A SWOT Analysis of the Gamification Practices: Challenges, Open Issues and Future Perspectives

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ABSTRACT

In this paper, we present a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis for the gamification field. The analysis will begin with a review of the topics frequently discussed in relation to gamification strengths and weaknesses, by reporting existing works in the field. The work will continue by outlining an analysis of opportunities and threats, that require an examination of marketing and design trends, with the aim to provide a strategy for guessing what lies ahead in the future. We are not aiming at a complete review of all the relevant works in this field; we want to identify a useful tool to spot both positive and negative aspects of gamification, as well as its perspectives of development and its risks of decline, describing some elements through which imagine its future, showing limits, challenges, ethical issues, expectations and possible evolutions of this phenomenon.

Keywords: Gamification, SWOT Analysis

INTRODUCTION

In this paper, we present a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis for the gamification field. SWOT analysis is a commonly employed framework in marketing researches, for analyzing the elements that can influence a firm's competitive position in the market, considering present and future issues. Strengths are internal resources and abilities that an entity has and that can help it to achieve its goals; weaknesses are the entity's internal limitations, that could interfere with the achievement of its goals; opportunities are the favorable trends in the environment that the entity could play on; threats are unfavorable trends in said environment that could limit development and impede progress towards its goals.

Generally, the aim of a SWOT analysis is to discover a way for matching the entity's strengths with the opportunities, overtaking its weaknesses and minimizing the threats (Kotler and Armstrong, 2010). However, SWOT analysis has been used outside the business world too, when analyzing promising technologies, such as Near Field Communication technology (Jandebeur et al., 2013) and Virtual Reality technology (Rizzo and Kim, 2005), and "it can be usefully applied to guide any organized human endeavor designed to accomplish a mission" (Rizzo and Kim, 2005: 120). This model can be a useful tool in structuring an analysis that aims at providing an overview of the gamification phenomenon, highlighting the key issues that are essential in interpreting this new area of HCI studies.

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The analysis will begin with a review of the topics frequently discussed in relation to gamification strengths and weaknesses, by reporting existing works in the field. The work will continue by outlining an analysis of opportunities and threats, that require an examination of marketing and design trends, with the aim to provide a strategy for guessing what lies ahead in the future. We primarily drew on research literature in important conferences, such as Gamification Conference, ACM SIGCHI Conference on Human Factors in Computing Systems (including the gamification workshop at CHI 2011 and CHI 2013) and Mindtrek Conference. Then, we made searches in the ACM Digital Library, with the terms *gamification* and *gamified*. We further investigated the references of the initially found relevant papers and, with a snowball sample method, we discovered other relevant works. Finally, we drew on our own research experience to spot pertinent studies in the game design literature. However, we have to notice that gamification literature is rapidly expanding, not only in HCI conferences and journals; significant works can be found scattered amongst marketing, health, learning and other journals.

We also considered non-scientific writings such as blog posts, magazine articles, technical reports, white papers, designer interviews and mainstream books, starting from searches in Google with the terms *gamification* along other terms such as *motivation*, *engagement* and *behavior change*. Our aim is not to provide a complete review of all the relevant works in this field; we want to provide a useful tool for identifying both positive and negative aspects of gamification, as well as its perspectives of development and its risks of decline, describing some elements through which figure out its future, showing limits, challenges, ethical issues, expectations and possible evolutions of this phenomenon. The inclusion criteria for the works discussed in this analysis included papers related to: i) motivation and engagement; ii) effects on human behavior; ii) specific game elements, such as points, badges and leaderboards.

Strengths

Availability of a shared minimal language

Gamification is an effective design strategy to insert game mechanics in existing contexts. Differently from past solutions aimed at using games for serious purposes (e.g. serious games), gamification does not require the design of a full fledged game. In fact, serious games, during the years, evolved into powerful simulation environments, able to provide sophisticated models to emulate complex behaviors, but requiring high development investments: these simulations are more apt to be point-in-time works in separate environments and are not integrated with existing processes and contexts (Deloitte, 2013). Gamification, as is conceptualized, does not show these high entry barriers: it relieves the designer, who doesn't have to create complex game worlds from scratch, but can count on a set of limited elements that can be applied through different situations.

