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Prof. Dr.-Ing. Carsten Busch, Martin Steinicke
and Prof. Dr. Tilo Wendler

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Contents

Beyond Classical Gamification: In- and Around-Game Gamification for Education

Alexander Pfeiffer[1 2 3], Stephen Bezzina[6], Nikolaus König[2] and Simone Kriglstein[4 5]
[1]Comparative Media Studies/Writing, Massachusetts Institute of Technology (MIT), Cambridge, USA
[2]Center for Applied Game Studies, Donau-Universität Krems (DUK), Krems, Austria
[3]Department of Artificial Intelligence, University of Malta (UoM), Msida, Malta
[4]Austrian Institute of Technology GmbH (AIT), Vienna, Austria
[5]Faculty of Computer Science, University of Vienna, Vienna, Austria
[6]Ministry for Education and Employment, Floriana, Malta
alex_pf@mit.edu
simone.kriglstein@ait.ac.at
nikolaus.koenig@donau-uni.ac.at
mail@stephenbezzina.com
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Abstract: The modern gamification movement, following the classical definition of Deterding (2011), is focused on the use of game elements in non-game applications. According to this definition, gamification elements use familiar elements from games to satisfy player needs, increase the user experience and motivation; hence ensuring a long-term use. However, such approaches including those put forth by Kapp (2012), Stampfl (2012) and Zichermann (2011, 2013) preclude the conceptualisation and application of gamification within and around games. Indeed, gaming environments have the potential to successfully integrate solid gamification examples. The authors propose two new categories of gamification: 'in-game' and 'around-game' gamification. The 'In-game' type of gamification details the use of an additional layer of tasks, badges, achievements, point systems, etc. in a (digital) game, which are not directly related to the storyline of the game. For instance, certain games would reward with a badge if the player collects multiple items of the same species throughout gameplay, even if such a task is independent of or extraneous to the narrative/backstory of the game. 'Around-game' gamification occurs when, for example, the player receives a badge after starting the game 100 times, clicking on the forum 50 times, etc. So, in essence, this form of gamification is associated with the game, but does not happen directly inside the game world.Hence, the authors propose the following up-to-date definition of the term gamification: The use of game mechanics as a further dimension within and around both gaming and non-gaming contexts, in an endeavour to nudge participants to perform certain actions, by adopting a playful attitude. For the purpose of this paper, the authors have held talks with 8 international experts on the topic and extend the principles of 'in-game' and 'around-game' gamification to an educational context.

Keywords: gamification, in-game gamification, around-game gamification, serious games, E-Sport

1. Introduction

The gamification movement was considered one of the top trends of the early 2010s. Chamberlin (2013) lists this movement in the Horizon Watching Report. Gamification has and is still being applied in a wide range of disciplines such as Health, Art, Culture, Human Resources, Marketing and Organisational Development. gamification may be applied in the private life of individuals/families (as a task planner to playfully design a shared cleaning plan), in the not-for-profit and voluntary originations contexts (in order to encourage society to cycle more), but of course, the main and mostly debated form of gamification occurs in the commercial world. This use can take place within a company or in different fields aimed and targeting different levels of consumers. Zichermann (2013) lists among others Nike, SAP, Pearson, Salesforce, Cisco, United Airlines, Microsoft, Target, Spotify, Siemens, GE, IBM or McDonald's in his list of leading companies that increasingly rely on gamification to increase sales. The effects of gamification and its applications, have also been empirically investigated. For example, the IT corporation IBM has implemented gamification mechanisms in its in-house social media platform to increase employee motivation. A follow-up study examined the effects of switching off those same functionalities. As a result, user activity decreased significantly, so all gameplay elements were reintegrated into the platform (Thom et al., 2012). A study by Gigya (2013) showed that Pepsi, Nike and Dell increased interaction with users on social platforms by 29% with the help of gamification strategies.

