Trends and Patterns in Gamification and Crowdfunding Research: A Bibliometric Study from Scopus

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Abstract. This study conducts a rigorous bibliometric analysis to investigate the evolving scholarly discourse at the intersection of gamification and crowdfunding. Drawing on bibliographic data retrieved from the Scopus database as of May 2025, the research identifies and maps trends in publication output, citation impact, and the intellectual structure of the field. Through performance analysis, co-citation networks, keyword co-occurrence, and bibliographic coupling, the study delineates the thematic evolution, dominant contributors (authors, countries, and journals), and key research foci. The findings reveal a significant increase in scholarly interest since 2019, with Finland and India emerging as central contributors. Moreover, the results highlight seven thematic clusters encompassing domains such as donor motivation, trust formation, emotional engagement, disaster response strategies, and branding through gamified crowdfunding in emerging markets. This integrative mapping not only elucidates the current state of knowledge but also offers strategic directions for future interdisciplinary research and practical guidance for digital platform developers and policymakers aiming to enhance participatory finance ecosystems through gamification.

Keywords: Gamification, Crowdfunding, Bibliometric Analysis, Crowdsourcing, Donation

Introduction

Crowdfunding has emerged as a vital alternative financing mechanism across various sectors, including entrepreneurship, education (Baldissarro et al., 2025), and healthcare (Moysidou et al., 2023). By leveraging online communities, crowdfunding facilitates access to capital without relying on traditional financial institutions (Darma., 2022). The success of crowdfunding campaigns depends not only on project presentation but also on user engagement and motivation (Geiger & Moore, 2021).

User motivation is shaped by extrinsic factors such as rewards, social recognition, and community relationships (Jöntgen et al., 2024). Gamification, defined as the application of game elements, such as points, badges, leaderboards, and challenges, in non-game contexts, has been increasingly employed to enhance user engagement and motivation (Tobón et al., 2019; Oliveira et al., 2024). Elements such as leaderboards and badges, in particular, have been shown to significantly boost intrinsic motivation (Sailer et al., 2021).

Contrasting with conventional approaches that emphasize project transparency (Ferreira et al., 2021) and narrative appeal (Cappa et al., 2020), gamified crowdfunding introduces new behavioral dynamics by fostering deeper engagement, competition, and social interaction (Golrang & Safari, 2021; Stratopoulos & Ye, 2024).

Recent research on crowdfunding and gamification has highlighted a rapidly growing trend in academic literature (see Table 1), in line with the digital transformation of participatory financing. In particular, reward-based crowdfunding has emerged as a popular model, as it offers reciprocal incentives to backers (Kalayci & Okuyan, 2025). Gamification within this context further enhances intrinsic motivations, such as achievement and self-expression, while also reinforcing extrinsic motivations through reward systems and social reputation mechanisms (Huang et al., 2024; Jöntgen et al., 2024).

Although studies on gamification and crowdfunding continue to expand, bibliometric research that integrates both fields remains limited. Several studies have mapped trends in each domain separately (Trinidad et al., 2021; Kalayci & Okuyan, 2025), yet few have comprehensively integrated them.
This study aims to conduct a bibliometric analysis of scientific publications discussing the topics of gamification and crowdfunding, utilizing data obtained from the Scopus database. The analysis seeks to identify publication trends, the most active authors and institutions, the most productive journals, and the most influential academic articles. Additionally, this study will explore key themes and conceptual linkages through co-occurrence and co-citation approaches. The study is designed to address the following four primary research questions:

RQ1. What are the publication growth trends and citation impact in the field of gamification and crowdfunding?
RQ2. Which countries and journals have made the most significant contributions to this topic?
RQ3. Which publications have the greatest scientific influence?
RQ4. What are the key themes and research directions in this field?

This version keeps your questions precise and formal while ensuring clarity for international academic audiences. If you need further refinements or adjustments, just let me know! Your bibliometric approach is solid, this study has the potential to uncover valuable insights.
By addressing these research questions, this study aims to present a comprehensive and strategically oriented scientific mapping of the intersection between crowdfunding and gamification research. The findings are also expected to provide practical contributions to digital platform developers and policymakers interested in advancing the gamification-based crowdfunding ecosystem.

Methods

The data used in this study was taken from the Scopus database as of May 26, 2025. Scopus was chosen as the main database because it includes a higher number of quality papers as well as a wider range of journals indexed in it (Falagas et al., 2008). Therefore, Scopus was purposely used in this study as recent research suggests that this database may be a better choice thanks to its wide coverage of relevant journals, especially for conducting literature reviews in the fields of social science, business and

management (Boateng et al., 2024; Salazar-Concha et al., 2021). In addition, some argue that the Scopus database is relatively more comprehensive than other databases in terms of article collections (Rejeb et al., 2022, 2023a).

