by obtaining points, virtual goods or even achievements, and programs use two types of rewards: ladders, and prizes [5, 9].

3.9 Narrative

There is nothing more important than an excellent story, but it is one of the most difficult game elements to execute properly. The term narrative simply refers to the overarching story that connects the various tasks users complete when interacting with the gamification platform [3]. The narrative must shift its emphases more on the creative side, for example in the introduction of story-based elements, like positioning tasks as missions in order for the gamification design and the rest of the elements which are part of the environment can make the experience feel realistic [5].

3.10 Groups of Gamification Elements

The gamification elements can be arranged in three main groups, and if structured as a pyramid, the base element it will be the components, in the middle, it will be mechanics, and in the top, it will be dynamics [5], and can be described as follows:

– **Dynamics** are the big-picture aspects of the gamified system that you have to consider and manage but which you can never directly enter into the game.
– **Mechanics** are a way of achieving one or more of the dynamics described. A random event, such as an award that pops up without warning, may stimulate players' sense of fun and curiosity.

– **Components** are the more specific forms that mechanics or dynamics can take. Just as each mechanic ties to one or more dynamics, each component ties to one or more higher-level elements.

The Table 1 resumes the characteristics of the different groups of elements of a gamification system.

Table 1. Groups of elements in a gamification system - adapted from [5, 9]

Dynamics	Mechanics	Components
Constraints (limitations or forced trade-offs)	Challenges (puzzles or other tasks that require effort to solve)	Badges (visual representations of achievements)
Emotions (curiosity, competitiveness, frustration, happiness)	Chance (elements of randomness)	Collections (sets of items or badges to accumulate)
Narrative (a consistent, ongoing storyline)	Competition (one player or group wins, and the other loses)	Leaderboards (visual displays of player progression and achievement)
Progression (the player's growth and development)	Cooperation (players must work together to achieve a shared goal)	Levels (defined steps in player progression)
Relationships (social interactions generating feelings of camaraderie, status, altruism)	Feedback (information about how the player is doing)	Points (numerical representations of game progression)
	Rewards (benefits for some action or achievement)	Quests (predefined challenges with objectives and rewards)

4   Gamification Areas of Application

Gamification can be a strategy for influencing and motivating the behavior of various types of people, whether they are customers, employees, partners, students, fans, constituents, patients, and many more. The potential uses of gamification are wide and run deep across numerous industries, companies, divisions and individuals in areas of business, government, health care, sales, partners, training and education [19]. Of all the areas where gamification is applied, following the criterion of the most used, three were selected for analysis in this study: business, education and health.

4.1   Gamification in Business

The gamification can be applied in several fields, from motivational programsfor employees, customer's loyalty programs, interactive business applications and even in the processes of an organization in order to make them more fun and engaging manner. Gamification can be used do increased on transparency, better communication between

businesses and customer's ideas, alignment of management interests with user motives, which could result in an increase on ROI (Return On Investment), brand experience by engaging users.

4.1.1   SAP Community Network

In 2004, SAP Community Network (SNC) started to employ the use of game elements, by awarding points for participating in forums, helping other members with technical questions, posting content, sharing knowledge, among others. Although the points were not connected to a reward, they had an influenced on stimulating participation. Following this trend, in 2006, they introduced the SCN team that used point totals as the sole criteria for the judging for the "Top Contributors Annual Contest". The use of points helped to increase the visibility and the desirability of contributing to the SCN community, to accumulate points, while encouraging on the sharing of knowledge [20].

Later, in 2008, they also incorporated a global marketing advocacy program, the SAP Mentor Program. These mentors were the top community influencers of the SAP ecosystem, most of them worked for customers or partners of SAP, having hands-on expertise products and services. The typical levels, bronze, silver, gold, platinum, were used mainly due to the fact that, they are very recognizable and are easy for members to understand [19, 20].

In 2011, the SCN team modified the game elements to have the community itself award points for quality, replacing the early system, which required moderators to evaluate and reward points. Still in 2011, the SCN Team, decided to migrate the network to the in-house platform of commercial products [19].

