Effective Online Engagement Strategies Through Gamification:
A Systematic Literature Review and a Future Research Agenda

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ABSTRACT

Gamification has recently been discovered as an excellent user engagement strategy that has the potential to improve online education, online brand engagement, and information system engagement. Even though the number of studies on gamification has expanded, there is currently no systematic literature review approach for categorizing its online engagement strategies. Therefore, the main purpose of this systematic literature review is to find effective online engagement strategies based on gamification. The literature, as published in top management, information systems, and education journals, was reviewed using preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines, and the authors categorized the studies published during the period 2016 to 2021. This study can be considered as among the first to include a systematic literature review with a potential future research agenda on effective online engagement strategies through gamification. The findings indicate several effective online engagement strategies through gamification for three major aspects.

KEYWORDS

Engagement Strategies, Gamification, Information Systems, Online Brand Engagement, Online Education, Online Platforms, Systematic Literature Review

1. INTRODUCTION

Online markets have become increasingly competitive as a result of the growth of various social media platforms and mobile applications, and many businesses are failing to engage users (Suh, Wagner,

& Liu, 2018). A rising number of online applications and businesses are vying for the attention of a user population that is shrinking at a far slower rate, intensifying the rivalry for user attention. 'Gamification' has been embraced as a tactic for influencing and inspiring people to participate in education, training, marketing, networking, and health-related activities as a relatively new paradigm for engaging people (Suh et al., 2018). The Internet has become an inextricable part of modern life, with the average adult spending 20 hours per week online (Looyestyn et al., 2017). Consumers benefit from online products and programs because they provide easy access to services (Harwood & Garry, 2015; Looyestyn et al., 2017). Online programs, on the other hand, can only be effective if users are engaged in the short and/or long term (Looyestyn et al., 2017). Online engagement encompasses a wide range of topics, with different meanings depending on the context and desired outcomes. Some online programs are just intended to keep users engaged for a single session (Looyestyn et al., 2017). On the other hand, the quality of user involvement rather than the length of time is important. This is especially true in market research studies where researchers want to improve the quality of online survey responses or educational studies where researchers want to improve academic achievement in online courses (Lukas, Eskofier, & Berking, 2021). In this sense, gamification refers to the use of game aspects such as design strategies, thinking, and mechanics to enrich non-game environments to engage users by improving the hedonic value of an existing information system (IS) (Delello, Hawley, McWhorter, Gipson, & SDeal, 2018; Nivedhitha & Manzoor, 2020; Stiglbauer, Weber, & Batinic, 2019).

Individuals are more likely to stay involved in an activity if they find it entertaining and/or valuable, according to research (Harwood & Garry, 2015; Looyestyn et al., 2017; Lukas et al., 2021; Behl et al., 2021a). Gamification has been associated with higher levels of enjoyment and engagement. Gamification is a term that first appeared in the domain of computer games in 2002 and became more commonly known around 2010 (Harwood & Garry, 2015; Looyestyn et al., 2017; Lukas et al., 2021). Since then, gamification has become more widely discussed in academic journals, however, with diverse meanings. Gamification is used in a variety of fields, including education (Parra-González, López-Belmonte, Segura-Robles, & Moreno-Guerrero, 2021), personalized health care (Martinho, Carneiro, Corchado, & Marreiros, 2020), retailing (Leclercq, Poncin, & Hammedi, 2017)), employee engagement and well-being (Hammedi, Leclercq, Poncin, & Alkire, 2021), banking (Chauhan, Akhtar, & Gupta, 2021; Nasirzadeh & Fathian, 2020), and tourism (Nivedhitha & Manzoor, 2020; Xu, Buhalis, & Weber, 2017).

Companies employ game features in non-gaming contexts to achieve goals such as client engagement, loyalty and purchase encouragement (Eppmann, Bekk, & Klein, 2018; Högberg, Hamari, & Wästlund, 2019; Tang & Zhang, 2019). Online marketing (Noorbehbahani, Salehi, & Zadeh, 2019) is one of the domains that has recently invested extensively in gamification strategy. Because persuasion, motivation, and manipulation of client attitudes are all part of marketing, gamification has a lot of promise (Hiltbrand & Burke, 2011; Hsu & Chen, 2018; Ibarra-Herrera, Carrizosa, Yunes-Rojas, & Mata-Gómez, 2019). Gamification has been used in loyalty programs (Hwang & Choi, 2020; Mulcahy, Zainuddin, & Russell-Bennett, 2020), brand engagement, and equity (Tang & Zhang, 2019; Xi & Hamari, 2020), customer service, and customer experience (Abou-Shouk & Soliman, 2021).

Even though the number of studies on gamification has expanded in recent years, there is currently no systematic literature review approach for categorizing its online engagement strategies through gamification (Abou-Shouk & Soliman, 2021; Chauhan et al., 2021; Högberg et al., 2019; Hsu & Chen, 2018; Hwang & Choi, 2020; Rutschi & Dibbern, 2020). As a result, the primary goal of this systematic literature review is to identify effective gamification-based online engagement tactics. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) criteria were used to assess the literature published in top management, information systems, and education journals, and authors classified the studies published between 2010 and 2020. Therefore, Figure 1 shows the three sections of thematic analysis of this systematic literature review as follows.

Figure 1. The three sections of thematic analysis in this systematic literature review
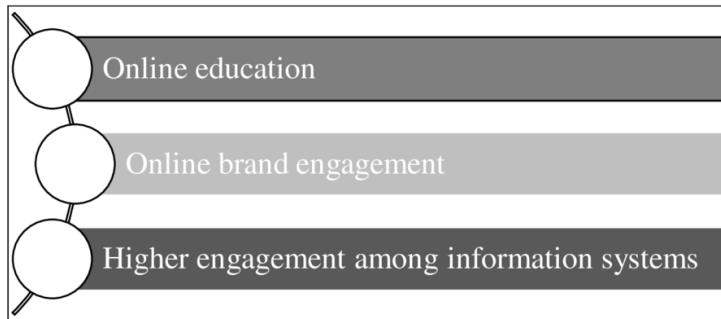

Figure 1 shows the three sections of the thematic analysis in this systematic literature review which are online education, online brand engagement, and higher engagement among information systems. The interlinks between the **effective online engagement strategies based on gamification** concerning these three aspects are further elaborated in section 2.

Thus, this paper contributes to existing research by finding the under-researched areas in gamification and online engagement strategies to further facilitate future researchers. The authors adopted a systematic literature review approach using PRISMA guidelines to tackle the issue of study using research question (RQ) one.

RQ: "What are the effective online engagement strategies based on gamification in the three contexts of online education, online brand engagement, and higher engagement among information systems?"

Further, to address this research question, the authors utilized quantitative and subjective strategies to collect the current writing and guide future examination. Subsequently, this investigation gets extraordinary by being the main deliberate writing audit on gamification and online engagement strategies. Despite popular conviction in the benefits of gamification, evaluations of its success have been mixed at best and often pessimistic. The next few sections discuss the advantages of gamification in online education, online brand engagement, and higher engagement among information systems, respectively.

