Consumer Behaviour in Gamified Environment: A Bibliometric and Systematic Literature Review in Business and Management Area

Deeksha Singh [ID], Sambashiva Rao Kunja [ID]

School of Management, National Institute of Technology Rourkela, Odisha, India

Corresponding author: Deeksha Singh (deekshasingh0705@gmail.com)

Abstract

Marketers utilize gamification as it provides an efficacious platform to communicate and reach a large consumer base. Previous literature has explored the impact of various aspects of gamification on consumer behaviour. This review synthesizes such studies and systematically examines 68 publications from Scopus from 2012 to 2022, employing bibliometric and systematic analysis. Performance analysis and science mapping are evaluated in bibliometric analysis to ascertain the most influential authors, documents, countries and journals. Thereafter, through cluster analysis, five major themes are identified, namely customer engagement, consumer experience, purchase and behavioural intentions, consumer psychology, and technology and innovation adoption. Additionally, in the systematic analysis, a conceptual framework is conceptualized depicting antecedents and consequences. Subsequently, practical implications and pertinent future directions are identified based on three aspects: context, method and theory.

1 Introduction

Over the past decade, there has been an upsurge in reliance on technology, which has increased the number of businesses resorting to disruptive technologies to engage with consumers (Högberg et al., 2019a). The over-reliance on technology has forced marketers to find better ways to interact with customers to deliver superior quality services. One of the technologies to deliver such services is gamification. The concept of gamification became evident in 2010 (Lopes et al., 2022). In spite of that, escalation in literature in the marketing area was not shown until 2015. Gamification refers to use of game components such as badges, challenges, points, rewards, punishments and leaderboards in non-game contexts (Huotari & Hamari, 2016; Tanouri et al., 2019). Gamification is not only used by marketers to deliver point-of-sales services, but this concept goes beyond sales (Lopes et al., 2022). It focuses on long-term relationships with customers (Hollebeek et al., 2021; Mishra & Malhotra, 2020). Pertaining to the aforementioned statement, prior literature has focused on consumer-based studies on gamification. These studies cover various dimensions, such as online travel agency (OTA) platforms (Shi et al., 2022), in-game advertising (Mishra & Malhotra, 2020), loyalty programmes (Hollebeek et al., 2021), retailing (Pour et al., 2021), and mobile platforms (Mishra & Malhotra, 2020).

A substantial body of literature supports the use of gamification in ascertaining different consumer behaviours. For instance, adoption behaviour (Abou-Shouk & Soliman, 2021), information-seeking behaviour (Weretecki et al., 2021), word-of-mouth behaviour (Bauer et al., 2020), continuance behaviour (Jun et al., 2020) and engagement behaviour (Högberg et al., 2019b). In addition, researchers have also focused on the role of gamification in enhancing sustainable consumer behaviour (Whittaker et al., 2021; Mulcahy et al., 2020). Accordingly, consumers have been an integral part of gamification (Hollebeek et al., 2021; Mishra & Malhotra, 2020). However, these studies are scattered, and therefore synthesizing such studies is critical to summarise the conceptual structures relating to gamification and consumer behaviour. To do so, this study aims to offer an understanding and philosophical framework of gamification in the context of consumer behaviour using bibliometric analysis and systematic review.

Literature reviews have already been conducted on gamification (Behl et al., 2022; Lopes et al., 2022); however, to the best of the authors' knowledge, a literature review compiling consumer behaviour and gamification is lacking. Behl et al. (2022) conducted a systematic review and bibliometric analysis, but their focus was on e-learning and young consumers, whereas Lopes et al. (2022) focused on value co-creation among consumers. In contrast, this study puts more emphasis on how consumers behave in a gamified environment, whether they are in social or personal space. In addition, this study provides a comprehensive review of different consumer behaviours in the gamification context. Likewise, the study provides the following contributions. Firstly, it provides an outline of the gamification study field in terms of consumer behaviour using performance analysis and science mapping. Secondly, it identifies the most prominent gamification and consumer behaviour themes using cluster analysis. Thirdly, it offers a conceptualization of the theoretical model, and fourthly, it identifies domain-specific future research questions. The third and fourth contributions are made through systematic reviewing of the dataset.

The remaining sections of the study is organized as follows: The following section reviews the relevant literature, in which we address prior studies on gamification and bibliometrics. Section 3 addresses data collection, followed by methodology in Section 4. Section 5 presents further analysis and findings. The subsequent sections address the conceptual framework and potential directions, while the final section confers limitations and conclusions.

2 Literature Review

2.1 Gamification

The use of gamification to engage consumers is a relatively new phenomenon in consumer behaviour (Mishra & Malhotra, 2020). Gamification is defined as the application of game elements in non-game activities to engage with individuals (Deterding et al., 2011). Leaderboards, points, challenges, achievements, statuses, rewards, badges and goals are some game elements that are used in non-gaming activities (Seaborn & Fels, 2015). Gamification positively influences (i) OTA purchase intention (Shi et al., 2022), (ii) attitude towards in-game advertising (Mishra & Malhotra, 2020), (iii) word of mouth (Bauer et al., 2020), (iv) customer engagement (Abou-Shouk & Soliman, 2021), (v) customer value, perceived value or hedonic value (Shi et al., 2022; Mulcahy et al., 2020; Högberg et al., 2019b). Researchers are more focused on the positive influence of gamification (Whittaker et al., 2021; Silva et al., 2019; Hwang & Choi, 2020; Wang et al., 2020). Eisingerich et al. (2019) revealed mixed effects in their study, wherein hope acts as a positive mediator of the relationship between gamified principles and customer engagement, and compulsion acts as a negative mediator (Eisingerich et al., 2019).

Despite many avenues being covered in the previous literature, the literature is scattered and lacks future direction. Thus, this study solves the previously mentioned problem by summarizing the literature, identifying current themes and suggesting future directions.

2.2 Consumer behaviour

Consumer behaviour, in general terms, refers to the study of people buying goods. However, consumer behaviour is a lot more than that. It refers to the "totality of consumers' decisions with respect to the acquisition, consumption and disposition of goods, services, activities, experiences, people and ideas by human decision-making units over time" (Hoyer et al., 2012, p. 3). Consumer behaviour is a dynamic process and involves many people and decisions. Consumer behaviour develops over time and can vary anytime and is influenced by psychographic, social, cultural and other influences (Hoyer et al., 2012). As consumer behaviour is an integral and complex process, it is important to study this concept with respect to gamification.

2.3 Gamification and consumer behaviour

Consumers are a vital element in the gamification field. Over the years, prior literature has focused in the behaviour of consumers in the gamification context, e.g., adoption behaviour (Abou-Shouk & Soliman, 2021), information-seeking behaviour (Weretecki et al., 2021), word-of-mouth behaviour (Bauer et al., 2020), continuance behaviour (Jun et al., 2020) and engagement behaviour (Högberg et al., 2019b). Other phenomena related to consumer behaviour such as satisfaction, loyalty, motivation, hope, trust, attitude and engagement have also been explored in previous literature (Mulcahy et al., 2018; Hsu & Chen, 2018; Yang et al., 2017; Harwood & Garry, 2015). This study aims to synthesize such literature to develop a comprehensive review of the scattered literature.

2.4 Bibliometric analysis

The term "bibliometric" has been in use since the 1950s; thus, the use of bibliometrics is relatively new (Donthu et al., 2021). The bibliometric method applies quantitative techniques for reviewing previous literature (Broadus, 1987). When there is a need to evaluate and quantify previous literature, bibliometric analysis is an ideal tool (Ellegaard & Wallin, 2015). We selected the bibliometric method among all the other review methods for the following reasons: (i) the dataset was large (Donthu et al., 2021); (ii) it has the potential to locate future areas (Ellegaard & Wallin, 2015); (iii) it summarizes conceptual structure by examining social and structural relations between research constituents (authors, organization, countries)

(Donthu et al., 2021). We conducted cluster analysis to identify emerging themes in the field of gamification in the domain of consumer behaviour. The emergence of scientific databases such as Web of Science, Scopus, Google Scholar and ScienceDirect has made it easy to acquire large chunks of previous literature (Donthu et al., 2021). Nowadays, various software programs are widely accessible for bibliometric analysis such as Gephi, VOSviewer, R studio, Leximancer, BibExcel and Pajek (Donthu et al., 2021; Baker et al., 2020). However, we selected R studio and VOSviewer for the analysis as they were freely accessible and easy to operate.

3 Methodology

The study uses two methodologies: bibliometric analysis and systematic analysis. First, bibliometric analysis was employed to analyse the dataset obtained from Scopus. Following this, performance analysis, scientific mapping and cluster analysis were carried out. We conducted all these analyses using R software, VOSviewer and Microsoft Excel. We selected these programs as they are accessible, user-friendly, trendy and easy to analyse and replicate. We used R software to analyse annual scientific production. This allowed us to get a comprehensive view of publications per year and country-wise publications. VOSviewer was used to analyse scientific mapping, which included citation analysis, keyword co-occurrence analysis, co-citation analysis and co-authorship analysis.

These analyses were carried out to ascertain the most prominent studies and influential authors in the gamification field. Furthermore, prominent research themes were identified from each cluster using cluster analysis. Second, systematic analysis was employed to develop a conceptual framework that helped us identify antecedents and consequences of gamification in the consumer behaviour context. Accordingly, future research avenues were identified, which were further categorized into three aspects. Both methodologies were employed in the dataset, the composition of which is described in the next section.

