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Published in the Slovak Republic
European Journal of Contemporary Education
ISSN 2304-9650
E-ISSN 2305-6746
2017, 6(2): 221-228
DOI: 10.13187/ejced.2017.2.221
www.ejournal1.com

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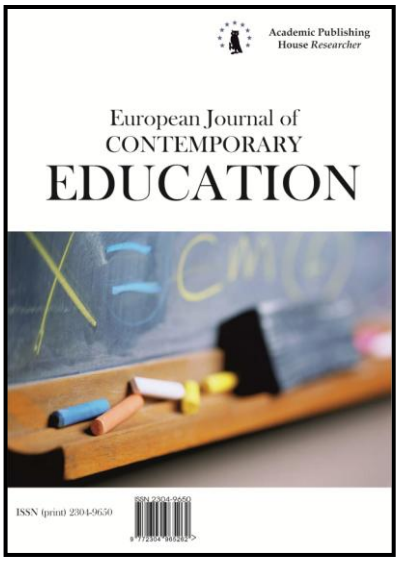

What "Gamification" is and what it's not

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Abstract

What "gamification" means and what it doesn't has been addressed and described by many researchers from a variety of different perspectives in the past. Similarities and differences of the methods between "gamification" and "games" (as well as "gamification" and "game based learning") have also been look upon up until now. However, "gamification" and "game" terms, are still being mentioned as substitutes for one another sometimes in many research articles. Although a mixture of methods are being used nowadays in the whole learning process (e.g. flipped learning together with gamification, mobile learning and infographics etc.), naming the "whole" learning methodology being used in an educational project/research only as "gamification" (or only as a game/GBL) – is yet another common issue that may lead us to misunderstand the gamification concept. These situations may be regarded as problematic issues in understanding the concept of gamification correctly. The number of educators and researchers keeps increasing in the world which are researching and trying to benefit from gamification applications in a variety of disciplines. Some of these disciplines (such as chemistry, health etc.) seems to be more benefitting and being more successful than others in their project states. Evaluating the level of success in various dimensions of learning may also differ from one to another largely in case of mixed learning methods being used in the research. Thus, in cases of using gamification method as well with others in a mixed manner of methods, the low level of success achieved may have been affected by a number of reasons. These reasons and conclusions have oriented the author to establish a research on articles and web resources on "gamificaiton" and its differentiations from "games" and "game-based learning" concepts. The intension is to better understand "gamification", try contribute in drawing a clearer view of "gamification" for educators and researchers who are in the beginning stages of gamification/gamifying applications topic, or are planning to make use of them in the near future. With this perspective, a literature review was done, summerizing and

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commenting on the results which are reflected to this article aiming to clarify what "gamification" is, how it differs from "games" and "game-based learning", familiarize with some successful gamification applications of today (in the education sector), underline how and why it is spreading in various application areas (including education) today and comment on the future of "gamification use".

Keywords: gamification, educational game, learning process, behaviour, application.

1. Introduction

Yıldırım, states that Zicherman and Cunningham (2011) defines gamification as "...changing the way of thinking and using some 'gaming rules' in order to increase the interest of learners and to solve problems". In his study, Yıldırım also tried to summerize what gamification is not(!) by emphasizing that: it is not true to say that gamification exists everywhere in which games does. He writes that "...In the process of gamification, the game design is transferred to non-game environments, and this process itself has now become a game" (Yıldırım, 2016).

According to Deterding (2011), looking to the history of education, "gamification" appears to be a new method that has started to be used in a veriety of disciplines to enhance and motivate learning (Deterding, Dixon, Khaled and Nacke, 2011). Fisher, Beedle and Rouse, (2014), Bruder, (2014) and Fenn, and Lehong, (2011) underlines the differences between "game" and "gamification" concepts, by indicating some partitioning criteria between them when identifying gamification. Definitions such as 'using game mechanisms in non-game applications', 'thinking gameful to solve problems', 'involving all students throughout all of the learning activity in a pedagocial content' and 'using game elements in non-game environments' are most common (Fisher, Beedle, and Rouse, 2014).