However, and perhaps more importantly, games and gamification itself, can be used for a variety of disciplines apart from entertainment. In this sense, Jane McGonigal (2011, 2015) is considered as the founder of the modern gamification movement. The web-based game 'Superbetter' (Described in the book of the same title. 2015) is designed to help players improve their health in a multimodal way. Similar to role-playing games, various skills such as mental or physical health parameters, can be improved by solving tasks. The control over the progress of the game is completely up to the players, there is no objective review of the actual game performance. Another example from the leisure sector is based on the recording of physical activities and represents one of the most well-known gamification applications called 'Nike Plus'[1]. This app tracks the distance covered by a mobile wristband and converts this into game points, called 'fuel'. In addition, badges and comparison with other players provide the motivational dimension for this experience. 'Sortie en Mer'[2] shows the possibilities that current technologies can offer. An 'advergame' by a French brand, 'Sortie en Mer' disguised as a highly immersive simulation, explores the possibilities of the genre. A minimal interface is laid over a photorealistic environment, creating a very deep game experience without the use of points or achievements.

However, basic principles of gamification have existed for a very long time. The structure of the clergy, the ranks of the scouts or the military, the badges of the Red Cross or the simple star stickers in kindergarten. However, the concept itself and consequently the applications of the term 'gamification' have undergone a major transformation and adaptation, due to the opportunities and new possibilities of the digital age. For instance, feedback, which presents itself as one core dimension of gamification, has drastically evolved in terms of its response time and has now become practically instantaneous. This has in turn, opened up the possibility of developing much more complex structures and systems for badges and rewards. Furthermore, modern gamification is often linked to smart devices such as wristwatches, and is now managed and controlled using smartphones or remote assistants.

The modern gamification movement, following the classic definition of Deterding (2011), is centred around the use of game elements in non-game applications.

> *"Gamification is an informal umbrella term for the use of video game elements in non-gaming systems to improve user experience (UX) and user engagement." (Deterding, 2011)*

In gamification, elements familiar in games are used to satisfy player needs, to increase the experience and to motivate users to make sustainable use of the particular content (Bunchball 2010, Deterding 2011, Kapp, 2012 Zichermann 2011 & 2013). Although the concept of gamification in its principles, is based on the achievement of an activity by means of selectively applied incentives (rewards) (and thus essentially follows a basic behaviouristic idea, cf. Skinner 1938), the modern approach aims to trigger intrinsic motivation processes that go beyond the short-term behavioural change due to the reward system. This has resulted in different connotations for the term and consequently gamification has become "an informal umbrella term for the use of video game elements in non-gaming systems to improve user experience (UX) and user engagement" (Deterding, 2011).

In their Gamification Whitepaper, Bunchball (2010), a company specializing in commercial gamification, provides a good overview of various mechanisms in gamification applications that are directly related to human needs. Bunchball considers points, as well as tasks, as particularly motivating dimensions and factors. Zichermann (2013), in his book "The Gamification Revolution", describes gamification as more than merely the application of game mechanics to a problem or turning everything into a game. The core concepts and mechanics in gamification are underpinned by the theories of play. Dutch anthropologist Johan Huizinga (1938) and French sociologist Roger Caillois (1961) have defined play as a voluntary and safe activity of intrinsic value, with order and rules and having uncertain, social, absorbing and make-believe dimensions (Huizinga 1938, Caillois 1961).

In turn, in gamification, the game elements which trigger this playfulness, have to be well thought out and thoroughly planned, before being applied to the real-life contents and events. Stampfl (2012), in her book "die verspielte Gesellschaft" (The Playful Society), argues that much of what is today considered as gamification, is in fact more of a "pointification". According to Stampfl, most gamification is about points which are simply awarded for a/any number of pre-set activities. This implies that gamification has not yet reached the real potential that could be achieved, if a considerate and proper use of the terminology is applied. The goal of good

[1] https://www.nike.com/de/de_de/e/nike-plus
[2] http://sortieenmer.archives.grouek.com

gamification processes is to initiate long-standing intrinsic motivation processes. This means that no external stimulus is necessary anymore, but that (at a certain point in time) the activity itself is rewarding enough to be pursued in and out of its own accord (e.g. doing sports, learning the school material, etc).