4 Data Collection

We collected the data from the Scopus database on 10 March 2022. Scopus was selected for the following reasons: it has broader overall coverage in comparison with Web of Science (WoS), and the content in Scopus and WoS is highly overlapping (Pranckutė, 2021). In the same vein, Scopus is considered more accurate, quick and practical than Google Scholar (Meho & Yang, 2006). As the main objective of this study was to investigate research into gamification in the context of consumer behaviour, the scope and contribution were limited to consumer behaviour in the gamification context. We searched within keywords, abstracts and article titles and used different names for gamification generally mentioned by researchers in their research to get a more detailed search string. In addition, we searched various review articles on gamification (Behl et al., 2022; Lopes et al., 2022) to finalize the initial search string. The initial search string tab was "gamification" OR "gamified" OR "gamifying" AND "customer" OR "customer engagement". The initial results of this search consisted of 328 publications, including journals, conference papers, book series, trade journals and books. To reduce the dataset, we filtered it by limiting the search to the subject "business management and accounting".

After this filtration, it came down to 108 publications. We further reduced the number by filtering it to only "journals" and "English" language. After all the filtration, the search returned 73 results. We then studied all the journals and manually screened them for 68 publications. The dataset consists of journals from the year 2012 to February 2022. The bibliometric analysis therefore synthesizes 68 publications. Figure 1 shows an overview of the data collection method.
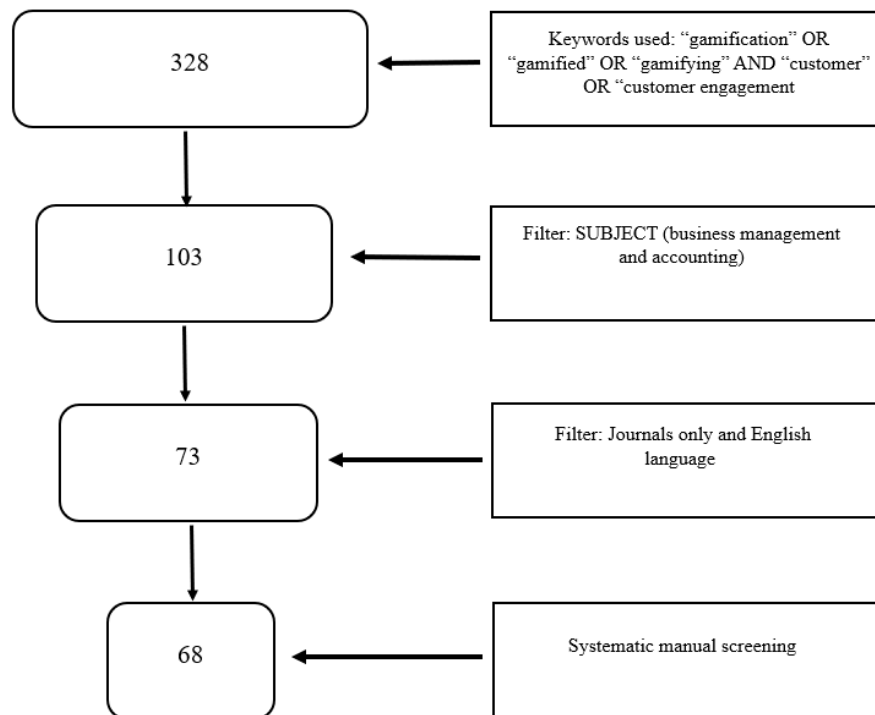
Figure 1. PRISMA model.

5   Analysis and Findings

5.1   Performance analysis

We conducted a performance analysis, which is an inquiry into the contributions made by various research constituents in a particular field (Donthu et al., 2021), to analyse the recent trend in the dissemination of documents on gamification and consumer behaviour. We analysed data using annual scientific and country-wise production and used R software.

5.1.1   Annual scientific production

Figure 2 shows the scientific production per year. From 2012 to 2014, the publication number remained the same: 1. Since 2015 the publications are gradually increasing. The year 2020 has the highest number of publications, with 13, followed by 2021 and 2019, with 12 and 11 publications. In the year 2022, we analysed until February 2022.
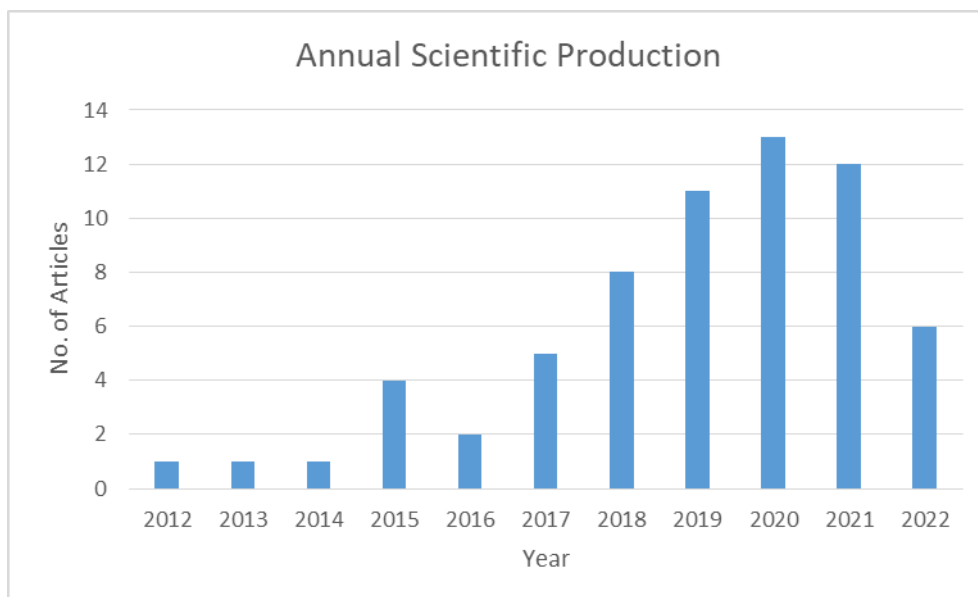
Figure 2. Annual scientific production, 2012-2022, using R software.

5.1.2 Country-wise production

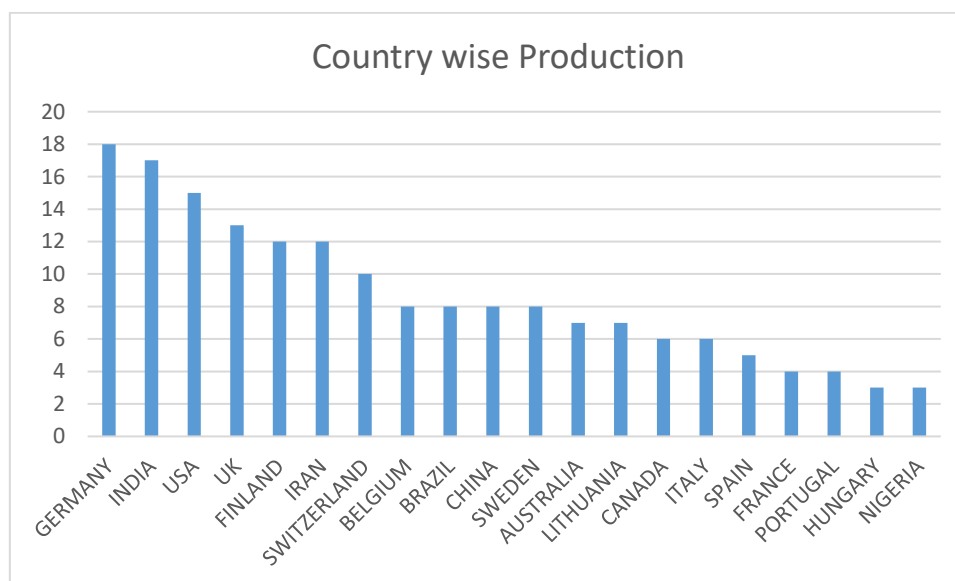Figure 3 shows country-wise production. The top three publication countries are Germany, India and the USA, having 18, 17 and 15 publications, respectively. The least-publishing countries are Hungary and Nigeria, having three publications each. Among the Asian countries, India has the highest number of publications, followed by Iran and China.

Figure 3. Country-wise production using R software.

5.2 Citation analysis

We did citation analysis of research constituents (authors, sources, publications and organizations) to assess the most prominent studies and the authors that have exerted the utmost impact on the application of gamification towards consumer behaviour (Donthu et al., 2021). Moreover, the main goal of citation analysis is to give a credible overview and to understand the network of research work (Dhamija & Bag, 2020). We used VOSviewer to conduct this analysis.

5.2.1 Citation analysis through authors

Table 1 illustrates the result of citation analysis through authors. Leclercq and Poncin have contributed the most to research into gamification in consumer behaviour with three publications, respectively; however, Hamari has the highest number of citations (441). The average number of citations per publication is also the highest for Hamari (220.5), followed by Harwood (75.5). The table below shows that Hamari is the most influential author in the field of consumer behaviour in the context of gamification. Figure 4 shows citation analysis through authors in a graphical form.

Table 1. Citation analysis through authors.

