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Playing the gamification and co-creation game: a bibliometric literature review

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Abstract

The growing use of gamification as a powerful communication and engagement tool for active and passive users has raised greater interest among academics and professionals. The benefits of gamification tend to increase when a co-creation process involves users. This study aims to carry out a bibliometric literature review on gamification and co-creation to assess their roles in engaging active and passive users and creating value for companies. To this end, a bibliometric literature review was conducted. We used the Web of Science database and gathered publications 157 for analysis that simultaneously respected the key search terms terms "gamif* and co-creation", "gamif* and user-design", "gamif* and customization" and "gamif* and engagement". In addition to analysing the evolution of publications and citations and identifying lines of research, this study proposes a model for implementing a gamified strategy with co-creation to obtain greater consumer and company benefits. This study proposes an original model for implementing a gamified strategy with co-creation ("GAMER" model), contributing to the still scarce literature on the subject. On the other hand, the study of gamification and co-creation was carried out comprehensively, not focusing on a specific industry or area.

Keywords Gamification · Engagement · Co-creation · Management · Value creation · Gamified strategy

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1 Introduction

Gamification emerged around 2010 and was quickly recognized by companies and academics for its importance (Elidjen et al. 2022; Huotari and Hamari 2017; Merhabi et al. 2021). Gamification promotes user engagement to provoke behavioural changes (Schoech et al. 2013; Tobon et al. 2020). Gamification is intended to add value to products or services using game elements in non-game contexts (Rodrigues et al. 2021a). Gamification can be promoted through engagement through co-creation (Merhabi et al. 2021).

Although the gamification concept emerged in 2010, there is no consensus regarding the emergence of the engagement concept. Some literature points to the emergence of the concept of engagement in the 1990s. Firstly it was used to describe an instrument (Gallup's engagement questionnaire). There are various approaches to the term as well as to its meaning due to the different possible applications. On the other hand, the views of academics do not always match those of marketers (Bowden 2009).

Simply put, customer engagement can be defined as a consumer behavioural manifestation of brand loyalty that goes beyond the monetary transaction (Verhoef et al. 2010). Having said this, it can be stated that organisations are paying more and more attention to the relationship they develop with their consumers beyond the purchase of their products. This can often be seen in after-sales support services (e.g. additional warranties, satisfaction surveys, training on the product purchased) and the experience of buying a product (Nobre and Ferreira 2017). For Waqas et al. (2021), consumer experience can be defined as co-creation. These concerns about brands arise after the perception of customer engagement's influence on the individual's motivation to value, trust, promote and buy the brand and not just a product (Bowden 2009; Thakur 2019; Vivek et al. 2012; Waqas et al. 2021).

In this framework, the appreciation of the influence of customer engagement on consumer motivation has developed its connection with gamification. The gamification concept can be defined as using game design elements in non-game contexts (Deterding et al. 2011). Thus, gamification elements can be used specifically to motivate individuals (Schmid and Dowling 2022).

At an early stage, organisations tended to turn to gamification to promote satisfaction and motivation of their human resources, seeking to increase productivity through "gaming" (Silic et al. 2020; Woźniak 2017). According to Zichermann and Cunningham (2011), individuals born between 1990 and 2010, the so-called "Generation Z", demonstrate a greater desire to use the internet and connect with others. These individuals spend 16 h weekly on gaming-related activities (Mills et al. 2018). That said, organisations have increasingly bet on binomial gamification and strategy, taking advantage of the interaction and motivation skills of games, combining them, in particular, with their marketing strategies (Hofacker et al. 2016; Rodrigues et al. 2021a). An indicator of this participation is an increase of 10% per year in the value

of investment in gamified marketing, predicting that the value of this participation could reach $ 30 billion in the year 2025 (Pour et al. 2020).

These strategies for gamified marketing are already visible in some digital platforms where organisations resort to awarding points, badges and rewards to keep their users active and interested in their brands' content (Huotari and Hamari 2017; Nobre and Ferreira 2017). The use of digital platforms and services can be the result of co-creation (Eckert and Hüsig 2022). However, the literature points to the fact that consumers are not only looking for a channel where they can be heard and relate to brands, but they need to get involved and participate in the creation process, consequently arising the connection between gamification and co-creation (García-Magro et al. 2022; Kotler et al. 2019; Nobre and Ferreira 2017). Thus, we understand co-creation as "brand value co-creation" for the present study. Brand value co-creation can be defined as the collaboration, promotion, advocacy and sharing of knowledge between users or customers with companies, which leads to brand growth and innovation (Leclercq et al. 2017; Nedergaard and Gyrd-Jones 2013; Nobre and Ferreira 2017). Therefore, it can be said that brand value co-creation consists of the involvement of users or customers in activities related to a company's business (Merhabi et al. 2021). Currently, there are good examples of its applicability, such as in community management (Create and Share from Lego), education (different levels of education), health (Nike Run Club Application), as well as in tools that allow users to track their aspirations. of life (Mindloom) (Chim-Miki et al. 2019; Hamari 2013; Leclercq et al. 2017; Marell-Olsson 2019; Rodrigues et al. 2021a).

