GAMIFICATION IN FOR-PROFIT ORGANISATIONS: A MAPPING STUDY

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Abstract. This study reviews prevailing trends in "for-profit" business-related gamification. It examines the current literature, focusing on gamification elements, industries and variables that is of interest to researchers in different business environments. A systematic mapping approach was applied to this study. Articles were selected from different databases in a two-step screening process, subject to sets of inclusion and exclusion criteria. A total of 25 articles were further for: (1) represented industries, (2) orientation of the gamified system, (3) types of implementation, (4) gamification elements analysed, (5) impact on companies, and (6) company variables analysed. Results confirmed that the number of empirical studies on gamification in for-profit organisations is growing. Researchers have placed greater emphasis on analysing customer-related gamification environments than on employee-oriented gamification. This finding is consistent with the prevailing trend of increasing demand from practitioners to gamify customer-related processes. This is likely due to the potential for higher positive impact on the performance of companies. Most frequently deployed gamification elements are badges, rewards, and leader boards. The literature suggests that over all, gamification has a positive effect on various company variables, such as motivation, engagement of employees, brand loyalty, and customer experience. This paper highlights the particular areas of business-related gamification that have already been examined and possible future directions.

Keywords: gamification, organisations, customer environment, engagement, motivation, mapping study, badges, levels, points.

JEL Classification: M.

Introduction

Gamification is a relatively new research area. Nevertheless, it is already being applied to various disciplines. There are numerous studies that focus on the educational context of gamification (Adukaite et al., 2017; Fisher et al., 2014; Martí-Parreño et al., 2016). Additionally, the concept of gamification, with its tools and elements, is being applied to many other areas as well, including business (Deterding et al., 2011; Stanculescu et al., 2016; Rauch, 2013; Herzig, 2012; Routledge, 2016). Gamification gained popularity after it was recognized that elements adopted from real games could increase engagement and motivation of stakeholders in several areas. There may be a number of reasons for adopting gamification in organisations, depending on various gamified environments. Companies may focus on gamifying the processes of their customers to gain higher loyalty toward their brands and products or enhancing the motivation and engagement

of the customers (Kim & Ahn, 2017). Organisations may also seek to increase the performance of their employees with the implementation of gamification elements in the working environment (García et al., 2017), ERP systems (Suh et al., 2017) or in employee training (Alcivar & Abad, 2016).

The purpose of this study is to review and describe the recent trends in business related gamification. Basic assumption of authors is that literature base of gamification can give illustrative picture of trends in practice. A mapping study methodology is used to gather articles on the topic of gamification and provide a summary of the applications in different areas. Mapping studies on gamification are available in the context of education (Dicheva et al., 2015; de Sousa Borges et al., 2014). Our study focusses on for-profit businesses to provide a basis for future research and to show which elements have been used in various industries and which variables have been analysed in prior studies. The research questions in this study are

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the following: (Q1) In which industries is gamification applied? (Q2) What is the orientation of the application: Is gamification related to the customer environment or the employee environment in previous studies? (Q3) Which forms of implementing gamification were analysed by former studies? (Q4) What type of gamification elements are deployed by the researchers in previous studies? (Q5) In prior studies, how gamification affected the outputs of the companies' operation? (Q6) What are the variables that are likely to be enhanced through gamification when organisations implement it?

In Section 1, we provide a literature review of gamification. Subsequently, the possible use of gamification in different areas is discussed, along with possible gamification elements that may be used when designing a gamified environment. In Section 2, the methodology of this study is presented. In Section 3, our findings with respect to different industries, gamification elements, and type of implementation, are discussed.

1. Literature review

Terrill (2008) was the first to suggest "taking game mechanics and applying them to other web properties to increase engagement." The most common definition accepted by many researchers comes from Deterding et al. (2011). He defined gamification as the use of video-game elements in the context of non-gaming systems to improve user engagement and experience. There are also other definitions to describe gamification. It can be defined as the process of using game thinking and mechanics to engage users (Roth et al., 2015). Gartner Study (2012) used a more complex definition: "The use of game mechanics and game design techniques in nongame contexts to design behaviours, develop skills or to engage people in innovation." Bunchball (2010) defined gamification from the business perspective, as follows: "gamification is the process of integrating game dynamics (and game mechanics) into a website, business service, online community, content portal, or marketing campaign in order to drive participation and engagement." Oxford dictionary describes gamification as: "The application of typical elements of game playing (e.g. point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service." (lexico, n.d.)

1.1. Gamification in different areas

The growing literature on gamification covers a wide range of areas, including innovation management (Roth et al., 2015), human resource management (Dale, 2014), sustainability promotion (Morford et al., 2014; Huber & Hilty, 2015; Kim, 2015), and local regional development (Fekete, 2018). Other specific areas are also examined by many authors, such as the establishment of surveys (Sillaots, 2014), the improvement of vegetable intake for young adults (Nour et al., 2018), alcohol interventions for college students (Boyle et al., 2017, standing in public transportation (Kuramoto et al., 2013) or gamified application for learner drivers (Fitz-Walter et al., 2017). A large number of gamification articles are written in the context of improving education (Buckley & Doyle, 2017; Eynard et al., 2017; Yildirim, 2017). Many companies have recognised that gamification can make a positive impact on their business, so the examination of gamification related to for-profit organisations is also popular (Alcivar & Abad, 2016; Hamari, 2017; Landers et al., 2017). Mora et al. (2017) have provided a systematic literature review on gamification design. They conclude that the majority of design frameworks of gamification is written in a business context with far fewer concerning generic, learning and health frameworks. The growing number of articles show that there exists a major potential to change several non-game environments in the future. Market research published by Technavio has estimated that the value of the global gamification market will exceed $6 billion by 2019 (Businesswire, n.d.), suggesting that it holds huge business potential for developers of these systems.

