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ORIGINAL ARTICLE

Sharing with Crowds: Bibliometric Insights into the Role of Emotions in Crowdfunding

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Abstract

In this paper, we provide an overview of the existing research on emotions in crowdfunding and integrate it using a bibliometric analysis of publication data from the decade 2013–2023. Our analysis includes a citation and cocitation analysis, a productivity analysis, a co-occurrence analysis, and a topic analysis based on abstracts. We find that the *Journal of Business Venturing* and *Entrepreneurship Theory and Practice* are the most prominent journals publishing research at the intersection of emotions and crowdfunding. The cword analysis shows that current and frequently discussed topics are related to emotions, sentiment analysis, reward-based crowdfunding, machine learning, and blockchain. Furthermore, our results show a significant increase in interdisciplinary approaches that integrate psychological and economic perspectives to better understand backers' behavior. Finally, we point to a gap in the understanding of the long-term effects of emotions on crowdfunding campaigns and suggest a possible direction for future studies.

Keywords: Bibliometrics, Cocitation analysis, Bibliographic coupling, Co-occurrence analysis, Science mapping, Crowdfunding, Emotions

JEL classification: D26, D91, L26

1 Introduction

Crowdfunding is “the solicitation of small donations from a large number of potential investors to raise capital in a significant and time-saving manner” (Chandler et al., 2021, p. 1; Hecht, 2020). There is a notable evolution in the literature on crowdfunding, moving from an initial stage (2013–2016) in which issues were identified and researched, to a more advanced stage characterized by greater maturity, rigor, and extensive research into the issues in the years before and after the pandemic (2017–2023).

A distinctive feature of crowdfunding campaigns in recent years is the use of emotion as an effective means of attracting potential backers, building brand image and promoting the success of the campaign (Xiang et al., 2019). Emotional content seems to attract attention, maintain audience interest, and increase motivation (Lei et al., 2018). Campaigns that evoke

strong emotions are more likely to be shared and talked about, which increases their visibility and reach. Evidence from the field suggests that crowdfunding campaigns that evoke a desire to be part of a community can motivate people to take immediate action and support the project (Varsamis, 2021).

While previous research has investigated the influence of sentiments and emotions in crowdfunding (Adamska-Mieruszevska et al., 2021; Neuhaus et al., 2022; Rhue & Robert, 2018), the impact of emotional factors on the success of crowdfunding campaigns has not yet been extensively studied. In a recent study, Elbardai et al. (2021) explored bibliometric trends in rational and emotional advertising, but there is insufficient knowledge about how emotions interplay with crowdfunding success. This understanding is of particular practical importance in the postpandemic era, which accelerated the growth and diversification of crowdfunding platforms and led to the emergence of

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niche markets as crowdfunding proved more resilient as a funding method compared to traditional funding methods (Al Nawayseh, 2020; Elmer et al., 2020; Igra et al., 2021). This resilience is partly due to the emotional narratives that campaigns can utilize, which can foster a sense of urgency and community support. Overall, it seems that crowdfunding campaigns are a multilayered phenomenon that includes both informational and motivational factors. While informational appeals focus on communicating facts, product features and values, emotional appeals evoke feelings, desires, and personal connections (Xiang et al., 2019). This multilayered nature of crowdfunding calls for a better understanding of the underlying mechanisms linking emotions and crowdfunding and can help drive future programmatic research in this area.

In this study, we have applied bibliometric methods to the literature on emotions and crowdfunding to answer the following research questions. First, what are the most cited publications that contribute to the understanding of crowdfunding and emotions? Second, what are the emerging themes that dominate crowdfunding research? Third, what are the leading journals that focus on the interdisciplinary study of crowdfunding and emotions? Fourth, how can existing crowdfunding research that focuses on the role of emotions in crowdfunding campaigns inform future studies? To answer these questions, we conducted a bibliometric assessment by analyzing 269 research papers on crowdfunding from the Scopus database to understand the evolution and maturity of topics in crowdfunding and emotions. Using the VOSviewer application, we highlight the trends, differences, and gaps and make suggestions for future research.