In the (video)game design field there is an ongoing effort to formalize and enumerate the central building elements of a game, aiming at providing a grammar or a Unified Modeling Language (Deterding, 2013). Cook (2007), for example, introduces a game grammar, starting from a behavioral model of the player, based on the idea of skill atom: a skill atom is a "self contained atomic feedback loop" between player and game and is organized around a challenge that the player is trying to master. Brathwaite and Schreiber's game design atoms (2008) are a set of game design elements: game state, game view, player avatar, game mechanics (i.e. the game rules), game dynamics (i.e. the game rules set in motion by the player), game theme and goals. Instead, Järvinen (2008) lists forty game mechanics including in his enumeration many concrete elements as building, choosing, conquering, jumping, storytelling, trading, while Schell (2008) individuates more abstract mechanics, as space, objects, attributes and states, actions, rules, skills, chance. Most of these elements are built on the MDA framework (Mechanics, Dynamics, Aesthetics) that distinguishes three macro-categories for the game components: mechanics are the various actions, behaviors and controls afforded to the player, describing the particular components of the game, at the level of data representation and algorithms; dynamics are the run time behavior of the mechanics; aesthetics are the desirable emotional responses evoked in the player (Hunicke et al., 2004).

Many of these organizations of game elements have been considered for gamification, since they have been seen as useful for orienting its practices. However, the spreading of shared techniques, focused mainly on three main game components, points, badges and leaderboards, soon overcame the grammatical complexity of game design, focusing on simplicity and convenience. Points are commonly used for i) keeping score, ii) providing feedback, iii) showing a status, iv) creating a connection between a progression in the game and an extrinsic reward, v) determining a win state and vi) providing data for the designer (Werbach and Hunter, 2012). Stackoverflow (http://stackoverflow.com/), for example, uses reputation points to signal the authority of its contributors. Badges, instead, are virtual goods, which are awarded to users for completing specific achievements. They can have different functions: i) presenting goals to achieve, ii) providing instructions about what types of actions are available in the system, iii) determining the trustworthiness of people or reliability of contents, iv) providing personal affirmation

through the communication of one's past accomplishments and v) identifying the user in a group (Antin and Churchill, 2011). Foursquare (https://foursquare.com/) shows how the possibility to gain badges can promote location-sharing through check-ins. Leaderboards are a list of users in a challenge, ordered according to a parameter (e.g. the score), showing their performances to the public and promoting the competitiveness (Costa et al., 2013). Samsung implemented leaderboards in Samsung Nation, for supporting loyalty of its customers (http://www.samsung.com/us/samsungnation/).

This is the so-called PBL triad (Points, Badges, Leaderboards), a set of game design elements used in the majority of commercial gamified applications (Werbach and Hunter, 2012) and academic researches (Hamari et al., 2014). The common acceptance of usage of these three elements provides the designers with a shared minimal language: the simplicity and the speed of implementation of these elements represent a primary gamification strength, facilitating its widespread adoption by services and systems far away from the entertainment world. Users, recognizing common features in different applications, can immediately gain a clear perception of the actions required by them, shortening the learning curve and favoring a quick user engagement.

Availability of ready-to-use solutions

The efficiency of gamification practices, made possible by rapid and simple implementation techniques, is manifested even more clearly in the services provided by the gamification platforms, nowadays spreading on the market. Badgeville (http://badgeville.com/) offers portable reputation systems, enabling companies to track and reward user behaviors across different digital touch points. Big Door Media (http://bigdoor.com/) provides small websites code that can be embedded in web pages, enabling features based on rewards, while offering gamified loyalty programs for larger websites, tailoring services to their specific needs. Bunchball's Nitro platform (http://www.bunchball.com/) allows companies to track user behaviors, supporting points, levels, leaderboards, challenges and social features. Gigya (http://www.gigya.com/) delivers interoperable plug-ins, supporting leaderboards, feedback, achievements and rewards.

The availability of these ready-to-use services promoted the spreading of gamification. To date, any website, application or social network can add game elements, by simply embedding codes in their systems or integrating prepackaged software modules. The simplification of technology allowed designers to create gamified applications without spending time in cumbersome development activities. Besides, the current platforms often include, in their offers, analytics services, delivering integrated solutions that both incentivize and track users' behavior. So, companies also have, through these third-part services, powerful tools to gather information about their customers, such as engagement and retention rate, and offer them customized advertising and recommendations.