The factors that motivate the emergence of gamified strategies by organizations and co-creation are related to the new needs of customers. Companies seek to increase engagement and arouse users' curiosity (Rodrigues et al. 2021b). Although we can understand the factors that motivate the emergence of gamified strategies by organisations and co-creation, the existing literature on this topic remains scarce and lacks further (Huotari and Hamari 2017; Nobre and Ferreira 2017; Yang et al. 2017a). However, some studies have explored the extrinsic and intrinsic factors regarding the motivation of clients to participate, for example, in virtual events, which can be considered co-creation communities. (Castle et al. 2014; Merhabi et al. 2021). The factors that most lead customers to participate in co-creation activities are: (1) monetary compensation; (2) making friends; (3) information search; (4) curiosity; (5) community support; (6) self-efficacy; (7) playfulness; (8) personal need; (9) skill development; (10) and recognition (Brabham 2008; Füller 2010; Kennedy et al. 2022; Lakhani et al. 2007). According to Merhabi et al. (2021), further studies are needed to explore new ideas about using gamification and co-creation to create organisational value. In this context, the present study aims to carry out a bibliometric analysis of literature on the concepts of gamification and co-creation to assess their roles in the engagement of active and passive users and the consequent creation of value for companies. We also intend to propose a model that was drawn up for implementing a gamified strategy with the co-creation of value for users (active and passive) and the organisation.

In addition to contributing to the literature on this theme, which is still scarce, this study is more comprehensive because we are not restricted to performing the

bibliometric analysis for a specific industry or area. The selected database is the Web of Science (WOS), and we analyzed 157 studies published between 2010 and 2022. We will also propose an implementation model of a gamified strategy with co-creation, thus making the study original.

2 Methodology

To achieve the objective of this study, a bibliometric analysis of the literature about gamification and co-creation was carried out. A systematic literature review analyses and identifies publications to date on a given topic, allowing for the selection and assessment of contributions, synthesises and reviews data, and points to evidence that is capable of contributing relevant conclusions about what is still understudied and what we already know (Denyer and Tranfield 2009). In this way, they allow identifying themes in which additional research is fundamental, thus developing the knowledge base (Laurett and Mendes 2019; MacInnis 2011). According to Tranfield et al. (2003), a systematic literature review is a transparent, repeatable and robust scientific method widely adopted in the social sciences.

For the present study, we used the protocol for the systematic quantitative review procedure in the social sciences suggested by Pickering et al. (2015) and Pickering and Byrne (2014). Thus, we followed five steps: (1) definition of the review objectives; (2) database selection, identifying and verifying the search terms and literature selection criteria; (3) search in the selected database with the identified search terms, tracking and refining the search results before refining the criteria; (4) assessment of the relevance and quality of the literature, elaborating tables the summary of the relevant information in the previously selected literature; (5) synthesis and description the gaps and findings of the research.

For this bibliometric analysis of the literature, we selected the WOS database, specifically the Web of Science Core Collection. WOS is widely accepted by academics as a database with more relevant studies in the social sciences (Lopes et al. 2021c). WOS is one of the world's largest research repositories and is often used for systematic literature reviews (Laurett and Ferreira 2018; Liñán and Fayolle 2015). WOS includes the following Indexes: Science Citation Index Expanded, Conference Proceedings Citation Index-Science, Arts and Humanities Citation Index, Social Sciences Citation Index, Conference Proceedings Citation Index-Social Science and Humanities, Index Chemicus, Emerging Sources Citation Index and Current Chemical Reactions.

The WOS search was performed by topic (title, abstract, and keywords) (Lopes et al. 2021a, 2021b) with the search terms "gamif* and co-creation", "gamif* and user-design", "gamif* and customization" and "gamif* and engagement" (2307 publications). The search was carried out on June 30th 2022, covering 2010–2022. The reason for selecting 2010 was because the concept of gamification emerged in that year (Alsawaier 2019; Huotari and Hamari 2017; Merhabi et al. 2021). We then eliminated duplicated publications (61), leaving 2246 publications. Subsequently, we selected articles and reviews as document types (Lopes et al. 2022) (960 excluded), getting 1286 publications. Then, publications written in English were

selected for analysis (Jones et al. 2011) (49 excluded), getting 1237 publications. Finally, the web of science categories "business" and "management" were selected (Lopes et al. 2021a; Thirumaran et al. 2021) (1080 excluded), leaving 157 publications for analysis.

We then exported the data to Microsoft Excel to synthesise all the information to prepare the results. Table 1 summarises the process of building the database of 157 publications.

3 Results and discussion

3.1 Evolution of publications and citations

This analysis considers the 157 publications selected according to the previously mentioned criteria. Firstly, we analysed the evolution of publications taking into account the number of publications and citations from January 1st, 2010, to June 30th, 2022 (Fig. 1).

The 157 publications are cited by 1979 articles and have 3005 citations. Thus, it can be stated that each article is cited on average 19.14 times. Of the 157 publications, 144 are scientific articles (91.72% of the sample), and 13 are Review Articles (8.3% of the sample).

As shown in Fig. 1, the first publication of the sample was in 2012, developed by the authors Guin et al. (2012). The study has two goals: (1) to determine whether it is possible to create a more pleasant search experience through the use of functional and richer visual media, as well as to use game-like resources; (2) the second

Table 1 Research process

Steps	Exclusion criteria	Number of publications
Step 1	Selected database: WOS	–
	Search performed by topic (title, abstract, and keywords)	–
	Search date: June 30th, 2022 (2010–2022)	–
Search keywords		
Step 2	gamif* and co-creation	70
	gamif* and user-design	4
	gamif* and customization	56
	gamif* and engagement	2177
	Total of publications	2307
Step 3	Duplicate publications	61
	Total publications (duplicates eliminated)	2246
Step 4	Documents types: articles and reviews	1286 (960 excluded)
Step 5	Articles written in English	1237 (49 excluded)
Step 6	Web of Science Categories: business, management	157 (1080 excluded)
Articles for analysis = 157		