The contributions of our study on crowdfunding and emotions will likely provide a new perspective for understanding this evolving field. The main objective of this paper is to provide researchers with a comprehensive understanding of how the literature on emotional aspects in crowdfunding has evolved over the last decade. It aims to provide a clear and detailed overview of the developments and trends in the field so that researchers can grasp the development and current state of knowledge in this area. Our main contribution to this area of research is that the journals with the highest productivity at the intersection of emotion and crowdfunding are in the fields of business, bioinformatics, and medical research. An interesting finding emerged when we analyzed the keywords. By analyzing previous studies, we showed that emotions are key to understanding backers' motivations and reasons for participating in crowdfunding campaigns. We found that the terms "COVID-19" and "pandemic" increased in importance during the pandemic, suggesting that emotions

such as "sadness," "passion," "trust," "empathy," and "enthusiasm" emerged in response to new situations. Based on these findings, we hypothesize that the increased use of these terms during and after the pandemic indicates a shift in the use of emotions in crowdfunding, as potential backers appear to have become more empathetic towards crowdfunding campaigns that address social issues. This study is original because it focuses on the emotional side of crowdfunding, which has not been studied before. We have identified the most influential journals and authors, providing a valuable resource for future researchers. In addition, our study offers actionable recommendations for future research, such as delving deeper into the impact of entrepreneurial passion, exploring the role of emotion in social entrepreneurship, and examining the influence of platform choice on campaign outcomes. These suggestions aim to stimulate further research and contribute to a more comprehensive understanding of the emotional dynamics of crowdfunding.

The rest of the article is organized as follows: First, we provide a brief overview of the existing literature on emotions, with a particular focus on the role of displayed emotions. We then present our methodology and summarize the results. We conclude with a discussion of contributions and implications.

2 Literature review

Emotion, often described as a "gut feeling," plays a crucial role in every aspect of cognition and perception, and helps in reliable and accurate decision making (Tuckett & Taffler, 2012), especially in crowdfunding campaigns (Rhue & Robert, 2018; Zhao et al., 2022). Literature suggests that emotions shape individuals' choices, inform values, and provide depth to the decision-making process. Howard (1993) and Van de Laar and De Neubourg (2006) examined the theoretical perspective of emotions as a complementary factor to rational decision-making processes and empirically demonstrated the involvement of emotional elements in decisions related to investments. There was already substantial research backing the concept that "immediate emotions" also have a significant impact on decision making (Niedenthal & Ric, 2017; Rick & Loewenstein, 2008, p. 138). Overall, given that emotions influence individuals' intuition, these intuitive responses guide them toward the right decision without conscious analysis. Hence in the crowdfunding context, emotions are likely to be a potent instrument for engaging backers, enhancing brand image, and ensuring the success of campaigns.

This expectation is supported by recent studies about the display of emotions in crowdfunding,

which have experienced a notable surge over recent years. Emotions displayed by crowdfunding entrepreneurs impact the backers' decision-making process (Zhao et al., 2022). This is because when there exists a profound personal connection and sense of ownership towards the supported project, backers develop a kind of bond with the entrepreneur (Huvaj et al., 2023). Communication of emotions made during videos involves no direct cost but is very effective for the transmission of information related to business ideas and product information. Recently, emotions have gained increased importance in crowdfunding research as their role in the performance of crowdfunding campaigns has been emphasized (Li et al., 2017; Oo & Allison, 2022; Raab et al., 2020). The literature on crowdfunding has mentioned various theories, mainly signaling theory (Spence, 1973), emotion contagion theory (Hatfield et al., 1993), narrative theory (Fisher, 1984), and affective event theory (Weiss & Cropanzano, 1996) and explored the role of emotions. The research discovered that displayed passion in crowdfunding videos is important in influencing the backers' perception of a product and hence can impact the crowdfunding performance (Li et al., 2017; Raab et al., 2020). This effect resonates with the emotion contagion theory (Hatfield et al., 1993), which states the emotional expressions displayed by entrepreneurs can have an impact on the potential backers, shaping their emotional responses and decision making. Additionally, the emotion contagion theory and narrative theory (Anglin et al., 2023) also highlight the importance of authenticity and transparency in crowdfunding (Lee & Theokary, 2021; Moritz et al., 2015; Rhue & Robert, 2018). Narrative theory emphasizes the use of emotional elements in storytelling (Robiady et al., 2021) while pitching a product or an idea. Crowdfunding campaigns that evoke emotions such as passion, empathy, excitement, inspiration, and so forth, are more likely to succeed (Chen et al., 2023; Xiang et al., 2019). A well-crafted narrative can make potential backers emotionally invested in the project's success.