A systematic search strategy was implemented (see Figure 1) using the keyword "Gamification" to retrieve a broad range of studies within the relevant research domain. This initial search yielded a total of 7,678 publications. To narrow the scope and focus specifically on literature addressing the topic of crowdfunding, a secondary filtering process was conducted by incorporating the query "Title-Abs-Key" AND "Crowdfunding". This refinement eliminated 7,659 publications, leaving 19 articles for further evaluation.

Subsequently, a second exclusion layer was applied based on publication type to ensure the inclusion of only peer-reviewed journal articles. This step resulted in the removal of an additional 9 publications, producing a final selection of 10 articles, as depicted in Figure 2.

Table: 1
relevant studies discussing gamification and crowdfunding.

Sr. No.	Author(s)	Focus of the paper	Technique(s) Used	Sample Size
1	Behl, et al (2025)	Recurring Donations on Crowdfunding Platforms	Quantitative	514
2	Anim, et al (2024)	The Impact of Gamification on Donation Intentions in Crowdfunding Platforms	Quantitative	339
3	Stratopoulos & Ye (2024)	Gamification in Medical Crowdfunding	Quantitative	3,415
4	Mariani & Chatterjee (2024)	The Influence of Trust in Crowdfunding and Financial Incentives on Crowdsourcing Success	Quantitative	319
5	Nawaz, et al (2023)	The Accessibility of Gamification for Boosting Followers in Crowdfunding Brands	Quantitative	1,184
6	Xu, et al. (2022)	Analysis of Factors Influencing the Success of Crowdsourcing Campaigns	Quantitative	135
7	Golrang & Safari (2021)	Gamification in Crowdfunding Platforms to Enhance User Engagement	Quantitative	60
8	Behl & Duta (2020)	Attracting Donors in Crowdfunding Platforms Through Gamification	Quantitative	321

| 9 | Morschheuser, et al.(2019) | The Impact of Gamification in Crowdsourcing | Quantitative | 170 |
| 10 | Morschheuser & Hamari. (2019) | Gamification in Crowdsourcing | (Conceptual) Literature Review | - |

These ten articles were published between 2018 and 2024, covering six years following the screening process. Following the guidelines proposed by Donthu et al. (2021), researchers are advised to rigorously clean bibliometric data to minimize inaccuracies, including the removal of duplicate or erroneous entries. This data refinement was performed after obtaining the CSV and RIS files from the selected databases.

The RIS file was analyzed using VOSviewer (van Eck & Waltman, 2010), supported by Microsoft Excel to facilitate comprehensive descriptive analysis. Based on the curated dataset, a final objective analysis was conducted and is presented in the following sections.
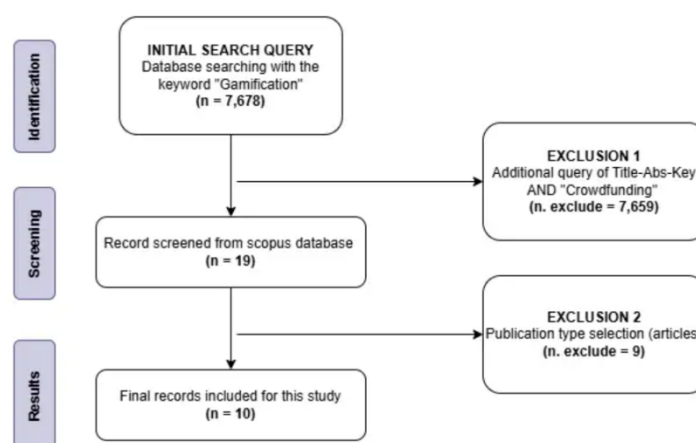
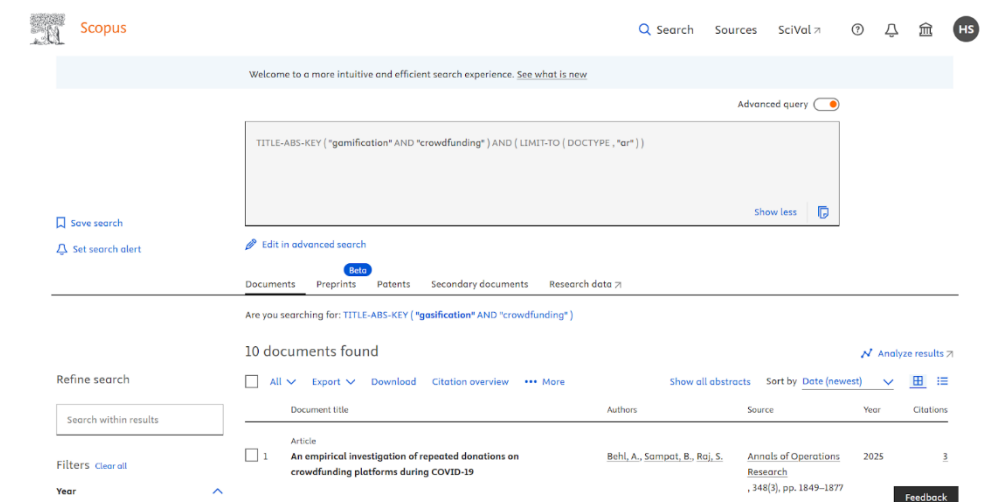

Figure 1. Article Process Selection

Figure 2. Number of documents in the Scopus database

In addition to performance analysis and co-citation mapping, this study employed keyword co-occurrence and bibliographic coupling as the primary bibliometric techniques to explore emerging knowledge themes within the field.