No.	Author	Documents	Citations	Average citations per document	Total link strength
1	Leclercq T.	3	150	50	20
2	Poncin I.	3	150	50	20
3	Behl A.	2	7	3.5	6
4	Gustafsson A.	2	47	23.5	4
5	Hamari J.	2	441	220.5	12
6	Hammedi W.	2	103	51.5	15
7	Harwood T.	2	151	75.5	13
8	Högberg J.	2	53	26.5	6
9	Mulcahy R.	2	44	22	11
10	Piligrimiene Z.	2	58	29	2
11	Russell-Bennett R.	2	44	22	11
12	Wastlund E.	2	53	26.5	6
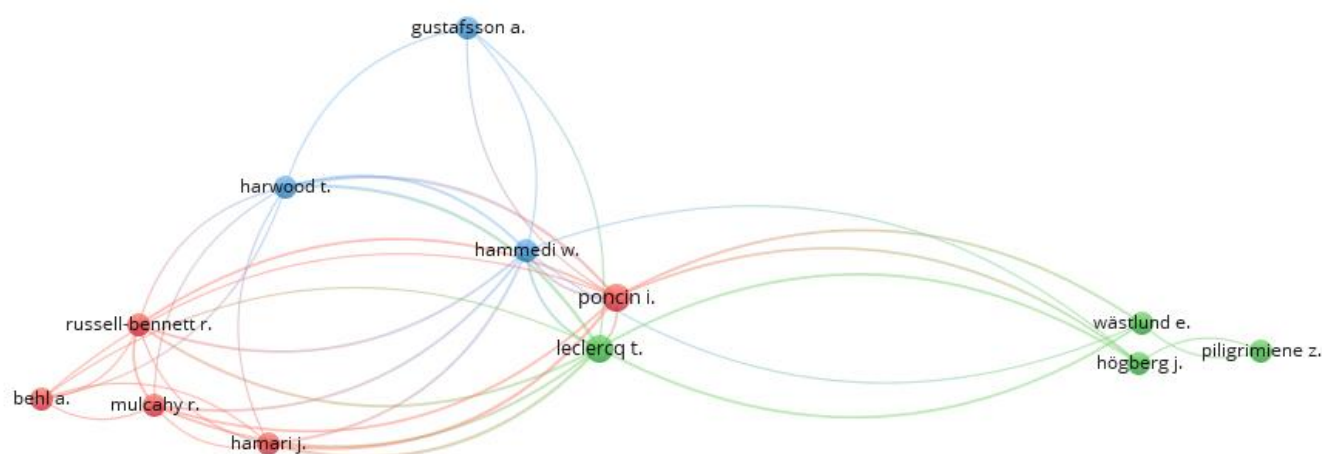
Figure 4. Citation network according to authors using VOSviewer.

5.2.2 Citation analysis through countries

Table 2 illustrates the citation analysis through countries. The United States and the United Kingdom have the highest number of documents (ten). The United Kingdom has the highest number of citations (475), followed by Finland (456); however, Finland has only four publications, making it an influential country. Some influential countries are New Zealand, Finland, the United Kingdom, Belgium, and Canada. Figure 5 shows citation analysis through countries in a graphical form.

Table 2. Citation analysis through countries.

No.	Country	Documents	% of documents	Citations	Average citations per document	Total link strength
1	Australia	4	4.08	88	22.00	18
2	Austria	1	1.02	29	29.00	0
3	Belgium	3	3.06	150	50.00	50
4	Brazil	2	2.04	2	1.00	2
5	Canada	2	2.04	123	61.50	9
6	China	3	3.06	6	2.00	23
7	Egypt	1	1.02	12	12.00	14
8	Estonia	1	1.02	12	12.00	11
9	Finland	4	4.08	456	114.00	32
10	France	4	4.08	95	23.75	55
11	Germany	7	7.14	100	14.29	41
12	Hong Kong	1	1.02	17	17.00	0
13	Hungary	1	1.02	1	1.00	14
14	India	8	8.16	39	4.88	29
15	Indonesia	1	1.02	0	0.00	0
16	Iran	4	4.08	19	4.75	18
17	Italy	5	5.10	57	11.40	31
18	Lithuania	2	2.04	58	29.00	8
19	Malaysia	1	1.02	10	10.00	0
20	Netherlands	1	1.02	2	2.00	10
21	New Zealand	1	1.02	134	134.00	39
22	Nigeria	1	1.02	0	0.00	0
23	Norway	2	2.04	47	23.50	11
24	Oman	1	1.02	12	12.00	14
25	Poland	1	1.02	0	0.00	0
26	Portugal	2	2.04	12	6.00	13
27	Slovenia	1	1.02	10	10.00	2
28	Spain	2	2.04	23	11.50	5
29	Sweden	3	3.06	62	20.67	15
30	Switzerland	3	3.06	50	16.67	25
31	Taiwan	1	1.02	4	4.00	3
32	Thailand	1	1.02	3	3.00	0
33	United Arab Emirates	3	3.06	22	7.33	18
34	United Kingdom	10	10.20	475	47.50	101
35	United States	10	10.20	221	22.10	67
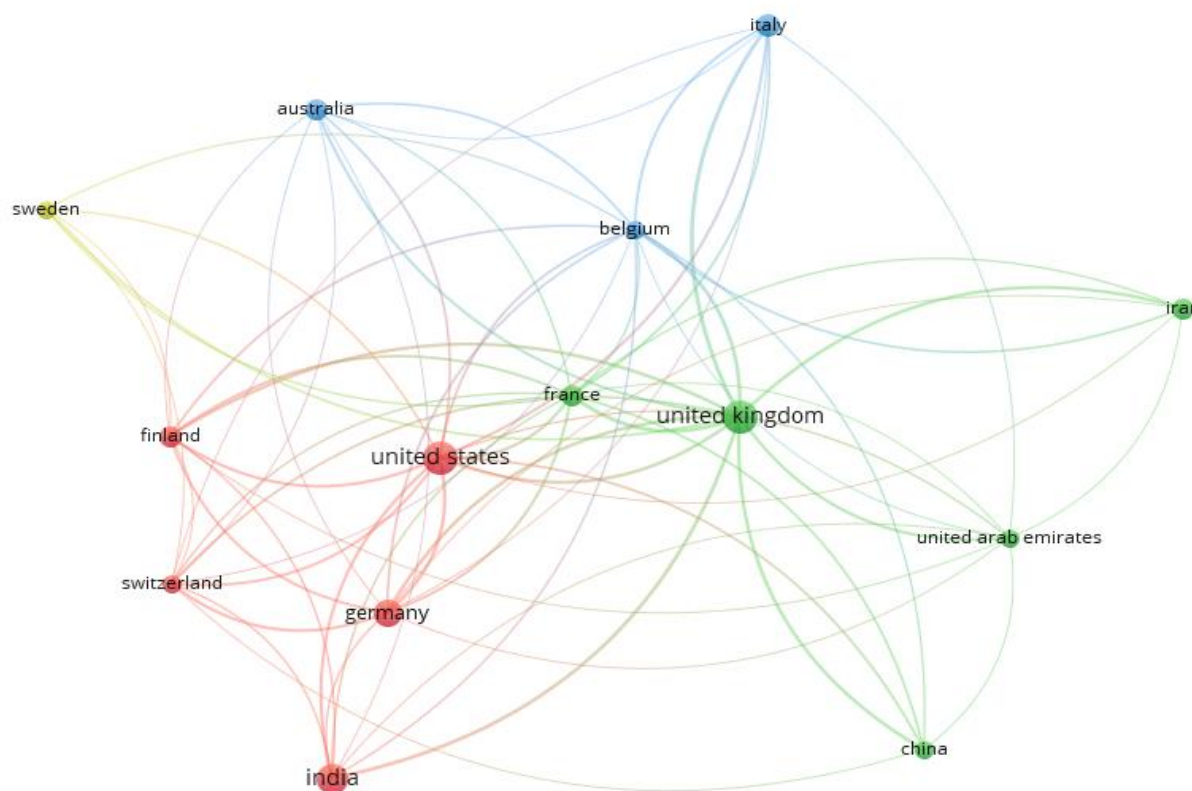
Figure 5. Citation network according to countries using VOSviewer.

5.2.3 Citation analysis through sources (journals)

Table 3 illustrates the results of citation analysis through sources. The top 11 sources are listed in Table 3, where the Journal of Business Research has the most publications (5), followed by the International Journal of Information Management (4). The other sources in the table have two publications each, which is very low. Thus, there is considerable potential for publishing in this area.

Table 3. Citation analysis through sources.

No.	Source	Documents	Citations	Average citations per document	Total link strength
1	Journal of Business Research	5	148	29.6	9
2	International Journal of Information Management	4	46	11.5	6
3	Business Horizons	2	146	73	2
4	Electronic Markets	2	22	11	0
5	Engineering Economics	2	58	29	2
6	International Journal of Contemporary Hospitality Management	2	54	27	0
7	Journal of Destination Marketing and Management	2	12	6	2
8	Journal of Electronic Commerce in Organizations	2	24	12	0
9	Journal of Retailing	2	8	4	0
10	Journal of Retailing and Consumer Services	2	53	26.5	3
11	Technological Forecasting and Social Change	2	47	23.5	4

5.2.4 Citation analysis through documents

Table 4 illustrates the top 10 most cited publications. Hamari (2013) is the most cited publication (423). Hamari (2013) studied gamification effects on user retention and found a positive correlation between them. The second was Harwood (2015), having 134 citations, followed by Robson (2016), which had 123 citations.