The fact that entrepreneurs should strategically tailor their appeals and storytelling to connect with backers on both rational and emotional levels is supported by the findings of Davis et al. (2017), which indicate that entrepreneurs who exhibit enthusiasm, confidence, and passion are more likely to be successful in their crowdfunding campaigns and tend to receive higher levels of funding. Additionally, Griskevicius et al. (2010) found that investors usually invest in those projects that evoke positive emotions, such as joy and enthusiasm. In contrast, projects eliciting negative emotions, such as fear and anger, tend to receive lower levels of investment. Ceballos

et al. (2017), Lu et al. (2023), and Mavlanova et al. (2012) have discussed how emotions have been used as signals in conveying information about commitment, trustworthiness, and the perceived value of a crowdfunding project. Establishing legitimacy is another objective behind the incorporation of signals in crowdfunding videos (Frydrych et al., 2014). These emotional signals include demonstrating the entrepreneur's own expertise, explaining prototypes of the product, sharing their testimonials, or expressing genuine enthusiasm about the whole campaign. Entrepreneurs and backers use emotions strategically to influence each other's decisions and foster a sense of connection and community within the crowdfunding ecosystem.

As an alternative method of funding, crowdfunding is crucial for entrepreneurial research, especially when combined with interesting topics in emotions (Gorgievski & Stephan, 2016; Hartmann et al., 2022). In opposition to researchers such as Li et al. (2017), Oo and Allison (2022), and Raab et al. (2020), who support the view that emotions displayed by entrepreneurs are necessary to run a successful crowdfunding campaign, Zhao et al. (2022) found the advantage of verbal expression over visual expression in conveying emotions when it comes to explaining success. In summary, prior literature suggests that when it comes to describing or communicating emotions related to achievements or success, using words, language (verbal expression), and body language is more effective than using visual cues or imagery (visual expression). In other words, when people want to convey their emotions about success, using words to explain or describe those emotions is more powerful and meaningful than relying solely on images, pictures, or other nonverbal forms of communication. This finding indicates that verbal communication is particularly effective in capturing distinctive and complex emotional experiences, through tone modulation and nonverbal cues, such as facial expressions and body language, that also convey emotions.

3 Methodology of bibliometric analysis

To comprehensively examine the literature on crowdfunding and emotions, we conducted a bibliometric analysis, which offers greater objectivity than traditional qualitative literature reviews. Highly cited studies such as Aria and Cuccurullo (2017), Donthu et al. (2021), and Mukherjee et al. (2022) have followed the general Zupic and Čater's (2015) workflow for conducting systematic literature reviews and science-mapping techniques. We adopted their five-step process because it offers a clear and systematic approach to conducting

bibliometric research. This methodology covers all major aspects of bibliometric research from design to interpretation, and the framework can be adapted to various fields and research questions. However, we narrowed it down to four steps. We combined the last two steps, namely visualization and interpretation, into one. This allowed us to explore and analyze the data simultaneously and simplify the process of gaining meaningful insights from visual representations. This method is typically more intuitive and efficient, allowing for a deeper comprehension of the relationships and patterns in the data as they are visualized. In this method, we first defined our research objectives and questions and chose appropriate research methods; second, we gathered data by choosing keywords, selecting a suitable database, and exporting the data; third, we cleaned and analyzed the data; fourth, we visualized the network maps on VOSviewer and interpreted the main findings. This process outlines a structured process for conducting a bibliometric analysis, starting from the initial literature review to the application of various bibliometric techniques and the interpretation of results to ensure the robustness of the analysis. The methodology encourages the exploration of interdisciplinary connections by highlighting how research topics intersect across different disciplines. This is particularly beneficial in fields such as crowdfunding and affective science, where research extends across multiple areas of study.