Enhancement of user engagement and motivation

Gamification generally aims at leveraging the most involving aspects of games for enhancing motivation and engagement of users and, thus, increasing their productivity and performances. The big hype in the marketing sector (Gartner, 2011a; 2011b) led to a shared enthusiasm: gamification platforms often push amazing results, in terms of increased user participation, in a variety of contexts, simply obtained through the addition of game elements to existing applications and services.

Academic researches provided successful examples of gamification too. Barata et al. (2013a) show that introducing experience points, levels, badges, leaderboards and challenges in a course in Information Systems can improve student engagement, online participation and proactivity. Cechanowicz et al. (2013) suggest that game elements have additive effects in increasing participation and motivation: it is possible to obtain greater motivational effects combining a game mechanic with additional game elements. Flatla et al. (2011) propose the usage of gamification to make calibration tasks, required by interactive systems to ensure the optimal configuration of input and output, more engaging and entertaining. Results of their user study show that it is possible to introduce the pleasurable experiences of games like enjoyability and fun to serious activities, even without drastically changing the nature of these tasks. Thom et al. (2012) highlight how the removal of a points-based incentive system from an enterprise social network has a significant negative impact on the user activity of the site, reducing the amount of contributions and decreasing the overall participation.

Furthermore, Hamari et al. (2014) show, in a review of empirical studies on gamification, that this design technique has positive effects on performances and participation of the users, as well as on their motivation and engagement, as highlighted by the majority of the paper revised. However, as we will see in the next session on gamification weaknesses, HCI researchers have not obtained univocal results on its efficacy yet: lots of failures in enhancing user motivation and performance through these directives are also available.

Weaknesses

Unclear effects on user attitudes and behaviors

Despite Hamari et al. (2014) showed that the majority of the researches they revised found a positive effect of gamification on user behaviors and attitudes, doubts still persist on its real efficacy. On one side, authors identify several shortcomings in the quantitative studies examined, such as small sample sizes, lack of a control groups, presentation of descriptive statistics only with no inferring relationship between constructs and short experiment timeframes, in which novelty might have skewed the participants' experiences; on the other side, the qualitative researches reviewed, in which the findings consisted of both positive and negative perceptions regarding the studied applications, revealed that gamification is a varied phenomenon, where some underlying confounding factors may exist.

Montola et al. (2009) apply a game achievement system in a photo sharing service, discovering, through interviews, that users' reactions to the achievements were mild and somewhat irrelevant. However, since the achievements are relatively cheap to implement, authors suggest that introducing them might be a viable option to add some mildly hedonic value to existing applications. Li et al. (2012), evaluating GamiCAD, a gamified tutorial system for first time AutoCAD users, show that points, levels and feedback determine higher engagement levels and faster performances. However, qualitative data seem to highlight that some users want to challenge themselves, repeating tasks to achieve higher scores and levels, while others disliked the stress and the pressure of the game.

We can find ambivalent data and open issues in some quantitative studies too. Fitz-Walter et al. (2011) report the evaluation results of Orientation Passport, a gamified orientation event application for smart phone. Although the added achievements were generally well received by the users, as a welcome addition to the system, the data gathered highlight that once the achievement had been unlocked the majority of users stopped using the application features. Farzan et al. (2008), in their evaluation of a feature that rewards contributions with points in a social networking site, found that, even though users were initially motivated to add more content to the site, the impact of the point system quickly decayed after its introduction.

A study by Hamari (2013) shows that an important factor that could determine the success or failure of a gamification process is represented by the context in which it is applied. Hamari (2013) states that in utilitarian contexts (e.g. e-commerce and trading websites) badges do not have effects in incrementing the performance and in triggering psychological effects, such as social comparison and goal setting, for the majority of users. The author concludes that the effectiveness of game elements depends on the nature of the service in which they are used: in hedonic contexts, as games, badges seem to be a valid vessel for players' goal-oriented and social behaviors, while in utilitarian services their effects seem to vanish. In this kind of contexts, gamification should add hedonic emphasis, using narrative and combining different game mechanics or shaping the core activity within the service as a game. Highlighting that gamification, as deployed at the moment, is not as effective as it could be in utilitarian contexts has to bring us to consider how to better implement it effectively in non hedonic environments.