Table 4. Citation analysis through documents. See also Appendix B.

No.	Publication	Citations
1	Hamari (2013)	423
2	Harwood & Garry (2015)	134
3	Robson et al. (2016)	123
4	Insley & Nunan (2014)	77
5	Hwang & Choi (2020)	58
6	Leclercq et al. (2017)	54
7	Eisingerich et al. (2019)	51
8	Leclercq et al. (2018)	49
9	Poncin et al. (2017)	47
10	Sigala (2018)	44
11	Berger et al. (2018)	43
12	Jang et al. (2018)	36
13	Pisano et al. (2015)	33
14	Gatautis et al. (2016)	30
15	Bidmon (2017)	29
16	Högberg et al. (2019)	29
17	Mulcahy et al. (2020)	29
18	Piligrimiene et al. (2015)	28

5.3 Co-authorship analysis

Collaboration among research scholars is a way to combine knowledge of different institutions, research areas and even countries. It is the most professional way to identify conceptual connections among research scholars in a particular area (Cisneros et al., 2018).

Co-authorship analysis is a highly used analysis to determine the state of collaboration among authors (Kumar et al., 2021; Donthu et al., 2021; Baker et al., 2020). It is used to understand how research scholars interact in a particular research area (Donthu et al., 2021). In the current study, it is used to analyse the present state of collaboration among authors involving gamification and consumer behaviour. We made this analysis using VOSviewer.

5.3.1 Co-authorship analysis through countries

Figure 6 shows co-authorship analysis through countries. The United Kingdom has collaborated with most countries (7), including India, France, Australia, Italy, Iran, the United States and Germany, generating ten publications. In contrast, the United States has collaborated with six countries, including the United Kingdom, France, Australia, Germany and Switzerland, generating the same number of articles as the United Kingdom.

The United Arab Emirates, China, Iran, Belgium and Switzerland have collaborated with only one country each, showing potential for more collaboration. We can see in Figure 7 that Asian countries except India have only one collaboration. Thus, there is a dire need to concentrate on this research area.

The most vital link between countries is seven, which implies that more countries can be explored to get a wholesome insight into gamification around the world.

Our initial analysis shows that out of 195 countries, only 35 have studied gamification in consumer behaviour, and only 12 countries have collaborated with one another. Thus, it is necessary to create a way for more cross-country collaborations.
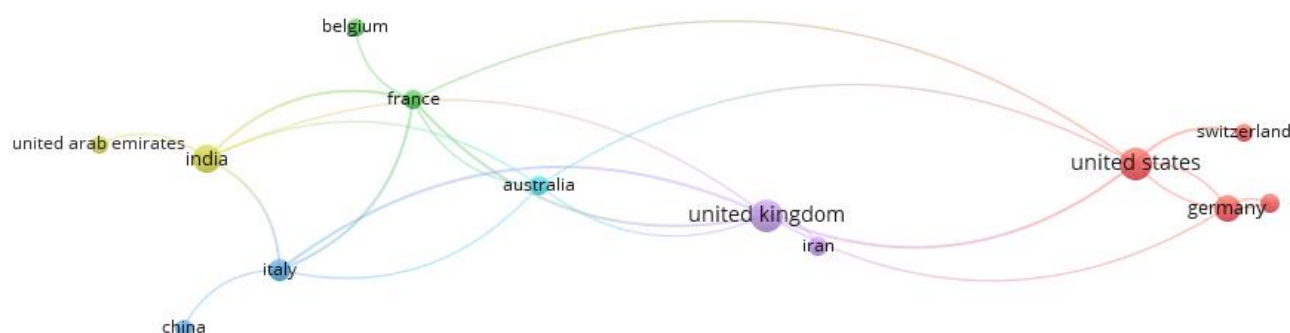
Figure 6. *Co-authorship analysis through countries using VOSviewer.*

5.3.2 Co-authorship analysis through authors

Figure 7 shows co-authorship among authors. It helps show researchers' interaction and closeness in the network (Baker et al., 2020). This figure shows that very few have collaborated with other authors. The most extensive collaboration network consists of four authors, implying the need to encourage researchers with diverse perspectives to participate in a specific research project.

Figure 7. *Co-authorship analysis through authors using VOSviewer.*

5.4 Co-citation analysis

Co-citation analysis is conducted to know the publications that are cited together as it represents some extent of conceptual similarity among these publications (Hjørland, 2013). It defines the intellectual structure of a particular field (Rossetto et al., 2018). When two publications represented by nodes co-occur in a publication, they are connected (Baker et al., 2020). We consider nodes connected with the network of lines to have similar content. Our initial analysis showed that out of 4436 cited references, 184 are grouped together; however, to get more precision in this analysis, we increased the minimum number of citations in a cited reference to 3. Through this, we obtained 64 publications forming a network shown in Figure 8.
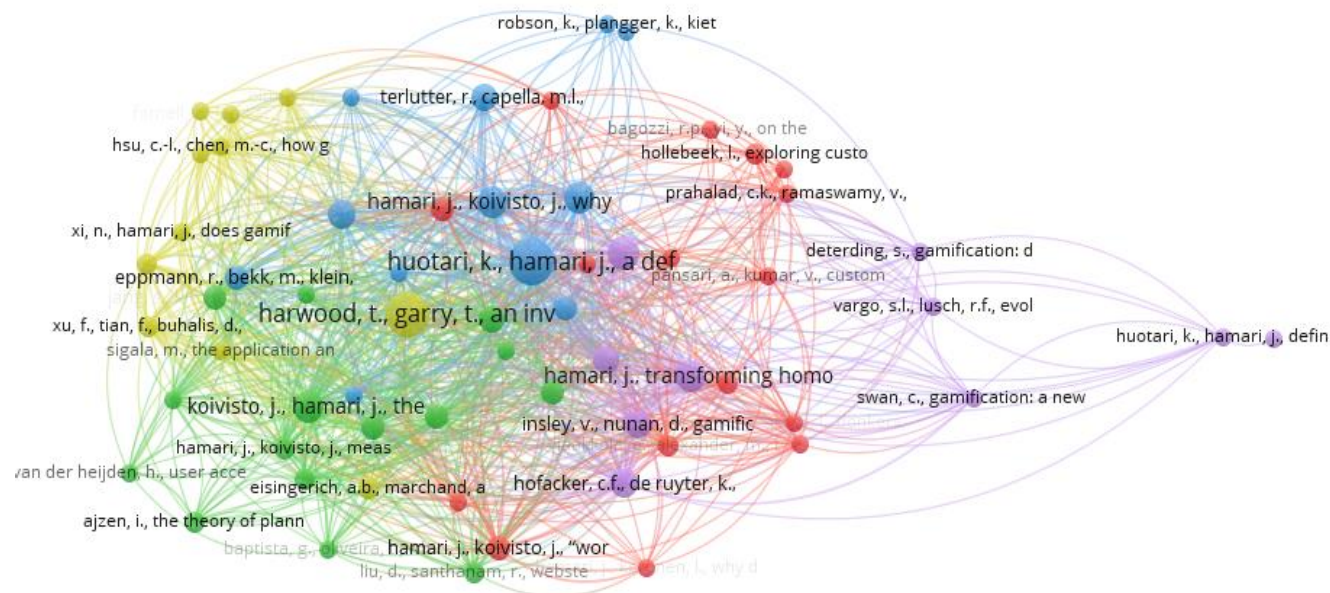
Figure 8. *Co-citation analysis using VOSviewer.*