We applied this framework (as shown in Fig. 1) to conduct a bibliometric analysis. This four-step structured approach enabled us to systematically investigate the literature in our fields of interest. To comprehend the research direction and hot spots in crowdfunding studies, we utilized the VOSviewer software (Valenzuela et al., 2017). Donthu et al. (2021) and Zupic and Čater (2015) divided the bibliometric analysis method into two main categories—science mapping and network analysis. Science mapping explores relationships between contributors through various techniques such as citation analysis, cocitation analysis, keyword co-occurrence analysis, and bibliographic coupling. Network analysis uses network metrics, clustering, and visualization to enhance bibliometric assessment by identifying important contributors who might be missed in analyses that focus solely on publications or citations. These methods collectively provide a thorough approach to analyzing research in each field.

We started the analysis with a preliminary literature review on crowdfunding and affective science (emotions). This review revealed that the literature in these collaborative fields is extensive and scattered across various disciplines. The absence of a compre-

hensive overview and clear insights into the field's origins and current state made it an ideal subject for our bibliometric study. Based on the knowledge we acquired, research questions were formulated. We then examined the sample publications using four distinct bibliometric methodologies: cocitation analysis, co-occurrence analysis, bibliographic coupling, and citation analysis.

In the second step of this process, we chose the database that would be most appropriate to collect articles pertaining to the fields of crowdfunding and emotions. We opted for Elsevier's Scopus database because it offers access to a larger pool of indexed journals compared to alternatives such as Web of Science. Additionally, Scopus is recognized for its reliability and versatility, offering multiple sorting, ranking, and refining functionalities (Harzing & Alakangas, 2017). Scopus is a widely acknowledged research tool that has been extensively utilized in other bibliometric studies due to its proper and accurate categorization of articles (Bargoni et al., 2024; Buttice & Ughetto, 2021). Moreover, Scopus serves as a user-friendly and consistent searching tool (Gorraiz & Schloegl, 2008). Data was retrieved on December 10, 2023. A combination of the most generic keywords related to the field of crowdfunding and emotions is used to extract the data from the Scopus database. We set the disciplines in the search strategy to select studies related to the emotional aspect of crowdfunding success. Documents were shortlisted based on the eligibility criteria applied (Bargoni et al., 2024). All the titles published from 2013 to 2023 were searched, covering exactly 10 years of crowdfunding. The rationale for opting for this specific decade is that although the concept of crowdfunding came into existence around 2005–2006, scholarly exploration in this field began to gather steam only around 2012 (Vijaya & Mathur, 2023). A total of 4271 documents were found when we used “search within all fields.” To narrow down the search, we used the drop-down option “search within article title, abstract, keywords.” We restricted the search only to publications in the English language to better understand and analyze the results. Finally, a database of 306 English documents was extracted. After deleting the irrelevant publications, we managed to collect 269 documents. The database includes 194 articles, 62 conference papers, 10 book chapters, 2 books, and 1 review. The list of documents was downloaded in the RIS, CSV, and BiB formats.

In the third step of the bibliometric analysis process, we put forward an augmented bibliometric approach (Anand & Dumazert, 2022; Sottini et al., 2024) by combining four relational techniques: 1) Citation Analysis of Documents (CA-D), 2) Cocitation Analysis of References (CCA-R), 3) Co-Occurrence

