Gamification Elements in E-commerce – A Review

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Abstract— The implementation of gamification is driven by a range of factors, including the environment of the application, the elements involved and the types of users. The best practical method for effective gamification application still remains unclear, making it difficult to determine the most effective elements for an e-commerce website. This paper aims to present the literature review conducted to classify the gamification elements in e-commerce that have been investigated in previous studies which were published within the last four years (2018-2021). This is done to identify the most appropriate and relevant gamification elements to use in our future study. The findings from previous studies showed that gamification improved positive consumer behaviour in e-commerce, particularly in terms of engagement, and at the same time helped to boost business profitability. Furthermore, previous studies in this field have also found that rewards, badges and leaderboards were the most widely used gamification elements. This study may be used as a foundation for the researchers to build and develop a gamification framework for e-commerce in the future.

Keywords—Gamification, gamification elements, e-commerce, review

I. INTRODUCTION

Gamification is the method of developing information systems that imitate interactions and motivations found in games, intending to influence user behaviour [1]. Gamification is often described as a successful method to motivate people [2][3]. Despite this assumption and its wide-scope implementation, empirical validation remains to be verified [4]. Furthermore, the effectiveness of gamification in the short term, moderate term and long term has been questioned by many practitioners. As a result, the issue of how corporations and businesses can incorporate gamification to positively impact users and businesses that it is claimed to do is still disputed and investigated [5]. Gamification designers must be aware of the potential outcomes of a particular game feature in a given scenario and the targeted users in order to be successful. Gamification design, implementation and efficiency are all dependent on the target users and application context; however, a generalisation and review of existing results and studies are needed to further expand the field [6]. This review study contributes to the field of e-commerce by presenting an overview of the most appropriate and relevant gamification elements in e-commerce and also will give the researchers more insight into a gap that needs to be fulfilled. A research question was developed to meet the research objective of the study.

RQ: Which gamification elements are the most appropriate and relevant to be implemented in e-commerce?

RO: To identify the most appropriate and relevant gamification elements to be implemented in e-commerce.

II. GAMIFICATION IN E-COMMERCE

In a study by Sukmaningsih [7] which took place in Shopee as one of Indonesia's largest e-commerce sites, researchers found the impact of gamification on different generations (generation X versus Millennials). The findings indicated that generation X perceived gamification as a way to make the system more useful, while Millennials perceived playfulness and social influence to have a good impact on attitude and indirect impact on purchase intention. Another study created a theoretical model to investigate the effects of two gamification elements on impulse buying during the "Double Eleven" shopping festival in China and its effect on users based on gender and age [8]. According to the study, males and younger users enjoyed achievement-related gamification mechanisms (i.e., badges upgrading), while females and older users were more attracted by economics-related gamification mechanisms (i.e., rewards giving).

A study by Aparicio [9] aimed to see how gamification and reputation affected the intention to repurchase in e-commerce. The findings indicated that gamification had a favourable impact on online platform utilisation, and reputation had a favourable impact on vendor trust. Another study was conducted to evaluate the effects of gamification on the behavioural intention of young female consumers in India who used online websites to make purchases [10], and the finding showed that gamification exhibited a favourable influence on behavioural intention of young females consumers. Another study proposed a gamified word-of-mouth recommendation system, and the results showed that the system was effective not only in boosting sales but also in increasing user engagement on the e-commerce website [11].

Another study analysed the impact of gamification in the e-commerce field and compared the efficacy of tangible versus intangible rewards. According to the findings, tangible rewards improved user behaviour significantly more than intangible rewards [12]. A study by Kim [13] revealed that gamification had the potential to act as a mediator in the relationship between hedonic value and repurchase intention. Interestingly, the result showed that gamification had a negative impact on repurchase intention when presented without hedonic values. Thus, gamification cannot be considered as a suitable feature in online platform without suitable gamification elements that influence hedonic value (i.e., enjoyment, pleasure).

III. METHODOLOGY

A. Literature Review Procedure

The researchers conducted a literature review to address the formulated RQ in order to achieve the study's goal. The procedure for conducting the literature review was based on

[14] the following items; First, key terms were identified and used in the searching step and the topic was narrowed down to a few key terms or short phrases. Second, literature about gamification in e-commerce was located by consulting several databases available on the Internet. Third, the literature for the review was critically evaluated and selected by charting several criteria developed in the following section. Fourth, the selected literature was extracted, gathered and organised in an Excel file to prepare for the analysis procedure. Fifth, a literature review and a summary of the literature were written to be included in the article.