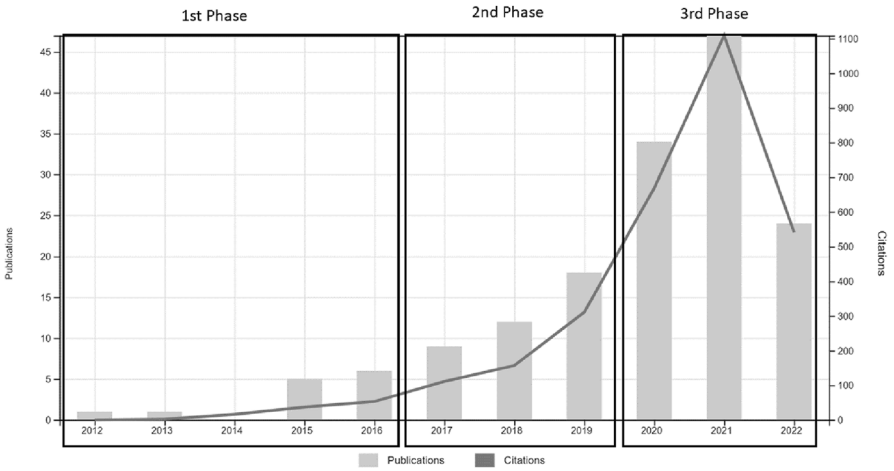


Fig. 1 Evolution of publications and citations

objective was to verify if they applied what was indicated in objective 1, if this would lead to an increase in engagement, improving the quality of the data. The authors used a qualitative methodology through interviews. Guin et al. (2012) report that they achieved the first objective but not the second. Thus, the anticipated benefits in data quality and engagement were not achieved.

We can divide the evolution of publications and citations into three phases: 1st phase in the period 2012–2016 (13 studies and 92 citations), 2nd phase in the period 2017–2019 (39 studies and 579 citations), and the 3rd phase in the period 2020 to 2022 (105 studies and 2318 citation). We divided the sample into 3 phases considering the number of publications per year. Thus, the 1st phase encompasses the years with up to 9 publications, and the 2nd includes years with between 10 and 19 publications. The 3rd phase encompasses years with 20 or more publications.

To understand which themes were the most studied in the three phases, we performed a co-occurrence analysis using the Vosviewer software (Fig. 2). This analysis allows us to verify the number of times words are repeated in the 157 publications. The keywords of the theme under study are used together in the sample of publications, indicating their relevance and proximity (Lopes et al. 2021b; Veloutsou and Ruiz Mafe 2020). For the co-occurrence analysis, we used as criteria "all keywords" and "full counting", which were repeated at least three times. Vosviewer selected 133 keywords that met the criteria previously indicated. After analysis, we found that some of the keywords were generic, excluding 17 keywords from the analysis. Thus, the co-occurrence analysis was left with 116 keywords.

As seen in Fig. 2, in the 1st phase (2012–2016), there are few topics studied because only 13 studies were published. The topics studied in this 1st phase were value co-creation, playfulness, badges, play and the internet. At this stage, the studies focus on creating value through playfulness and badges, as in the Aydin (2015) and Hamari (2013) examples.

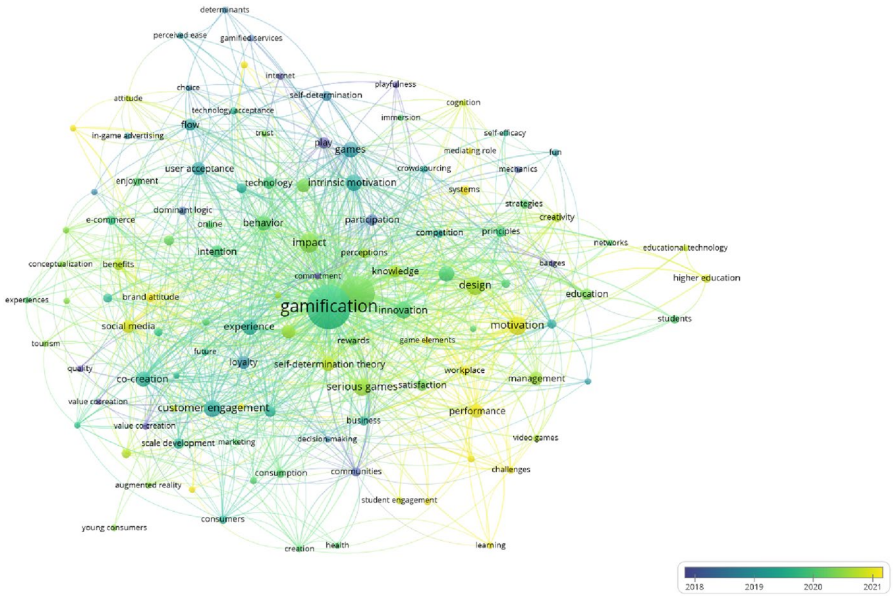


Fig. 2 Co-occurrence analysis

In the 2nd phase (2017–2019), Topics such as customer engagement, brand engagement, customer experience, motivation, intrinsic motivation, communities, crowdsourcing, social influence, games, fun, competition and participation were studied. At this stage, it appears that gamification is recognized as having great marketing potential. Gamification allows you to amplify engagement, as well as customer loyalty, through positive persuasion that motivates customers to participate in creating value for products and services (Noorbehbahani et al. 2019). By increasing customer engagement, companies' revenues also tend to increase (Eisingerich et al. 2019; Yang et al. 2017b).

In the 3rd phase (2020–2022), there is a greater diversity of studied topics. However, engagement continues to be studied. There is a trend in topics such as technology, innovation, information technology, information systems and e-commerce. With the development of e-commerce, interest in gamification has increased (Behl et al. 2020). The application of gamification can encourage the consumer to use services or products. Thus, e-commerce has used gamification in its marketing strategies to increase consumers' intention to use services or products.