Simplification and limitation of the game elements employed

Despite the simplicity of its language represents a strength, it is surprising to observe that the game elements commonly used in gamified applications rarely go beyond the basic alphabet represented by points, badges and leaderboards. Werbach and Hunter (2012), analyzing more than one hundred implementations of gamification, found that the majority of them start with these elements, highlighting that PBLs are so common that they are often described as though they were gamification itself.

Zichermann and Cunningham (2011) add levels to this triad. In videogames, level design is one of the most important and complex activity, since the designer has to balance the challenges present in the game in ways that must be fun and interesting, paying attention to the right amount of difficulties, rewards and meaningful choices that the player will encounter during her journey in the game (Schell, 2008). In gamification, levels are commonly implemented as completion affordances, for signaling the percentage of accomplishment of a task (e.g. the progression bar in Linkedin: https://www.linkedin.com/), or as reputation systems, for clustering users in groups with different privileges (e.g. the levels in Yahoo Answers: http://answers.yahoo.com/), taking into account only the superficial layer of the level design techniques.

If the convenience of gamification represents one of its strengths, reducing the complexity of games and replacing their essence with few elementary design elements could be one of its central weaknesses. Some designers believe that limiting its perspective to the use of points, badges and leaderboards is the main problem of gamification.

Margaret Robertson calls this phenomenon *pointification*, stating that "what we're currently terming gamification is in fact the process of taking the thing that is least essential to games and representing it as the core of the experience" (Robertson, 2010). Ian Bogost suggests to call it *exploitationware*, since "it confuses the magical magnetism of games for simplistic compulsion meted out toward extrinsic incentives" (Bogost, 2011). Gamification makes believe that points, badges, levels and rewards are key game mechanics: instead, key game mechanics should be only those operational parts of games that produce emotional experiences, while points and levels are only gestures that provide structure and measure progress within a game (Bogost, 2011). Simplifying and reducing could cut costs, time and efforts, but at the same time impoverish and pervert the experiences that games commonly generate in their players.

One-size-fits-all

The spreading of third-part services on the one hand has promoted the adoption of gamification, on the other hand has highlighted the problem of the one-size-fits-all approach currently applied to many gamification interventions. This design technique is mainly actualized as a cut and paste methodology, lacking originality not only for the scarce variety of the elements commonly employed, but also for a perspective that is inclined to consider different contexts and different users in the same way.

First of all, the one-size-fits-all approach conflicts with one of the most peculiar characteristic of games, the sense of discovery and novelty that they elicit in players. Second, delivering a set of features that does not change during the interaction with the system does not match with the game experience, which usually evolves during the player journey, adapting itself to the variation of the player's skills and emotions. Finally, using the same game elements indifferently for all contexts may deteriorate the contents to which they are applied. Gamification often does not modify the user experience of the service by moving it towards a more engaging and enjoyable experience, but overlaps the existing contents, covering them with a glaze of "already seen". This approach makes it a prepackaged solution, instead of a design process able to gather user needs and desires, to which adapting and delivering useful services.

In order to solve these issues, Jacobs (2013) suggests to move from a perspective aimed at adding atomic game elements to existing situations to a solution centered on the creation of new experiences, making gamification a technique for developing new environments from the combination of mechanics and the existing contexts. Ami Jo Kim (2012) proposes to consider different motivational patterns in designing for gamification. Starting from Bartle's (1996) player types, Kim catalogues four different Social Engagement Verbs (compete, collaborate, explore and express), for identifying what motivates users in gamified systems and tailoring different design solution for different types of users. Dixon (2011) suggests to exploit Bartle's typology to create play-personas, fictional characters by which to orient gamification towards a design process that takes into account the differences among users and their related motivations and needs. Designing gamification features is not so far from the user-centered design process: the game elements applied to existing contexts must be means to create experiences that can satisfy the addressed users. The one-size-fits-all approach, instead, could cause damages, since it is known that designing for specific users is better than designing vaguely for everyone (Cooper, 1999).

Side effects

In order for gamification to become a useful tool in motivating and engaging users, we need to consider the adverse side effects. First of all, using extrinsic rewards, such as points and leaderboards, until now has no clear effects on user intrinsic motivation. Although Mekler (2013) shows that points, levels and leaderboards neither makes nor breaks user intrinsic motivation in non-game environments, many researches highlighted that different forms of extrinsic rewards could determine, in specific contexts, a detrimental effect on the users' intrinsic motivation (e.g. Deci et al., 1999; Newby and Alter, 1989). This may happen especially in those contexts where people are already intrinsically motivated to perform a task, before the introduction of the extrinsic rewards (Osterloh and Frey, 2000). Using exclusively extrinsic rewards should be carefully considered, because of the risk of impoverishing the overall experience the system could provide, since intrinsic motivation is positively associated to well-being (Decy and Ryan, 2000).