B. Identifying Key Terms

The researchers identified the key terms by using several strategies; (1) two to three keywords in the title that reflect the study's main notion were selected, (2) two to three keywords in the research questions that summarize the primary direction of the study were selected, (3) words reported in previous literature were used. As a result, the key terms identified in this study were gamification, gamified, e-commerce, electronic commerce and online shopping.

C. Locating Literature

The researchers began the searching phase for relevant literature on electronic databases, namely Web of Science, Science Direct, IEEE, SpringerLink and Scopus. These databases were selected as they are known as high-quality literature sources. In addition, the researchers also used Google Scholar advanced search engine as it is useful for finding citations that are not included in other databases.

D. Evaluating and Selecting Literature

The researchers used the following criteria to evaluate and select literature for this review study: (1) contain the related key terms identified earlier (2) published books, journal articles and indexed publication only (3) the publication time is between 2018 and 2021 (4) full papers that are accessible and written in English. Furthermore, the researchers also extracted data from the titles, abstracts and keywords in the

first step, then the selected studies were filtered, and the process of extraction was reiterated for the remaining studies from introduction, methodology, findings and conclusions to get the base of literature for this review study.

E. Organising and Analysing Literature

Data collected from the selected studies were organised and analysed, as shown in Fig. 1. In this study, the data analysis processes were done using NVivo 12 Pro to collect, organise, analyse and visualise the collected data. Microsoft Excel was also used to gather the initial data extracted. Using NVivo, the researchers were able to extract data sources into several categories:

Theme: research focus, problems and aims.

Gamification elements: gamification framework, gamification model, gamification design.

Methods: study design, sampling, target user, data collection, data analysis and discussion.

Gamification effect: hedonic values, outcomes and results and conclusions.

F. Writing a literature review

This whole study reports the summary of literature for gamification elements in e-commerce. The researchers used procedures for summarising each study and wrote using an appropriate style, providing a clear reference to ensure the quality of reporting. The researchers also employed specific writing strategies to achieve a concise and clear discussion of the main ideas and findings of this review.

IV. RESULTS AND DISCUSSION

Table 1 lists the results obtained in the selected studies, which are followed by a detailed discussion of the results. Overall, the studies listed in Table 1 implemented the gamification elements in e-commerce in a different context.
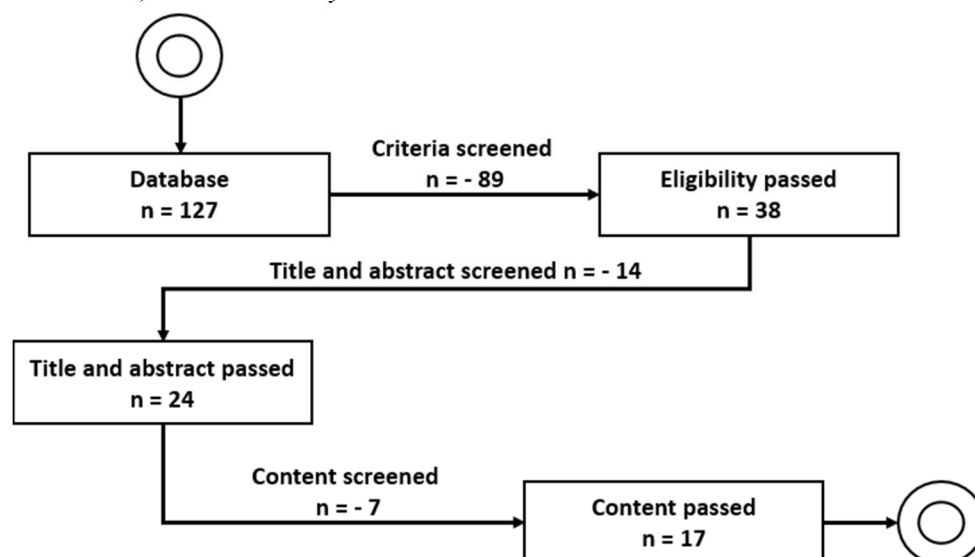