2. INTERLINKS BETWEEN THE EFFECTIVE ONLINE ENGAGEMENT STRATEGIES BASED ON GAMIFICATION

The term "gamification" initially emerged on the internet in 2008, and it did not become popular until 2010 (Ibarra-Herrera et al., 2019; Nistor & Iacob, 2018). Nick Pelling claims to be the inventor of the term "gamification," which he coined in 2002 to characterize the application of computer game design aspects to electrical gadgets to make them more appealing (Ibarra-Herrera et al., 2019; Nistor & Iacob, 2018). A more basic example of this term's definition and how gamification works are how parents feed their little children by turning a teaspoon into an airplane or how animals teach their puppies to hunt when they are young.

2.1 Gamification in Online Education

First, the difference between gaming and game-based learning must be clarified (Dehghanzadeh, Fardanesh, Hatami, Talaee, & Noroozi, 2019). The concept of gamification is the addition of game features to a non-game scenario. Corporate incentives are a good example (Dehghanzadeh et al., 2019; Nistor & Iacob, 2018). Users are rewarded for a particular behavior (Nistor & Iacob, 2018). Some

features of gamification are as follows: incorporating game features into a non-game environment to promote conduct; often involves badges, rewards, and achievements. Experience points can be used to replace the traditional grades; could provide students with their choice of learning path (Ibarra-Herrera et al., 2019; Nistor & Iacob, 2018).

Large corporations use gamification to keep their staff happy and comfortable and thus to improve productivity or to recruit new staff (Asigigan & Samur, 2021; Ibarra-Herrera et al., 2019; Nistor & Iacob, 2018). We live in a technologically advanced society, when the young people become so popular among the current generation, by learning to use tablets before they can walk. It is both important and indispensable that technology is introduced into education, from elementary to university, as well as public policy and national security education (Asigigan & Samur, 2021; Nistor & Iacob, 2018). In the current literature, the game elements implemented in improving online engagement are mainly rewards, points, badges, and scoreboards. A preliminary conclusion could therefore be that the 'gamification in online platforms' needs the support of researchers and developers to develop and to provide empirical evidence (Asigigan & Samur, 2021; Nistor & Iacob, 2018).

2.2 Gamification in Online Brand Engagement

To improve consumer involvement and loyalty, many companies aim to establish and manage brand communities that are similar to games or game communities. (Syrjälä et al., 2020; Triantoro, Gopal, Benbunan-Fich, & Lang, 2020). However, outside the prevalent gamification hype, there is currently no evidence to support these marketing assumptions (Syrjälä et al., 2020; Triantoro et al., 2020). Gamification is a type of design that aims to replicate the positive experiences that games provide and, as a result, affects user behavior and cognitive processes (Syrjälä et al., 2020; Triantoro et al., 2020). Numerous companies have used Gamification to enhance advertising performance, involve clients, and enhance the marketing perceived brand value. Many worldwide firms, particularly in brand management, use gamification tactics to improve consumer brand awareness, attitude, and loyalty, such as Where's Waldo on Google Maps, Ant forest of Alipay, and Samsung Nation online community, among others (Syrjälä et al., 2020; Triantoro et al., 2020).

However, most studies have not measured the interaction of users with gamification, but have assumed that users are subject to gamification and that; as a result, people often reject the intentions of, say, using the gaming system (Syrjälä et al., 2020; Triantoro et al., 2020). Another disadvantage of the current body of literature is that most studies only looked at the relationship between a few gamification mechanics and brand-related features, effectively covering just a tiny piece of the gamification and consumer behavior study subject (Groening & Binnewies, 2021). The relationship between gamification and brand engagement has been studied in a few gamification-related research. Existing evidence of their relationship, however, is still lacking. Berger and Schrader (2016) for example, used flow theory to show that highly interactive and ideally demanding gamified encounters are positively associated with emotional and cognitive dimensions of brand engagement. In the Lithuanian market, Gatautis, Vitkauskaite, Gadeikiene, and Piligrimiene (2016) did an empirical study on the impact of gamification on consumer brand engagement. However, there is no strong association in the empirical results, reasons such as improving the motivation and engagement levels among participants by showing that gamification can have a good influence on brand involvement (Hiltbrand & Burke, 2011; Hsu & Chen, 2018; Ibarra-Herrera et al., 2019).

2.3 Gamification Among Information Systems

According to Gartner, by 2015, gamified information systems and services (hereinafter referred to as gamified systems) will become an indispensable part of consumer product marketing and customer retention organizational systems, and 70% of the global top 2000 companies will have at least one gamified system (Hiltbrand & Burke, 2011). Despite the enthusiasm and growth expectations, several reports of unsuccessful gamification projects have appeared, with headlines such as "gamification is dead," giving us pause (Hiltbrand & Burke, 2011; Hsu & Chen, 2018; Ibarra-Herrera et al., 2019;

Behl et al., 2021b; Behl et al., 2020). For example, at Disneyland and the Paradise Pier Hotel, public monitors display efficiency figures in green for the fastest employee and red for others, increasing the efficiency of housekeepers. Many employees believed they were being controlled and opposed it, calling it an 'electronic whip'. Despite a few unsuccessful accounts, gamified apps are thought to have potential influence on corporations that continue to invest in gamified designs, with some projections predicting a 48 percent market growth by 2019, with enterprise gamification accounting for the majority of the industry (Hiltbrand & Burke, 2011; Hsu & Chen, 2018; Ibarra-Herrera et al., 2019; Mullins & Sabherwal, 2020; TechNavio, 2015).

There is confusion between gamification and gamification learning (GBL), such as serious games, pretend games and many other similar words. In addition, there is a lack of a clear and unified definition of gamification (Mullins & Sabherwal, 2020; Tolmie, Chamberlain, & Benford, 2014). These game-inspired designs predate gamification and can incorporate game design concepts into non-game environments. However, the above concept is essentially a complete game, and gamification involves layering the game layer on top of the non-game target system (Mullins & Sabherwal, 2020; Santhanam, Liu, & Shen, 2016). More importantly, to maintain the entertainment value of the game, a complete game modeled on the real-world system often needs to sacrifice some of the functions of the real-world system. Therefore, complete games are usually used independently of real-world systems, rather than as part of them. On the other hand, gamification integrates gamification into real-world systems without affecting its operation (for example, gamification training courses retain all the characteristics of traditional courses). This feature distinguishes gamification from its predecessors and brings additional complexity and hurdles in the design of these systems (Mullins & Sabherwal, 2020). To generate the expected dynamics, the game elements used in the gamification information system must be performed. Users will not perceive game-like playfulness if this is not done, and as a result, favorable states of mind will not be generated (Mullins & Sabherwal, 2020; Santhanam et al., 2016; Warmelink, Koivisto, Mayer, Vesa, & Hamari, 2020).