Result and Discussion

1 . Research Trends

RQ1 aims to explore the trends and impact of publications from year to year. This question is intended to provide an objective and measurable view of research developments in the field of Gamification and Crowdfunding, and their impact. Figure 3 shows the trend in the number of publications per year from 2019 to 2025. Based on this data, 10 publications were analyzed. Two publications were published in 2019, one in each of the years 2020 to 2023, then a spike to three publications in 2024, and one publication in 2025. This trend shows that interest in the topics of Gamification and Crowdfunding began to grow from 2019, with small fluctuations in the following years, and a more pronounced increase in 2024.
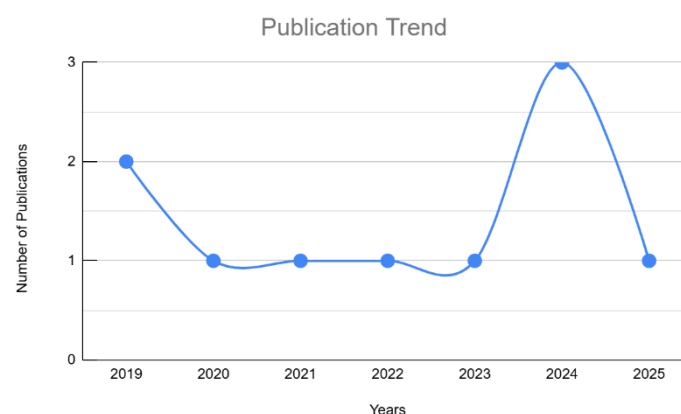

Figure 3. Publication Trend

Table 2 also presents the total citations received by these publications. The 2019 publications showed the greatest academic impact with 223 citations, followed by 2020 (81 citations), 2022 (28 citations), and 2021 (22 citations). Meanwhile, although there was an increase in the number of publications in 2024,

the impact in terms of citations was still low, only 4 citations, the same as in 2023 and 2025. Overall, the 10 publications generated a total of 366 citations, with the largest contribution coming from 2019 (around 60.93% of total citations), followed by 2020 (22.13%), 2022 (7.65%), and 2021 (6.01%). The rest came from publications of more recent years.

Table: 2
Citation performance of the analyzed publications.

Year	Publications	Age	Total Citations	Average citations per publication	Average citations per year
2019	2	6	223	111.5	37.16
2020	1	5	81	81	16.2
2021	1	4	22	22	5.5
2022	1	3	28	28	9.33
2023	1	2	4	3.33	5
2024	3	1	4	1.33	4
2025	1	0	4	4	0

2. Key Contributors in the Field of Gamification and Crowdfunding

To answer the second research question (RQ2) in this study, we identified the main contributors in the field of Gamification and Crowdfunding by analyzing metadata based on the country of origin of the author's affiliated institution and the source of journal publications. This analysis is useful to determine the geographical distribution of research and identify the most influential scholarly publication channels on this topic. This approach is in line with common practice in bibliometric analysis, which emphasizes the importance of understanding institutional contributions and scientific dissemination channels in shaping the direction and scope of a research field (Donthu et al., 2021). In addition, mapping contributions by country and journal can also provide insights into the knowledge centers and research networks that dominate discourse in this field (Rejeb et al., 2023).

2.1 Countries

An analysis of the 10 publications indexed in the Scopus database reveals the involvement of 12 countries in research on gamification and crowdfunding. Finland ranks highest as the most active contributor, with a total of three publications and 251 citations, most of which stem from the academic activities of the Gamification Group at Tampere University. Studies from Finland predominantly emphasize methodological aspects and fundamental concepts related to the application of game elements in crowdfunding systems. India also demonstrates a significant contribution with an equal number of publications (three articles) and has garnered 87 citations. Research originating from India primarily adopts a quantitative approach, focusing on donor behavior analysis and factors influencing campaign success. Additionally, Germany, China, and the United States have each contributed two articles, with a shared emphasis on cross-country collaboration and perspectives on design and user behavior in gamification implementation. Other countries, such as Malaysia, Canada, the United Kingdom, Iran, Pakistan, France, and Saudi Arabia, each contributed one publication, with varying levels of citation impact. This reflects a broad but uneven international engagement in this research domain.