Fig. 1.   Flow of data analysis for review process

Author(s)	Gamification Element(s)	Context	Methodology	Affected Outcome(s)
Sukmaningsih, Wandoko, Panggati [7]	Rewards, online quiz	Generation X vs Millennials in Shopee Indonesia	Quantitative using SEM with Smart PLS	Attitude of generation X and Millennials toward gamification showed different perspective.
Zhang, Shao, Li, Feng [8]	Rewards, badges	Consumers using Taobao or Tmall platform in China	Quantitative using SEM with Smart PLS	Gamification elements were beneficial to increase consumers' perceived enjoyment and social interaction.
Aparicio, Costa, Moises [9]	Rewards, badges, leaderboards	E-commerce vendor	Quantitative using SEM with Smart PLS	Gamification elements increased usage level of online vendors' website.
Raman [10]	Rewards, badges, leaderboards	Young female online buyers in India	Quantitative using SEM with ADANCO	Gamification brought a positive influence on females' intention to buy products from online websites.
Hajarian, Hemmati [11]	Rewards, leaderboards, online quiz	Gamified Words of Mouth Recommendation system	Experiment	Gamification elements increased sales and user engagement within e-commerce website.
Meder, Plumbaum, Raczkowski, Jain, Albayrak [12]	Rewards, badges	Mobile e-commerce application	Field study	Gamification increased the engagement of users.
Kim, Costello, Lee [13]	Rewards, badges	Omnichannel retailing	Quantitative using MGA, POS and SEM with Smart PLS	Implementation of gamification with hedonic values may induce people to increase their repeat purchasing.
Xu, Wang, Zhao [15]	Rewards	"Double Eleven" Global Online Shopping Carnival in China	Quantitative using CFA with Smart PLS	Gamification was effective as a short-term strategy to attract consumers and boost sales.
Leclercq, Hammedi, Poncin [16]	Competition, cooperation	Online co-creation communities	Laboratory and field experiment	Gamification mechanics were able to create, boost and maintain customer engagement.
Hsu, Chen [17]	Rewards	Gamified online retailing for an online bookstore	Quantitative with SPSS and Smart PLS	Gamification marketing activities were able to increase desirable consumer behaviour.
Hwang, Choi [4]	Rewards	Gamified loyalty program application	Mixed-method	Gamified loyalty program engendered consumer loyalty greater than conventional loyalty program did.
Shao, Zhang, Zhang, Pan [18]	Rewards, badges	"Double Eleven" consumers from Taobao and Tmall platform in China	Quantitative using SEM with Smart PLS	Gamification elements were able to increase consumers' perceived enjoyment and social interaction and turn the consumers to impulse purchase.
Xu, Chen, Peng, Anser [19]	Rewards, competition, badges, leaderboards	China consumers shopped on Taobao	Quantitative using SEM with Smart PLS	Gamification was able to enhance consumer online purchase intention.
Ma [20]	Live streaming	Chinese consumers' live stream shopping intention	Quantitative using SEM with AMOS 24	Live streaming influenced gratifications but did not directly influence consumer purchase intention
Wolf, Weiger, Hammerschmidt [21]	Comments or feedback	Gamified services to influence business outcomes	Quantitative	Designing game elements was needed to facilitate experiences during gamified service use
Jurado, González, Jiménez, Rodríguez [22]	Rewards, badges and leaderboards	Millennials and Generation X in using e-commerce platform	Quantitative PLS-SEM	Millennials preferred fun interface while Generation X preferred an easier environment to use
Jurado, Barea, Navarro [23]	Review or feedback	Online product reviewers	Quantitative, J48 decision tree	Online product reviewers were able to be characterised based on their intrinsic motivation

All the reviewed studies showed positive effects of gamification elements on online e-commerce consumers in the context of which they had been implemented. Only one study by Kim [13] reported that gamification brought negative impacts without suitable gamification elements implemented. According to them, gamification with the absence of hedonic values was not to be considered as a suitable feature for e-commerce platform. This may be caused by limited respondents due to the current pandemic of COVID-19. The bar chart in Figure 2 shows a list and frequency of gamification elements that have been implemented to bring positive effects among consumers in e-commerce based on the reviewed studies.
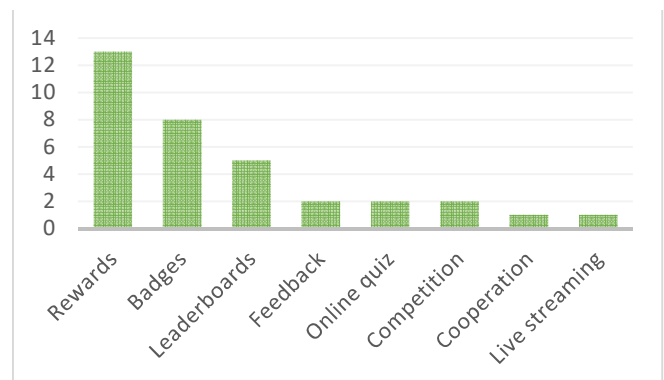

Fig. 2.   The gamification elements applied in the reviewed studies

Referring to the bar chart, the rewards element is the most popular gamification element that has been applied in many studies (13 studies) in the e-commerce context. Rewards are elements awarded to the consumers who have accomplished certain tasks such as purchasing goods, reloading their e-wallet or any other related tasks. In addition, other elements such as badges and leaderboards were also used frequently in the selected reviewed studies (8 and 5 studies, respectively). A badge acts as an indication of a consumer's level of engagement in the e-commerce dealing, while a leaderboard is a segment that displays consumers' rankings.