5.5 Keyword co-occurrence analysis

Keyword co-occurrence analysis is similar to co-citation and citation analysis as it assumes that words frequently appearing in publications have a similar conceptual framework (Donthu et al., 2021). It determines current and future themes in a particular field (Baker et al., 2020). The keyword co-occurrence analysis was made using VOSviewer. Figure 9 shows how the themes are interlinked with each other. From Figure 9, we can infer that customer engagement is a widely used term that corresponds with the co-citation content analysis. Moreover, this most significant cluster also talks about customer engagement. Co-creation is also a widely used term interlinked with engagement, innovation, electronic commerce, marketing and tourism. Through this, we can get a rough idea of the relationship between co-creation, engagement and innovation. Keyword co-occurrence analysis also pinpoints one theory, i.e., self-determination theory. Many authors have used this theory in their studies (Hwang & Choi, 2020; Bauer et al., 2020; Hollebeek et al., 2021).
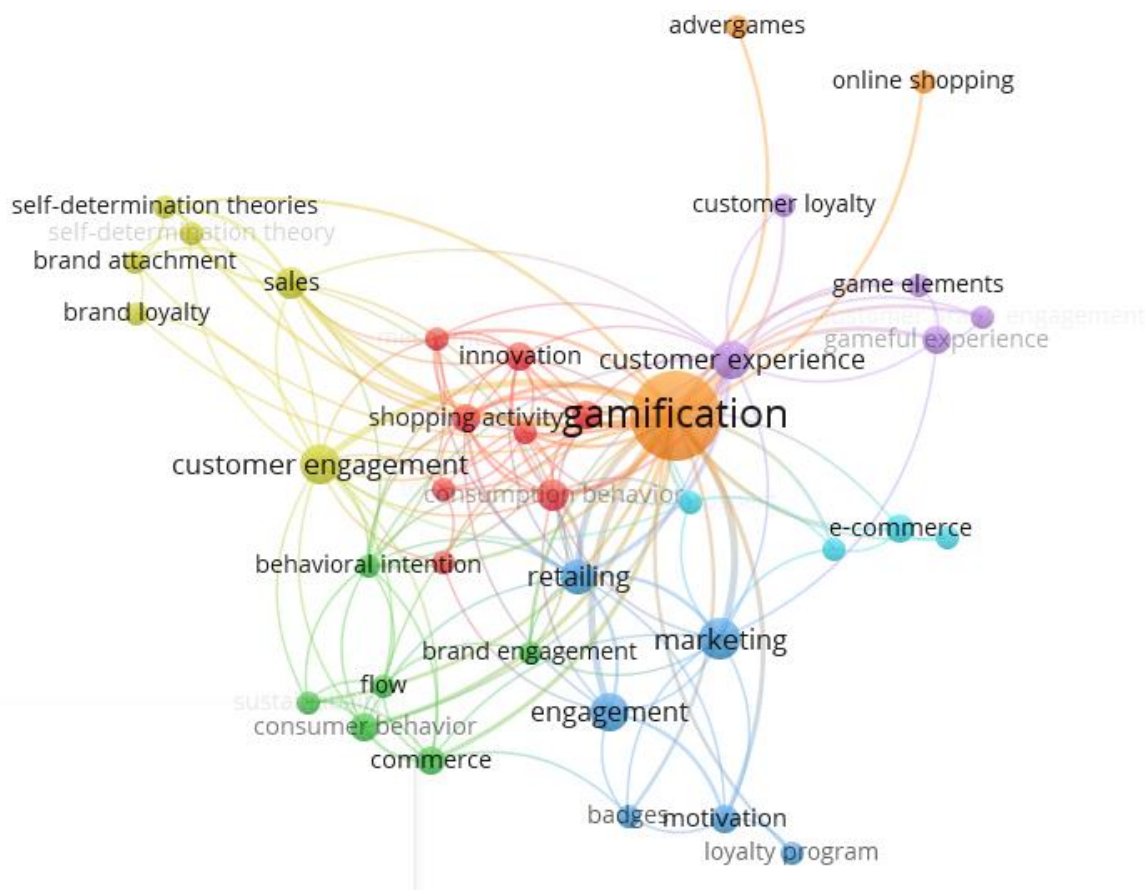
Figure 9. *Keyword co-occurrence analysis using R software.*

5.6 Cluster analysis

This study determines themes within each cluster and explicates prominent areas of interest in domain-specific research into gamification and consumer behaviour. To do so, it discerns five research clusters with the application of co-citation analysis. Afterwards, content analysis was made on each cluster to identify a common theme within a particular cluster (Fahimnia et al., 2015; Xu et al., 2018; Mishra & Malhotra, 2020).

5.6.1 Cluster 1: Gamification in context with customer engagement

Cluster 1 is the largest of all, containing 16 publications; however, there is little difference in publications within each cluster. This cluster focuses on how gamification affects customer engagement. The findings after analysing all the publications were that gamification has a positive influence on customer engagement (Hamari & Koivisto, 2015a; Insley & Nunan, 2014; Hamari & Koivisto, 2015b; Hassan et al., 2019; Kumar & Pansari, 2016; Xi & Hamari, 2019). Hamari & Koivisto (2015b) discussed the positive influence of subjective norms, recognition, reciprocal benefits on attitude, and sustainable consumption. Jaakkola and Alexander (2014) found four types of customer engagement behaviour, i.e., augmenting behaviour, codeveloping behaviour, influencing behaviour and mobilizing behaviour, and their connection to value co-creation. Meanwhile, Kumar et al. (2010) discovered four components of customer engagement value. Hamari & Koivisto (2015a) discussed how various benefits (social, hedonic, utilitarian) have weak, strong, direct or indirect positive associations with attitude and continued use. Insley and Nunan (2014) found that game mechanics can increase customer engagement in online retail if proper management is applied. They suggested practical ways to make it more effective. Xi and Hamari (2019) talked about positive association of gamification features with autonomy, competence and related need satisfaction. We find that Hamari is more concerned about this area of research and his work mainly focuses on customer engagement.

5.6.2   Cluster 2: Gamification in context with consumer experience and benefits

Cluster 2 has 15 publications and is the second largest cluster of all five. The publications in this cluster are focused on consumer experience and the benefits they derive from game elements (Leclercq et al., 2018; Högberg et al., 2019a; Berger et al., 2017; Baptista & Oliveira, 2017; Koivisto & Hamari, 2014; Jang et al., 2018). Koivisto and Hamari (2014) reported that consumers perceive an increase in social benefits when they use game elements, especially women, but losing a game (game flow) has a negative impact on consumer experience (Leclercq et al., 2018). Baptista and Oliveira (2017) found that gamification and intention to use mobile banking services have a strong and direct relationship. Gamified customer benefits also influence marketing outcomes, which are more assertive for young and less experienced consumers (Jang et al., 2018). Berger et al. (2017) discovered that when firms control consumers' decisions through compulsory play or time pressure, consumers do not engage with brands.

5.6.3   Cluster 3: Gamification in context with purchase and behavioural intention

Cluster 3 consists of 12 publications. This cluster revolves around consumers' purchases and behavioural intentions. It further discusses various factors affecting the purchase and behavioural intention linking it with gamification. Yang et al. (2017) and Bittner & Shipper (2014) found that gamification influences perceived usefulness and perceived enjoyment and attitude, which in turn influences intention of engagement, brand attitude and purchase. Satisfaction and knowledge positively affect behavioural intentions with serious mobile games (Mulcahy et al., 2018). Mulcahy et al. (2018) discussed how hedonic and transformative design elements positively influence satisfaction and knowledge, which in turn positively influence behavioural intentions. Negruşa et al. (2015) discussed gamification techniques and applications to improve sustainable behaviour in the hospitality and tourism industry. Negruşa et al. (2015) found that gamification increases brand loyalty and acts as an interface between tourists, organizations and local communities, thereby enhancing sustainable behaviour.

5.6.4   Cluster 4: Gamification in context with consumer psychology

Cluster 4 has 11 publications, all focusing on different aspects of consumer psychology. This cluster touches various segments of consumer psychology such as motivation, satisfaction, loyalty, value, emotions, hope, love and compulsion (Hsu & Chen, 2018; Harwood & Garry, 2015; Eisingerich et al., 2019; Xu et al., 2017; Ryan et al., 2006). Sigala (2015) discussed gamification as increasing motivation to increase online experiential value, whereas Ryan et al. (2006) explored motivation in the context of computer game play. Harwood & Garry (2015) found that emotions are modified when a gamified customer engagement mechanism is introduced to the website. Xu et al. (2017) talked about how gamification increases brand awareness and customer loyalty in the context of tourism. Eisingerich et al. (2019) found that in gamification, hope positively affects customer engagement, while compulsion affects it negatively. Gamification marketing activities have a significant positive effect on hedonic and utilitarian values, and these values significantly affect satisfaction and brand love (Hsu & Chen, 2018).

5.6.5   Cluster 5: Gamification in context with technology and innovation adoption

Cluster 5 is the smallest of all clusters, containing ten publications. The cluster is focused on technology and innovation and how gamified design elements, mechanics and principles contribute to the field of innovation adoption and technology adoption (Müller-Stewens et al., 2017; Hofacker et al., 2016; Deterding, 2012). Müller-Stewens et al. (2017) found that gamified information presentation positively influences innovation adoption when information is perfectly integrated into the gamified presentation, whereas gamification elements and principles are applicable in mobile technology and marketing (Hofacker et al., 2016). Müller-Stewens et al. (2017) found that innovation adoption can happen by enhancing customer playfulness and perceived vividness; however, it is essential to integrate information into the presentation.

5.7   Discussion

The current study aims to offer an understanding and philosophical framework of gamification in the context of consumer behaviour. To accomplish this, we conducted bibliometric analysis. For this, we made a performance analysis to analyse contribution in a particular field. In the annual scientific production, we can see an upsurge of documents, which means that this area is popular. Consequently, we investigated leading authors, countries and journals in gamification and consumer behaviour. This can be helpful for the researchers new in this field to understand where to locate the most influential journals, authors, documents and countries. Meanwhile, keyword analysis helps discover popular themes in a particular field. For instance, the most contributed theory in this field is self-determination theory. Furthermore, in keyword analysis we see that significant attention is paid to engagement and co-creation. This corresponds to the cluster analysis, which also demonstrates one of the clusters being customer engagement along with four other clusters. In summary, this study provides a comprehensive review of what is currently happening in the field of gamification and consumer behaviour.

6   Conceptual Framework

After the cluster analysis discussed in the prior section, this paper moves on to the conceptual framework in the domain of gamification and consumer behaviour. To do so, this study systematically reviewed the dataset (in the data collection section) to develop a conceptual framework (see Figure 10). The procedure involved comprehensive reading of each document. Subsequently, the dataset was coded, tagged and clustered. During the coding phase, identification and selection of relevant keywords were employed to code the essential content of the documents. After that, relevant codes were tagged and assigned to specific groups. At last, in each specific group, relevant tagged codes were grouped into clusters based on their shared characteristics.