1.2. Gamification elements

Hamari et al. (2014) found that the most common motivational terms related to gamification were points, leader boards, achievements/badges, levels, story/theme, clear goals, feedback, rewards, progress, and challenge. Dicheva et al. (2015) found that the following gamification elements are the most commonly used in an educational context: points, badges, leaderboards, levels, virtual currency, progress bars, and avatars. These elements have different motivational values; therefore, they have to be customised according to the environment and different types of individuals (Barata et al., 2015). It is difficult to define each gamification element as in many cases they are related to each other. At times, researchers define gamification differently (Costa et al., 2017).

There are different approaches to operationalise the gamification elements. One of the most commonly used approach is based on the Octalysis framework designed by Chou (2015), in which gamification is dictated by a set of drivers. Another recent model is the Gamification Model Canvas developed by Jiménez and Escribano (2015). They were inspired by the business model canvas (Osterwalder & Pigneur, 2003), in which one side represents the designer and efficiency and the other side the player and value. Bharati et al. (2016) applied a Sequential Minimal Optimization algorithm to arrange 60 different gaming applications in decreasing order of impact. From these, they identify 24 game features to discern that of them, 15 were shared by the successful applications. They based their study only on the presence of the game features, not on the manner of their use. In another study, Kappen and Nacke (2013, pp. 3–4) created guidelines for effective gamification.

1.3. Gamification in businesses

In the recent years, business professionals have recognized that using gamification holds strong potential for positive outcomes. For this reason, research on this phenomenon is increasing, Companies in different industries are implementing gamified systems to support their respective business goals. Companies appear to have two main motivations: The first is to increase the engagement through increased loyalty and motivation of customers. The second is to enhance the engagement of the employees in their work environment and, correspondingly, increase their job satisfaction.

To increase employee engagement, Ergle (2016) proposes the following eight steps to build an effective business game:

1. Identify the overall business goal to which the top management aspires; 2. Identify the main objective of gamification. This will help identify the functions to be gamified; 3. Identify the users, answering such questions as: what is in it for them? What motivates them to engage? What is their interest?; 4. Identify the context or culture in which the game will be used; 5. Design the game and its mechanics: select game elements that engage a user while accomplishing the business goal; 6. Create the metrics to determine effectiveness, e.g., ROI; 7. Implement and communicate the plan; 8. Continually monitor the effectiveness and added value of the game, while adjusting and improving the gamification experience through ongoing feedback.

It is also important to consider the efforts needed from the members of the gamification project. García et al. (2017) recognized and measured such efforts. They assumed that different levels of efforts are needed in different steps of the project. The steps are: objective, definition, player analyses, scope definition and feasibility, analyses and design, and development. Development of the gamification project requires the most hours from the project team and the researchers while analyses and design were the second most time-consuming step.

There are game versions of science-based behavioural assessments, and data science tools to help companies search for appropriate applicants. The benefits of such tools are twofold: Firstly, this kind of tool can evaluate applicant behaviour from different perspectives. Secondly, with immediate feedback, it makes the recruitment processes of the companies efficient, reducing the investment of time (Narayanan et al., 2016).

Workplace motivation can also be enhanced with different gamified systems. However, it has to be carefully designed so as not to have a negative effect. This means that analyses of the behaviour of employees and their attitudes toward gamified processes should be carefully considered using the most appropriate design (Perryer et al., 2016).

Robson et al. (2016) assert that player types matter. They identified four different player types that require different kinds of gamification. Personalities vary and understanding this variability is necessary for creating engaging experiences.

There is a wide range of gamification elements available for designers, but the literature focuses on just a few of them. Badges, leader boards, points and rewards are the most popular components to gamify a non-game environment. As stated before, our study focusses on gamification in for-profit organisations. In such organisations, gamification is being applied, not only in marketing contexts but also in human resources, where the influence on employee behaviour, especially regarding their knowledge, is of interest. Werbach and Hunter (2012, p. 82) proposed a classification of game elements as: (1) "Dynamics – are the big-picture, aspects of the gamified systems that you have to consider and manage but which you never directly enter into the game" (2) "Mechanics – are the basic processes that drive the action forward and generate player engagement" (3) "Components – are the specific instantiations of mechanics or dynamics". By focusing on these three classifications, designers can develop a better range of useful elements. Costa et al. (2017) also classified game elements into certain dimensions and collected the different definitions according to the literature. Based on this the dimensions of Werbach and Hunter (2012) were expanded with game elements, game principles, and game aesthetics. It is also important to differentiate between games, serious games and gamification because they have different purposes.

2. Research approach

The high number of articles related to this topic justified using a mapping research methodology to reveal the key areas of application. It is essential to recognize those areas that have not yet been investigated, or where the research has been inadequate. A mapping of the literature was conducted to evaluate the prevailing trends in the literature.

A mapping study has several benefits for researchers. After a thorough mapping study, it is easier and less time-consuming to identify areas requiring attention. Such a study also aids construction of relevant research questions. Besides the procedures, forms, and experiences can also be reused, and past findings can provide a basis for comparison with the follow-up revelations. Finally, the primary studies provided can be used to validate further research and results (Kitchenham et al., 2011).

Our mapping study was conducted in accordance to the systematic steps specified by Petersen et al. (2008). We implemented their five-step process, including (i) Definition of the research question, (ii) Conduct the search, (iii) Screening of papers, (iv) Keywording using abstracts, (v) Data extraction and mapping process, shown in Figure 1.

The next step was the identification of primary studies. To identify these, we searched high quality databases. The following search engines were used to collect the articles: EBSCO, Science Direct, and Springer Link. We used the term, "gamification", to search for the articles of interest. The term was searched among the titles, abstracts, and
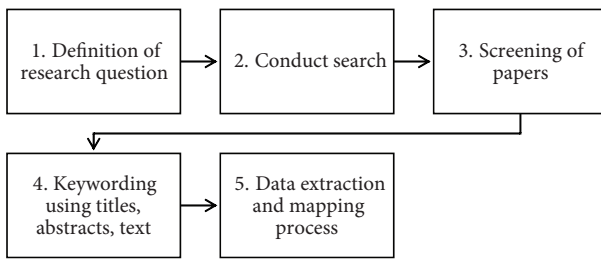
Figure 1. The systematic mapping process
(own source based on: Petersen et al., 2008)

keywords from the chosen search databases. Only English language academic journals were searched. A total of 639 articles were thus obtained After checking for and screening out the duplicates, 575 articles were available for further analyses. The allocation of the articles by year can be seen in Figure 2, which shows the growing popularity of gamification among researchers.