Deterding on the other hand, which defines "gamification" as "using game design elements in non-game environments", stresses that it may be sufficient to use only 'some' of the game design elements to implement it. Yet the concept of "gamification" differs from the "educational game" or "real game" cathegories. While "educational games" or simply games is described as 'entertainment or non-entertainment activities using full established game design'; gamification applications, seldomly uses all of the game elements. On the other hand, although gamification term is rather new; the first documentation involving the use of "gamification" term, goes back to 2008's. As an example, it may also be noted that, some gamification elements (such as "badges" and "grades or degrees") were commonly used in the past by the USSR army commanding authorities to motivate soldiers for increasing their learning competencies (Deterding, Dixon, Khaled, and Nacke, 2011).

2. Differences between Gamification, Games and Game Based Learning (GBL)

Bruder (2014), described the differences between "games" and "gamification" by defining gamification as "a non-game activity, which is established via using game principles". Thus, advise is given to readers not to mix or compare "real games" (which has an intention only to teach it's user to succeed only in doing something) with gamification. Gamification, also requires an effort which tries to mix many teaching/learning principles together to accomplish some complex tasks. Since in education, learners usually faces problems according to their sufficiencies and interests; in his study Bruder also identifies gamification as "...using gamified thinking and game mechanics to solve problems and increase, motivate participation". It is also conspicuous to note that, in order to identify an event as a valid "gamification activity", the whole unit or all participating attenders (e.g. all class students) need to be using the game techniques/principles effectively.

Resources such as Teachthought website (2014), also identified "gamification" as "using game like mechanics in non-game applications in order to gain spesific behavioral acquisitions". The Teachthought authors stresses the importance of confusing "gamification" with "game-based learning" in some studies. They describe game-based learning as " simply learning with playing and by playing". Elaborating the gamification concept, they indicate that learning is not accomplished as it happens in a "game-based activity"; but focusing more on mechanisms providing and supporting learning is needed to be considered and mutual interactions be evaluated in gamification. The writers underlines that in gamification applications, students need not have to have toys, electronic devices etc. and not always play games in order to learn.

According to the Turkish Language Association, "game" is defined as "an entertaining activity with certain rules that need be followed; which also helps to improve the intelligence and talents of

the user while having pleasant time" (Türk Dil Kurumu, 2017). But in gamification, "game", is only a tool, an element to accomplish specific targets in any area, which usually is not game oriented.

Even in the literature, in spite of having a lot in common, the game concept is commonly confused with "gamification". Although the history of "games" goes back to the old ages, scientific research that includes the gamification concept is only seen since 2010. A fundamental difference between game and gamification maybe lies in the target of the activity involved. While the main aim of games is to entertain the user, it is to change the attitudes and behavior of the user for gamification. Although these concepts have a lot in common, they are different and should not be confused.

In their research; Kim, Park and Baek (2009) tried to identify the differences between "gamification" and "game based learning". They indicate that in "game based learning" learners arrive to their educational targets by playing games. In learning via playing games, "playing" usually takes the major role in the learning process. But gamification, materializes totally out from the game context. In other words, with gamification, games cannot replace the learning process itself. It helps to make learning a more participating activity and targets more on overcoming the difficulties in learning over time (Codish and Ravid, 2014).

Comparing "gamification" with "game based learning", it can be said that, while with gamification a non-game oriented environment is changed into a game environment by using game principals and game components; with "game based learning" it is intended to teach any subject as a whole or as a module totally by using "games". When using gamification in education; the designed teaching construction is enhanced by using "points", "badges", "level points", "experience points"...etc. and transferring these into the classroom environment. While "game based learning" generally is defined as achieving open or covered learning in game environments (Bozkurt, 2014), gamification also is defined as a learning philosophy being used in non-game applications (Bozkurt and Genç-Kumtepe, 2014).