Table: 3
Top Contributing Countries

Country	Publications	Country	Total Citations
Finlandia	3	Finlandia	251
India	3	India	87
China	2	China	28
Germany	2	Germany	223
United States	2	United States	6
Malaysia	1	Malaysia	0
Prancis	1	Prancis	4
Kanada	1	Kanada	2
United Kingdom	1	United Kingdom	2
Iran	1	Iran	22
Pakistan	1	Pakistan	4
Saudi Arabia	1	Saudi Arabia	0

2.2 Journal

This study also evaluates the contribution of relevant journals to the body of literature on gamification and crowdfunding. The analysis is based on the total number of publications and citations attributed to each journal. The dataset comprises 10 publications related to gamification and crowdfunding, distributed across 10 different journals. The results, presented in Table 4, highlight journals that have made significant contributions in terms of both productivity (number of published articles) and scientific impact (number of citations received). Among all journals analyzed, only three (30%) demonstrated notable contributions, each publishing one article on the topic. In terms of citation impact, the International Journal of Human-Computer Studies ranks highest with a total of 164 citations, indicating its substantial influence in the area of gamification and crowdfunding. Additionally, the International Journal of Information Management and the Journal of Management Inquiry also stand out, with 81 and 59 citations, respectively.

Table: 4
The leading journals based on the number of publications and citations.

Journal Name	Publications
International Journal of Human Computer Studies	1
International Journal of Information Management	1

Journal of Management Inquiry	1
Journal of Business Research	1
Entertainment Computing	1
Annals of Operations Research	1
Journal of Product and Brand Management	1
IEEE Transactions on Engineering Management	1
Journal of Management Information Systems	1
Institutions and Economies	1

Journal Name	Total Citations
International Journal of Human Computer Studies	164
International Journal of Information Management	81
Journal of Management Inquiry	59
Journal of Business Research	28
Entertainment Computing	22
Annals of Operations Research	4
Journal of Product and Brand Management	4
IEEE Transactions on Engineering Management	2
Journal of Management Information Systems	2
Institutions and Economies	0

3. Scientific Impact of Publications

This study also seeks to address the third research question (RQ3), which centers on the identification of the most influential scholarly publications within the intersecting domains of gamification and crowdfunding. The findings pertinent to this inquiry are of critical importance, as they illuminate areas of research that have attracted considerable scholarly attention and have made substantive contributions to the academic discourse. Publications with the highest citation counts serve as indicators of intellectual influence, reflecting the extent to which particular works have shaped and advanced the theoretical and empirical understanding of the subject matter.

As presented in Table 5, among the ten publications examined collectively amassing a total of 366 citations four publications alone accounted for 304 citations. The publication with the lowest citation count among these four received 59 citations. These results underscore the concentration of scholarly influence within a select subset of works, predominantly those addressing the impact of gamification

on crowdsourcing processes (e.g., Morschheuser & Hamari, 2019; Morschheuser et al., 2019), as well as key success factors in crowdfunding initiatives (e.g., Xu et al., 2022).

Notably, the article authored by Morschheuser et al. (2019) emerges as the most highly cited publication, with 164 citations according to the Scopus database. This work is regarded as the most influential in the combined fields of gamification and crowdfunding, offering key insights into the efficacy of team-based competitive gamification strategies in enhancing user enjoyment, fostering participation in crowdsourcing activities, and promoting users' voluntary advocacy of the system. Other prominent contributions include the article by Behl and Dutta (2020), with 81 citations, and that of Morschheuser and Hamari (2019), with 59 citations. Meanwhile, the publication by Xu et al. (2022), which has received 28 citations, constitutes a significant contribution to the literature on the determinants of crowdfunding success. A comprehensive overview of these influential publications is provided in Table 5.

Table: 5
The leading cited publication.

Citations	Author(s) and year	Title	Source	Age	Average Citation Per Year
164	Morschheuser et al. (2019)	Cooperation or competition – When do people contribute more? A field experiment on gamification of crowdsourcing	International Journal of Human Computer Studies	6	37.16
81	Behl & Dutta (2020)	Engaging donors on crowdfunding platform in Disaster Relief Operations (DRO) using gamification: A Civic Voluntary Model (CVM) approach	International Journal of Information Management	5	16.2
59	Morschheuser & Hamari (2019)	The Gamification of Work: Lessons From Crowdsourcing	Journal of Management Inquiry	7	8.42
28	Xu, et al. (2022)	What determines the successfulness of a crowdsourcing campaign: A study on the relationships between indicators of trustworthiness, popularity, and success	Journal of Business Research	4	7
22	Golrang & Safari (2021)	Applying gamification design to a donation-based crowdfunding platform for improving user engagement	Entertainment Computing	4	5.5