A second problem is represented by *mandatory fun*: the absence of consent to the gamified task (Mollick and Rothbard, 2012). It is critical to consider to what extent users voluntarily consent to perform a gamified task, or see it as an imposition of the designer. Gamification could be a useful technique only if its application is addressed also to achieve consent of users: to achieve this, users have to recognize that the game is being played, understand the rules of the game and see it as fair (Mollick and Rothbard, 2012).

Furthermore, even when such technique produces an enhancement of the user performance and motivation, we have to consider that this improvement might not proceed towards the intended goal. For example, leaderboards can promote competition among users for the highest rank, generating higher participation and rates of retention. However, users could target their motivation only towards being the best, performing repetitive and mechanical actions and ignoring the service that the application has to offer: even if this issue may seem irrelevant at first sight, since users are still spending time on the system, gamification in this case is not leading to a true engagement like the developer is likely hoping to achieve (Smith, 2012).

Moreover, social relationship triggered by gamification features should be evaluated carefully in respect to the possible side effects that they may generate. Leaderboards, for example, are often employed in motivating users to compete with the entire community which they belong to, pushing them to improve their skills for standing out, enhancing their overall engagement with the system. However, leaderboards alone can dampen the levels of interest and engagement of users, if numbers associated to the leaderboard positions are perceived as meaningless (Costa et al., 2013). Leaderboards also seem to favor the division of users in smaller groups, instead of bringing them together in a larger group that competes as a whole (Costa et al., 2013). Another consideration is that implementing leaderboards that do not allow users to choose who they compete with could have negative effects on the majority of them, since competition among leaders is productive, but it also demotivates those who are not in the leading group (Massung et al., 2013). A last note, leaderboards should be addressed to the contexts in which they are implemented: if leaderboards enhance user engagement through competition, where the main goal of the environment is to improve cooperation, they may not have the end result of increased engagement (Jacobs, 2013).

Opportunities

Increasing acceptance by the market

Gamification is having such a great success in the business world that many financial analysts see a rapid increase of its adoption in the next future. Gartner in 2011 predicted that “by 2015, more than 50 percent of organizations that manage innovation processes will gamify those processes” (Gartner, 2011a) and that “by 2014, more than 70 percent of Global 2000 organizations will have at least one ‘gamified’ application” (Gartner, 2011b). M2 Research (2012) forecasted that gamification market will reach $2,8 billion by 2016.

Nowadays, very popular applications, such as Nike+ and GetGlue, use game mechanics for increasing user performances and participation. The spreading of these applications made the use of PBL familiar. The result is a growing number of systems and services that apply game elements to drive user motivation and engagement in a variety of field (Deterding, 2012), such as tutorials (RibbonHero), forums (StackOverflow) and crowdsourcing platforms (FoldIt). Gamification of processes is also propagating in work (Reeves and Read, 2009) and education (Huang and Soman, 2013).

An example for this trend can also be seen in the growing number of articles about gamification in mainstream media (i.e. the New York Times, Wired, The Washington Post). This positive mood could anticipate a widespread acceptance of future applications able to leverage all the potentialities of this design technique.

Push of Videogame Industry

There is no doubt that the success of gamification is also driven by the recent growth in the gaming industry and the mass appeal that videogames actually have in the entertainment arena. In 2012 the worldwide video game marketplace, which includes hardware and software, online, mobile and PC games, has reached a revenue of $78,872 billion; the market is forecast to reach $111 billion by 2015 (Gartner, 2013b). Game industry has now surpassed the film industry in the entertainment market share. For example, *Call of Duty: Modern Warfare 3*, launched in November, 2011, was the most successful product launch in history, grossing more than $1 billion in its first 16 days of sales, while the most successful movie of 2011, *Harry Potter and the Deathly Hallows Part 2*, earned $381 million (M2 Research, 2012). Besides, the so called casual gaming phenomenon has reached a wide range of consumers, extending the popularity of video games to females and to age groups that traditionally were not associated to them.