On the basis of the aforementioned procedure, the antecedents of the conceptual model were divided into two parts: multi-dimensional and single-dimensional constructs. Further, the first part is again divided into six categories, and the second part is divided into three categories. Meanwhile, in multi-dimensional constructs, gamified elements are sub-divided into gamified design elements and gamified non-design elements, which are again sub-divided into four and seven subcategories, respectively, which are points, challenges, feedback and character for the design elements (Mulcahy et al., 2020), and badges, leaderboards, status, levels, progression, rewards and roles for the non-design elements (Wang et al., 2020). Moreover, gamified mechanisms are partitioned into three categories, which are gamified reward mechanisms, gamified non-reward mechanisms and gamified customer engagement mechanisms. Each of these is further bifurcated into two, six and four subcategories, respectively. Gamified reward mechanisms are classified into result-based and behaviour-based rewards (Jun et al., 2020); gamified non-reward mechanisms are sub-divided into challenge, alea, fantasy, mimicry, cooperation and competition (Poncin et al., 2017; Leclercq et al., 2017) and lastly, gamified customer engagement mechanisms are segregated into challenges, tasks, rewards, badges, leaderboards and win conditions (Harwood & Garry, 2015).
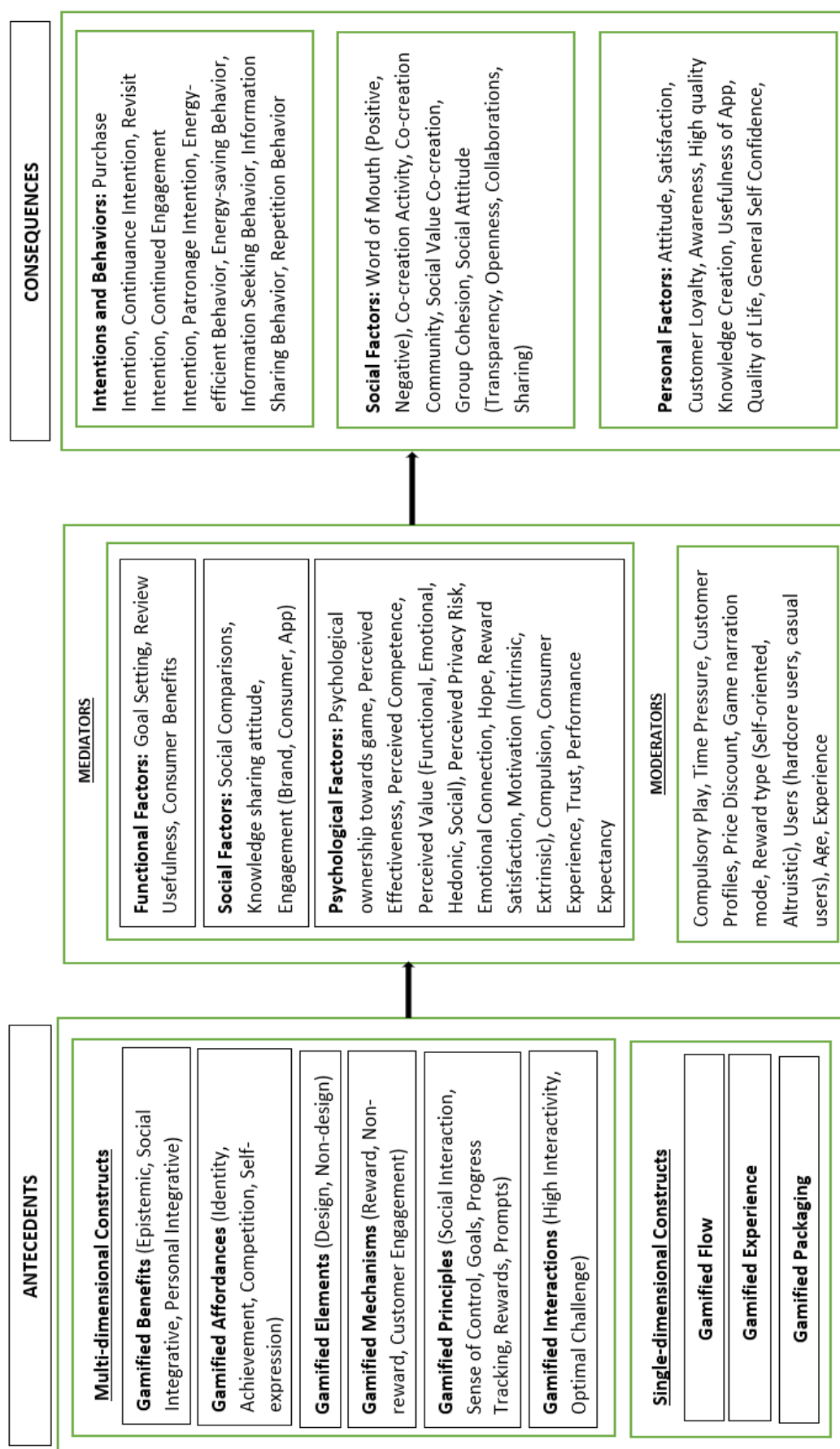
CONSEQUENCES

Intentions and Behaviors: Purchase Intention, Continuance Intention, Revisit Intention, Continued Engagement Intention, Patronage Intention, Energy-efficient Behavior, Energy-saving Behavior, Information Seeking Behavior, Information Sharing Behavior, Repetition Behavior

Social Factors: Word of Mouth (Positive, Negative), Co-creation Activity, Co-creation Community, Social Value Co-creation, Group Cohesion, Social Attitude (Transparency, Openness, Collaborations, Sharing)

Personal Factors: Attitude, Satisfaction, Customer Loyalty, Awareness, High quality Knowledge Creation, Usefulness of App, Quality of Life, General Self Confidence,

MEDIATORS

Functional Factors: Goal Setting, Review Usefulness, Consumer Benefits

Social Factors: Social Comparisons, Knowledge sharing attitude, Engagement (Brand, Consumer, App)

Psychological Factors: Psychological ownership towards game, Perceived Effectiveness, Perceived Competence, Perceived Value (Functional, Emotional, Hedonic, Social), Perceived Privacy Risk, Emotional Connection, Hope, Reward Satisfaction, Motivation (Intrinsic, Extrinsic), Compulsion, Consumer Experience, Trust, Performance Expectancy

MODERATORS

Compulsory Play, Time Pressure, Customer Profiles, Price Discount, Game narration mode, Reward type (Self-oriented, Altruistic), Users (hardcore users, casual users), Age, Experience

ANTECEDENTS

Multi-dimensional Constructs

Gamified Benefits (Epistemic, Social Integrative, Personal Integrative)

Gamified Affordances (Identity, Achievement, Competition, Self-expression)

Gamified Elements (Design, Non-design)

Gamified Mechanisms (Reward, Non-reward, Customer Engagement)

Gamified Principles (Social Interaction, Sense of Control, Goals, Progress Tracking, Rewards, Prompts)

Gamified Interactions (High Interactivity, Optimal Challenge)

Single-dimensional Constructs

Gamified Flow

Gamified Experience

Gamified Packaging

Figure 10. Conceptual model.

The antecedents in the model have a positive impact on the consequences, such that gamified principles (Eisingerich et al., 2019), gamified interactions (Berger et al.,2017) and gamified design elements (Mulcahy et al., 2020) positively influence intentions and behaviours. Meanwhile, gamified non-reward mechanisms (Poncin et al., 2017; Leclercq et al., 2017) have a positive impact on the social factors of the consequences side. Single-dimensional constructs such as gamified experience (Mishra & Malhotra, 2020) seem to have a positive effect on the personal factors of the consequences side. The mediators conceptualized here portray that there are not only direct relationships between the antecedents and the consequences but also indirect relationships amongst themselves; additionally, moderators theorized in the study are applied to both direct and indirect relationships. Each of the antecedents of the model can be paired up with each of the intentions and behaviours, social factors and personal factors from the consequences side. Moreover, the antecedents are linked with all the categories of mediators: functional, social and psychological factors; thus, all this opens the door for future research (see Table A1 in the Appendix A).

6.1 Implications for practice

It is critical for marketers to understand how consumers behave in a gamified environment as they utilize gamification to connect with their customers. To do so, this study synthesizes the literature on gamification and consumer behaviour and provides an overview of the current state of gamification by connecting it to consumer behaviour. In addition, it identifies research themes that will assist managers in determining where to concentrate their efforts. For instance, firstly, marketers, when providing services, must focus on consumer experience and engagement. Secondly, marketers need to understand consumers' psychology and behavioural patterns to engage them in an appropriate gamification design. Thirdly, marketers can use gamification techniques for technology and innovation adoption. Fourthly, this study categorizes gamification in various aspects to better understand its applicability. Lastly, it delineates how marketers can use gamification to influence consumers' social and personal behaviour.

7   Future Directions

The study thoroughly assesses the previous literature and illustrates future research directions. To do so, all the future directions addressed in the dataset (documents) were first summarised. Thereafter, comparisons were made between summarized future directions and previous literature. Lastly, the future directions (research gaps) were categorized into three aspects, i.e., theory, method and context, articulated by Paul and Criado (2020). After elucidating the future gaps from the perspectives of Paul and Criado (2020), this study also exemplifies additional gaps for future research (see Table 5).