Using gamification in education, generally focuses on increasing students interest to the lessons, boost the competitive spirit in the class and motivate them to participate in the learning process via using tools such as points, badges, levels and league tables...etc. Gamification components are associated with the students positive behaviours in lessons by the teacher and watched for better participation, good homework habits, and attitudes in keeping necessary tools ready whenever needed. To establish and maintain this; the teacher need to have announce the evaluation method which will be used, before the learning process. After this, the teacher can make use of gamification components in the teaching-learning process, by using points, and badges for rewording, transfer this prize to levels and leader tables (Deterding and fri., 2011).

3. The reasons to use Gamification in learning

Materializing gamification procedures is a rather complex process then just using "points","badges", and "gradings" triad in applications and activities. In most case, using design knowledge and design technologies in expertise level is needed to be successful. Because, the reasons for knowing "why, when, where and how to use gamification in education" needs to be as clear as possible and requires some scientific planning. The results of the applications – supported by gamification- needs to be checked, analized, and possibly new arrangements are needed to be implemented for a better efficacy of the students learning. The research of Leba (2013), on designing a eLab's (-which is also defined as: "gamification embedded virtual laboratory"), sets a good example of integrating gamification elements into the design process (Leba, 2013).

Adopting "gamification" to the changing world needs, recently Mashable website (2017), defines the "(Gamified) E-learning" concept as: "...benefitting from 'story telling', 'badges', 'signs' and 'certificates', in order to motivate, test and provide new opportunities for improvement of the attender". It is believed that, with this tecqnique, it may become easier and more motivating to finish some boring activities (such as filling-in surveys and tax-forms, shopping, reading through web sites).

The leading reasons that came forward for using gamification in learning may be listed as:

- Adopt some boring work to more manageable entertaining ones.
- Transfer hard work procedures to more enjoyable tasks.
- Help to be able to focus more easily

- Increase participation
- Provide motivation and satisfaction in business (Uses and Gratifications Theory)
- Help individuals increase the use of media tools in order to achieve some objectives.
- Help learners to be active more and be allways participating
- Help individuals to be more conscious and able to use media tools easily in order to satisfy their needs.

In Figure 1, the ladder tries to animate these effecting factors in the learning process – with the gamification instruments used to accomplish some spesific tasks and objectives.

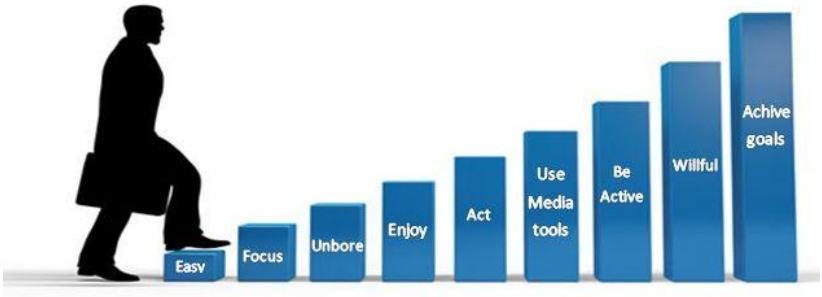

Fig. 1. Gamification ladder (the ladder figure used has been retrieved from http://www.sandipfoundation.org/wp-content/uploads/2015/10/promotion.jpg)

4. Gamification in education today and tomorrow

Nowadays, "gamification" has started to be used frequently in the business world within the marketing, management, health and ecology initiatives. This spreading feature of gamification, arises from its suitable potentials in shaping users behaviour in the right directions. In this context "Foursquare" may be mentioned for shopping, lunch, hotel, and touristic environment searchs, "Nike+" for meeting the sports activity needs/search as successful commitment program examples. "Stackoverflow" (Stack Exchange, n.d.) on the other hand is another application that makes use of getting credits (votes) for giving correct answers to questions.

If we take a look to successful gamification applications in the education sector (for primary and secondary school levels), ClassDOJO stands as a good example. It instantly draws attention of the students to its cartoon characters. The software can easily be used by teachers for recognizing student behaviour and rewarding purposes. 'Avatar's are used to demonstrate students when creating a recorded virtual class. Each avatar can be easily tracked for "active listening" and "paticipating". ClassDOJO also helps teachers, students and their families to have the latest info regarding to the latest state of the educational levels achieved via "reports", "instant-broadcasts" and "both-ways messaging system" provided. By this way, students development can be easily and better tracked. (https://www.classdojo.com).