The next step in the research process was to select the appropriate primary studies from the collected articles, for further analyses. For this purpose, a set of inclusion and exclusion criteria was prepared.

The inclusion criteria were the following:
- Where several papers reported the same study, only the most complete one is included.
- Studies that answer at least one research question is included.

To avoid overlaps between the studies it is important not to include all the articles that provide the same results. Only the most complete study was selected for the analysis. Also, only those articles were included in the study that answered at least one research question.

The exclusion criteria consisted of the following:
- Studies that are not written in English is excluded.
- Studies that do not contain empirical research is excluded.
- The study is not related to gamification in for-profit organizations is excluded.

The studies had to have contained an analysis of gamification among for-profit companies, else they were excluded. For instance, if a study investigated only the behaviour of users in games in general, or the purpose of the implementation of gamification did not contain for-profit goals, they were excluded. Articles that were written in an educational context were also excluded, except if they examined the training or learning environment for employees or customers of a for-profit organisation.

After the application of the inclusion and exclusion criteria, a final set of 41 articles was obtained. The articles in this set were subjected to further analyses. The number of articles during each phase of the research can be seen in Table 1.

Table 1. The number of articles in each phase of the research process

Total number of articles	544
After checking duplicates	535
After the first screening	112
Final selection	41

3. Evaluation and results

In this section, we present the results of our analysis through 8 subtopics, including number of studies by year, outlets, industry, orientation, types of implementation, gamification elements, effects on companies, and examined variables. In each of these subtopics, a data analysis and overview of the trends is discussed below.

3.1. Number of selected papers by year

In Figure 3, we can see the presence of an increasing trend of rate of investigations. One difference between the two Figures, Figure 2 and Figure 3, should be clarified. In Figure 2 we see articles that all appeared in academic journals. However, in Figure 3, we see only those articles that
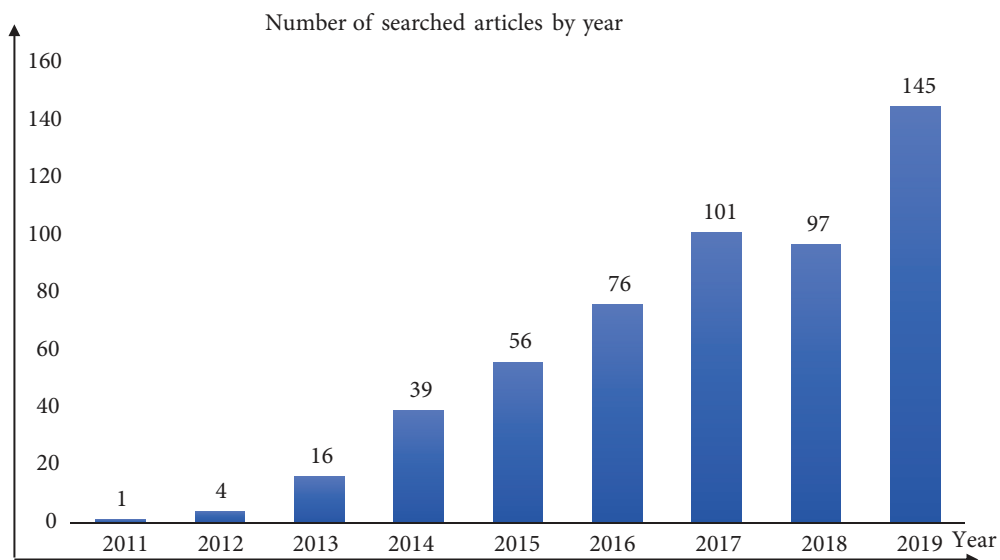

Figure 2. The distribution of the collected articles from search databases by year after checking duplicates
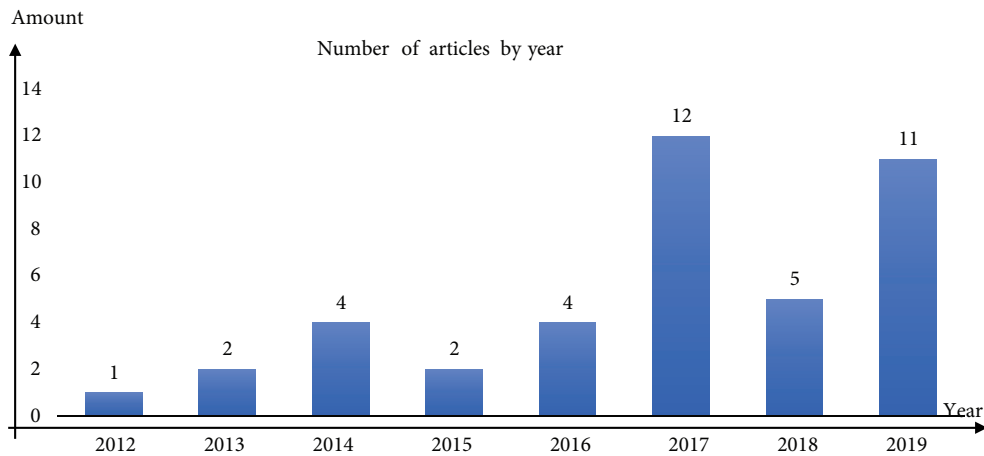
Figure 3. The distribution of the final selection of articles by year

were based on empirical study. The difference between the two could explain the evolution of the research of gamification. Since 2011, when the first definitions of gamification emerged, most articles written were theory-based, where the goal was mainly to set up a framework to support further research. Comparing the results with another mapping study provided by Dicheva et al. (2015), which contained empirical studies albeit in educational contexts, we can see a growing number of research, even though their collection was executed by 2014.

3.2. Number of studies by Journal

Most of the business-related gamification articles that were examined in this study were published in *Computers in Human Behaviour*. It consists of a total number of 10 papers. The remaining 31 papers were widely dispersed among 26 different jourrnals. This distribution demonstrates that gamification covers a wide range of business interests and disciplines. This variety is evident in Table 2.