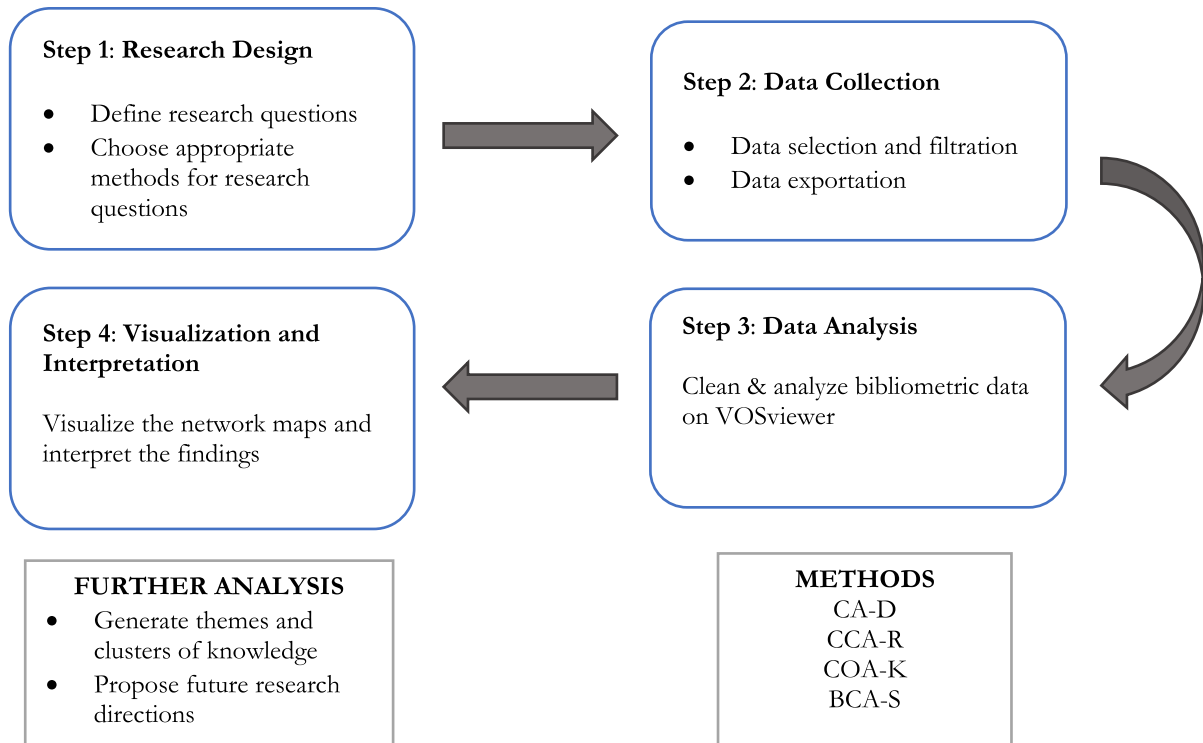


Fig. 1. Research framework of bibliometric analysis. Source: Adapted from Zupic and Čater's (2015) methodology.

Analysis of Keywords (COA-K), and 4) Bibliographic Coupling Analysis of Sources (BCA-S). To investigate the evolution of crowdfunding and emotions research, we utilized cocitation analysis of references to uncover past developments and bibliographic coupling in order to highlight current trends. We examined the connections between key research papers and references in the field, using cocitation analysis. We also conducted a keyword co-occurrence analysis to support our findings. All these analyses were enhanced by network visualization techniques, which improved our understanding of the structure and relationships within both fields. Using the VOSviewer software, we performed the coupling and keyword co-occurrence analysis to deeply explore and examine the intellectual structures of the addressed research field (Valenzuela et al., 2017). We enhanced our methodology by incorporating a qualitative layer to our analysis, conducting a thematic exploration using our bibliometric sample. This enabled us to offer a more extensive overview of the fields.

In the final step, we visualized the network maps and discussed the findings. Network analysis generates visual representations of scientific domains, where nodes of the same color symbolize analytical units such as documents, authors, journals, or words, and connections between nodes indicate similarities. VOSviewer uses colors to indicate the cluster to which a node has been assigned (Van Eck & Waltman, 2011).

The strength of these connections determines the proximity of nodes in the visualization. By varying the units of analysis, we created diverse maps of documents, each offering unique insights into its structure and relationships (Donthu et al., 2021; Zupic & Čater, 2015).

4 Science mapping and network analysis

The integration of emotions into crowdfunding studies has further enriched this field, shedding light on how affective factors influence backer decisions and campaign success. In this context, exploring the diversity of publication types and thematic areas provides valuable insights into the academic landscape and prevailing research trends. The types of publications and top 10 major areas of study within which researchers have published documents on crowdfunding and emotions are listed in Appendix B, Table B1. Business, management, accounting, and computer science are the most popular research directions. The number of publications for business, management, and accounting is 131, and this accounts for 49%, while the number of publications for computer science is 99, which is 37% of total publications. Furthermore, research is also conducted in sectors of social sciences (61), economics, econometrics, and finance (55), decision sciences (37), engineering (29), mathematics (17), psychology (16),

arts and humanities (14), and medicine (13). Since some publications cover multiple research fields, the sum of all the subject areas exceeds 100%.