Furthermore, the increased use of information technology can bring new market opportunities, such as virtual organizations (geographically dispersed and temporary teams) (George et al. 2022). On the other hand, Benitez et al. (2022) claim that using mobile technology in the work that human resources perform improves their satisfaction and the involvement of human resources. The same authors also state that information technology creates commercial value for companies and improves their performance.

The topics of serious games, video games, and satisfaction are also covered in the 3rd phase (2020–2022). Segundo Allal-Cherif et al. (2022) There are five dimensions to creating value: (1) socialisation; (2) cognition; (3) concepção, (4) emotion; and (5) optimisation. On the other hand, organizations can use serious games to promote sustainable behaviours (Mulcahy et al. 2021a). Gamification can be applied in the work environment through a scoring system, rewards and feedback (Miri and Macke 2022). However, it can also be applied to reducing consumption (e.g. electricity or water), producing a chain of relationships through the attribution of badges, trophies, and points (Mulcahy et al. 2021a). In the context of education (universities), serious games are still at an early stage. Although students like to learn through games, they do not favour using games in their assessments (Tews et al. 2020).

Still, in the 3rd phase (2020–2022), there are some studies in health and tourism. Applying gamification and serious games to health help affect well-being behaviours (Mulcahy et al. 2021b). Cheng et al. (2022) claim that mobile games that encourage outdoor physical activity (e.g. Pokemon Go), exposure to nature, and face-to-face socialization non-clinically alleviate mild depression in players of these types of games. Regarding tourism, online travel agencies (OTA) have already implemented gamification. The implementation of gamification contributed to the increase in tourists' perception of value, which in turn impacted the purchase intention of tourists during Carnival on the OTA platform (Shi et al. 2022). Already Abou-Shouk and Soliman (2021) state that tourism organizations may have shown interest in implementing gamification to increase customer engagement, be more recognized, and build loyalty to their brand and tourist destinations.

These themes in the 3rd phase (2020–2022) have emerged more recently in the literature. They can serve as a basis for formulating research questions: (1) How can gamification and co-creation be applied in tourism and hospitality? (2) How can gamification and co-creation increase customer participation in creating new products or services? (3) What are the benefits for organisations when applying gamification and co-creation? (4) What is the impact of gamification and co-creation on the performance of organisations? (5) Does the applicability of gamification and co-creation impact customer satisfaction? (6) How can we use virtual reality in gamification and co-creation in organisations? These research questions can serve as a starting point for future studies.

3.2 Performance by journal

The 157 publications are present in 84 journals and have 3013 citations. For this analysis, we considered only the journals with at least two publications (Table 2). Thus, we are left with 29 journals. We will analyze the number of publications and citations, the impact factor 2021, the impact factor five years and AJG 2021. We will also indicate the acceptance rate, time to review and publication of each journal.

As can be seen in Table 2, the Journal of Business Research has the highest number of publications (4) and citations (457). The journal has a 2021 Impact Factor of 10.969 and a Five Year Impact Factor of 10.602. This journal has a rating of 3 in

Table 2 Performance by journal

	Journals	Publications	Citation	Impact factor 2021	Impact factor five year	AJG 2021	Acceptance rate*	Time to review*	Time to publication*
1	Journal of Business Research	19	457	10.969	10.602	3	6–10%	3–6 months	Unavailable
2	Journal of Service Management	6	396	9.45	9.498	2	9%	1–2 months	Unavailable
3	International Journal of Management Education	5	75	4.564	4.746	1	30%	1–2 months	1–3 months
4	International Journal of Innovation and Learning	5	22	ESCI**	NA***	NA	42%	3–6 months	12 + months
5	European Journal of Information Systems	4	32	9.011	7.831	4	12%	3–6 months	Unavailable
6	Internet Research	4	86	6.353	7.596	3	17%	1–2 months	Unavailable
7	Journal of Interactive Marketing	4	144	11.318	12.333	3	12%	2–3 months	Unavailable
8	Journal of Retailing and Consumer Services	4	95	10.972	10.737	2	11–20%	2–3 months	3–6 months
9	Young Consumers	4	6	ESCI	NA	1	23%	1–2 months	Unavailable
10	Creativity and Innovation Management	3	29	3.644	4.527	2	11%	Unavailable	Unavailable
11	Electronic Commerce Research and Applications	3	333	5.622	6.671	2	13%	1–2 months	3–6 months
12	Information Systems Research	3	90	5.49	7.833	4	11–12%	3–6 months	12 + months
13	Journal of Asian Finance Economics and Business	3	0	ESCI	NA	NA	8%	1–2 months	3–6 months
14	Journal of Electronic Commerce in Organizations	3	17	ESCI	NA	1	15%	2–3 months	9–12 months
15	Marketing Intelligence and Planning	3	22	4.338	4.417	1	21%	1–2 months	Unavailable
16	Technological Forecasting and Social Change	3	3	10.884	10.403	3	Unavailable	3–6 months	Unavailable
17	Administrative Sciences	2	0	ESCI	NA	NA	NA	NA	NA

Table 2 (continued)