Table 2. Journals and the articles published in them on the topic of business-related gamification

Journal	Articles
Computers in Human Behaviour	Alcivar and Abad (2016) Feng et al. (2018) Hamari (2017) Hsu & Chen (2018b) Landers et al. (2017) Li (2017) Rodrigues et al. (2016a) Rodrigues et al. (2016b) Rodrigues et al. (2016c) Yang et al. (2017)
International Journal of Information Management	Köse et al. (2019) Moro et al. (2019) Xi & Hamari (2019)
Journal of Retailing and Consumer Services	Högberg et al. (2019a) Högberg et al. (2019b)
Technological Forecasting and Social Change	Hsu and Chen (2018a) Poncin et al. (2017)
Journal of Interactive Marketing	Kim and Ahn (Grace) (2017) Leclercq et al. (2018)

End of Table 2

Journal	Articles
International Journal of Market Research	Bailey et al. (2015)
Journal of Forensic Accounting Research	Baxter et al. (2017)
Journal of Information Systems	Baxter et al. (2016)
SpringerPlus	Conaway and Garay (2014)
Information and Management	Dissanayake et al. (2019)
International Journal of Research in Marketing	Eisingerich et al. (2019)
Procedia Computer Science	Fernandes et al. (2012)
Journal of Systems and Software	García et al. (2017)
Electronic Commerce Research and Applications	Hamari (2013)
Telematics and Informatics	Hsu et al. (2017)
Information Technology and People	Huang et al. (2019)
Journal of Business Research	Jang et al. (2018)
Procedia CIRP	Kampker et al. (2014)
Information Systems	Leszczyński and Zakrzewicz (2019)
Tourism Management	Liang et al. (2017)
IFIP Advances in Information and Communication Technology	Lounis et al. (2013)
Procedia – Social and Behavioral Sciences	Lucassen and Jansen (2014)
Computers and Education	Park et al. (2019)
Electronic Markets	Sigala (2015)
International Journal of Hospitality Management	Sox et al. (2014)
Journal of Management Information Systems	Suh et al. (2017)
International Journal of Human Computer Studies	Xi et al. (2019)

3.3. Number of studies by industry

Table 3 demonstrates the range of industries that have taken interest in the gamification phenomena. Most articles, 5 out of 41, were written for the banking sector. However, these 5 studies came from just two teams of scholars. It would seem that when researchers examine a special tool or system of gamification, more variables are needed to judge whether the system has had a positive impact on the business. Sport, marketing, IT/software and tourism are the four industries where three empirical papers were

Table 3. The industries examined by the final selection of business-related gamification articles

Industry	Articles
Bank	Baxter et al. (2017) Baxter et al. (2016) Rodrigues et al. (2016a) Rodrigues et al. (2016b) Rodrigues et al. (2016c)
Sport	Högberg et al. (2019a) Huang et al. (2019) Jang et al. (2018)
Marketing	Conaway and Garay (2014) Lucassen and Jansen (2014) Xi et al. (2019)
IT/Software	Eisingerich et al. (2019) García et al. (2017) Park et al. (2019)
Tourism	Liang et al. (2017) Moro et al. (2019) Sigala (2015)
Trading services	Hamari (2013) Hamari (2017)
Coffee	Kim and Ahn (Grace) (2017) Li (2017)
Environmental	Hsu et al. (2017) Hsu and Chen (2018a)
Car manufacturing	Kampker et al. (2014) Köse et al. (2019)
FMCG	Högberg et al. (2019b) Lounis et al. (2013)
Retail	Poncin et al. (2017) Hsu and Chen (2018b)
Research	Bailey et al. (2015)
Childcare	Fernandes et al. (2012)
Meeting, expositions, events, and conventions	Sox et al. (2014)
Consulting	Suh et al. (2017)
Food processing	Yang et al. (2017)
Consumer electronics	Xi and Hamari (2019)
Not specified	Alcivar and Abad (2016) Dissanayake et al. (2019) Feng et al. (2018) Landers et al. (2017) Leclercq et al. (2018) Leszczyński and Zakrzewicz (2019)

examined in this study. We have also a high variety of industries to which gamification was applied, from trading services, through car manufacturing to consulting. There were 6 studies (e.g., Alcivar & Abad, 2016; Landers et al., 2017) which were not allocated to specific industry because they examined issues that run across a number of industries, such as employee performance and employee learning. Other studies (Dissanayake et al., 2019; Feng et al., 2018; Leclercq et al., 2018) analysed the effects of gamification in a crowdsourcing platform environment affecting multiple industries. The remaining 18 articles were dispersed over 12 different industries, indicating a wide-spread and broad interest in the gaming phenomena.

3.4. Number of studies by orientation

One of the purposes of this study was to show whether organisations apply gamification to enhance the performance of their employees or motivate and engage their customers. We may consider increasing the performance of the employees as a human resource management issue and enhancing brand loyalty and motivations of customers to buy a product or choose services provided by the company as a marketing issue. Figure 4 shows that of the 41 articles, 32 focused on the customers and 9 on the employees. In other words, gamification placed more than three times more emphasis on marketing than on HRM. One explanation for this imbalance may be that gamifying a customer environment can reach more people, possibly with a larger impact on achieving business goals than gamifying a work environment.

3.5. Studies by type of implementation

There are wide possibilities for business professionals to implement a gamification process to help achieve their businesses goals. The review of the selected articles reveals that organisations have adopted gamification mostly through the design of their webpage, especially when interacting with their customers. For instance, in the Banking industry, a gamified webpage environment can prove

Number of articles by orientation

Figure 4. The comparison of the final selection of gamification articles regarding their employee and customer orientation

much more engaging for the customers through creative web designs. Several companies have developed mobile applications to better communicate their brands. We note that of the 41 selected articles, nine articles were related to this type of implementations. Articles that examined gamification through a mobile application were mainly written in the recent years. Gamifying through mobile applications is a recent phenomenon. It is expected that the implementation of gamification would not compromise the hedonic and utilitarian requirement of the customers. Gamifying a consumer environment is focused on the shopping or service processes. The webpage is only a part of the gamification process. Another large cohort of articles was related to implementation of gamified trainings of the employees. Gamification can also appear in ERP systems, crowdsourcing platforms, loyalty programs or even in brainstorming tasks among employees. Our results are presented in Table 4.