According to the data shown in these studies, three elements needed to build effective gamification e-commerce are rewards, badges and leaderboards. These elements are also viewed to be closely related and should be used together to optimise the efficiency of gamified e-commerce and boost sales. For example, reward elements indicate consumers' badge levels and ranking on the leaderboards. Although online quizzes, competitions and feedbacks were considered to be less desirable for researchers, these elements still showed a positive impact in the studies.

It is not surprising that elements of rewards were the most commonly used in these studies as rewards offered may influence consumers psychologically to repeat their purchases and show their loyalty towards e-commerce. Furthermore, rewards such as free vouchers or special discounts also have a great influence in changing consumer behaviour in the online shopping website. Rewards are either tangible (points, vouchers) or intangible (badges, levels) [12]. They are quantifiable and can be used as an indicator of consumers' progress. Moreover, the conditions that are given to consumers to redeem the rewards into goods also influence them to repeat their purchasing behaviour [10]. This shows that rewards are necessary to implement in gamified e-commerce.

Other than the rewards, badges were also frequently applied in the previous studies in this study area. Almost similar to the leaderboards, badges also function to determine the levels among consumers. It represents or symbolises their status and creates a unique identity for them by indicating the consumers' integrity, competence and trustworthiness. Usually, badges are awarded when a consumer completes a particular activity [10]. This helps e-commerce businesses to achieve their short-term targets and objectives and encourage the consumers to keep coming back to them [24].

Besides the rewards and badges, leaderboards also help to encourage healthy competition and continuous engagement among consumers by presenting a list of consumers who are ranked according to certain game parameters [10]. Consumers become more motivated to remain in their spot by using leaderboards, while those who are trailing become more motivated to chase the ones on top. Even a small increase in their respective rank allows them to stay engaged, and it becomes the most cost-effective gamification motivating tool [24]. However, some studies indicated that gamification element such as leaderboard did not show any significant impact [10]. The evidence from this study suggests that its usage in a study should be carefully prepared.

Moving on to the next gamification element in Figure 2, feedback has also often been applied in the reviewed studies. The researchers expected the actual number for each of these elements should be higher since they are among the basic elements for e-commerce but previous studies did not clarify them. An online quiz can increase competition among consumers, while prizes offered for the winner may also increase consumers' engagement in e-commerce. On the other hand, the cooperation element tended to be somewhat practised less. This is because, with the establishment of points, badges and leaderboards (PBL), most of the consumers have put a greater focus on competitiveness than cooperation. However, this does not eliminate the possibility of cooperation to create competition. It can be achieved by creating a group of loyal consumers in gamification activities in which consumers need to cooperate among themselves in order to compete with other groups. Lastly, live streaming has also been rarely discussed in the previous studies because it can be considered as one of the new elements implemented in the e-commerce platform. Through live streaming, active and real-time interactions between consumers and sellers can influence purchase intention. Therefore, live streaming can be considered as an appropriate gamification element in e-commerce.

V. Conclusion

Based on the reviews of the past studies, it can be concluded that gamification has a positive effect on consumers and businesses in several ways, including behaviour improvement, encouragement, commitment, purchasing intention and loyalty to an e-commerce platform. Only one researcher found some negative impacts of gamification in a past study. According to the reviewed studies, gamification elements that have been most commonly used in the e-commerce platform were rewards, badges and leaderboards. Based on the results, this study can conclude that gamification elements that are combined with certain game elements can help to improve consumers' purchasing behaviour, and thus, it should be widely implemented by managers or e-commerce designers in online shopping websites.

As most e-commerce websites implement games to attract consumer engagement nowadays, future studies should look at the differences between gamification and games in e-commerce to determine its effects on consumer purchase behaviour. Moreover, future studies are advised to focus on other gamification elements, such as feedbacks and live streaming, to investigate its effectiveness on gamification in e-commerce. Further studies are needed to explore consumers' enjoyment, satisfaction and attitude towards gamified e-commerce. Our future study will focus on gamification elements, which are the most important aspects in implementing gamified e-commerce, and consumers' purchasing behaviour to determine the level of effectiveness of certain gamification elements in the two most popular online shopping websites in Malaysia, namely Shopee Malaysia and Lazada Malaysia. Our future study will also investigate the consumer journey in gamified e-commerce.

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