Analyzing the categories from [Appendix B, Table B1](#) reveals how research has evolved in different research areas on the topics of crowdfunding and emotions and provides insights into areas that have been investigated concerning these two subjects. Given that the main purpose of crowdfunding is to meet business needs, it is not surprising that the most productive research areas fall within business, management, accounting, computer science, social sciences, economics, econometrics, finance, and decision sciences. However, these research areas reflect crowdfunding's multidisciplinary nature, including both business and affective science fields.

4.1 Citation and cocitation analysis (CA-D and CCA-R)

CA-D involves evaluating the influence of research by quantifying how many times a document, author, or source has been referenced by other documents, authors, or sources. [Table 1](#) shows the list of the top 10 most cited research documents.

The most cited document was authored by Courtney et. al. in 2017 and published in *Entrepreneurship Theory and Practice*. The authors discuss the concept of information asymmetry in crowdfunding. The research paper explores how entrepreneurs can bridge the gap by using signals or endorsements. Signals such as showcasing expertise, prototypes, or enthusiasm convey trustworthiness and competence. The authors describe the backers' positive emotions that are expressed in the comments, which serve as an external validation of the project's characteristics and the founder's credibility ([Courtney et al., 2017](#)). Backer comments in a crowdfunding context can offer valuable insights into specific features that are distinctive to the product. Additionally, backers may provide suggestions aimed at enhancing the design and usability of the product. Essentially, these comments act as a direct channel through which potential users or supporters communicate their thoughts, preferences, and ideas, contributing to the iterative improvement of the project. This feedback loop between creators and backers can be instrumental in refining and tailoring the product to better meet the needs and expectations of the target audience.

The second document was authored by [Davis et al. \(2017\)](#) and published in the *Journal of Business Venturing*. This paper focuses on the emotional responses of backers while they observe the crowdfunding pitches. The study explores how the perception of product creativity and the entrepreneur's passion influence

funders' positive emotions. Positive emotions are crucial in crowdfunding, as they can lead to higher levels of trust, support, and funding. The paper also explains how entrepreneurs can effectively convey their product's creativity and their passion to evoke positive reactions in potential backers.

The third listed document, written by [Bretschneider and Leimeister \(2017\)](#) and published in *The Journal of Strategic Information Systems*, explores the motivations of backers who fund projects on incentive-based crowdfunding platforms. The study aims to understand the diverse motivations beyond just financial incentives, such as the desire for social interaction, altruism, or the opportunity to support innovation and creativity. These connections enhance their commitment and satisfaction, motivating them to support projects beyond financial incentives. The paper discusses the impact of herd behavior on the motivation of the crowd.

Each of these papers appears to investigate different aspects of crowdfunding, such as information sharing, emotional appeal, and motivations, to understand how they influence crowdfunding outcomes and success. Each paper highlights the importance of understanding and leveraging backers' emotions in crowdfunding campaigns. The studies affirm that positive emotions, such as trust, enthusiasm, optimism, and altruism play a powerful role in attracting backers and securing funding. The papers discuss how entrepreneurs can effectively communicate with potential backers through various signals, language, and endorsements. These signals include portraying expertise, passion, creativity, and so forth, which forms backers' attachment to the project. Strategies to enhance credibility and trustworthiness are discussed in all three papers. Whether through signals, emotional appeals, or emotional drivers, the goal is to build confidence among backers, thereby increasing support and funding for the project. Overall, these papers converge on the idea that successful crowdfunding campaigns involve not only presenting a compelling product or idea but also effectively managing emotional responses, communicating trustworthiness, and actively engaging with backers to foster a sense of community and support.

In explaining the variations in crowdfunding success, several determinants such as information asymmetry and signals ([Courtney et al., 2017](#)), emotional responses and perceptions of creativity and passion ([Davis et al., 2017](#)), and altruism and sense of community ([Bretschneider & Leimeister, 2017](#)) are explored. These differences in focus areas, variables studied, emphasis on feedback, and effective communication strategies highlight the diverse perspectives and research interests within the field of crowdfunding

Table 1. Top 10 most cited research documents (descending order).