The result is that nowadays 58% of Americans play videogames, the average age of game players is 30 and women represent the 45% of the total gamer population (Esa, 2013). Even in Europe, 45% of video gamers is represented by female gender, while the 49% of players is more than 35 years old (Ipsos Media CT, 2012). These data show how the video game world is not anymore of hardcore gamers, 18-24 year old male population commonly seen as core users of gaming applications, but is becoming a part of the home environment and of everyday live of a majority of

people. This familiarity with interactive games has opened new opportunities for gamification: the integration of games in daily life is an element that could facilitate its spreading in contexts usually associated with serious tasks and meanings.

Increasing interest of the academic world

Gamification is receiving an increasing attention by the academic world. Researches aimed at investigating the effects of game elements on users are more and more, for example in sport and physical activity (Mueller et al., 2011), design methodologies (Rapp et al., 2012), education (Barata et al., 2013b), citizen science (Bowser et al., 2013), health care (Parendes et al., 2013). This interest is showing even in the organization of workshops (CHI 2011 and CHI 2013 Gamification Workshops; GamifIR '14 Workshop), track dedicated to the topic in international conferences (HCII 2013; CHI Play 2014; Personal Learning Environment Conference 2013), conferences that have gamification as their central theme (Gamification 2013; Persuasive 2014) and special issues of international journals (Journal of Gaming and Virtual Worlds; Creativity and Innovation Management; Computers in Human Behavior). Searching the term "gamification" in Google Scholar we have 4690 results (as of 29th January, 2014); at the same time a growing number of researchers with a shared interest in gamification are coming together in online communities, such as the Gamification Research Network (http://gamification-research.org/).

We see now a shift in the attitudes towards gamification, a legitimization of a phenomenon that until a short time ago was only ascribed to the marketing field and industry debates, discussed only in relation to its supposed efficacy in attracting and retaining customers. Now, gamification practices are gradually consolidating as design techniques that may provide new opportunities in increasing motivation and engagement and for changing behavior.

Changing behavior

Using game elements for changing people behavior towards healthier lifestyles and more sustainable consumption practices seems to be the great promise of gamification practices. In comparison of serious games, exergames and games for improving psychological and physical states, such as SuperBetter, a game for developing resilience, and Lumosity, a suite of games aimed at enhancing brain performance, all these practices can intervene on existing contexts, without the necessity of developing full fledged games.

Even if the behavior changing aspect is still at an early stage of development, some authors seem to prefigure new opportunities. Rao (2013) states that it is necessary to reconsider current popular gamification strategies based on competition and victory, leaderboards and points, when focusing on changing people behavior. The author suggests to conceive alternative design techniques, as altruism and cooperative social interactions, using emphatic feedback and features aimed at stimulating social responsibility and intrinsic motivation. Laschke and Hassenzahl (2011) propose to go beyond reward mechanisms that reminisce the Token Economy of behaviorism and embrace a vision that embeds meanings in gamification, shaping novel behavior into a meaningful story, for promoting goals such as being happier or being more socially active. Sakamoto et al. (2012) introduce a value-based gamification design framework, suggesting to go beyond common game mechanics: a design based on values (informative, empathetic, persuasive, economic, ideological) could develop services for behavior change, improving user intrinsic motivation and self-efficacy. Jylhä et al. (2013) combine a self-tracking application with a gamified system with personalized challenges based on the data tracked, in order to promote sustainable mobility.

The relationship between game elements and self-tracking applications is probably the field that better exemplifies the challenges that gamification should face in connection to behavioral change. Using game mechanics for motivating users in self-monitoring activities and engaging them in the exploration of their personal data could be a way to conceptualize a new form of gamification: points, badges and leaderboards do not suffice in this context, opening the possibility to imagine a new role for game elements in serious situations (Rapp, 2013).