The most frequently mentioned game dynamics in the gamification literature include rewards, competition, self-expression, and kindness (Jo, Jun, & Lim, 2018; Kaufmann, 2018; Landers, Bauer, & Callan, 2017; Mullins & Sabherwal, 2020; Park, Liu, Mun, & Santhanam, 2019; Santhanam et al., 2016). The researchers claim that, although gamified information systems integrate similar game functions, not all gamified information systems can successfully attract users because game dynamics are generated by users in various situations, leading to different sets of game elements (Jo et al., 2018; Kaufmann, 2018; Landers et al., 2017; Mullins & Sabherwal, 2020; Park et al., 2019; Santhanam et al., 2016). Therefore, even though gamification is a popular topic, there is still a lack of research focusing on the three angles of online education, online brand engagement, and higher engagement among information systems regarding online engagement (Mullins & Sabherwal, 2020). As a result of this research gap, authors are attempting to perform a systematic literature review and future research agenda which identifies the recent knowledge gaps in the three domains of online education, online brand engagement, and higher engagement among information systems.

3. SYSTEMATIC LITERATURE REVIEW

The systematic literature reviews are of different types, such as structured reviews (Canabal & White, 2008; Khan, Fazili, & Bashir, 2021), framework-based reviews (Paul & Benito, 2018; Udall, Groot, Jong, & Shankar, 2020), bibliometric reviews (Kumar, Poonia, Gupta, & Goyal, 2021; Linnenluecke, Marrone, & Singh, 2020) and meta-analytical reviews (Barari, Ross, Thaichon, & Surachartkumtonkun, 2021; Mishra, Singh, & Koles, 2021). Consequently, the most applicable review type for this study is structured reviews, as the authors are trying to explore effective online gamification strategies through previous academic content. The precedents of reviews which can be used to justify are as follows (Antonaci, Klemke, & Specht, 2019; Looyestyn et al., 2017).

The literature, as published in top management, information systems, and education journals, was reviewed using preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines and authors categorized the studies published during the period 2016 to 2021. Further, the authors selected a period of five years (2016 to 2021), starting with the year 2016, as the purpose of this systematic literature review is to identify the most recent future research gaps in online gamification-based engagement research. This is also justified based on the precedents of reviews carried out using the five to six-year literature reviews with results showing the most recent future study gaps (Jarquin, Wiggins, Schieve, & Naarden, 2011; Park, Satoh, Miki, Urushihara, & Sawada, 2015; Setati, Chitera, & Essien, 2009). The first section of this paper consists of a systematic literature review using the PRISMA guidelines. Tranfield, Denyer, and Smart (2003) mentioned that systematic reviews and meta-analyses are vital to summarize evidence relating to a particular research topic or a particular research field. However, there is substantial evidence that crucial information is frequently underreported in systematic reviews due to a lack of methodology or an improper structure. Systematic reviews, which are based on Tranfield et al.'s (2003) principles, define a subject and classify, summarise, and analyze the results. To summarise evidence relating to gamification and online engagement strategies, authors used a structured criterion, PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), to limit bias and emphasize scientific validity the aim to produce an unbiased analysis (Tranfield et al., 2003). Using the 'Publish or Perish' software, authors were able to efficiently research current work across multiple databases, including Google Scholar, Emerald, ProQuest, and Science Direct. Since the primary point of this review is to find the effective online engagement strategies based on gamification in the three contexts of online education, online brand engagement, and higher engagement among information systems; along these lines, a time of five years has been chosen to evade the inclusion of obsolete content from reviewing process.

The initial results of the various databases are outlined in Table 1.

Table 1. Initial findings from the search of databases

Database	Number of Articles
Google Scholar	920
Emerald	463
Scopus	58
Web of Science	51
Total	1,492

Source: Developed by the authors

All the findings were limited to peer-reviewed English-language studies. Gamification, effective online engagement strategies and online education, online brand engagement, and higher engagement among information systems are the keywords used. There was a total of 1492 studies listed. Due to out-of-scope problems, all the papers were not considered for the examination. For example, some studies focused on gamification without considering the online engagement aspect. In addition, a total of 345 papers were excluded from the process by eliminating the duplicated documents (98) and reviewing the scope and contribution, and considering relevance for the three themes of online education, online brand engagement, andhigher engagement among information systems (638). The remaining 411 articles were classified as suitable for further study. Table 2 shows the inclusion and exclusion criteria.

In addition, papers published in high-ranking journals were included in the study to ensure quality. For example, an ABDC ranking of A or higher. Aside from these rankings, the paper's contribution

Table 2. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Scope and contribution: Gamification and online engagement Published between 2015 to 2020 Focused on effective engagement strategies Have contributed to gamification and online engagement context	*Scope and contribution:* Not focused on gamification and online engagement Not Published between 2015 to 2020 Not Focused on effective engagement strategies No contribution to gamification and online engagement context

Source: Developed by the authors

was also considered in several reports. As a result of quality control, a total of 379 papers were removed from the process. As a result, a total of 32 studies were found to be qualifying. Figure 1 shows the review's inclusion and exclusion criteria in more detail. The publications that focused on online engagement using gamification were prioritized among the 32 research that was identified. These areas were further divided into the three themes of the review as online education, online brand engagement, and higher engagement among information systems.

In addition, when filtering the publications, the authors considered three important aspects. The first is to prevent publications that were not published between 2016 and 2021, as well as publications that were still in the development stage. Second, the writers avoided papers that did not focus on online engagement in line with gamification techniques. Finally, writers decided to include studies that have a major contribution to gamification and online engagement settings after carefully examining abstracts, titles, and the paper's contribution. Figure 2 further illustrates the criteria used as inclusion and exclusion in this review.

The journal papers, book reviews, and thesis projects are among the final 32 investigations. Furthermore, these papers have been organized according to the main theories, characteristics, context, and methodology (TCCM) that have been employed in the area to develop the science and practice of gamification and online engagement disciplines from its origin (Singh & Dhir, 2019). For example, studies that used the TCCM approach contributed to a variety of domains, including cause-related marketing and social marketing, service innovation in the literature, and extending and discussing past studies' ideas in the field of responsiveness (Singh & Dhir, 2019). As a result, the following is a summary of these investigations using the TCCM framework.

4. THEMATIC ANALYSIS

This systematic literature review was expected to establish effective online engagement strategies based on gamification. Literature published and reviewed in the high-ranking management, education, and information systems journals has also been reviewed. The authors identified several online engagement strategies under the three domains of online education, online brand engagement, and higher engagement among information systems.

4.1 Online Education Engagement through Gamification

The literature on the use of games in higher education is divided into two groups: game-based learning, which promotes the use of game design features in non-game contexts, and gamification, which promotes the use of game design aspects. Reward systems, leader boards, badges, stages, and trophies are examples of game design components (Isabelle, 2020; Ruiz-Alba, Soares, & Nato, 2016; Wiggins, 2016). Based on the literature review, it was identified that leader boards and learning style gamification models help to improve online education engagement through gamification.