	Journals	Publications	Citation	Impact factor 2021	Impact factor five year	AJG 2021	Acceptance rate*	Time to review*	Time to publication*
18	Cogent Business and Management	2	26	ESCI	NA	1	26%	1–2 months	3–6 months
19	European Business Review	2	3	ESCI	NA	2	26%	< 1 month	Unavailable
20	Information and Management	2	2	10.328	11.37	3	8%	3–6 months	12 + months
21	International Journal of Market Research	2	105	2.513	2.305	2	18%	1–2 months	Unavailable
22	International Journal of Online Marketing	2	11	ESCI	NA	NA	20%	2–3 months	9–12 months
23	International Journal of Research in Marketing	2	51	8.047	7.595	4	6%	2–3 months	Unavailable
24	Journal of Management Information Systems	2	99	7.582	10.589	4	8%	2–3 months	Unavailable
25	Journal of Research in Interactive Marketing	2	36	10.176	8.598	1	29%	1–2 months	Unavailable
26	Journal of Retailing	2	11	11.19	10.677	4	12%	2–3 months	6–9 months
27	Journal of Service Theory and Practice	2	23	4.545	5.247	1	13%	2–3 months	Unavailable
28	Knowledge Management Research and Practice	2	0	3.054	3.092	1	14%	3–6 months	Unavailable
29	Tourism Management	2	130	12.879	13.761	4	15%	2–3 months	Unavailable

*Source: Cabell's (https://www2.cabells.com/), accessed July 2nd, 2022

***ESCI* Emerging Sources Citation Index

****NA* not applicable

AJG 2021 indexing, having an acceptance rate between 6 and 10% and an average review time of 3–6 months. The Journal of Business Research belongs to Elsevier Publisher, and the publications in the JCR category are in Business. The journal's scope focuses on studies on business activities in real environments.

The Journal of Services Marketing is the second most cited (396) with six publications. The journal has a 2021 Impact Factor of 9.45 and a Five Year Impact Factor of 9.498. The journal is ranked 2 in the AJG 2021 index. It has an acceptance rate of 9%, and reviews have an average review time of 1–2 months. The Journal of Services Marketing is part of Emerald Group Publishing, and publications in the JCR category are in business. The journal's scope focuses on studies in services marketing in service industries.

The International Journal of Management Education and the International Journal of Innovation and Learning have the same number of publications (5). However, the International Journal of Management Education has more citations (75). The International Journal of Management Education has a 2021 Impact Factor of 4564 and a Five Year Impact Factor of 4746. In terms of indexing, AJG 2021 has a rating of 1. This journal has a 30% acceptance rate, a 1–2 month review time, and the publication process takes 1–3 months. This journal belongs to Elsevier Publisher, and the publications in the JCR categories are in business, education and educational research, and management. The journal's scope focuses on studies in educational developments in business, finance and accounting, and management.

The International Journal of Innovation and Learning has 22 citations, with an ESCI Impact Factor 2021. This journal has a 42% acceptance rate, with an average review time of 3–6 months. The entire publication process takes more than 12 months. This journal belongs to Inderscience Publishers, and the publications in the JCR categories are in economics and business. The journal's scope focuses on studies in practices and the development of learning and innovation.

With regard to Publishers, it can be seen that in the 157 publications, there are 19 Publishers. Elsevier stands out for having 49 publications, which corresponds to 31.21% of the sample. Then comes Emerald Group Publishing, with 44 publications representing 28.03% of the sample. Taylor & Francis has 18 publications, representing 11.47% of the sample. These three publishers published more than 70% of the studies in the sample.

3.3 Performance by authors

Of the 157, there are 451 authors or co-authors. Next, we will analyze which ones have the most impact on the subject under study. We considered authors or co-authors with at least two publications for this analysis. Thus, of the 451 authors, 33 remained, which are in Table 3.

The author Hamari, Juho, is the most cited (412). However, he is not the one with the most published studies in the sample, as he has 5. The author is affiliated with Tampere University and has 104 publications in WOS, and 8261 are cited, corresponding to H-Index 39. The author's research fields are virtual reality, sharing

Table 3 - Performance by authors

Position	Author	Documents	Citations	Position	Author	Documents	Citations
1	Hamari, Juho	5	412	18	Wolf, Tobias	2	38
2	Buhalis, Dimitrios	2	272	19	Iacobucci, Dawn	2	35
3	Harwood, Tracy	2	270	20	Patricio, Rui	3	33
4	Hammedi, Wafa	6	221	21	Zurlo, Francesco	3	33
5	Leclercq, Thomas	7	168	22	Mulcahy, Rory Francis	2	14
6	Poncin, Ingrid	5	168	23	Kunkel, Thilo	2	10
7	Liu, De	2	89	24	Behl, Abhishek	3	9
8	Santhanam, Radhika	2	85	25	Gupta, Manish	3	9
9	Russell-Bennett, Rebekah	4	69	26	Jayawardena, Nirma	2	7
10	Hogberg, Johan	2	55	27	Di Pietro, Laura	2	3
11	Mulcahy, Rory	2	55	28	Pasca, Maria Giovina	2	3
12	Wastlund, Erik	2	55	29	Renzi, Maria Francesca	2	3
13	Gustafsson, Anders	2	45	30	Luo, Lei	2	0
14	Buil, Isabel	2	41	31	Matz, Robbie	2	0
15	Catalan, Sara	2	41	32	Qian, Tyreal Yizhou	2	0
16	Hammerschmidt, Maik	2	38	33	Xu, Chenglong	2	0
17	Weiger, Welf H	2	38				