3.6. Gamification elements used in the studies

An investigation of gamification elements used in the studies yielded no unexpected results. Rewards was the most used motivating element, appearing in 15 articles. Badges was the second most used element, appearing in 14 cases. Points were the third most used gamification technique among researchers, while Leaderboards, Levels, Social interactions, Challenges, Feedback, Competitions and Progress followed, in that order. The results are in line with the findings of Hamari et al. (2014), Dicheva et al. (2015) and Bharathi et al. (2016). These elements often overlap, as seen between Rewards and Badges. Categorization of elements in terms of dynamics, mechanics, and components described by Werbach and Hunter (2012, p. 82) offers another way of understanding the impact of gamification. However, it is important to recognize that at times the categories may be confounded; for instance, in some situations differentiation may be a challenge; gamification dynamics may at times also be considered a component. Social interaction may contain other components such as

Table 4. Implementation type of gamification in the final selection of articles

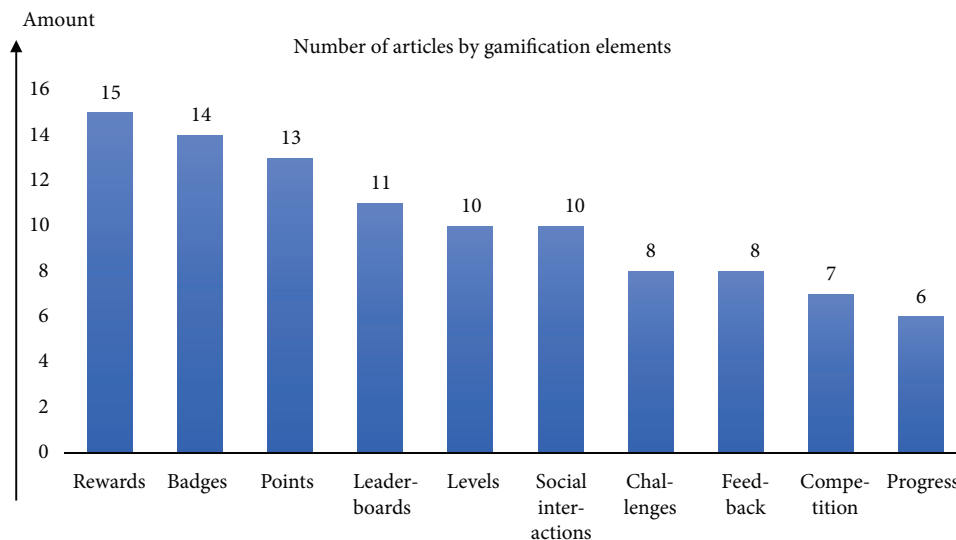| Types of implementation	Articles
Web page design	Hsu et al. (2017) Hsu and Chen (2018a) Hsu and Chen (2018b) Leszczyński and Zakrzewicz (2019) Liang et al. (2017) Moro et al. (2019) Rodrigues et al. (2016a) Rodrigues et al. (2016b) Rodrigues et al. (2016c) Sigala (2015) Xi and Hamari (2019)
Mobile applications	Eisingerich et al. (2019) Högberg et al. (2019a) Högberg et al. (2019b) Huang et al. (2019) Jang et al. (2018) Köse et al. (2019) Li (2017) Xi et al. (2019) Yang et al. (2017)
Consumer environment	Conaway and Garay (2014) Hamari (2013) Hamari (2017) Lounis et al. (2013) Lucassen and Jansen (2014)
Training	Alcivar and Abad (2016) Baxter et al. (2017) Baxter et al. (2016) Kampker et al. (2014) Park et al. (2019)
Crowdsourcing platform	Dissanayake et al. (2019) Feng et al. (2018) Leclercq et al. (2018)
Online survey	Bailey et al. (2015)
Requirement elicitation	Fernandes et al. (2012)
Work environment	García et al. (2017)
Loyalty program	Kim and Ahn (Grace) (2017)
Brainstorming task	Landers et al. (2017)
Smart technology interface	Poncin et al. (2017)
Meeting environment	Sox et al. (2014)
Information System	Suh et al. (2017)

Figure 5. Gamification elements that are analysed in 6 or more studies from the final selection of articles

Sharing, Feedback and Messaging that can be identified in the analysed articles as well. The gamification elements used in at least 6 studies can be seen in Figure 5. Our findings are consistent with those of Dicheva et al. (2015).

3.7. Differing effects on companies

It was also a goal of this study to examine whether gamifying processes applied to businesses have positive, negative, or neutral effects. As shown in Figure 6, it can be stated that generally gamification had a positive effect on the measured variables in most of the studies. Neutral results were seen in four cases, suggesting that gamification did not have a significant effect on the variables examined. Mixed results category contains those articles where gamification had a significant positive impact on the examined variables but resulted negative effects on others at the same time. Only six study reached such a result. One of the articles from the final selection did not provide an indication of the effects of gamification. It tested a design system to introduce gamification and the conclusions from the empirical data were related to the efforts required for the gamification project. It included the support architecture and tool required for adopting an integral gamification solution. The authors mentioned as well that analysing the benefits of gamification was out of their scope. However, as the exclusion criteria did not include a requirement that could have resulted in the exclusion of this article, it was retained in the analysis. Overall, the results show that gamification should be considered for business purposes too, because it can enhance the engagement and loyalty of the customers, and also the motivation and performance of the employees. Earlier review articles too have reported similar results: Gamification yields888 positive impacts on variables such as engagement, attendance and participant contribution. Gamification provided mixed or negative outcomes in only a few cases (Dicheva et al. (2015).