Figure 2. PRISMA flow chart of the literature search process
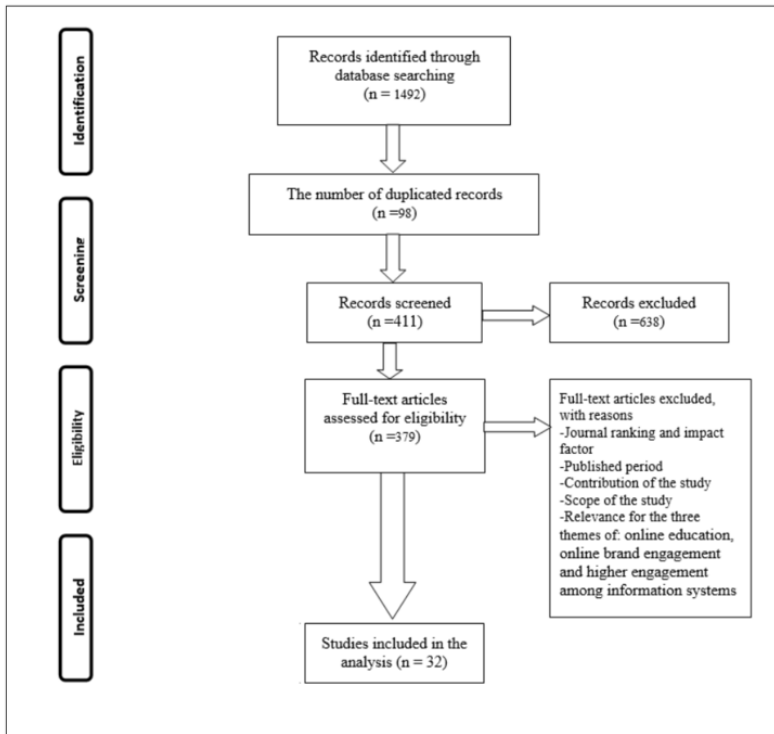
4.1.1 Leader Boards

According to this systematic review, gamification can promote online program participation and improve linked outcomes such as learning and engagement behavior. According to the preliminary survey results, leader boards can be a particularly effective type of gamification to increase participation. The role of gamification in increasing participation appears to have a temporary effect. It has a clear positive effect in the study of a single session for activities, but the results of longer-term research on gamification and participation have been mixed (Kuo & Chuang, 2016; Looyestyn et al., 2017; Subhash & Cudney, 2018). This study also found early evidence that leader boards are an especially successful gamification technique (Kuo & Chuang, 2016; Looyestyn et al., 2017; Subhash & Cudney, 2018). This is in line with prior research, which suggests that social comparison motivates people through peer rivalry. Second, the leader boards are more specific and easier to relate to real-life situations. On the other hand, points and badges are more casual and may have less meaning, which makes them less successful in motivating users to participate in activities (Kuo & Chuang, 2016; Looyestyn et al., 2017; Seixas et al., 2016; Subhash & Cudney, 2018).

4.1.2 Learning Style Gamification Models

Since their inception, games have been recognized to engage and intrigue people. The introduction of games and their progression over the ages has only increased the number of people who play them (Osatuyi et al., 2018; Piteira, Costa, & Aparicio, 2018). Zaric et al. (2017) proposed the Learning Style Gamification Model (LSGM) for higher education based on student's learning styles and their actions and behavior in e-learning environments. This model was developed using psychological and cognitive-behavioral theories. Based on students' learning preferences, the suggested conceptual model

incorporates gaming elements in online education. The impact of Learning style-based approaches in both regular classrooms and e-learning has been investigated since their beginnings (Zaric et al., 2017). For example, Fan, Xiao, and Su (2015) used Kolb's LS model as a research tool to examine learner preferences and design a game-based mobile learning application that educates junior high school students about the circulatory system.

According to the survey, the general response was favorable, and a large percentage of students (92 percent) thought the session was engaging and motivating (Zaric et al., 2017). It is vital to develop learning style gamification models to engage and intrigue students as it was identified as an education engagement technique through this review. It was identified through this review that the most popular social psychology theory been used in developing the Learning Style Gamification Models is self-determination theory (Chapman & Rich, 2018; Hallifax et al., 2019; Kuo & Chuang, 2016; Saleem et al., 2021) and Theory of planned behavior (Isabelle, 2020; Mohamad et al., 2018). Gamification might assist students in overcoming complicated academic challenges such as those encountered throughout the dissertation process and other aspects of higher education (Jo et al., 2018; Kaufmann, 2018; Sezgin & Yüzer, 2020). Nevertheless, it is identified that proper learning style gamification models are necessary to engage and intrigue students.

4.2 Online Brand Engagement through Gamification

Gamification has become a prominent marketing approach (Lukas et al., 2021; Martinho et al., 2020). Many businesses believe that gamification could boost consumer engagement, awareness, and loyalty to a brand (Abou-Shouk & Soliman, 2021; Xi & Hamari, 2020). Consumer engagement is defined as a co-creative customer experience in which customers interact with the brand's service portfolio and service providers, which then reflects the nature of consumers' specific interactive brand relationships (Abou-Shouk & Soliman, 2021; Xi & Hamari, 2020). Based on the literature, it was identified that **immersion-related aspects** and **achievement-related features** help to improve online education engagement through gamification.

4.2.1 Immersion-related Aspects

Avatars, storytelling, narrative architecture, roleplay mechanics, and other immersion-related features attempt to immerse the user in self-directed questioning action (Tuunanen & Hamari, 2012; Xi & Hamari, 2020). However, there is currently no good empirical foundation on which to build theories about the relationship between gamification and other aspects of brand engagement. When we look at the greater literature on gaming studies and brand engagement, we can see that immersion-related features are usually linked to a sense of creative freedom (Peters, Calvo, & Ryan, 2018) flow, and optimal experience (Chang, 2013). Therefore, gamification based on immersion can be closely related to emotional engagement with the brand. Gamification has also been shown to affect brand engagement in a few empirical research. Gatautis, Banytė, Piligrimienė, Vitkauskaitė, and Tarutė (2016) evaluated the impact of gamification on customer brand engagement in the Lithuanian market, finding that the relationship was not strong. Furthermore, Berger, Schlager, Sprott, and Herrmann (2018) found that gamified interactions, which are highly interactive and ideally challenging, are favorably associated with brand engagement in emotional and cognitive dimensions. It has been noted that in the literature, several social psychology theories have been used to develop immersion-related aspects to improve engagement through gamification. The respective social psychology theories which are combined with the gamification are Self-determination theory (Hamid & Kuppusamy, 2017; Shi et al., 2017; Xi & Hamari, 2020); Goal setting theory (Xi & Hamari, 2020).