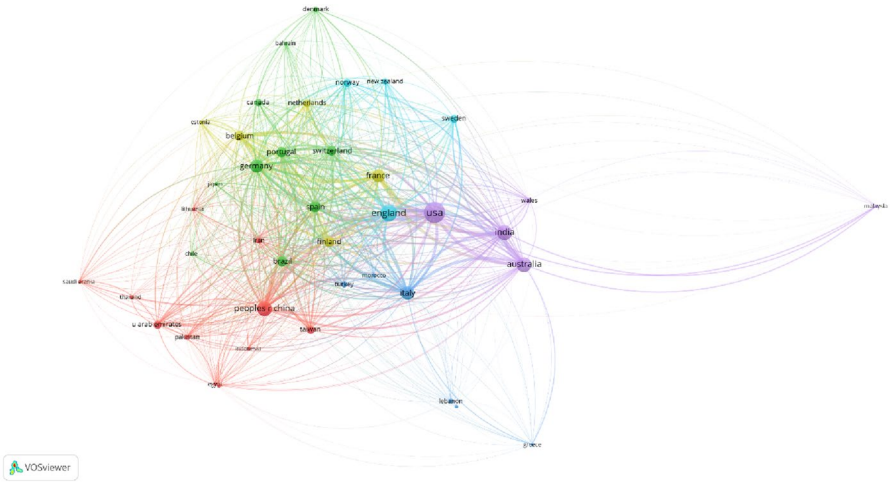


Fig. 3 Cluster analysis of countries

economy, sharing ec, human–computer interaction, gamification, game studies, esports, crowdsourcing, and augmented reality.

Author Leclercq, Thomas has the most publications (7) and has 168 citations in the sample. The author is affiliated with the IESEG School of Management and has nine publications in WOS, and it was cited 269 times with an H-Index 7. Some of his fields of study are marketing, business, customer relationship management and consumer behaviour.

Hammedi, Wafa is the second author with the most publications (6) and has 221 citations in the sample. The author has 25 publications at WOS and is affiliated with the University of Namur. The author has 744 citations which correspond to an H-Index 15. His fields of study include business, marketing management, technology and innovation, consumer behaviour, and services marketing.

Concerning nationalities, the sample of 157 publications includes 41 countries. The USA is the one that publishes the most (33), as well as the one that is cited the most (955). England comes next with 20 publications and 857 citations, and Australia has 17 publications and 374 citations. However, Finland, with only 8 publications, has 435 citations. In Fig. 3, we can visualize a cluster analysis of the countries, thus identifying 6 clusters.

Figure 3 shows the countries that collaborate the most. Many countries that make up the cluster have a location close to it. The red cluster comprises Egypt, Indonesia, Iran, Lithuania, Oman, Pakistan, China, Saudi Arabia, Taiwan, Thailand and the United Arab Emirates. The green cluster comprises Bahrain, Brazil, Canada, Chile, Denmark, Germany, Japan, Portugal, Spain, and Switzerland. The dark blue cluster comprises Greece, Hungary, Italy, Lebanon, Morocco and Turkey. The yellow cluster includes the following countries: Belgium, Estonia, Finland, France and Netherlands. The purple cluster includes the following countries: Australia, India, Malaysia, USA and Wales. Finally, the blue cluster includes England, New Zealand, Norway and Sweden.

4 Building the model and implications for future research

4.1 Building the model

An implementation of gamification in a business context requires procedures for its construction and implementation. The model cannot focus exclusively on creating a game, but the process and the business strategy will be enriched with game mechanisms and elements (Barbosa and de Ávila 2020). We will make a model proposal to help companies implement a gamified business strategy.

4.1.1 Game-on

The "Game-on" aims to ensure a comprehensive analysis of the foundations of strategic action since one of the obstacles pointed out for implementing a strategy is the poor definition of objectives. Therefore, it is recommended that the organizational objectives be well structured and, at the same time, that there be no doubts as to the organisation's technological capacity, the target audience and the market where it is inserted (Harwood and Garry 2015; Klock et al. 2021). Thus, it is necessary to contextualize the gamification where it will be implemented since the outcomes of the gamification process depend on the context and its use (Hamari 2013). This first step is the analysis and exploration phase. Based on the needs of the organization or organizational problem, the structure, objectives, rules of the game, behaviours and emotions predicted by users are defined (Leclercq et al. 2017; Robson et al. 2016), which can be superior objectives if were directly related to the identified problem or behavioural objectives if they are related to specific behaviours that you want to change in consumers. Objectives must be defined to understand the target goal and become clear and measurable, and objectives must be listed by priority and contain an explanation (Santos et al. 2021). Focusing on a limited range of objectives reduces complexity and ensures compliance (Robson et al. 2016; Santos et al. 2021). Ethical questions should be considered (Thorpe and Roper 2019).

To define gamification goals, we have to analyze the market context where the gamified strategy will be applied, the audience covered or target of gamification and the technological capacity to implement the gamified strategy.

4.1.2 Action plan

Regarding the "Action Plan", the literature advises dividing the goal into small milestones to promote the participants' motivation. In the "Action Plan", different types of players present different motivations and challenges (Nobre and Ferreira 2017). In this sense, it is important to typify the audience as their type of player to better structure the rules and narrative (Meij et al. 2017; Santos et al. 2021). According to Nacke et al. (2011), there are seven types of players according to the type of behaviour displayed in the game and their motivations: "seeker, daredevil, mastermind, conqueror, socializer, and achiever" (pp. 1). It is also in the "Action Plan" that the

strategy for communication and interaction between players should be designed (Jun et al. 2020). Not only because the social influence on the players' decisions has been validated but also because of the danger pointed out by some companies, that if the action is not correctly presented to the public, it risks discrediting the idea (Leclercq et al. 2018, 2020). Outlining desirable behaviours for the different types of players is essential. After phase one, the objectives have been formulated, but the activities and behaviours of the players in the gamified process must also be outlined (Santos et al. 2021).