4.1.2   Starbucks My Rewards Program

In 2009, Starbucks launched data-driven marketing tool named My Starbucks Rewards, a mobile application that featured the means for fast paying and an incentive based system to promote repeating visits. To do this, the app uses traditional gamification elements such as points, badges and more recently levels to make customers comeback for more coffee and traditional loyalty rewards such as points. My Starbucks Rewards functions based on a leveling system, which gives the user a gold, star every time they paid for their coffee using the app. After the user reaches a total of 5 stars, he is immediately awarded with a Green Level status and this grant them a special perk of being able to receive free refills on coffee or tea purchased in that day [21]. The users also get more benefits as they stack stars, which gives them a sense of purpose and incents them to repurchases. When they reach 30 stars, the gold level, they receive a gold customized card with their name.

The Starbucks gamification system it's connected to social media networks, which allowed the Starbucks use his Facebook page and its Twitter account to link to directly interact with your customers [21], and helps to build relationships with your customers, while promoting your brand at the same time. By using simple game elements, which are present trough out the gamified system, such as points, levels and physical rewards, Starbucks, incremented a system that ensured that a certain amount of purchases were made every day. Starbucks calculated, at the close of 2012's first fiscal quarter, one-in-four people use their My Starbucks Rewards when purchasing a drink [21, 22].

Another aspect to take into consideration is customer engagement. When users feel engaged, they not only return to your site or business, but also are more likely to become advocates. The application of this strategy translated into an increase revenue to an astonishing $2.65 billion, with executives pointing to the increased participation in the loyalty program as the main driver of these amazing results [23].

4.2 Gamification in Education

Children use computers and virtual environments to do tasks that they found the traditional methods of teaching boring and tedious [24]. Adding games to learning could provide the support to the learner by rewarding students with instant feedback, like progress mapping on a digital board, challenging (but achievable) goals, and recognition within a community.

Gamification can also be applied by educators to teach because it can help to encourage and motivate students to learn and be more proactive in knowledge. Common application of gamification in the field of education, in order to encourage learning, is the integration of scoring video games, such as points, levels and achievements in learning activities. Activation of these external motives, however, at the expense of the internal ones, poses a long-term effect causing the decline of interest for learning [24, 25].

4.2.1 Gamification for Developing Learning Activities

Learning is a transformative process of producing meaning which differs from student to student, for example, when they are in a learning activity, each student finds a different meaning depending on his or her interests, background, motivation and abilities [24, 26]. In terms of rewards the model does not focus on the use of external rewards to control the behavior of students, instead, they based they rewards on the premises "how does this benefit the student?" which is more focused on the student's internal motivation, as well as in the creation of a meaningful gamification system.

Teachers can use this framework as a model for re-examined lesson plans to identify where gamification and computational thinking elements currently exist and where added an activity or extension could incorporate gamification into a learning experience [24]. These guidelines also intended to help teachers understanding gamification and learning to recognize the elements they are already included in their lessons.

4.2.2 STEM Applications with Gamification

Another example of the application of gamification to the education sector is its use in Science, Technology and Engineering and Mathematics (STEM). STEM are interactive simulations one of the most powerful tools for teaching, learning, and understanding the behavior and characteristics of physical laws, processes or systems [25].

4.3 Gamification in Health Care

Most of the gamified systems related with health care focused on fitness(Nike+ or Pain Squad), although in recent years there have been an appearance of these systems focus

on other health issues such as diabetes and obesity. This not a new fact because young people today are experiencing health-related problems like obesity and diabetes at an unprecedented rate. That is the main reasons why this system started to shift from fitness, and presents a study to justify this fact with following data from a research conducted by the Centers for Disease Control and Prevention. Using frameworks with loyalty programs to preventing care, such as routine check-ups and vaccination, and apply them to the health sector, with the help of gamified tools and platforms, which helps give healthy regular activities a fun and easier look that keeps people engaged in them [27].

4.3.1 Boston Heart Diagnostics

Boston Heart Diagnostics is an organization dedicated to the prevention and treatment of health and hearth related illnesses. They provide their patients with proprietary tests and the application of cardio-informatics, and then goes a step further to provide a personalized treatment plan and support tools to guide positive lifestyle and nutrition changes that can impact heart health [27].