However, the authors of this paper have noticed another aspect of gamification that has hardly been dealt with yet, but appears to be highly relevant and used quite often, that is the gamification that occurs within digital games. This basically means the registration of game mechanics that have nothing to do with the core game mechanics or the storyline, but motivate the user to perform certain actions within the game, or motivate them to open the game more regularly. .

The goal of this paper is to introduce the concepts of In- and Around Game Gamification, apply these to the educational sector and discuss in more detail with fellow researchers. Finally, the team of authors will propose a new definition that includes gamification within and around game environments, in addition to the previously established and more well-known concepts of gamification.

2. Methods

The team of authors has analysed aspects of In- and Around gamification in digital games with the aim of finding exemplars and modes of operation of this specific and focussed type of gamification. In accomplishing this, eight experts from the field of game studies were contacted and asked if they could give examples and, if so, provide a description to them. The question asked was as follows:

> *"We are interested in game elements within digital games that are not actually directly related to the story or the actual game mechanics. We call these elements "In-Game gamification" for the purposes of our conference contribution at ECEL 20. We also want to look at game elements, especially badges, points and achievements, for which a game must be played, but the results are not displayed in the game itself but on an external platform. We call this process "Around-Game" gamification. We would like to discuss these terms with you and find examples that fit the description.*
>
> *We would also like to discuss with you how these elements can be used in the educational sector."*

The experts were composed of the following persons:

Table 1: The experts

Expert ID	Gender	Profession / Field
E1	male	Games-, media- and technology researcher
E2	male	Psychologist and neuroscientist, games researcher
E3	male	Visiting Prof. in the field of transmedia experiences
E4	male	Game studies expert & game developer
E5	male	Project manager at large E-Sports company, former editor in chief of a games Magazine
E6	female	Expert for serious games and technologies
E7	female	Technology journalist, former professional e-sports woman
E8	female	Professor for media and games

3. Examples and definition for In- and Around Game Gamification

Gamification processes in connection with game worlds could be described as 'In-Game gamification', when an additional dimension of game elements that are not directly related to the game story occurs within the game itself (e.g. achievements for collecting cats in 'World of Warcraft[3]'). On the other hand, 'Around Game gamification' occurs when specific game elements which are directly related to the playing of the game, are visible outside of the game world (e.g. in Xbox Live, Steam or Playstation user accounts). Another suggestion for the naming of these concepts, based on the interview with expert [E3], is Intra- and Extra-game gamification.

One of the most mentioned among the examples by the experts was the game World of Warcraft as a pioneer of in-game gamification [E2, E3, E4, E5, E6, E7]. Batch 3.0.2. in 2008, introduced the feature to collect achievements and badges. However, these achievements and badges are purely cosmetic and are neither directly related to NPC quests, nor the story of the game. Players can of course set themselves the goal of getting various achievements. Often, according to the experts, these achievements are also achieved simply by chance.

[3] https://worldofwarcraft.com/

One expert [E7] has noted that this in-game gamification was probably created because it is much easier to create new achievements than new quests and keep a certain group of players happy in the time between game updates in the form of batches. One expert [E5] has also noted that

> *"[…] for World of Warcraft and other subscription-based games, this was a cost-saving way to keep players in the game and keep paying the monthly subscription fees, without any major updates relating to the back story or narrative of the game."*

One major exciting aspect of in-game gamification is the ability to motivate players to achieve specific goals in the game that are not part of the actual or existing storyline, but can still be very exciting for the players. In World of Warcraft, for example, this is the motivation to uncover the entire map, even though this would not be necessary to level up and consequently experience the primary storyline [E2, E4, E7]. In later updates of World of Warcraft, an additional layer was introduced. In addition to the achievements, there has been an explicit possibility to collect things like pets or toys in a kind of scrapbook. According to some of the experts E2, E4, E6] , these various approaches address the different types of players.