4.1.3 Maturing

Regarding "Maturing" and considering the strategic narrative to be developed, the gamification mechanics that best suit the players' objectives and profiles are added to increase their engagement (Abou-Shouk and Soliman 2021; Quach et al. 2021). Gamification can be defined as a process of improving service with the introduction of game elements (Wolf et al. 2020). These game elements must be defined based on the defined objectives on the profile of the players, allowing the construction of a narrative that will lead to consumer engagement (Meij et al. 2017). The narrative must contain fictitious elements combined with real elements and can change the target audience's beliefs (Cheng et al. 2022). Also, it is necessary to select the gamification platform. The gamification platform can be a starting point for developing brand equity co-creation and, consequently, brand growth through innovation-induced co-creation (Nobre and Ferreira 2017). For this, the platform must be easy to access and use, useful and enjoyable (Kamboj et al. 2020). We realize that the strategic action must contain accurate and measurable indicators to be considered valid by the company. Therefore, in this phase, the connection between the main Key Performance Indicators (KPIs) must be aligned with success factors and business objectives (Trinidad et al. 2018). The managers can be engaged and coordinated through gamification. Engagement and coordination must be allied, and their best combination will allow the co-creation of new solutions through gamification (Patricio et al. 2020) and for that, it is necessary to control the performance of the implemented strategy. In this sense, it is also recommended to carry out a pre-test to check the public's acceptance of the strategy to be implemented (Ruengaramrut et al. 2020).

4.1.4 Execution

Regarding the "Execution", the same consists of the action implementation. In the "Execution", the literature points to the need to communicate the gamified strategy internally first and then externally, thus enabling the creation of a continuous communication channel and meeting a need that companies and consumers consider a critical success factor (Buhalis 2020; Harwood and Garry 2015). Gamification has to be related to the marketing strategy to be successful (García-Magro and Soriano-Pinar 2019). For this, internal and external onboarding is essential since orientation support encourages exploration and increases the quality of feedback reliability and a sense of autonomy (Gatautis et al. 2016; Rapp 2020). Also, Frequency Asked

Questions (FAQ) allows users to check frequently asked questions before creating a new ticket with doubts, encouraging users to use the most intense of the gamified elements (Sigala 2018).

4.1.5 Recapitulate

The "Recapitulate" consists of the recapitulation and evaluation of actions. The literature points out that strategic effectiveness may not directly relate to customer satisfaction, so they should be analyzed separately. Gamified strategic actions may need to be adjusted so that they can evolve over time with the organisation's objectives and the audience's needs (Bolton et al. 2018; Harwood and Garry 2015; Wagstaff et al. 2021). Using gamification elements can enhance active, immediate and accelerated feedback, allowing organizations to achieve faster goals (Hamari 2013). User feedback attracts or retains users in a motivating and challenging way and drives innovation, allowing for constant evolution in terms of game elements and overall user experience and satisfaction (Beard-Gunter et al. 2019). Active feedback can also improve the outcomes of the gamified strategy (Ortiz-Martínez et al. 2022). Gamification can positively influence the satisfaction of user needs at an intrinsic level, namely autonomy and relationship (Xi and Hamari 2020). It can make activities more interesting, exciting and enjoyable, increasing user acceptance, satisfaction and engagement (Baptista and Oliveira 2017; Harwood and Garry 2015; Pasca et al. 2021) as well as brand loyalty (Abou-Shouk and Soliman 2021). These behaviour resulting from using game elements in the user will increase users' typification by refining their profile first defined in the "action plan" (Hamari 2013; Santos et al. 2021).

Taking into account the above, in Fig. 4, we present the "GAMER" Model. Through the literature review, this model includes five phases (game-on; action plan, maturation, execution and recapitulation), which were previously explained and aimed to assist companies in implementing a gamified business strategy.

4.2 Future lines of research

In Table 4 we present the implications for future research based on the "GAMER" Model.

5 Conclusion

5.1 Main conclusions

This study aims to carry out a bibliometric analysis of literature on the concepts of gamification and co-creation, enabling an assessment of their roles in user engagement and value creation for organisations.

Using a gamified strategy by organisations can be a powerful brand communication tool, and actively influence user engagement, creating active loyalty,

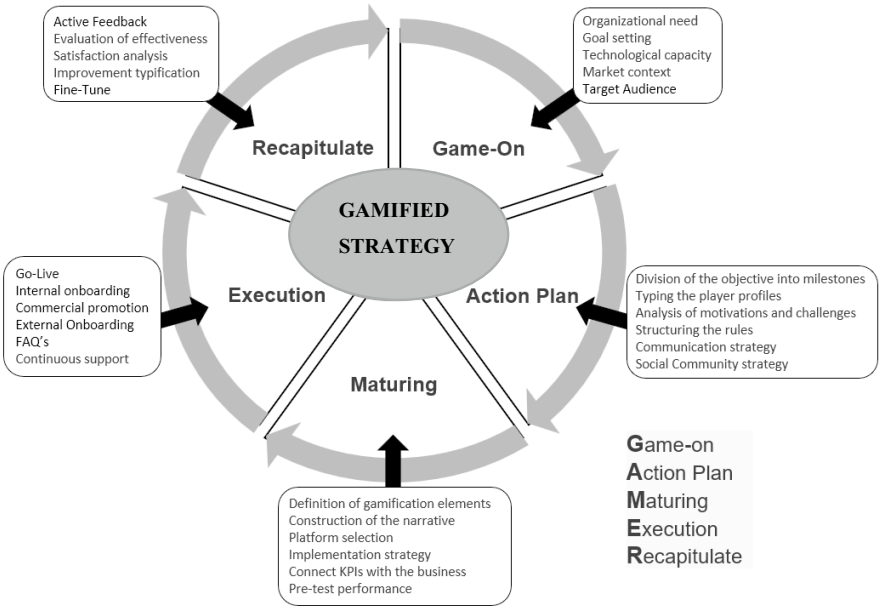


Fig. 4 Gamified strategy implementation—model "GAMER"

word-of-mouth, and value for users and organisations. The motivations for a consumer to engage in a gamified strategy can be diverse, and, in general, consumers consider the impact of this type of strategy positive, recognising its validity. For greater consumer involvement, companies must have gamified co-creation tools.