3.8. Examined variables in gamification

In the selected articles, the scholars examined a variety of variables. These are described in Table 5. Engagement was the most cited variable. Engagement can be related either to customers or employees. Enjoyment and usefulness were analysed in nine and seven studies respectively, which is in line with the assumptions that the main purpose of gamification is to provide hedonic and utilitarian values. Knowledge is relevant to the training phase of gamification. Brand Loyalty and Ease of Use are additional topics that appear in five studies each. Besides Business Impact, Satisfaction and User/Customer Experience are topics which were analysed in more than four different articles. It is important to note that gamification can impact a diverse range of variables that corresponds to a range of perspectives of the environment in which gamification is applied. Therefore, one might see different gamification designs in different cases. Dicheva et al. (2015), in the Education sector, had indicated that the most used variables were engagement, attendance, the quantity of student contributions, increased percentage of pass marks in students, motivation and interest. In Business applications, too, engagement, knowledge, and motivation were important.

Table 5. Variables examined in the final selection of gamification articles

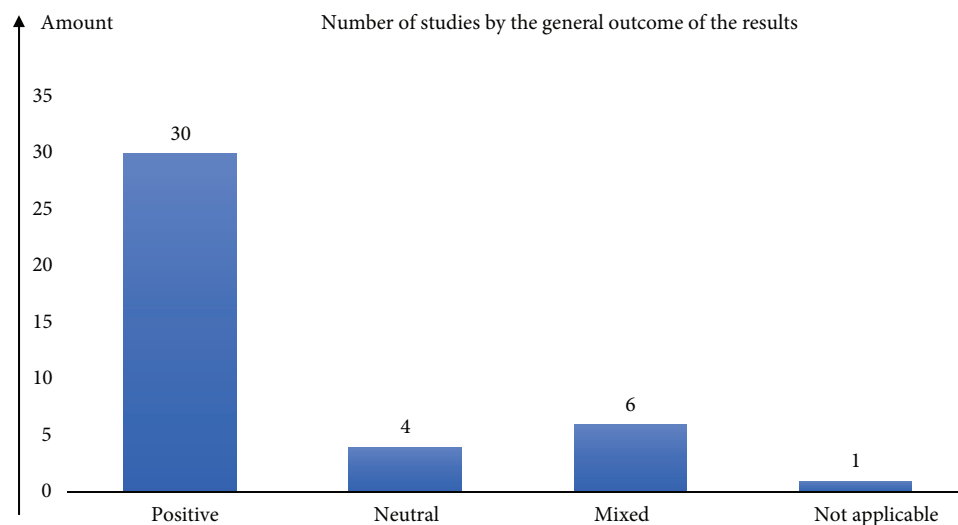| Examined variables	Articles
Engagement	Bailey et al. (2015) Eisingerich et al. (2019) Högberg et al. (2019a) Högberg et al. (2019b) Jang et al. (2018) Lucassen and Jansen (2014) Leclercq et al. (2018) Park et al. (2019) Sigala (2015) Sox et al. (2014) Yang et al. (2017)

Figure 6. The distribution of the final selection of articles regarding the general impact of gamification and whether it was positive, neutral, mixed or not applicable

Examined variables	Articles
Enjoyment	Baxter et al. (2017) Baxter et al. (2016) Dissanayake et al. (2019) Hsu and Chen (2018b) Huang et al. (2019) Köse et al. (2019) Rodrigues et al. (2016b) Rodrigues et al. (2016c) Xi et al. (2019)
Usefulness	Fernandes et al. (2012) Hsu and Chen (2018a) Hsu and Chen (2018b) Huang et al. (2019) Köse et al. (2019) Rodrigues et al. (2016b) Rodrigues et al. (2016c)
Brand loyalty	Högberg et al. (2019a) Hsu and Chen (2018a) Hsu and Chen (2018b) Kim and Ahn (Grace) (2017) Lucassen and Jansen (2014)
Knowledge	Alcivar and Abad (2016) Baxter et al. (2017) Baxter et al. (2016) Kim and Ahn (Grace) (2017) Park et al. (2019)
Ease of use	Huang et al. (2019) Köse et al. (2019) Rodrigues et al. (2016a) Rodrigues et al. (2016b) Rodrigues et al. (2016c)
Business impact / Purchases	Eisingerich et al. (2019) Högberg et al. (2019b) Jang et al. (2018) Rodrigues et al. (2016b)
Intention to use	Köse et al. (2019) Rodrigues et al. (2016a) Rodrigues et al. (2016b) Rodrigues et al. (2016c)
Satisfaction	Högberg et al. (2019a) Hsu and Chen (2018b) Huang et al. (2019) Xi and Hamari (2019)
User/customer experience	Hsu et al. (2017) Hsu and Chen (2018a) Leclercq et al. (2018) Poncin et al. (2017)
Self-efficacy	Dissanayake et al. (2019) Feng et al. (2018) Park et al. (2019)
Usage activity	Hamari (2013) Hamari (2017) Xi and Hamari (2019)
Intrinsic motivation	Dissanayake et al. (2019) Kim and Ahn (Grace) (2017) Sigala (2015)
Hedonic value	Högberg et al. (2019a) Hsu and Chen (2018a)
Behavioural intention	Hsu et al. (2017) Sigala (2015)