4	Nawaz, et al (2023)	Brand crowdfunding using followers boosted through gamification affordances: insights from two emerging markets	Journal of Product and Brand Management	2	2
4	Behl, et al (2025)	An empirical investigation of repeated donations on crowdfunding platforms during COVID-19	Annals of Operations Research	2	2
2	Stratopoulos & Ye (2024)	Engagement and Crowding-Out Effects of Leaderboard Gamification on Medical Crowdfunding	Journal of Management Information Systems	1	1
2	Mariani & Chatterjee (2023)	Examining the Influence of Trustworthiness, Financial Rewards, and Admiration for Crowdsourcing in the Post COVID-19 Period	IEEE Transactions on Engineering Management	2	1
0	Anim, et al (2024)	Impact of Gamification on Intention to Donate Using Crowdfunding Platform: Evaluating the Mediating Roles of Affective User Experience and Trust	Institutions and Economies	1	0

4. Principal Research Themes

To address the final research question (RQ4) in this study, keyword analysis and bibliographic coupling were conducted. Bibliographic coupling was employed to identify current research trends and to anticipate future directions in the field, while keyword co-occurrence analysis served to provide insights into the prospective development of this research area (Donthu et al., 2021; Rejeb, Rejeb, Zailani, & Kayikci, 2023). In line with previous recommendations, both methods are considered essential for identifying key knowledge themes (Sharma et al., 2024).

4.1 Keyword Co-occurrence Analysis

This study initially conducted a keyword analysis based on author-supplied keywords. The recurrence of certain keywords indicates that frequently appearing terms in publications reflect a strong conceptual relationship among those terms within the research landscape. The findings presented in Table 6 show the clusters that emerged from the analysis of author keywords. This analysis was limited to keywords that appeared at least three times. Out of a total of 79 keywords, all met this threshold. Consequently, seven clusters were formed, with the largest cluster comprising 16 items and the smallest consisting of 4 items. The keywords along with their respective themes are briefly presented in Table 6. Figure 4 provides a visualization of the main author keywords, grouped into six distinct clusters and color-coded accordingly, as analyzed using the VOSviewer software.

Table: 6

Significant keywords and dominant themes emerging from the analysis.

Central Topic	Keywords	Occurrences	Total Link strength
Cluster 1 (red): Organizational Dynamics and Leadership in Crisis Contexts	• Admiration • Coordination • Covid 19 • Crowd Sourcing • Crowd-Sourcing • Entrepreneurship • Finance • Financial Reward • Job Analysis • Lucidity • Pandemic • Task Analysis • Technology Leadership • Technology Leadership SupportS • Technology Leadership Support (TLS) • Trustworthiness	• 1 • 1 • 2 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1	• 17 • 17 • 22 • 17 • 17 • 17 • 17 • 17 • 17 • 17 • 17 • 17 • 17 • 17 • 17 • 17
Cluster 2 (Green) Conceptual Frameworks and Information Quality in Disaster Response through Crowdfunding	• Conceptual Frameworks • Disaster Prevention • Disaster Relief Operations • Disaster Relief Operations (DRO) • Economic Loss • Emergency Services • Empirical Data • Information Analysis • Information Quality • Losses • Moderating Effect • Natural Disasters • Quality of Information • Voluntariness	• 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1	• 16 • 16 • 16 • 16 • 16 • 16 • 16 • 16 • 16 • 16 • 16 • 16 • 16

Cluster	Keywords		
Cluster 3 (Blue):Motivation and Engagement in Nonprofit Crowdsourcing Systems	• Crowdsourcing • Donation-Based Crowdfunding • Financial Resources • Human Computation • Human Resources • MDA Framework • Motivation • Motivation and Engagements • Nonprofit Organization • Participation • Statistical Analysis Methods • User Engagement • Work	• 7 • 1 • 1 • 1 • 1 • 2 • 1 • 1 • 1 • 1 • 1 • 1	• 77 • 10 • 10 • 6 • 6 • 10 • 16 • 10 • 10 • 6 • 10 • 10 • 6
Cluster 4 (Yellow) Donor Motivation and Participation Dynamics in Crowdfunding Campaigns	• Crowdfunded fund • Crowdfunded funds • Crowdfunding Motivation • Crowding Out • Crowding-Out • Donor Engagement • Leaderboard • Leaderboards • Medical Crowdfunding • Nutrition • Positive Correlations • Simple++	• 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1	• 13 • 13 • 13 • 13 • 13 • 13 • 13 • 13 • 13 • 13 • 13 • 13
Cluster 5 (Purple):Collaborative Mechanisms and Psychological Drivers in Gamified Environments	• Amazon Mechanical Turks • Augmented Reality • Collaboration • Cooperation Based • Economics • Goal Setting • Perceived Enjoyment	• 1 • 1 • 1 • 1 • 1 • 1 • 1	• 11 • 11 • 11 • 11 • 11 • 11 • 11