Quizizz on the other hand, is becoming one of classics of gamification in education. Teachers using Quizizz in their classes, can transfer many starting and repetition tasks into entertaining and largely participated activities. This software enables the teacher to use any browser, prepare his/her own tests and opportunities to examine tests prepared by other teachers. All resources are password free and needs no username to access. In order to participate in a gamified activity, all is needed is a "code" which is announced by the teacher to the students, to get connected to the Quizizz website. When the test is over, a report is sent to the teacher which includes detailed information about the students answers that can be downloaded and saved. Quizizz also has some characteristics that most free gamification supported educational software does not have. For example, since Quizizz is not a teacher oriented application; each student can work with his/her own speed, take individual initiative and make choices. The "teacher panel", provides

excellent real-time data about students as well as simplifying the learning activity planning individually according to each students special needs (https://quizizz.com/).

Another gamification application which is getting popular between teachers and students is Kahoot!. The 2015 figures are indicating that Kahoot users are exceeding the number of 30 millions now (Brand, 2015). Kahoot can be used with any browser and teachers can easily transfer their class activities into games or gamified tests/contests. The use of the "contol-panel" is easy and provides excellent feedback to teachers during and at the end of the games. A point which puts Kahoot to a much superior place then Quizizz is its flexibility of test period adjustments. Yet, if needed, additional opportunities are given to students who wants to continue their game by being able to play in the "ghost mode" and surpass their old grades at home (https://getkahoot.com).

For providing additional exclusive learning experience to students, Knowre sets a good example for mathematics education especially in USA. The advance technologies used by Knowre, helps identifying the gaps in the "learning-difficulty areas" of students; which is then tried to be addressed via the produced programs interactive support. While doing this, Knowre provides an attractive, entertaining and dynamic learining environment for sudents. With the support of partner schools, private educational organisations and companies, Knowre tries to give full support to students. In its progressive awarding system, Knowre makes use of prize coins, stars, appealing graphics, presentations and certifications (http://knowre.com/).

Setting a good gamification software example for level K-12 and above, we see the Socrative. With its handy User's Manual (http://www.socrative.com/materials/SocrativeUserGuide.pdf), it provides benefitial service for teachers and students. Using the gamification items in various functions intelligently, Socrative provides useful opportunities for teachers such as:

a) Preparing tests creation oppotunities (including many question types) for various disciplines
b) Modifying previously made tests (quizes).
c) Being able to manage, import and export these tests.
d) Being able to track the tests online
e) Being able to evaluate the test results and receive reports for it

The students are also able to enter to the "student's section" of the website with their computers, laptops or mobile phones whenever they want. They can join to the tests/games, receive results for their performance and with the aid of the system and teacher evaluations/suggestions regarding to their improvements; can move to different level and cathegories on the system. Using the Blog and Help Menu Options, the teachers and student are also able to reach to the references, resources and previously made dialogs on the website and ask new questions (http://www.socrative.com/).

With an international vision, we see Duolingo coming forward among gamification supported language-learning platforms. The website is very popular, free to use and it even provides an evaluation exam for language competancy level at the end. All language learning courses provided are free at Duolingo. According to the records, since 2016, Duolingo is providing language courses for 23 different languages. The application can be used with iOS, Android or Windows operating system platforms easily. The number of registered users of the software passed the 120 million figure back in 2016 (https://www.duolingo.com/).

Finally, we have to mention Ribbon Hero for using gamification in more official oriented platforms. Although Ribbon Hero is produced by Microsoft's in their laboratories, free of charge and looks like a game; its main aim is to help teach a better use of the Word, Access, Excel and Power Point programs within the Microsoft Office 2007, 2010 and later versions pack much easily and in a gamified environment. In order to achieve a complete competency in using the "menu ribbon" of MS Office, a help wizard which has a "clips figured cartoon animation" is used. When first used; the typing text speed, page design and layout styles, adding figure and picture competencies are tested and related points are collected by the games of the software. Each game, is aimed to achieve and test a different competency characteristic for using the MS Office Program software. For that purpose, a sample document is presented to the user and it is expected to be corrected accordingly. The gamified software checks and tests to see if these re-arrangements are done properly and timely. The games can be played in any order according to the users needs (https://en.wikipedia.org/wiki/Ribbon_Hero).