Examined variables	Articles
Task performance	Dissanayake et al. (2019) Landers et al. (2017)
Perceived value	Hsu et al. (2017) Hsu and Chen (2018a)
Receive Reviews	Leszczyński and Zakrzewicz (2019) Liang et al. (2017)
Social bonds / value	Feng et al. (2018) Huang et al. (2019)
Playfulness	Feng et al. (2018) Park et al. (2019)
Discontinuance intention	Huang et al. (2019) Köse et al. (2019)
Data validity	Bailey et al. (2015)
Implementation suitability	García et al. (2017)
Implementation efficiency	García et al. (2017)
Characteristics of enterprises to incorporate gamification	Conaway and Garay (2014)
Attitude	Hsu et al. (2017)
Switching between membership cards and mobile applications	Li (2017)
Ratings	Liang et al. (2017)
Sustainable consumption	Lounis et al. (2013)
Awareness	Lucassen and Jansen (2014)
Patronage intentions	Poncin et al. (2017)
Impact of use	Sigala (2015)
Flow experience	Suh et al. (2017)
Aesthetic experience	Suh et al. (2017)
Brand attitude	Yang et al. (2017)
Effort	Dissanayake et al. (2019)
Hope	Eisingerich et al. (2019)
Compulsion	Eisingerich et al. (2019)
Self-presentation	Feng et al. (2018)
Positive affect	Högberg et al. (2019a)
Perceived mobility	Hsu and Chen (2018a)
Perceived benefits	Hsu and Chen (2018a)
Brand equity	Hsu and Chen (2018a)
Brand love	Hsu and Chen (2018b)
Positive word of mouth	Hsu and Chen (2018b)
Resistance to negative information	Hsu and Chen (2018b)
Confirmation	Huang et al. (2019)
Habit	Huang et al. (2019)
Regret	Huang et al. (2019)
Contribution	Köse et al. (2019)

Examined variables	Articles
User conception	Köse et al. (2019)
Review length	Moro et al. (2019)
Sentiment charge of a review	Moro et al. (2019)
Perceived control	Xi et al. (2019)
Interaction time	Xi et al. (2019)
Mental simulation	Xi et al. (2019)

It is evident that gamifying a webpage or customer environment and training were popular among the researchers especially in the Banking, Trading service and Marketing industry. However, these kinds of implementations can also be investigated in other industries. Figure 7 highlights the types of gamification environment that have not yet been studied through empirical research.

Gamification features have been well-examined in the consumer environment and in webpages. However, there are elements that have not yet been investigated. Figure 7 and Figure 8 reveal the gaps in the literature. In the work
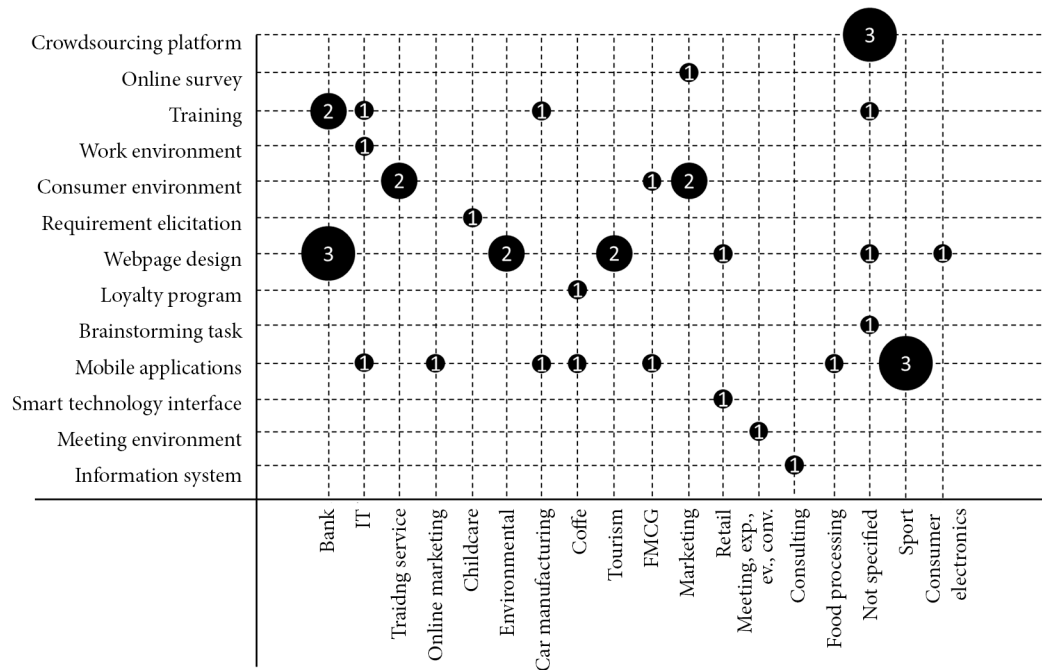

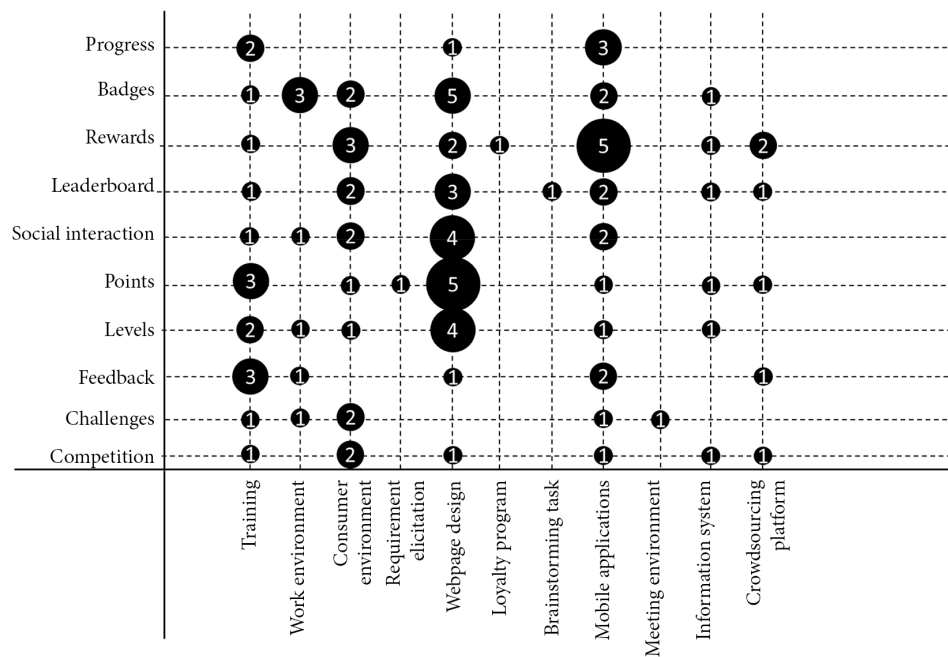Figure 7. Map of the number of articles by the type of implementation and industry

Figure 8. Map of the number of articles by the 10 most used gamification elements and the type of implementation

environment, some common elements (e.g. rewards, leader boards, points) have not yet been examined. In webpage design, the effects of challenges, which is one of the most popular gamification features, also has not yet been studied. There are other types of implementation environments as well with none or merely one gamification elements investigated. One may conclude that the most investigated implementation areas have provided the most of the popular gamification elements among the researchers.