|			
	• Resource Coordinations • Social Interdependence • Utilized resources	• 1 • 1 • 1	• 11 • 11 • 11
Cluster 6 (Light Blue) Emotions, Trust, and Gamification in Enhancing Donor Engagement	• Affective User Experience and Trust • Crowdfunding • Donation • Engagement • Gamification • Malaysia • Repeated Donation Behaviour • Social Relatedness • Tranparency • Trust	• 1 • 5 • 1 • 1 • 10 • 1 • 1 • 1 • 1 • 1	• 4 • 39 • 4 • 5 • 90 • 4 • 5 • 5 • 4 • 4
Cluster 7 (Orange) Branding Strategies and Consumer Engagement through Crowdfunding in Emerging Markets	• Brand Crowdfunding • Brand Loyalty • Emerging Markets • Social Media Brand Engagement	• 1 • 1 • 1 • 1	• 4 • 4 • 4 • 4
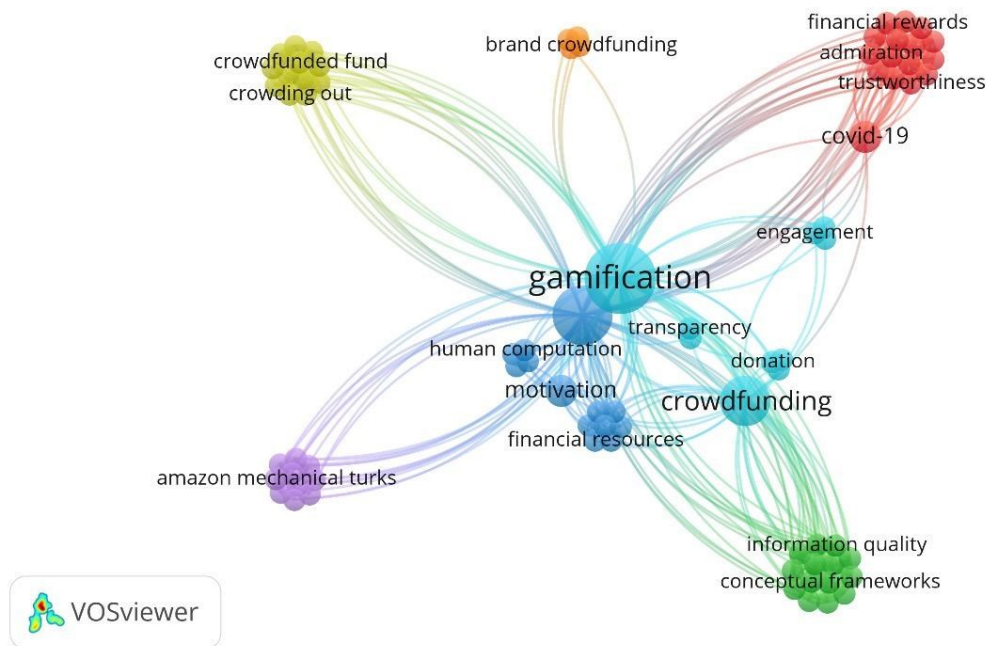
Figure 4. Keyword Visualization

Cluster 1 (red) reflects a major theme related to leadership, technology, and organizational behavior within the context of gamification and crowdfunding. Dominant keywords in this cluster include "Technology Leadership Support," "Leadership," "Trustworthiness," and "Financial Reward," indicating that research within this cluster largely explores the role of technology and leadership in fostering trust and motivating participation in crowdsourcing-based platforms. The presence of keywords such as "Covid-19," "Pandemic," and "Lucidity" further suggests that global crises have influenced the dynamics of gamification and crowdfunding, both from the user and platform provider perspectives. Additionally, terms such as "Entrepreneurship," "Finance," and "Job Analysis" highlight the cluster's relevance to studies in entrepreneurship and the digital economy. Overall, this cluster represents a multidisciplinary approach that integrates technological, managerial, and psychological dimensions in the development of crowdfunding systems and the application of gamification elements.

Cluster 2 (green) reflects a research focus on managerial aspects and information quality within the context of disaster relief, which is relevant to studies of gamification and crowdfunding. Keywords in this cluster, such as "Conceptual Frameworks," "Disaster Relief Operations (DRO)," "Information Quality," "Empirical Data," and "Voluntariness", indicate attention to the development of theoretical models, the effectiveness of information, and voluntary participation in emergency or aid systems. The presence of terms like "Moderating Effect" and "Information Analysis" suggests analytical and quantitative approaches to measuring the impact of various variables on system effectiveness. In the context of gamification and crowdfunding, this cluster may illustrate how conceptual frameworks and information quality play a critical role in shaping public participation and campaign success, particularly in emergency situations or social projects that require broad, organized support.