A very early example of in-game gamification is the ability to collect red flags in the first part of Assassins Creed[4], nearly 10 years ago. [E2, E6, E8] Collecting these flags makes it possible to collect various achievements. For example, one becomes "Keeper of the four gospels" [E2], if he/she collects all the flags in Jerusalem. Interestingly enough, an expert has noted [E6] that this kind of gamification was misleading for many players and disturbed the game world, whereas flags were suddenly set up randomly in a very real-looking game world. Another example of in-game gamification has been implemented in the player profiles of multiplayer online battle arenas (MOBAs), like League of Legends[5]. Depending on the season or special theme, one finds different gamification elements being used [E3, E4, E7]. In contrast to the aforementioned examples, these are not cosmetic in nature. Some of these elements (e.g. if you got the grade A or A+ after a very good game), lead to the possibility to earn keys and boxes, which allow the player to get in-game items.

Sport games like FIFA[6] implement in-game gamification in the form of several point systems. Coins can be earned by playing in Football Ultimate Team and therefore one can actually earn players and item collection packs [E2, E4, E5]. These can also be opened by buying FIFA Points, as the system in the game is linked to real currency. These two point systems are reset every year. Another point system that is linked to the player's account is the FCC points. One earns these points when trying out different things in the game or by just starting the game. With these points, one can unlock different rewards like new balls or the possibility to play another league game and maybe even get promoted. In this sense, the activation of a joker becomes possible. It is very evident that this form of in-game gamification is not only cosmetic, but also serves to unlock further game elements.

It is also quite common that one cannot clearly distinguish between the different forms of gamification or gameplay elements/mechanics. In games like Pokémon Go[7], where collecting Pokémons is the core game mechanic, an expert explains [E8] that

> *"[…] the act of collecting is the core gameplay mechanic, and the achievements, such as "Hurray, you've collected 50 Pikachus", which intrinsically are a form of in-game gamification, are also part of the gameplay mechanic itself."*

Elements, like the currently very popular "Gold Passes" in games like Clash of Clans[8] or Rocket League[9] are not considered by experts [E1, E4, E6, E7, E8] as in-game gamification, but are instead seen as extra rewards that players can buy as an incentive to complete certain tasks/goals. Consequently, these present themselves more of a hybrid between a quest and in-game purchase.

In Around-Game gamification, the gamification takes place on/through an external source/platform. This mostly occurs on platforms where digital games can be purchased, such as Steam[10], or in the user profiles of the

[4] https://www.ubisoft.com/de-de/game/assassins-creed
[5] https://euw.leagueoflegends.com/
[6] https://www.ea.com/de-de/games/fifa/fifa-20
[7] https://pokemongolive.com/
[8] https://supercell.com/en/games/clashofclans/
[9] https://www.rocketleague.com/
[10] https://store.steampowered.com/games/?l=german

operating system of the respective game console, such as PlayStation[11] or X-Box[12]. Experts, interviewed as part of this research study, [E4, E8] have particularly mentioned the function of the Niantic Wayfarer in Pokémon-Go. Starting at level 40 (which can take years to achieve), players can suggest new game zones that become Pokéstops or Arenas. These suggestions are reviewed by other community members and then by Niantic employees. Depending on the reviews submitted by each individual player, points are awarded. With 100 points one can boost his/her own proposal. Boosting here means that the proposal will be reviewed by others earlier in comparison to the rest. The reward itself appears only at the very end, if/when the suggested game zones appear inside the official game world. Through this approach, it was possible to not only make the game world of Pokémon Go constantly grow, but also to take into account new places that were recently built, such as public playgrounds or other areas. Thanks to the players' community and its effort, only new places that comply with the game's value rules in terms of permitted locations, photos and text will be accepted and consequently appear in the game world. Another similar approach was the tribunal system in League of Legends, where players reviewed chats and if agreement with the majority of the other reviewers was achieved, rewards in the form of points that could be used for in-game items were unlocked. In a way, this was also a game, around the game itself [E1, E4, E7].