4.3.2 Zamzee

Zamzee it's a non-profit organization created by HopeLab back in 2010 with the objective of researching ways in which the capabilities and appeal of technology could help to improve children's health. This American organization conducted health studies, in 2010, and reach the conclusion that sedentary behavior and obesity were a major problem of national health. HopeLab, made its mission to make teens and their families more physically active to create a positive health behavior in young people and fight chronic illnesses like cancer, obesity, depression and diabetes. To do it, they created a gamified program based on a connected device that would engage, motivate and have make a positive impact on the participants. The result was Zamzee, a device that measures physical activity, with a motivational website meant to gradually increase physical activity levels. The profile is the key motivational component used to make teens and children initiate or sustain behavioral change [27]. Through the page the users can also view their personal activity levels, earn points for their daily movement, achieve goals and convert points into rewards, whether they are badges or ribbons they can place on their social profile, or can be redeemable as gifts [29].

4.4 Gamification Elements Objectives

Although there are some evident differences in the application of gamification on different sectors, there is some common ground used by all sectors that should be considered. They share common basic practices that should be taken in account when if your organization wants to apply this technique, such as [29]:

– Even simple game elements such as points and levels can drive important results if it is correctly applied and resonates with the user's expectations;
– Gamification cannot be static, but must evolve over time to remain fresh and interesting;

- Involving active community and its users in quest or events as helps to fine-tune the game elements, which are a key to continual improvement efforts;
- Communicating with users is the key to get information about changes to the game elements and it is a critical factor to long-term success;
- Managers and staff using gamification need to be open to the unexpected, and must be ready to evolve as new approaches, ideas, and technologies appear;
- Rewards do not have to be tangible. Intangible and intrinsic rewards are preferred because they resonate with the users;
- Integration with existing departments of your organizations infrastructure can be a key decision point for gamification procurement projects;

In general, the elements used by the three sectors mentioned in this work are pretty much the same, the differential factor as to do with the objective. In business gamification the organization use this technique to mainly completion to create engagement and buzz between users by relying on the games elements with the main objective of having a Return On Investment (ROI), whether in a financial perspective or in a loyalty based approach.

In education, these same game elements are used but here, they primarily do not want a financial return on their investment, instead they want to motivate users to be educated and feel like they mastered a skill. These types of systems are based on cooperative challenges, puzzle mechanics and with the creation of a compelling story, which is tied directly to the desired learning outcome. They are successful in changing attitudes, behaviors or helping someone learn, because they engage with the learner within the story of the gamified system, making learning complex concepts easier [29].

In the health sector, gamification systems are based on the concept of altruism. This means that the user must understand that the behavior the system is proposing is beneficial to his health tap into the user's cooperative nature they share their experience and help other users with tips so they can achieve the same results. There are not many specific mechanics for this sector but they are some interesting principles behind those mechanics as seen previously.

In Table 2 it is presented a resume of the elements observed in the different gamification systems.

Table 2. Elements observed in gamification systems

Business	Health	Education
Points	Points	Points
Levels	Puzzle	Levels
Challenges	Collaborative challenges	Fast feedback mechanisms
Leaderboards	Feedback	Educational goals
Gifting	Behavior changing goals	

5   Conclusions

The implementation of gamification approaches create value for the stakeholders of organizations, so it is one of the tools used by marketing managers. Regarding the user perspective, they seek fun, rewards, competition, social interactions, but essentially a gamification experience that has meaning and gives them a sense of mastery. In addition, users, specially generation Y, which are fully prepared to participate in these experiments, as they are not only motivated by gamified systems, as they are looking for new forms of brand experience and brand relationship.

In the SAP gamification example, there was a preoccupation in creating specific and very tech oriented content that would only help supports, but also advance users and regular users seeking to clarify their questions or to simply to point out bugs on the SAP software's. In the gamification systems used in the health care sector, there was also a worry in creating content that not only was compelling to users, but also was creating individualized heart-healthy regimens and improve overall patient outcomes. Gamification in education focuses on creating content that has a balance between play and learning. In all the cases observed in this work, the gamification elements contribute to the efficiency and effectiveness of the dynamics and mechanics systems aspects, contributing to the involvement of the target public.

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