Title	Author	Journal	Subject area	Total citations
Resolving information asymmetry: Signaling, endorsement, and crowdfunding success	Courtney et al. (2017)	<i>Entrepreneurship Theory and Practice</i>	Business, management, and accounting	485
Funders' positive affective reactions to entrepreneurs' crowdfunding pitches: The influence of perceived product creativity and entrepreneurial passion	Davis et al. (2017)	<i>Journal of Business Venturing</i>	Business, management, and accounting	366
Not just an ego-trip: Exploring backers' motivation for funding in incentive-based crowdfunding	Bretschneider and Leimeister (2017)	<i>The Journal of Strategic Information Systems</i>	Business, management, and accounting	187
Catching fire and spreading it: A glimpse into displayed entrepreneurial passion in crowdfunding campaigns	Li et al. (2017)	<i>Journal of Applied Psychology</i>	Psychology	182
Understanding the importance of interaction between creators and backers in crowdfunding success	Wang et al. (2018)	<i>Electronic Commerce Research and Applications</i>	Business, management, and accounting	160
Empathy or perceived credibility? An empirical study on individual donation behavior in charitable crowdfunding	Liu et al. (2018)	<i>Internet Research</i>	Social sciences	153
User entrepreneurs' multiple identities and crowdfunding performance: Effects through product innovativeness, perceived passion, and need similarity	Oo et al. (2019)	<i>Journal of Small Business Management</i>	Business, management, and accounting	112
My words for your pizza: An analysis of persuasive narratives in online crowdfunding	Majumdar and Bose (2018)	<i>Information & Management</i>	Business, management, and accounting	90
Bellwether and the herd? Unpacking the u-shaped relationship between prior funding and subsequent contributions in reward-based crowdfunding	Chan et al. (2020)	<i>Journal of Business Venturing</i>	Business, management, and accounting	87
Predicting outcomes in crowdfunding campaigns with textual, visual, and linguistic signals	Kaminski and Hopp (2020)	<i>Small Business Economics</i>	Business, management, and accounting	86

Source: Scopus.

studies. Understanding these differences in literature can guide future research efforts and help scholars contribute to knowledge advancement in the field of crowdfunding. The findings from these studies can be valuable for both entrepreneurs seeking crowdfunding and emotions and researchers interested in understanding the dynamics of crowdfunding campaigns.

Cocitation refers to two authors/journals/references/sources having been cited in one paper concurrently (Li & Xu, 2021). In other words, two documents can be considered cocited when a third document has cited both of them together (Donthu et al., 2021; Rabbani et al., 2022). We have performed a CCA-R in VOSviewer (version 1.6.20). This method measures how frequently two articles are cited together in other scholarly works. We have selected the option of at least 8 citations of every cited reference, and 36 documents meet the threshold.

However, we have chosen to present only the top 10 references. To highlight the most impactful and significant contributions to the field, we limit our presentation to the ten most influential references. Appendix B, Table B2 displays the highest-ranking outcomes of our CCA-R. This in-depth analysis of reference cocitations explains the foundational elements of the research field by pairing articles within the same thematic clusters. Within this analysis, we have included the number of citations each reference has received within a sample of publications obtained from the Scopus database, along with their associated link strength. Link strength signifies the strength of the connection between the articles and indicates a level of association, even if it is a distant one. VOSviewer identifies a close relationship between the items by calculating the strength of their association, which is defined as the ratio of the actual co-occurrences between items to the expected