4.2.2 Achievement-related Features

Badges, challenges, missions, goals, leader boards, progression indicators, and other achievement-related features are all designed to give players a greater sense of accomplishment (Tuunanen & Hamari, 2012; Xi & Hamari, 2020). Achievement-related characteristics are frequently linked to a more

Table 3. The overview of the key studies reviewed

Authors	Source	Key Constructs	Theories	Characteristics	Context	Methodology
Online education and gamification strategies						
Chapman and Rich (2018)	Journal of Education for Business	A study of organizational behavior students' opinions (n = 124) looked at how students were motivated to participate in a gamified course in general and the effect of certain game features	Self-determination theory	Gamified course-based motivation The individual effect of specific game elements	Undergraduate students	Self-report survey
Hallifax, Serna, Marty, Lavoué, and Lavoué (2019)	Conference paper	A 300-person crowdsourcing study was conducted to determine the motivational influence of game components	Self-determination theory	User types and motivating game elements	Game players	Survey/ crowdsourced study
Isabelle (2020)	Decision Sciences Journal of Innovative Education	The gamified method improved students' experience, engagement, and entrepreneurial self-efficacy, according to the assessment of student learning outcomes	Theory of planned behavior	This teaching brief describes how a standalone gamification platform related to Shopify, a global e-commerce platform for online retailers, to gamify an entrepreneurship course	Undergraduate students	Observations
Jo et al. (2018)	Computer Applications in Engineering Education	The usefulness of introducing educational gaming components into the online lecture system of a flipped classroom as a method of improving engagement and interest in online preparation prior to class is investigated	None	Educational gaming components	Engineering education	Survey
Kuo and Chuang (2016)	Computers in Human Behaviour	Use gamification in an online setting to promote and disseminate academic information	Self-determination theory	The online platform was designed to promote and disseminate academic information	Online learning	Survey
Kaufmann (2018)	Journal of Instructional Research	This essay offers a thoughtful perspective of how gamification might assist students in overcoming complicated academic challenges such as those encountered throughout the dissertation process and other aspects of higher education	None	Gamification might assist students in overcoming complicated academic challenges	Higher education	Comprehensive review
Mohamad, Sazali, and Salleh (2018)	International Journal of Humanities, Arts and Social Sciences	Application related to the implementation of gamification in online university courses based on learning style	Theory of multiple intelligence	To boost learner engagement, educators are using a gamification strategy	Higher education	Comprehensive review
Subhash and Cudney (2018)	Computers in Human Behaviour	A thorough review of the literature on game-based learning systems, frameworks integrating game design features, and implementation of various gamification in higher education has been conducted	None	Provides methods for game design aspects, and numerous gamification initiatives in higher education	Game learning in higher education	Comprehensive review
Seixas, Gomes, and Melo Filho (2016)	Computers in Human Behaviour	Examined the efficiency of gamification platforms as a method for student engagement	None	Evaluated the effectiveness of gamification platforms as a strategy for the engagement using two badging platforms	Elementary school	Observations, semi-structured interviews, and survey

continued on next page

Table 3. Continued

Authors	Source	Key Constructs	Theories	Characteristics	Context	Methodology
Saleem, Noori, and Ozdamli (2021)	Technology, Knowledge, and Learning	A comprehensive examination of gamification in online education	Self-determination theory	Gamification in education has a lot of benefits in terms of motivation, user involvement, and social effects	Secondary schools	Comprehensive review
Sezgin and Yüzer (2020)	Behaviour Information Technology	This study defines and analyses the concepts of adaptive gamification design for online courses. It was conducted as a single case study with two theoretical approaches: gamification and adaptive learning	Cognitive apprenticeship social learning, flow theory	Principles of adaptive gamification for online learning	Online courses	Questionnaire/ focus groups/ interviews
Wiggins (2016)	International Journal of Game-Based Learning	The application of game-based learning (GBL) and gamification in tertiary education is investigated	None	Communication classes and the use of digital and non-digital games simulations, as well as instructor knowledge with gamification	Higher education	Survey
Zaric, Scepanović, Vujicic, Ljucovic, and Davcev (2017)	Conference paper	Application related to the implementation of gamification in online university courses based on learning style	Kolb theory, Felder-Silverman learning styles	Based on students' learning preferences, the suggested conceptual model incorporates gaming elements in online education	E-learning sector	Comprehensive review
Online brand engagement and gamification strategies						
Abou-Shouk and Soliman (2021)	Journal of Destination Marketing Management	Analyze the antecedents and repercussions of tourism organizations' gamification adoption intentions, as well as the mediation effect of consumer interaction.	Unified Theory of Acceptance and Use of Technology	Tourism organizations have good intentions to use gamification to promote customer engagement and brand recognition and loyalty for tourist locations	Marketing	Survey
García-Magro and Soriano-Pinar (2019)	Journal of Business & Industrial Marketing	Offered an analysis model that justifies gamification as a viable strategy for improving service design using the human-centered design method	None	The design of services, human-centered design, and gamification	Service marketing	Conceptual framework
Hamid and Kuppusamy (2017)	Electronic Journal of Business & Management	To introduce and sustain gamification through motivation in service marketing, trends and gaps in the literature were identified	Social Psychology theories	Sustainability of gamification through motivation in service marketing	Service marketing	Comprehensive review
Looyestyn et al. (2017)	PloS one	The effectiveness of gamification tactics in enhancing engagement in online programs is the topic of this study	None	Effectiveness of gamification strategies in increasing engagement among online programs	Marketing	Comprehensive review
Rocha, Pereira, and Jesus Pacheco (2019)	Journal of Business & Industrial Marketing	Examined the impact of predictive gamification as an approach for reducing sales difficulties in organizations using a sales simulator game	None	Predictive gamification mitigating future problems of the arrival of the new products at the points of sale	Sales	Case study/ Mixed methods