7.1 Theories

Previous studies in the field of gamification were primarily grounded in self-determination theories (Hwang & Choi, 2020; Bauer et al., 2020; Hollebeek et al., 2021), unified theory of acceptance and use of technology (UTAUT) (Abou-Shouk & Soliman, 2021; Leclercq et al., 2018; Sigala, 2018) and theory of planned behaviour (Abou-Shouk & Soliman, 2021; Leclercq et al., 2018; Hwang and Choi, 2020). On the other hand, theories associated with consumer psychology, namely emotional attachment theory, affective events theory (Whittaker et al., 2021), psychology ownership theory, and schema theory (Mishra &Malhotra, 2021), were also employed in the domain. Likewise, research based on social psychology literature is apparent in this field. Some social psychology theories utilized in the previous literature are social exchange theory (Hwang & Choi, 2020) and social cognition theory (Wang et al., 2020). In the future, researchers may further explore the area of innovation adoption through the theoretical lens of innovation diffusion theory, disruptive technology theory (Bower & Christensen, 1995), technology lifecycle theory (Anderson & Tushman, 1990), and the consumer-based adoption model. Similarly, researchers can employ rational choice theory (Scott, 2000) and motivational richness theory (Desselles & Livingston, 2011) in the areas of intention to use as well as continued use, respectively. Past studies have focused on the positive

side of gamification (Whittaker et al., 2021; Silva et al., 2019; Hwang & Choi, 2020; Wang et al., 2020). Consequently, negative aspects of gamification, such as how subversion of game mechanics influences complaint behaviour, can be investigated in the future (Harwood & Garry, 2015).

7.2 Methods

This study has found a significant amount of experimental research in the prior literature, although quantitative studies are the primary focus. As far as quantitative research is concerned, simple mediation is frequently employed (Whittaker et al., 2021; Weretecki et al., 2021; Abou-Shouk & Soliman, 2021; Mulcahy et al., 2020; Hwang & Choi, 2020). In the future, multiple mediations and mediation-moderation analyses could be used for quantitative methods, as very few studies (Mishra & Malhotra, 2021) currently apply them. Meanwhile, few research studies incorporate qualitative methods, with in-depth interviews, content analysis and thematic analysis being the most prominent. There is an imperative need to investigate qualitative methods in gamification, for which researchers may explore text mining and sentiment analysis in the future. On the other hand, with various cross-sectional studies in this field, researchers might consider using a longitudinal design in their future studies (Whittaker et al., 2021; Mishra & Malhotra, 2021).

7.3 Contexts

Regarding contexts, multiple avenues still necessitate further investigation in the future. More scholars will need to collaborate on projects to meet the demand for new perspectives that can be gleaned from cross-national research. This collaboration contributes to the validation of research findings from various countries. A comparative study could also be utilized to undergo cross-country research (Abou-Shouk & Soliman, 2021). In addition, the researchers could also examine the relationships between developed and developing countries (Mishra & Malhotra, 2021). Up to this point, all research has been conducted with B2C businesses in mind; however, B2B gamification research is also plausible (Hollebeek et al., 2021). Similarly, a comparative analysis of B2C and B2B can also be undertaken (Hollebeek et al., 2021). Future research projects might also incorporate a multi-actor approach (Weretecki et al., 2021). Herein, a single study could be conducted incorporating the perspectives of multiple actors, including consumers, employees, researchers, society and businesses.

Table 5. Agenda for future research into gamification and consumer behaviour.

Aspects	Research questions
Theory	What role does gamification play in influencing consumer behaviour from the standpoint of innovation adoption theories?
	How, according to rational choice theory and motivational richness theory, does gamification influence consumer behaviour?
	How do negative aspects of gamification influence consumer behaviour?
Method	How can the concept of gamification be understood in the context of consumer behaviour by applying sentiment analysis and text mining?
	What changes in consumer behaviour transpire over an extended period of time in the concept of gamification using longitudinal design?
Context	How does consumer behaviour in gamified settings differ amongst rural, urban and semi-urban areas?
	How can a comparative study between developed and developing countries be conducted to examine the relationship between consumer behaviour and gamification?
	How can gamification be studied in the B2B context, and how does it differ from the B2C context?

Aspects	Research questions
	How does consumer behaviour vary in gamification using a multi-actor approach?
	How does exchanged information quality shape consumer behaviour in gamified multi-actor ecosystems?
Other aspects	What effect do game design elements/mechanisms/flow have on different types of sustainable behaviours such as 3Rs (reduce, reuse, recycle), continuous sustainable behaviour, conservation behaviour, disposal behaviour, recycling behaviour, or market segments?
	How do certain game design elements (badges, leaderboards, challenges and trophies) enhance flow and customer engagement using experimental design?
	How do gamified loyalty programmes affect customer value, specifically customer referral value, customer knowledge value and customer lifetime value?
	What psychological measures should researchers adopt to understand consumers' behaviour towards gamified products?
	How does consumer behaviour differ from original information qualities and information through a gamified experience?

8 Limitations and Conclusion

Despite a few limitations, this study makes substantial contributions to the existing body of literature—one of which is that it only utilizes the Scopus database. Therefore, in the future, researchers are encouraged to combine various databases. This study applied citation analysis, co-citation analysis, co-authorship analysis, annual scientific production, country-wise scientific production, keyword co-occurrence analysis and cluster analysis. However, additional analyses, such as PageRank analysis and network metrics analysis (Donthu et al., 2021), could still be carried out in the future. Besides this, researchers in the future may utilize the same dataset to replicate this study by employing alternative literature review methods, such as a meta-analysis. The study identifies vast opportunities to collaborate with other authors in the domain through an analysis of co-authorship across authors and countries. Following a bibliometric analysis, this study also identifies unexplored research avenues at the intersection of gamification and consumer behaviour.

This research has contributed to the discipline in a variety of ways. Firstly, it began with a comprehensive analysis and discussion of recent trends in this field. Secondly, it identified a social structure within this industry. Thirdly, it outlined key themes in the realm of consumer behaviour in the gamification context. Fourthly, it made a conceptual underpinning for this field. Finally, it deliberated potential future research avenues.

Additional Information and Declarations

Appendix A

Table A1. Literature on antecedents of gamification.

No.	Antecedents	Description	Title	Authors, year
1.	Gamified flow	Gamified flow can be defined as a "psychological state of energized focus, intense involvement, and enjoyment through gamification".	"'Go with the flow' for gamification and sustainability marketing"	Whittaker et al., 2021
2.	Gamified experience	Gamified experience can be defined as "the positive emotional and involving qualities of using a gamified application".	"The gamification of in-game advertising: Examining the role of psychological ownership and advertisement intrusiveness"	Mishra & Malhotra, 2021
3.	Gamified packaging	Gamified packaging can be defined as incorporating gamified elements into the packaging. For example, quick service restaurant industry and beverage industry have applied redeemable codes into their mobile apps (Coca-Cola's "Sip and Scan" and Burger King's "Sneak King").	"Gamified package: Consumer insights into multidimensional brand engagement"	Syrjälä et al., 2020
4.	Gamified benefits	Gamified benefits can be categorized into three categories: social integrative benefits, epistemic benefits and personal integrative benefits. Socially integrative benefits indicate enhancement of the relationships of consumers with others. Epistemic benefits include acquiring information and enhancing users' comprehension of the environment. Personal integration benefits are associated with enhancing others' credibility and social position in society.	"The effects of gamified customer benefits and characteristics on behavioural engagement and purchase: Evidence from mobile exercise application uses"	Jang et al., 2018
5.	Gamified affordance	Gamification affordances are considered as a "series of actions bringing affordances for gamified experiences, which reinforce the entire process of value creation of the customer". It includes achievement affordance, identity affordance, competition affordance and self-expression affordance.	"Gamification in OTA platforms: A mixed-methods research involving online shopping carnival"	Shi et al., 2022
6.	Gamified elements	Gamified elements include points, challenges, feedback, character, badges, leaderboards, statuses, levels, progression, rewards and roles. Badges are visual icons signifying achievements. Statuses are textual names indicating progress. Leaderboards are displays of ranks of comparison. Levels are increasingly difficult environments. Points are numerical units indicating progress. Progressions are milestones indicating progress. Rewards are desirable, tangible items (real or virtual). Roles are elements of a character that perform a role.	"Designing gamified apps for sustainable consumption: A field study; Impact of gamification on perceptions of word-of-mouth contributors and actions of word-of-mouth consumers"	Mulcahy et al., 2020; Wang et al., 2020