Inclusion of new game elements

Although points, badges and leaderboards are the most common game elements used in gamification, game designers have a huge quantity of components at their disposal, almost unexplored in the gamification practices until now. Zichermann and Cunningham (2011) propose a taxonomy of game mechanics that should be applied in gamification. They categorize twelve classes of game mechanics, which can be combined and mapped into the Bartle's four player types, to create complex gamified systems. For example, in the collecting category, key game mechanics are collecting objects such as stamps and badges, scarcity and returns and trading mechanisms with others. Werbach and Hunter (2012) note that points, badges and leaderboards are not suitable to all contexts. Starting from the MDA framework (Hunicke et al., 2004), authors list among the mechanics suitable to be used in

gamification interventions challenges, chance, competition, cooperation, feedback, resource acquisition, rewards, transactions, turns and win states. Finally, Robinson and Bellotti (2013) codify a large taxonomy of game elements, differentiating them by Low, Medium, High and Variable, depending on the minimum level of engagement requested for a specific element to become effective: for example, in the class of intrinsic incentives, the authors list curiosity, challenge, entertainment, social reward/peer pressure, personal returns, societal returns.

The main problem with these taxonomies lies in the lack of examples apt to show, on the one hand, the implementation of these new game elements and, on the other hand, to prefigure how a complex gamified system could be. Zichermann and Cunningham (2011), for example, cite GetGlue to illustrate the mechanic of scarcity, since it offers its users badges in limited edition for the new season of Dr. Who. ClubPsych (http://clubpsych.usanetwork.com/) is signaled by Werbach and Hunter (2012) in relation to the mechanic of challenge, since the website allows users to answer questions and watch videos gaining points and climbing leaderboards. It is clear that even if these applications incorporate some elements not commonly used in gamification practices, their logic is based on the PBL triad.

Recently, among designers an awareness is spreading: new ways must be explored in designing journeys that evolve and creating experiences of fun. Ferrara (2012a), for example, notes that it is more and more necessary for UX designers to expand their competencies in game design, in order to create high-quality player experience. Nicholson (2012) highlights the need of introducing meaningful game elements for developing a meaningful gamification: deeper integrating of game mechanisms into non game contexts; taking inspiration from player-generated contents in order to allow users to set their own goals, create their own tools and their own leveling system; looking to Alternate Reality Games for community-based aspects so that participants can find meaning through group engagement. All of these are only some of the suggestions that the author proposes.

We do not know whether the inclusion of new game elements could lead to a radically transformation of gamification: but it is clear that game design and video game worlds have much more to offer to the design of interactive systems than what we have seen until now.

Threats

Failure by poor design

In 2012, Gartner predicted that “by 2014, 80 percent of current gamified applications will fail to meet business objectives primarily because of poor design” (Gartner, 2012). For Gartner, the main problems lie in the lack of game design talents to apply to gamification projects and the focus on obvious game mechanics, “such as points, badges and leader boards, rather than the more subtle and more important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy” (Gartner, 2012). Gamification designers often confound the creation of an enjoyable experience with the implementation of a reward system. Besides, rewards themselves often fail their aim, not resulting rewarding for their users. Points, badges and leaderboards, in fact, in most cases are not rewarding per se, but represent feedback to the player actions or tokens that refer to further valuable elements. Users accumulate points for exchanging them for preferred items, activities and privileges that represent a set of backup reinforcers (Cooper et al., 2007); otherwise points could simply indicate a progression towards mastery or belonging: what is rewarding, however, is not points but the elements they represent (Pihl, 2013). By not recognizing what is really rewarding for users and the meaningful aspects of gamification has recently generated a sense of skepticism: if these practices will continue to implement poor design application and services, it is easy to imagine that the sort of fame achieved up until now will soon be fading.

Behavior manipulation and ethical issues

Gamification applied to behavior change is not exempt from the worries, as well as ethical doubts, that always come with new technologies. First of all, it bumps into the same dilemmas that afflicted the mass communication means in the 1950s. As a new form of hidden persuasion (Packard, 1957), leveraging the power of games for attracting unaware customers pushing them to buy more and more, gamification could be seen as merely an expedient for promoting mechanical behaviors and increasing customer relationship metrics, without any improvement of the user experience. Heather Chaplin states that “in a gamified world, corporations don't have to reward us for our business by offering better service or lower prices. Rather, they can just set up a game structure that makes us feel as if we're being rewarded. McGonigal goes even further. She talks about an ‘engagement economy … that works by motivating and rewarding participants with intrinsic rewards, and not more lucrative compensation.’ This economy doesn't rely on cash—rather, it pays participants with points, peer recognition, and their names on leader boards. It's hard to tell if this is fairy-tale thinking or an evil plot” (Chaplin, 2011).