Table 3. Continued

Authors	Source	Key Constructs	Theories	Characteristics	Context	Methodology
Shi et al. (2017)	Industrial Marketing Management	Established six conceptual propositions based on a thorough examination of roughly 90 selected papers to investigate how gamification might enhance the transformation process in manufacturing organizations	Self-determination theory	The emotional mechanics of gamification Advanced services' availability-based and performance-based growth	Manufacturing	Comprehensive review
Yang, Asaad, and Dwivedi (2017)	Computers in Human Behaviour	Investigated the impact of gamification on customers' willingness to participate in the gamification process as well as their perceptions of the brand	Expectancy value theory and theory of reasoned action	Gamification on customers' willingness to participate in the gamification process	Brand marketing	Survey
Xi and Hamari (2020)	Journal of Business Research	Application of gamification in the e-university curriculum based on the learning style This research studies the connection between gamification, brand engagement, and brand equity among consumers in two online gamification brand communities (n = 824)	Self-determination theory Goal-setting theory	Brand engagement Brand equity Online gamified brand communities	Marketing	Survey
Higher engagement among information systems and gamification strategies						
Aguiar-Castillo, Hernández-López, De Saá-Pérez, and Pérez-Jiménez (2020)	Journal of Hospitality, Leisure, Sport Tourism Education	The goal of this study is to see if students' propensity to use this gamified app is influenced by their assessments of the expected benefits (functionality, enjoyment, and socialization), the costs of using the app (loss of privacy and difficulty of use), or personal characteristics (learning attitude, innovative attitude, and demographic data)	Self-determination theory	A student's decision to use a gamified app as a supplement to face-to-face instruction is influenced by several factors	Face-to-face learning	Survey
Hosseini and Haddara (2019)	Conference paper	The purpose of this literature review is to describe how gamification is used and implemented in enterprise systems (ES)	Goal-setting theory, self-determination theory	Gamification in enterprise systems	Enterprise systems	Comprehensive review
Liu, Santhanam, and Webster (2017)	MIS quarterly	Examine the design and use of gamified information systems from many subject angles and ideas, such as behavioral economics, psychology, social psychology, and information systems	flow theory and optimal stimulation theory	Design of gamified information systems	Information systems	Survey
Larson (2020)	TechTrends	Combining studies and findings on serious gaming and gamification in the workplace	None	Gamification in workplace	Game design elements	Comprehensive review
Morales, Amado-Salvatierra, Hernández, Pirker, and Gütl (2016)	International Workshop on Learning Technology	The lessons acquired from the MOOC course "E-Learning Course Creation Tool" are presented in this article. A total of 1,678 participants were exposed to gamification techniques such as badge and leader board forums, student rating alliances, and reward systems. The most effective and motivating methods for completing prescribed learning tasks are reward techniques	None	Motivational elements in cloud-based learning services	Massive online open courses are used by educational institutions	Participant's experience

Table 3. Continued

Authors	Source	Key Constructs	Theories	Characteristics	Context	Methodology
Osatuyi, Osatuyi, and Rosa (2018)	Communications of the Association for Information Systems	This study uses a multi-method approach to thoroughly investigate existing research on the gamification of education in information systems to determine the common language, patterns of topics covered, areas where research is insufficient, and therefore the prospects for future research	Psychological theories	Gamification in information systems education	Higher education	Multi-method approach systematic review
Rojas-López, Rincón-Flores, Mena, García-Peñalvo, and Ramírez-Montoya (2019)	Universal Access in the Information Society	Gamification in the classroom increased student engagement, allowing them to complete the challenges effectively	Theory of self-regulation	Continual encouragement during the course's delivery	Sustained motivation	Survey
Suh et al. (2018)	Journal of Computer Information Systems	The study developed a theoretical model that employs cognitive evaluation theory to describe how game dynamics affect user engagement, and then evaluated it using data from 164 users of the gamified information system	Cognitive evaluation theory	Gamified knowledge-sharing website	Gamified information system	Survey
Santhanam et al. (2016)	Information systems research	Investigate the consequences of various competitive structures using popular game design features	Social cognitive theory; flow theory	Application of Game Design Elements in Non-Game Environment	Game design elements	Survey
Signori, Guimarães, Severo, and Rotta (2018)	International Journal of Innovation and Learning	The study will look at the relationship between educational innovation, learner engagement, and learning, as well as the moderating effect of the gamified technique, in the context of higher education institutions	None	Gamification in the learning process	Higher education institutions	Survey
Thongmak (2018)	Conference paper	This research examines elements influencing undergraduate students' cognitive engagement intention using activities from a basic Information Systems (IS) course as the gamified settings	Expectancy theory	Cognitive engagement intention	Cognitive engagement	Survey

Source: Developed by the authors

cognitive style, whereas goal-driven engagement and behavior are linked to a more behavioral type. Badges, challenges, objectives, goals, leader boards, progression indicators, and other achievement-related features are made up of goal-structure (Landers et al., 2017). As a result, achievement-related characteristics are more likely to be substantially linked to cognitive brand engagement. The respective social psychology theories which are combined with the gamification are the Expectancy value theory and theory of reasoned action (Yang et al., 2017), Unified Theory of Acceptance and Use of Technology theories (Abou-Shouk & Soliman, 2021).

4.3 Higher Engagement Among Information Systems through Gamification

Gamification, or the use of game design features and ideas to make daily work more entertaining, is gaining traction across a variety of information systems (Liu et al., 2017). Even though gamification research has received some attention (Hallifax et al., 2019; Hamid & Kuppusamy, 2017; Hammedi et al., 2021; Hosseini & Haddara, 2019; Jo et al., 2018; Kaufmann, 2018; Landers et al., 2017; Liu et al., 2017) current empirical investigations are limited in scope about platform designing with interactive gamified features. Gamification necessitates the usage of gamification design components; nevertheless, what gamification design elements represent information systems is not always evident. Based on the literature, it was identified that **interface design patterns** help to improve online education engagement through gamification.

4.3.1 Interface Design Patterns

More interactive system interfaces would allow more direct controls, such as gesture-based controls, to be used. Alternatively, certain social gamification components could be exploited if an existing target system already supports a social network (Liu et al., 2017). Even if gamification is tempting, it may be impossible to implement without the right technological infrastructure in place in the target system. Take, for example, HealthyMe. Mobile interfaces and wearable technologies are two types of technology that may have an impact on gamification design elements. For instance, if employees have access to HeathyMe via their smartphones, they may track their actions in real-time and receive push notifications about their friends' activities (Liu et al., 2017).

While all gamification designs should lead to an experiencing end, some design components are more suited to a specific experiential consequence. For example, according to aesthetic theory (Beardsley 1982), visually appealing interfaces and sensory aspects can help to promote enjoyable feelings and contentment. Gamification research can also lead to fresh insights on the role of technological artifacts in affecting human behavior and motivation. There is a large body of literature in the field of human-computer interaction (HCI) that explains how the interface and interaction modes affect user behavior (Sailer, Hense, Mayr, & Mandl, 2017; Seaborn & Fels, 2015). Some of the theories which can be used to develop interface design patterns include flow theory and optimal stimulation theory (Liu et al., 2017), Goal setting theory (Hosseini & Haddara, 2019), and self-determination theory (Aguiar-Castillo et al., 2020; Hosseini & Haddara, 2019), Cognitive evaluation theory (Suh et al., 2018), Social cognitive theory and flow theory (Santhanam et al., 2016), Expectancy theory (Thongmak, 2018), theory of self-regulation (Rojas-López et al., 2019). Figure 3 illustrates these thematic aspects through an integrative framework as follows.

5. FUTURE RESEARCH AGENDA

Over the past five years, online engagement through gamification has created a wide body of knowledge by examining various aspects, focusing mainly on the three domains of online education, online brand engagement, and higher engagement among information systems. Based on the above thematic analysis, the authors recommended future research areas which were categorized based on the Theory, Context, Characteristics, Methodology (TCCM) framework by following the guidelines of the previous studies (Dabić et al., 2020; Paul, 2019).