This study is comprehensive, not restricted to a bibliometric analysis for a specific industry or area and contributes to the literature on this topic that is still scarce (Huotari and Hamari 2017; Nobre and Ferreira 2017; Yang et al. 2017a). It also proposes a model for implementing a gamified strategy with value co-creation for users and organisations, thus making the study original. This model includes five phases: (1) the initial "game-on" phase in which the organisation's objectives are defined, and the existing resources for implementing the gamified strategy are assessed; (2) the "action plan" in which the objectives are divided into sub-objectives to increase user participation, and the players are typified; (3) "maturing" in which gamification mechanics tailored to objectives and user profiles are added to the strategy and KPIs are defined; (4) "Execution" where the gamified strategy is communicated internally and then externally and (5) "Recapitulate" in which there is recapitulation and evaluation of strategic actions.

5.2 Practical and theoretical implications

In terms of practical implications, before developing a gamified strategy action, organisations must invest in the typification of the consumer profile present, namely

Table 4 Future lines of research

Model "GAMER" phases	Future lines of research	Authors
Game-on	A longitudinal approach to capture the evolution of user engagement over time in combination with its value dimensions	Leclercq et al. (2017)
	Evaluate the influence of demographic, social and emotional factors on users to understand their attitudes and behaviours in gamified dynamics	Thorpe and Roper (2019)
Action Plan	Gamification applications effectiveness as a means of transforming behaviours and inducing new habits	Pasca et al. (2021), Hammedi et al. (2017)
	Service providers perspective	Pasca et al. (2021)
	Capture and understand the dynamics involved in gamification	Robson et al. (2016), Kim et al. (2020)
Maturing	Exploration of different plataform ou application	Pasca et al. (2021); Kamboj et al. (2020)
	Co-creation and co-design with stakeholders of gamification tools	Patricio et al. (2020)
Execution	Gamified platforms-needs of user mechanics	Pasca et al. (2021), Al-Zyoud (2021), Kamboj et al. (2020), Buhalis et al. (2019)
	Systematically and intelligently implementing custom game elements to establish a specific gaming experience for different types of users	Garcia-Magro and Soriano-Pinar (2019) Marell-Olsson (2019)
Recapitulate	Negative effects of gamification	Pasca et al. (2021), Nobre and Ferreira (2017), Syrjala et al. (2020)
	Benefits and risks for stakeholders	Pasca et al. (2021), Abou-Shouk and Soliman (2021)
	Different methodologies and cultural context	Pasca et al. (2021)
	How game designers should mediate between different stakeholders, communicating seamlessly with frequent interactions	Wagstaff et al. (2021)

in their public, thus enabling the construction of narratives adapted to each profile, foreseeing a higher probability of success in their actions. Nacke et al. (2011) identified seven types of players according to the type of behaviour displayed in the game and their motivations, but there may be even more player profiles. Many gamified strategic actions are oriented toward marketing and, more specifically, towards the sales process, which is often not in line with consumer expectations. Thus, it is necessary that gamified strategic actions are defined according to the emotional, behavioural and cognitive involvement of each of these users with the gamified platform (Hammedi et al. 2017) and promote extra-sensory, hyper-personalised experiences and experiences other than automation (Buhalis et al. 2019). It also provides important results for managers engaging and coordinating different stakeholders (from workers to clients) through game elements. The combination of coordination and engagement achieved through the "GAMER" model will be the best strategy to co-create innovative solutions through gamification. The success of gamification derives from the efficient alignment between the objectives of the organizations, the game elements, the adequacy to the user's profile, its control and support and the continuous feedback, failing when these assumptions are not aligned with the motivations of the players involved.

In terms of theoretical implications, this study contributed to the literature that links gamification to co-creation through gamified business strategies. The proposed model "GAMER" should be adopted by companies and academics so that it may contribute to a better orientation of the development of a gamified strategy, reducing possible mistakes already experienced in past situations. On the other hand, this study contributes to the enrichment of academic knowledge in the areas of management and marketing, providing a holistic view of the application of gamification in terms of strategy for co-creation, mirroring not only its possible applications but also its advantages and challenges observed.

5.3 Limitations and future lines of research

Regarding limitations, the bibliometric literature analysis relies only on Web of Science articles. Even if this database is classified as one of the most comprehensive databases of peer-reviewed publications, it is not the only one, on the other hand, the filtering process applied may have omitted literature. In addition, other keywords could have been considered, and since there is a continuity of publication of articles, our study only refers to the period studied (January 1st, 2010 to June 30th, 2022). For future research, having validated the impulse of the gamified strategy for the engagement of the target audience of organisations, it is necessary to evaluate its repercussions in organisations. Future studies should consider users' psychological and psychological characteristics to better understand the influence of cognitive ability, attitudes and behaviours of active and passive users on the gamified strategy of organisations. Other analyses, such as the applied methodologies and methods, can be carried out. The theories used in the articles can also be analyzed and cluster analysed. It is also suggested that the "GAMER" model be applied in organisational contexts for this model to be empirically validated.

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Data availability The data that support the findings of this study are available in https://www.webofscience.com/.

Declarations

Conflict of interest The authors have no conflicts of interest to declare.

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