Warnings related to the manipulative power of gamification are arising from many parts. For Danah Boyd, gamification "will seep into many aspects of life without us even acknowledging it. It'll become a central part of neoliberal ideology without folks even noticing it. Why? Because it's a modern-day form of manipulation. And like all cognitive manipulation, it can help people and it can hurt people. And we will see both"; while for Viktor Suter "gaming itself can be a terrible addiction—I'm not sure what the proliferation of gaming interfaces in non-game settings will mean to those with the addiction" (Anderson and Rainie, 2012). The risk of creating addiction and driving behaviors of unaware customers are dreaded by researchers and common users.

Another element to consider is related to the expansion of the game logic to the contexts of everyday life and its consequent devaluation in the eyes of the users. As David Cohn highlighted, "If everything is a game, then no game is fun"; Susan Crawford on the same notes: "If everything was a game, no one would have a reason to invent; any metric corrupts, as people shape their behavior to ensure that they come out on top" (Anderson and Rainie, 2012). A widespread competition triggered by game mechanics could favor repetitive behaviors, emptying experiences and creative processes. This threat calls to mind the dystopia presented at DICE 2010 by Jesse Schell, where extrinsic motivators permeated a future world, covering every actions of people with a patina of meaningless mechanics connected to fame.

Unrealistic expectations

The spread of gamification in work process, educational dynamics and interactive systems generated a series of expectation, among companies, designers and researchers, related to the power of games in driving human behavior: now the risk of disappointment is more concrete than ever. The idea that gamification should represent a panacea is surely unrealistic. Nor every contexts is suitable of being addressed with it, neither the game elements are able to engage all type of users. Gamification limits such as poor designs, repetitiveness and meaningless rewards, risk to soon betray the expectations: hanging in the balance between being considered a panacea or a buzzword, this design technique is far from being a grounded acquisition in the design world. In Gartner's hype cycle for emerging technology (2013) gamification is now positioned in the peak of Inflated Expectations. A reduction of expectations and interests in the next years is somehow physiological, since many applications are failing in reaching their goals. This is indeed a desirable reshaping: history of technology provides many examples of overexploitation of new inventions based on excessive expectations and poor scientific data. It is necessary, besides, that designers are aware of limits of what is called now gamification, focusing on investigating the motivational dynamics and behavioral processes that lie in the gaming world and could be employed even in non game contexts.

CONCLUSIONS

The picture that emerges from this SWOT analysis highlights that gamification is still in an early stage of evolution, scarcely supported by hard facts when it comes to efficacy. Designers seem to use it as a convenient design technique to increment in the short term the customer metrics, but persisting in this attitude could lead to a drop of interest both for the addressed public and for researchers that are starting to delve this phenomenon. Thus, it seems necessary to go beyond these consolidates practices to find new ways through which conceptualize and imagine the role of game elements in non game contexts.

A first step along this path is connected to the evaluation methods used to estimate the efficacy of gamification. As noted by Hamari (2013), evaluating the success of gamification only on the basis of metrics that measure the augmentation of the costumer experience leads to ignore the subjective experiences of the users: what kind of meanings do users attribute to the game elements outside their original contexts? Do the gamified applications currently on the market lighten the user experience with a sense of enjoyment and fun? Do they create a joyful experience?

Another key point is represented by the game elements involved in gamification practices. Addressing new game elements, more complex and articulated, extracted from the gaming experiences of players and not from consolidated praxis or game design manuals, is a way for contributing to moving the designer point of view into the user experience: how would it be possible to re-create the same feelings of enlightenment, interest, fascination, challenge, suspense that players experience during the phases of hard playing even in non game contexts? How to trigger the same motivational pull and behavioral commitment that lie in the video game world even in serious situations?

Trying to apply these new game elements to behavior change is one of the biggest opportunities that designers should address. The Quantified Self, as an emergent area of applications that are trying to drive user behaviors though self-knowledge and self-reflection, could be an optimal testing ground for a new use of game elements in non game contexts, since we could imagine to overcome many of the issues related to the self-monitoring activities using suggestions derived from the video game worlds (Rapp, 2013).

From this perspective, however, it seems necessary to start moving towards a qualitative inspection of the user experience in using gamified applications, investigating their effects on motivation and engagement from the point of view of the users. For this reason, as the next step of our research, we aim at discovering, through a series of focus group sessions, how users perceive the actual implementations of gamification, pointing out its potentialities and lacks through the eyes of the users.

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