No.	Antecedents	Description	Title	Authors, year
7.	Gamified mechanisms	Gamified mechanics are "objectives and structures introduced by designers to influence customer behaviour". Gamified mechanics comprise twelve mechanisms. Cooperation mechanics involve participants working together to achieve a common objective, whereas competition mechanics involve one participant or group succeeding and the other(s) failing. The alea mechanics rely on chance (e.g., lottery, sweepstakes). Challenge mechanics are tied to the completion of a task (e.g., achieving goals, participating in a competition). Mimicry mechanics rely on the ability to act out a fictitious identity (e.g., avatar, role-playing, etc.). Fantasy mechanics involve the design encompassing the task, primarily a fun environment in which the task is carried out (e.g., vibrant design, virtual environment, etc.). Behaviour-based rewards primarily focus on the occurrence of similar behaviours. For instance, customers can receive a consistent standard reward as long as they complete a specific activity, such as shopping or reading. Result-based rewards primarily focus on the outcome of behaviour. For instance, customers receive rewards based on the desirable consequence of their behaviour, such as reading effect, reading time and shopping amount.	"The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities; Influence of virtual CSR gamification design elements on customers' continuance intention of participating in social value co-creation"	Leclercq et al., 2018; Jun et al., 2020
8.	Gamified principles	Gamified principles include social interaction, a sense of control, goals, progress tracking, rewards and prompts. Social interaction is the capacity to keep customers in contact with their peers and other individuals. The capacity to make consumers feel in charge of their own destinies and accountable for their own health constitutes a sense of control. Goals are the ability to establish and achieve attainable objectives. Progress tracking is the capacity to register, document and portray customers' development and proficiency. Rewards are the ability to provide new materials for achieving desired goals. Prompts encompass alerts from businesses to remind consumers of their obligations and encourage them to take action.	"Hook vs. hope: How to enhance customer engagement through gamification"	Eisingerich et al., 2019
9.	Gamified interactions	Gamified interactions refer to "games to co-create playful experiences between a firm's customers and brand". It consists of two categories: optimal challenge and	"Gamified interactions: whether, when, and how games facilitate self–brand connections"	Berger et al., 2017

No.	Antecedents	Description	Title	Authors, year
		high interactivity. Optimal challenge is when a person's skills are neither insufficiently utilised nor overused. High interactivity occurs when individuals must be able to change their surroundings in order to experience it, necessitating an active (rather than passive) role in their communications with their surroundings.		

***Table A2.** Literature on consequences, mediators and moderators of the conceptual model.*

	Variables	Title	Author, year
➢	**Consequences**		
•	Purchase intention	"Gamification in OTA platforms: A mixed-methods research involving online shopping carnival"; "Hook vs. hope: How to enhance customer engagement through gamification" "Smart services in healthcare: A risk-benefit-analysis of pay-as-you-live services from customer perspective in Germany"	Shi et al., 2022; Eisingerich et al., 2019; Wiegard & Breitner, 2019
•	Continuance intention	"Influence of virtual CSR gamification design elements on customers' continuance intention of participating in social value co-creation: The mediation effect of psychological benefit"	Jun et al., 2020
•	Revisit intention	"Managing group flow experiences in escape rooms"	Kolar & Čater, 2018
•	Continued engagement intention	"Creating brand engagement through in-store gamified customer experiences"	Högberg et al., 2019b
•	Patronage intention	"Smart technologies and shopping experience: Are gamification interfaces effective? The case of the Smartstore"	Poncin et al., 2017
•	Energy-efficient behaviour	"Go with the flow' for gamification and sustainability marketing"	Whittaker et al., 2021
•	Energy-saving behaviour	"Designing gamified apps for sustainable consumption: A field study"	Mulcahy et al., 2020
•	Information seeking behaviour	"Information management can't be all fun and games, can it? How gamified experiences foster information exchange in multi-actor service ecosystems"	Weretecki et al., 2021
•	Information sharing behaviour	"Information management can't be all fun and games, can it? How gamified experiences foster information exchange in multi-actor service ecosystems"	Weretecki et al., 2021
•	Repetition behaviour	"The fun and function of uncertainty: Uncertain incentives reinforce repetition decisions"	Shen et al., 2018
•	WOM intention	"Gamifying the digital shopping experience: games without monetary participation incentives increase customer satisfaction and loyalty"; "Designing gamified apps for sustainable consumption: A field study"	Bauer et al., 2020; Mulcahy et al., 2020
•	Co-creation activity	"The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities"	Leclercq et al., 2018
•	Co-creation community	"The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities"	Leclercq et al., 2018
•	Social value co-creation	"Influence of virtual CSR gamification design elements on customers' continuance intention of participating in social value co-creation: The mediation effect of psychological benefit"	Jun et al., 2020
•	Group cohesion	"Managing group flow experiences in escape rooms"	Kolar & Čater, 2018

• Social attitude	"Identify innovative business models": "Can innovative business models enable players to react to ongoing or unpredictable trends?"	Pisano et al., 2015
• Attitude	"The gamification of in-game advertising: Examining the role of psychological ownership and advertisement intrusiveness"	Mishra & Malhotra, 2021
• Customer loyalty	"Gamification in a servicescape context: A conceptual framework"; "An investigation into gamification as a customer engagement experience environment"	Helmefalk & Marcusson, 2019; Harwood & Garry, 2015;
• Satisfaction	"Gamifying the digital shopping experience: games without monetary participation incentives increase customer satisfaction and loyalty"	Bauer et al., 2020
• Awareness	"The impact of gamification adoption intention on brand awareness and loyalty in tourism: The mediating effect of customer engagement"	Abou-Shouk & Soliman, 2021
• High-quality knowledge creation	"Co-creation of new solutions through gamification: A collaborative innovation practice"	Patricio et al., 2020
• Usefulness of app	"Retailing mobile app usefulness: Customer perception of performance, trust and tension free"	Olaleye et al., 2018
• Quality of life	"Managing group flow experiences in escape rooms"	Kolar & Čater, 2018
• General self-confidence	"Does gamified elements influence on user's intention to adopt internet banking with integration of UTAUT and general self-confidence?"	Samar & Mazuri, 2019
➢ **Mediators**		
• Goal setting	"Transforming homo economicus into homo ludens: A field experiment on gamification in a utilitarian peer-to-peer trading service"	Hamari, 2013
• Review usefulness	"Impact of gamification on perceptions of word-of-mouth contributors and actions of word-of-mouth consumers"	Wang et al., 2020
• Consumer benefits	"Gamified package: Consumer insights into multidimensional brand engagement"	Syrjälä et al., 2020
• Social comparisons	"Transforming homo economicus into homo ludens: A field experiment on gamification in a utilitarian peer-to-peer trading service"	Hamari, 2013
• Knowledge-sharing attitude	"Information management can't be all fun and games, can it? How gamified experiences foster information exchange in multi-actor service ecosystems"	Weretecki et al., 2021
• Engagement (brand, consumer, app)	"Gamified interactions: whether, when, and how games facilitate self–brand connections"; " 'Go with the flow' for gamification and sustainability marketing"	Berger et al., 2017; Whittaker et al., 2021
• Psychological ownership towards game	"The gamification of in-game advertising: Examining the role of psychological ownership and advertisement intrusiveness"	Mishra & Malhotra, 2021
• Perceived effectiveness	"The gamification of in-game advertising: Examining the role of psychological ownership and advertisement intrusiveness"	Mishra & Malhotra, 2021
• Perceived competence	"Impact of gamification on perceptions of word-of-mouth contributors and actions of word-of-mouth consumers"	Wang et al., 2020
• Perceived value (functional, emotional, hedonic, social)	"Gamification in OTA platforms: A mixed-methods research involving online shopping carnival; Creating brand engagement through in-store gamified customer experiences"	Shi et al., 2022; Högberg et al., 2019b

•	Perceived privacy risk	"Smart services in healthcare: A risk-benefit-analysis of pay-as-you-live services from customer perspective in Germany"	Wiegard & Breitner, 2019
•	Hope	"Hook vs. hope: How to enhance customer engagement through gamification"	Eisingerich et al., 2019
•	Reward satisfaction	"Creating brand engagement through in-store gamified customer experiences"	Högberg et al., 2019b
•	Motivation (intrinsic, extrinsic)	"Gamifying the digital shopping experience: games without monetary participation incentives increase customer satisfaction and loyalty"	Bauer et al., 2020
•	Compulsion	"Hook vs. hope: How to enhance customer engagement through gamification"	Eisingerich et al., 2019
•	Consumer experience	"The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities"	Leclercq et al., 2018
•	Trust	"Retailing mobile app usefulness: Customer perception of performance, trust and tension free"	Olaleye et al., 2018
•	Performance expectancy	"Retailing mobile app usefulness: Customer perception of performance, trust and tension free"	Olaleye et al., 2018
➢	**Moderators**		
•	Compulsory play	"Gamified interactions: whether, when, and how games facilitate self–brand connections"	Berger et al., 2017
•	Time pressure	"Gamified interactions: whether, when, and how games facilitate self–brand connections"	Berger et al., 2017
•	Customer profiles	"The Engagement Process During Value Co-Creation: Gamification in New Product-Development Platforms"	Leclercq et al., 2017
•	Price discount	"Gamifying the digital shopping experience: games without monetary participation incentives increase customer satisfaction and loyalty"	Bauer et al., 2020
•	Game narration mode	"Influence of virtual CSR gamification design elements on customers' continuance intention of participating in social value co-creation: The mediation effect of psychological benefit"	Jun et al., 2020
•	Reward type (self-oriented, altruistic)	"Having fun while receiving rewards?: Exploration of gamification in loyalty programs for consumer loyalty"	Hwang & Choi, 2020
•	Users (hardcore users, casual users)	"Designing gamified apps for sustainable consumption: A field study"	Mulcahy et al., 2020
•	Age	"Hook vs. hope: How to enhance customer engagement through gamification"	Eisingerich et al., 2019
•	Experience	"Hook vs. hope: How to enhance customer engagement through gamification"	Eisingerich et al., 2019

Appendix B

Detailed information on literature sources in Table 4.

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