With Around-the Game approaches implemented via user profiles of the game sales platforms and/or operating systems of the consoles, achievements accomplished through the interaction in the game, are not being displayed inside the game world, but on the particular platform/system [E2, E3, E6, E8]. Moreover, the rewards received inside the game during gameplay by the player and their value, extend beyond the game world and can in fact be used to buy products or unlock discounts offered by the platform or the retailer. The game studies experts [E2, E3, E6, E8] have noted that many players are often surprised by these kinds of achievements (an example of this Around-Game gamification for players on Playstation and the game Rocket League can be found at https://www.exophase.com/game/rocket-league-ps4/trophies/)

4. Applying the concept of In- and Around Game Gamification to the educational sector

Gamification of learning in education is aimed at motivating students through the adoption of game design and game elements in formal (and even non-/in formal) learning environments. The ultimate goal is to augment the enjoyment and engagement of the students by capturing their interest and inspiring them to further learning. In educational contexts, research suggests that gamification, although with a mixed level of success, has led to the desired student behaviour include attending class, focusing on meaningful learning tasks, and taking initiative (Borys and Laskowski, 2013).

By extended the current notion of gamification, to include In- and Around Game gamification, the students can become immersed in a holistic rather than specific or directed motivation and engagement. For instance, in serious games, In-Game gamification could be used to achieve advanced learning goals or to motivate players to try different things and aspects of such games, including personalised approaches to transversal skills like critical thinking and creativity, by the utilisation of several solutions for different tasks. And through in-game gamification, players would be encouraged and further motivated to explore these different approaches.

But the aspect of Around-Game gamification is especially interesting for education, specifically when applied to the learning and assessment domains. For example, learning management software (such as Moodle) could be used to link different serious games and commercial games, and educators could create suitable badges and achievements that fit the different learning goals. One could also create a knowledge base where ideas can be entered, copied and edited by the different educators. If the possibility of a direct API call to the game results is not available, students can share/upload screenshots or links to their player profiles.

Another important and especially relevant use-case of Around-Game gamification is its implementation in grading and assessment. By gamifying the learning experience, educators can use specific data points occurring around and throughout the course of the lessons (hence Around-Game gamification), to award experience points to their students. The grades can be based (partially or exclusively) on the number of points accumulated by the end of the course. This motivates the students to achieve their level of expertise while keeping them engaged throughout the course. Furthermore, this creates a competitive environment which will further facilitate and incentivise more learning.

[11] https://www.playstation.com/de-at/
[12] https://www.xbox.com/de-AT/live

It would also be desirable to introduce Around Game gamification elements in platforms that provide educational concepts around games, such as the project Toolkit Game-Based Learning[13] or the Spieleratgeber NRW[14] (Games Guide NRW).

Pfeiffer, one of the authors of this essay, has developed an around-the-game approach for the upcoming Vienna E-Sports School League[15]. Here a little trivia quiz is played between 2 teams before each round of the competition, e.g. on the topic "financial literacy". The relevant content can be viewed beforehand on the Schulliga web platform in the form of short learning videos. The winner has a small advantage in the next game round. For example, they can choose on which pitch the next round in games like Rocket League or FIFA Volta should take place. This around-the-game mechanism replaces the obligatory coin toss and is intended to encourage the young people to watch the learning content.

5. Conclusion

Since the presented study in this paper is informed and based on innovative approaches to gamification, both in its conceptualisation and implementation, a number of interesting opportunities arise. Based on the possible implications and limitations discussed, further research is recommended through the identification and testing of In- and Around Game gamification strategies. It would also be useful to evaluate the underlying concepts and implementation in other fields and areas pertaining to, and non-exclusive to gaming environments. As such, the authors propose the following up-to-date definition of the term gamification:

> *"Gamification is the use of game mechanics as a further dimension within and around both gaming and non-gaming contexts, in an endeavour to nudge participants to perform certain actions, by adopting a playful attitude"*

The propositions and arguments resulting from this research contribute interesting observations and understating to the body of knowledge and practice in the field of gamification. More than a cosmetic change, the proposed forms of gamification, represent an attempt of philosophical shift; one which is more inclusive and adopts a holistic approach to the existing gamification models. However, rather than being based on potentialities, beliefs or individual preferences, further research underpinned by empirical evidence has the potential to inform future thinking and practice in the field of gamification and its widespread application/s.

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