Figure 3. Integrative framework of the review
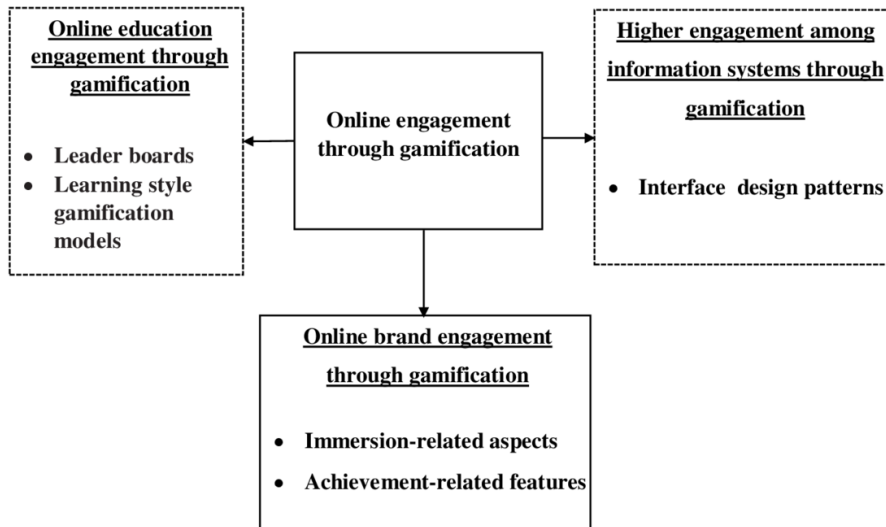
5.1 Future Directions – Theory

In online engagement through gamification research, a lack of theoretical underpinning was often seen in three main categories such as online education, online brand engagement, and higher engagement among information systems. Online education engagement through gamification was often assessed using various social psychology theories, including self-determination theory (Chapman & Rich, 2018; Hallifax et al., 2019; Kuo & Chuang, 2016; Saleem et al., 2021); Kolb theory (Zaric et al., 2017); flow theory (Sezgin & Yüzer, 2020); theory of planned behavior (Isabelle, 2020) and theory of multiple intelligence (Mohamad et al., 2018). Our study revealed a deficit of strong theoretical underpinnings in the current literature on the theory of planned behavior (Isabelle, 2020) and the theory of multiple intelligence (Mohamad et al., 2018), which can contribute to exploring the massive open-line courses (MOOCs). Higher education gamification has to date focused on IT and computer science, game programming, and early adopter engineering. However, with the spread of business, marketing, corporate governance, and training and gamification of higher education courses such as massive open-line courses (MOOCs) are also developing rapidly (Isabelle, 2020; Mohamad et al., 2018). Although previous studies deal with students' active ventures in the field of information systems (Abrahams & Singh, 2010; Stanca, Dabija, & Păcurar, 2021), research on enterprise gamification is scarce. There have not yet been gamified pedagogical approaches to re-enterprising (Piteira et al., 2018; Rojas-López et al., 2019; Ruiz-Alba et al., 2016; Stanca et al., 2021).

Online brand engagement and gamification strategies are often assessed using the theoretical constructs of self-determination theory (Hamid & Kuppusamy, 2017; Shi et al., 2017; Xi & Hamari, 2020); expectancy-value theory (Yang et al., 2017), and Unified Theory of Acceptance (Abou-Shouk & Soliman, 2021). For example, Xu and Buhalis (2021) have presented several examples of tourism gamification. The local games could enable tourists to interact with virtual reality, tell stories using destination marketing organizations to instill tourist motivation; restaurants can use games to motivate customers to win rewards for the food they have earned, and airlines can use gamification to enhance passenger loyalty programs. In general, there is a lack of studies supporting the designing process of these games, which are aimed at engaging customers, maximizing their value for creation, and modifying their buying behavior (Hamid & Kuppusamy, 2017; Shi et al., 2017; Xi & Hamari, 2020).

Higher engagement among information systems and gamification strategies is often explored using the theoretical constructs of flow theory (Liu et al., 2017; Santhanam et al., 2016; Suh et al., 2018); goal-setting theory (Hosseini & Haddara, 2019); self-determination theory (Aguiar-Castillo et al., 2020; Hosseini & Haddara, 2019; Osatuyi et al., 2018); expectancy theory (Thongmak, 2018) and theory of self-regulation (Rojas-López et al., 2019). Concerning the most recent theoretical contribution based on the goal-setting theory, Hosseini and Haddara (2019) described how gamification is used and implemented in enterprise systems. Further, Liu et al. (2017) examined the design and use of gamified information systems from many subject angles and ideas, such as behavioral economics, psychology, social psychology, and information systems. However, the connection of an enormous economic literature on agency theory to psychological writings on intrinsic motivation is another potential theoretical advancement that gamification research should make (Liu et al., 2017). The literature on agency theory focuses mainly on the use of financial incentives in non-volunteer contexts (although non-profit organizations are increasingly concerned) (Hosseini & Haddara, 2019; Liu et al., 2017; Santhanam et al., 2016; Suh et al., 2018). In contrast, literary material on intrinsic motivational theory focuses more on the use in schools and voluntary environments of non-motives people's (even if there is a considerable amount of research into employment design and work involvement) such as challenges, stimulation, self-definition, and social image (Hosseini & Haddara, 2019; Liu et al., 2017; Santhanam et al., 2016; Suh et al., 2018).

5.2 Future Directions – Context

The contextual analysis assists in the differentiation of various environmental factors that affect gamification-based online engagement research outcomes. According to Table 3, the majority of the work has been conducted in the tertiary education sector for online education and gamification strategies, including universities (Chapman & Rich, 2018; Isabelle, 2020; Jo et al., 2018; Kaufmann, 2018; Kuo & Chuang, 2016; Seixas et al., 2016; Sezgin & Yüzer, 2020; Subhash & Cudney, 2018; Wiggins, 2016; Zaric et al., 2017). Lack of attention has been paid to elementary schools (Seixas et al., 2016) and secondary schools (Saleem et al., 2021). The online brand engagement and gamification strategies focused mainly on brand marketing (Yang et al., 2017) and services marketing (García-Magro & Soriano-Pinar, 2019; Hamid & Kuppusamy, 2017) with a lack of focus on manufacturing (Shi et al., 2017) and sales aspects (Rocha et al., 2019). Higher engagement among information systems and gamification strategies focused on gamified information systems, including enterprise systems (Hosseini & Haddara, 2019); game design elements (Larson, 2020; Santhanam et al., 2016); face to face engagement (Aguiar-Castillo et al., 2020) with lack of focus on massive online open courses which are used by educational institutions (Morales et al., 2016).

5.3 Future Directions – Characteristics

The gamification factor was seen with significant interest in training and enhanced student participation in classrooms (Saleem et al., 2021). It attempts the promotion of participation and inspiration combined with external encouragement (Zaric et al., 2017). Gamification is also ideal for active learning, as it encourages students to participate in decision-making in a healthy and pleasant environment for exploring, creates nuanced decisions, and reflects upon the impact of their conduct (Hallifax et al., 2019). To explain gamified teaching, it is important to measure the influence of gamified aspects on student education. While gamification is common, there is little consensus that education outcomes will be improved (Saleem et al., 2021; Sarasa-Cabezuelo, 2021).