Cluster 3 (blue) represents a theme centered on participation, motivation, and user engagement within the context of gamification and crowdfunding. Dominant keywords such as "Crowdsourcing," "Motivation," and "User Engagement" indicate that studies within this cluster aim to understand the driving factors behind public participation in digital platforms, particularly in donation-based crowdfunding models. Additionally, the presence of terms like "Human Computation," "Human Resources," and "Participation" reflects a focus on collective contributions and the management of human resources in online environments. The inclusion of the keyword "MDA Framework" also

suggests the application of the game design approach (Mechanics-Dynamics-Aesthetics) to enhance user experience and strengthen interaction on platforms that incorporate gamification elements. Overall, this cluster reflects a concern with users' emotional and cognitive engagement, as well as methodological approaches to understanding their behavior in crowdfunding ecosystems based on participation and active involvement.

Cluster 4 (yellow) highlights a focus on psychological and interactional aspects within gamification and crowdfunding practices, particularly concerning donor motivation and user engagement. Keywords such as "Crowdfunding Motivation," "Donor Engagement," "Leaderboard," and "Leaderboards" emphasize the importance of motivational elements and competitive mechanisms in encouraging public participation. Terms like "Crowding Out" and "Positive Correlations" indicate investigations into social dynamics and the potential negative effects of external incentives on intrinsic motivation. Furthermore, the appearance of keywords such as "Medical Crowdfunding" and "Nutrition" reflects the practical application of crowdfunding in the fields of health and well-being. Overall, this cluster represents the strategic role of gamification in optimizing crowdfunding campaign success by enhancing engagement, transparency, and user experience.

Cluster 5 (purple) in the bibliometric analysis of studies on gamification and crowdfunding highlights aspects related to collaboration, resource coordination, and social interaction in digital contexts. Dominant keywords in this cluster include "Amazon Mechanical Turks," "Augmented Reality," "Collaboration," "Cooperation Based," "Economics," "Goal Setting," and "Social Interdependence," indicating a research focus on collaborative approaches and task-oriented collective environments. The presence of terms such as "Perceived Enjoyment" and "Utilized Resources" further underscores the importance of user experience and resource efficiency within gamification-based systems. This cluster suggests that in the context of crowdfunding and gamification, the success of initiatives relies not only on technological infrastructure but also on social engagement and effective resource management, reinforced through mechanisms of collaboration and users' intrinsic motivation.

Cluster 6 (light blue) highlights a focus on the emotional and social dimensions in the relationship between gamification and crowdfunding. Keywords such as "Affective User Experience and Trust," "Engagement," "Social Relatedness," and "Repeated Donation Behaviour" reflect the importance of emotional involvement and social connections in fostering sustained participation in crowdfunding campaigns. The presence of terms like "Trust" and "Transparency" emphasizes that user trust in the platform and information transparency are key factors in building donor loyalty and commitment. Furthermore, the prominence of the keywords "Gamification" and "Crowdfunding" indicates that the integration of game elements can enhance user experience and improve the effectiveness of fundraising campaigns. Overall, this cluster underscores the importance of approaches that prioritize positive user experiences and strong social relationships in optimizing the success of gamification in the crowdfunding context.

Cluster 7 (orange) indicates a thematic focus on the intersection of crowdfunding and brand strategy, particularly within the context of digital marketing and emerging markets. Keywords such as "Brand Crowdfunding," "Brand Loyalty," and "Social Media Brand Engagement" reflect efforts to build and sustain emotional connections between brands and consumers through crowdfunding campaigns. The emergence of the term "Emerging Markets" suggests that this approach is also being adopted in rapidly developing regions, where crowdfunding and gamification serve as innovative tools to reach broader audiences. This cluster underscores the importance of interactive and participatory branding strategies in fostering consumer loyalty and strengthening brand positioning through socially mediated technological engagement.