Discussion

The purpose of this study was to examine recent trends in gamification research and applications in 'for-profit business organisations. To execute such an investigation, we proceeded with a mapping study. From 639 articles collected from different search databases, we chose a final pool of 41 empirical studies for further review. These papers were then divided into subtopics that were identified as characteristic of the gamification process. We found that in the recent years the number of empirical studies related to gamification in businesses has grown faster than the overall number of papers on the general topic of gamification. The earlier articles focused on setting a framework, elaborating a theory, and in subsequent years these theories led to empirical assessment.

If we view the range of companies and industries where gamification was applied, we can conclude that the application of gamification is not restricted to only specific businesses. In fact, it is indicated that with a careful planning and smart design it can be implemented in every area of businesses. We see that individual sets of researchers who reported on more than one empirical study, focused on one specific industry. Also, they analysed similar variables in those studies. We suspect that it is not possible to provide a unified gamification process for different type of companies. The process needs to be well-elaborated and tailored for specific environments and designed for specific purposes to achieve the best possible outcomes.

Gamification being applied with greater frequency to customer related issues suggests that customers are held at higher priority by the practitioners than the employees. In the short term, a company can benefit more from focusing on customer-related gamification by reaching more people affecting the revenues or returns than through gamification of employee-related issues

The area to which gamification was applied the most was the webpage design. Customer environment was the third most addressed area. However, the two could well be related. A well-designed company web-page could target many customers. For instance, a gamification process applied to the web-page design might ease the shopping experience of the customer. Another emerging trend is the use of gamified mobile applications facilitates remote interaction with customers. Training of employees, too,

was an area where gamification was implemented in several studies. It seems that gamification in human resource management is used mainly in employee training to increase motivation and learning outcome. Badges, rewards, and leader boards were the primary game elements deployed. This finding is consistent with the findings of previously reported studies. There are a number of possible elements and components of gamification. It is a challenge for the designers to select an optimal set for maximum benefit. For this reason, a well-elaborated hierarchy is needed regarding the gamification dynamics, mechanics, and components, excluding the possible overlaps that can exist between gamification elements.

Another purpose of this study was to examine whether gamification had an overall positive influence on the analysed variables in the selected business-related gamification articles. Indeed, in most cases gamification resulted in higher customer or employee engagement. These were the most examined areas among the studies. Knowledge, brand loyalty, user experience, and usefulness were also analysed in more than one article.

While the existing literature already reports gamification applied to the banking and marketing, such applications yet need to be investigated in other fields to prove the effects of gamification. Further, research is also needed on measuring more gamification elements in work environments. For instance, gamification features can also be applied to loyalty programs and mobile applications. In web-page design, too, there are popular gamification elements that have not yet been examined. The studies also need to focus on a concise hierarchy to exclude the overlaps among gamification elements. This requires that gamification dynamics, mechanics, and components should be well divided, providing a clear understanding of components that have a positive effect on the analysed variables. Studies are also needed to identify the elements that are most suitable in different industries and business environments. Another research direction would be to analyse the type of users and categorize them to determine which gamification elements are the most appropriate for different user-type. It would be helpful to design the most appropriate gamification system for the specific users to achieve greater benefits.

Although this study contributes to the existing literature related to gamification in "for-profit" business organisations, it has also some limitations. First, the relevant articles could have been collected from more databases. Secondly, this analysis was limited to gamification only in a business-related context. It excluded studies available in other fields, such as education. Another limitation is that all the data were gathered from prior studies and it only contained analysis to determine the main trends, the most used gamification elements and the most analysed variables through gamification. Reflecting reliability and validity of research in this article, they can be increased by widening the topic of gamification in education, or the inclusion criteria to qualitative studies.

Conclusions

The purpose of this study was to provide an overview of the existing literature on business-related gamification. The studies analysed contains empirical research which provides a good basis for the understanding of areas of gamification in for-profit organisations. We have identified areas that have already been examined and also areas that can be analysed further. This study also provides a collection of empirical articles about business-related gamification that can serve as an overview of the literature. These articles were examined for numbers and proportions of specific aspects of for-profit organisations: (i) industry, (ii) companies' orientation, (iii) implementation, (iv) elements, (v) effects on operation, and (vi) gamification variables. The six fields of research were based on the existing literature and were identified prior to the analysis; however, the details for each were added during the overview and examination of the articles. With this, researchers may use our article as a map of the dominating industries, companies' orientation, ways of implementation, gamification elements, effects on companies and variables in the academic papers of the selected databases.

The basic assumption of this paper is that the current gamification literature base reflects trends in practice. The managerial implications suggest hypotheses for further empirical research. Our findings suggest that overall, gamification offers positive impact on various factors such as motivation, knowledge, and enjoyment. Most of the collected studies claimed that gamification positively influenced the employees or customers in terms of their knowledge, attitude or brand loyalty. This means that gamification is a proven tool that can improve the operations of business organisations. Gamification can have a positive impact on business processes in different ways. Managers may consider applying gamification either to increase employee performance or motivation or they can use gamification to attract more engaged customers and increase their brand loyalty. It is important for practitioners to know that gamification is not a magic formula and will not automatically result in the expected outcomes unless it is planned and designed carefully. This means that first, managers need to define the purpose of applying gamification to their processes and what they would like to achieve with it. Next, they need to define the characteristics of their employees or customers. Through this paper, a practitioner who seeks a tool to positively influence their employees or customers, can receive a clearer picture of what gamification is, what elements may be targeted, and which variables can be positively influenced by gamification. The study also provides insight into the types of implementation in different industries, and whether gamification can be applied in their business context.

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