Researchers investigating current or intended technology in online brand engagement generally use a Technology Acceptance Model (TAM), a Theory of Reasoned Action (TRA), a Planned Behaviour's Theory (TPB), a Unified Theory of Acceptance and Utilisation of Technology (UTAUT), or extended models to predict adoption (Abou-Shouk & Soliman, 2021). In addition to its wide use within the field of brand engagement activities to forecast innovation intention, the UTAUT is a comprehensive model

that subsumes the significant common variables revealing from earlier theories (Abou-Shouk & Soliman, 2021; Pour, Rafiei, Khani, & Sabrirazm, 2021).

When considering the higher engagement among information systems and gamification strategies, a new taxonomy is important to illustrate the extent and nature of gamification and to support the creation and research of gamification (Liu et al., 2017). For example, while some practitioners are describing game mechanics as building blocks and characteristics like points and badges, academics tend to characterize them as rules and procedures governing event sequence (Ibarra-Herrera et al., 2019; Liu et al., 2017; Mishra et al., 2021; Nistor & Iacob, 2018). Therefore, a new paradigm with gamification objects (the basic building blocks of a system that commonly includes objects, characters, script, visual properties, and so on are gamification objects. In various taxonomies, gamification items, such as photographs, audios, videos, animations, and multimedia, have predominantly been employed to create sensory experiences) and mechanics (gamification mechanics relate to the rules governing the interaction of game elements with people. For instance, a game mechanism may be the rules for points in a system that uses points to give user feedback) will be an interesting future research area for academics and practitioners.

5.4 Future Directions – Methodology

Most of the studies were empirical (Please refer to Table 3) with the data collection methods of surveys, questionnaires, and experimental approaches. The majority of the empirical studies used questionnaire and survey-based data collection methods that raise the questions concerning longevity and may not explore the actual experiences of the online gamified engagement by users (Ibarra-Herrera et al., 2019; Mishra et al., 2021; Nistor & Iacob, 2018). Therefore, it is necessary to explore online gamified engagement through qualitative exploratory methods such as Delphi, focus groups, and semi-structured interviews which are less represented in the online gamified engagement research (Seixas et al., 2016; Subhash & Cudney, 2018; Syrjälä et al., 2020; Ifinedo et al., 20). Therefore, it is recommended for future researchers to adopt more qualitative data collection techniques regarding online gamified engagement with more longitudinal associations.

6. IMPLICATIONS OF CURRENT SYSTEMATIC REVIEW

The authors adopted a systematic literature review approach using PRISMA guidelines. Through this paper, the authors addressed the research question of (RQ): *"What are the effective online engagement strategies based on gamification in the three contexts of online education, online brand engagement, and higher engagement among information systems?"* as mentioned in section 1. Through this section, the authors identified the most effective online engagement strategies based on gamification as leader boards, learning style gamification models, immersion-related aspects, achievement-related features, and interface design patterns as the effective online engagement strategies based on gamification.

The main theoretical contribution is that it employed the TCCM framework (theory, context, characteristics, and method) to carefully review the publications and identify the areas of gamification and online engagement under the three themes of online education, online brand engagement, and higher engagement among information system. Even though the number of papers on gamification has increased in recent years, there is still no classification of its engagement strategies with a proper systematic literature review approach. Further, the study findings offer key insights to game-based interface designers and gamification-based software developing companies to identify the most suitable gamification-based engagement techniques. Table 4 further shows the summary of key findings and managerial implications.

Consequently, the findings of this review can assist game-based interface designers and gamification-based software developing companies in identifying the most suitable gamification-based engagement techniques (Sengupta, 2020; Gupta et al., 2021). Furthermore, since our study reported a detailed review, future researchers are encouraged to conduct more research on gamification-based social interaction.

Table 4. Summary of key findings and managerial implications

Identified trends	Managerial implications
Limited literature reviews on gamification and interface designing systems	A review of the literature on gamification and online engagement could add to the existing knowledge by pointing future academics and companies in the right way when creating gamified-based platforms such as interface designing systems. Even though gamification research has received some attention (Hallifax et al., 2019; Hamid & Kuppusamy, 2017; Hammedi et al., 2021; Hosseini & Haddara, 2019; Liu et al., 2017) current empirical investigations are limited in scope about platform designing with interactive gamified features.
New tools and methods are needed to offer an assessment tool for immersion-related aspects and achievement-related features	Currently, gamification and online engagement are combined only with game-design features such as Reward systems, leader boards, badges, stages, and trophies are examples of game design components (Isabelle, 2020; Ruiz-Alba et al., 2016; Wiggins, 2016). Many businesses believe that gamification could boost consumer engagement, awareness, and loyalty to a brand (Abou-Shouk & Soliman, 2021; Xi & Hamari, 2020). Therefore, new tools and methods are needed to offer an assessment tool for immersion-related aspects and achievement-related features as it is identified main components which help to improve online education engagement through gamification.

Source: Developed by the authors

7. CONCLUSION

The basic goal of gamification, which is the application of game design features in non-gaming environments, is to increase human motivation and performance in an activity (Jo et al., 2018; Looyestyn et al., 2017; Mohamad et al., 2018). Previous research, while not conclusive, usually backs up the concept that underpins this goal (Chapman & Rich, 2018). Previous research, on the other hand, has frequently viewed gamification as a general concept, ignoring the reality that numerous game design aspects might result in a wide range of applications resulted in engagement (Chapman & Rich, 2018; Fan et al., 2015; Hamid & Kuppusamy, 2017). The authors analyzed different combinations of game design components to see how they affected the satisfaction of basic psychological demands. Sailer et al. (2017) mentioned that badges, leader boards, and performance graphs have a favorable impact on competence need fulfillment and perceived task meaningfulness, but avatars, meaningful stories, and teammates have a positive impact on social relatedness experiences. Another issue with current research is that many studies consider gamification as a single concept, even though in practice, gamification settings can take many different forms (Sailer et al., 2017; Shankar et al., 2021; Zhang et al., 2019; Sohaib, 2021).

Several concepts must be investigated properly in the gamification literature. Based on systematic literature analysis, this study studied and demonstrated the expansion of the novel concept of gamification in the sense of online engagement based on the three dimensions of online education, online brand engagement, and higher engagement among information systems through PRISMA guidelines. According to the analysis, the authors identified the most effective online engagement strategies based on gamification as leader boards, learning style gamification models, immersion-related aspects, achievement-related features, and interface design patterns. There are certain flaws in this study as well, which could be addressed further. The scope of this investigation, for example, is limited to a period of six years (as this study analyzed the research published from 2016 to 2021). This is due to reduce the complexity of the review and performing in-depth analysis. This paper provides directions for academics and future researchers in online gamification-based engagement by illustrating many future research gaps. Finally, this study contributed vital findings to the existing literature by identifying the most prominent research areas under the topic of gamification and online engagement.

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