4.2 Analysis of Bibliographic Coupling

Bibliographic coupling is an approach in bibliometric analysis used to measure the degree of relatedness between two publications based on the references they cite in common (Kessler, 1963). The more references shared, the higher the level of relatedness between the two publications. Thus, bibliographic coupling enables the identification of conceptual relationships between studies that may not directly cite each other but build knowledge from similar sources. In this study, the bibliographic coupling approach was applied without imposing a minimum citation threshold, thereby including all relevant documents in the analysis. Visualization and cluster mapping were performed using the VOSviewer software, as presented in Figure 5, which automatically groups documents based on the strength of their relatedness within the bibliographic network.
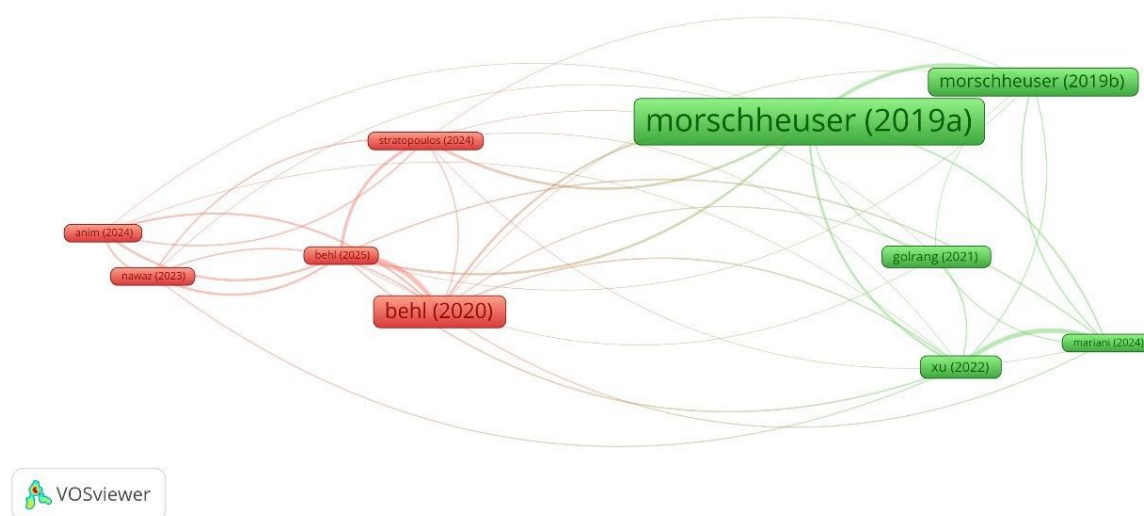

Figure 5. Bibliographics Coupling Visualization

Table: 7
Bibliographic coupling key themes

Central topic	Publications
Cluster 1 (red):	(Behl, et al., 2020, 2025; Nawaz, et al., 2023; Anim, et al., 2024; Stratopoulos &Ye 2024;)
Cluster 2 (Green):	(Morschheuser 2019a, 2019b; Golrang & Safari 2021; Xu, et al., 2022; Mariani & Chatterjee 2024;)

Cluster 1 (Red) represents a group of publications primarily focused on the application of gamification within the context of crowdfunding platforms, particularly related to donation activities. The articles in this cluster discuss how gamification elements such as leaderboards, affective user experiences, and psychological incentives can enhance individuals' intentions to donate. Several studies also emphasize the importance of trust in the platform as well as user experience in fostering loyalty and sustained participation, especially in the context of disaster response and pandemics. This cluster comprises five publications and is one of the groups with the highest density of connections within the network, as

indicated in Table 7 and visualized in red in Figure 5. Thus, the central theme of this cluster pertains to the "Utilization of Gamification to Enhance Participation and Donations on Crowdfunding Platforms."

Cluster 2 (Green) consists of publications that place greater emphasis on system design aspects and psychosocial factors influencing engagement in crowdsourcing platforms. The publications in this cluster examine the distinctions between cooperation and competition in digital environments, as well as how gamification elements can affect user motivation and productivity. Additionally, trust, reputation, and campaign success indicators are also key focuses within this cluster. This cluster comprises five documents and is depicted in green in Figure 5, with further details provided in Table 7. The main theme identified from this cluster is "Gamification Design and Trust Dynamics in Crowdsourcing Platforms to Enhance Performance and Collective Participation."

Future research implications

The findings of this study open opportunities for more in-depth future research, particularly in exploring the influence of gamification on the success of crowdfunding campaigns from the psychological perspective of users. Subsequent studies could investigate mechanisms of emotional engagement, intrinsic motivation, and perceptions of fairness within gamification-based reward systems, which remain limited in the existing literature. Furthermore, comparative studies across different types of crowdfunding platforms, whether donation-based, equity-based, or reward-based, could provide a more holistic understanding of gamification effectiveness in each context.
In addition, expanding the geographical scope and diversifying data sources are essential to enhance the generalizability of findings. Future research is recommended to incorporate data from both global and local platforms using mixed methods, such as qualitative approaches, to gain deeper insights into users' social dynamics. Given the rapid advancement of technology, interdisciplinary collaboration that integrates behavioral science, information systems, and digital interaction design is highly encouraged to address the challenges and complexities involved in the sustainable integration of gamification within crowdfunding systems.

Conclusion

This study conducted a bibliometric analysis of the literature addressing the relationship between gamification and crowdfunding, employing the bibliographic coupling method and data visualization using the VOSviewer software. The analysis results revealed the formation of several thematic clusters that highlight the main directions and research focuses within this field, such as the influence of game elements on donation intention and user engagement in crowdfunding platforms. Additionally, the mapping of contributions by country and journal provided insights into key centers of knowledge production and dominant channels of scholarly dissemination.

These findings contribute to a comprehensive understanding of the development and future trajectory of research related to gamification in the context of crowdfunding. By not limiting the number of citations in document selection, this study successfully captured the latest dynamics in the field, including current trends and contributions from authors worldwide. The results are expected to serve as a foundation for future researchers to develop interdisciplinary approaches and design innovative, sustainable solutions within an increasingly complex digital ecosystem.

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