Using gamification in education is rather new, but its popularity, supporting views to try it and additional benefits, new application areas it may add to the existing methodolgy keeps increasing year after year. Educational websites started to gain ground on this basis as well. Successful educational online websites such as khanacademy, also makes use of gamification and game elements in order to motivate its users and help them to participate more. Users successfully finishing more courses and lessons on this website, gains more badges and receive citations which motivates them for heigher success. Similarly, websites such as eBay (Chou, 2014) and Fitocracy (Crook, 2013), are able to maintain the racing spirit of their users and strengthen the loyalty/connections between them by using elements of gamification.

A comprehensive research was implemented by a group of researher, aiming to analyze the spreading nature of gamification applications in educational and instructional areas (Caponetto, Earp and Ott, 2015). The research covered 120 articles –all related with gamification- published between the years of 2011 and 2014. The study was related to the implemented gamification applications for a number of cases, focusing on criterias such as: "target populations", "study types (theoretical/experimental)", "transferred/obtained educational contents", "measuring instruments used". The results showed that, for a wide scale of age groups (from 5 year olds to adults) and various educational levels (starting from primary schools to university level), the use of gamification methods in learning for students is increasing (as in numbers and in the veriety of application discipline cathegories) throughout the years. The research also indicates that, the "gamification" concept is getting better underestood by educators and implementers within the last years.

5. Conclusion and future work

Apart from the education sector, gamification is starting to be seen mainly in the business world, banking, commerse and health sectors frequently nowadays. Considering the historical process; it is believed that, the most important characteristic of gamification that supports its spreading in use, is its potential to provide extra motivation in achieving goals.

Because of its entertaining structure, using "gamification applications" or gamifying generally motivates and improves the commitment of students towards the lesson activity. They usually have a positive effect on the learning process. Some research has shown that, student groups which are given the opportunity to make use of gamification elements in their learning process, academically performs a better learning performance compared to the groups that are not.

A research study focusing on the "gamification studies in the world" done in 2014 showed that, the majority of these studies reached to the conclusion that the results were successful (Hamari, Koivisto and Sarsa, 2014). Gibson and friends work (2015) on "the use of digital badges in education" too, reached to the conclusion that using these gamification elements encourages students to demonstrate positive behaviors, reveals the progress in the learning and content, and has triggering effects in learning and success (Gibson, Ostashewski, Flintoff, Grant and Knight, 2015).

But these results must not be taken as granted for all cases. Unfavorable results are present too. Hans and Fox's study (2015) which evaluated the effects of gamification in the classroom on students in terms of motivation, social comparison, satisfaction, effort and academic performance; find out that, students using gamification elements in their classes were less motivated, less improved and collected less examination points compared with the classes that haven't used gamification (Hanus and Fox, 2015).

Thus, it can be said that, with suitable gamification software and using strategy, students can become more active and participating for challenging complex and difficult tasks. However, software/tools with gamification contents should be tested and the results (regarding to the performance differences it creates in various steps of the learning activity) should be analyzed thoroughly. For the benefit of a better learning performance; it is always possible to change the characteristics of gamification use and its elements in the projects, through research studies. Looking back to 2010's and reviewing the progress of applications of gamification into education in the recent years, an increasing usage tendency can clearly be seen. "Gamification applications" are getting popular and application areas for gamification are spreading from kindergarten-primary school level up to the university/adult stages in many disciplines. Supported by scientific research for success, this is no coincidence.

In todays world, especially in education, experiencing and using "blended/complex learning methods and techniques" (which involves using many learning methods and tecniques together) are getting popular. Thouse which are proved to be successful and benefitting, then are supported for even more improvements and adoption to other areas. It is believed that, gamification is starting to play an important role within this blended learning application methods, and contributes an important role in the overall success of the learning process.

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