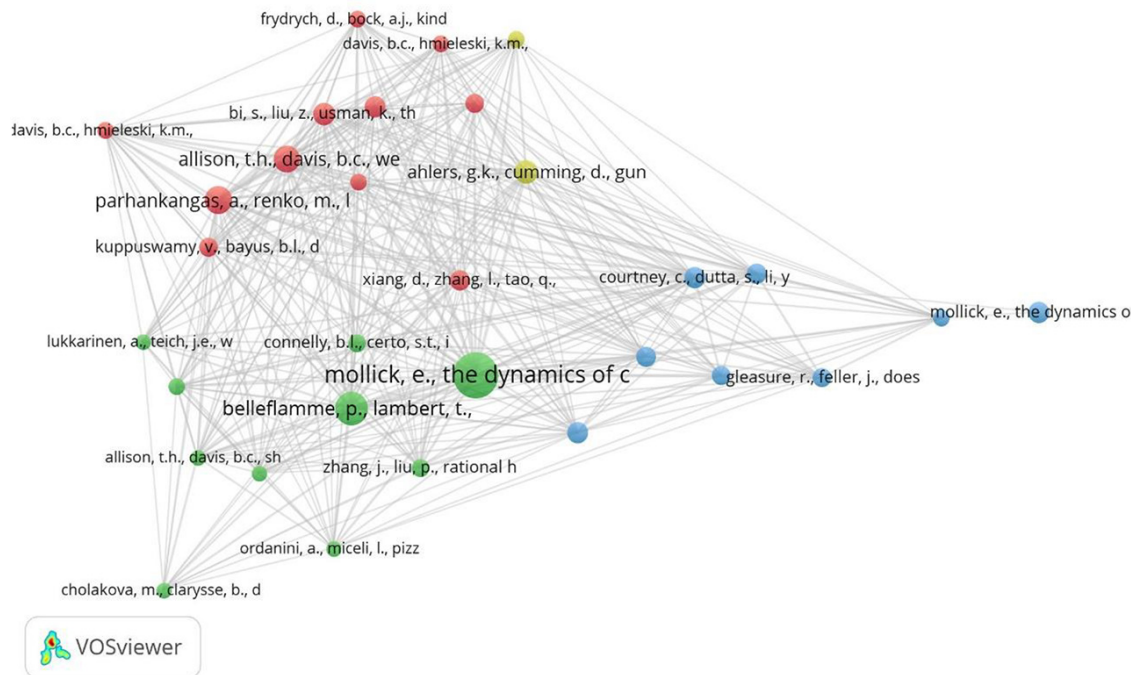


Fig. 2. Clustered network of cited references based on their cocitation analysis.

co-occurrences between them, assuming they are “statistically independent” (Kirby, 2023, p. 5).

At the pinnacle of the list is the article “The Dynamics of Crowdfunding: An Exploratory Study” by Ethan Mollick, which has garnered 64 citations within the sample. Following closely behind is “Crowdfunding: Tapping the Right Crowd,” coauthored by Paul Belleflamme, Thomas Lambert, and Armin Schwenbacher, with 35 citations.

Fig. 2 illustrates the cocitation relationships among the top articles. The first cluster (red) includes eleven documents attributed to studies in displayed passion, backers’ affective reactions, and power of positivity in crowdfunding. While documents authored by Parhankangas and Ehrlich (2014) and Kuppuswamy and Bayus (2017) suggest how to structure communication or understand backers’ behavior to maximize funding success, they also highlight the complexity of crowdfunding dynamics and the various layers, ranging from linguistic strategies to psychological perceptions, that can influence campaign outcomes. Both studies emphasize the importance of backer engagement and perception, employing empirical research methods to analyze data from real crowdfunding campaigns. Thus, this cluster can be categorized as “affective factors influencing crowdfunding success and failure.”

The second cluster (green) consists of ten documents. The presence of documents such as Belleflamme et al. (2014) and Mollick (2014) contributes to

understanding the mechanisms and impact of crowdfunding, but from slightly different angles; Mollick’s paper from a broader exploratory perspective and Belleflamme et al.’s from a more theoretical and model-based approach. The red and green clusters share a cocited document by Allison et al. (2017). This document builds on the foundations established by the papers in both clusters by focusing on the role of persuasion in crowdfunding performance. This paper extends Mollick’s and Belleflamme et al.’s discussions by applying the Elaboration Likelihood Model of persuasion to understand how the effectiveness of crowdfunding campaigns can be influenced by the persuasion strategies used in the campaign messages. This perspective links the earlier works’ exploration of crowdfunding mechanisms and success factors to a more detailed analysis of how persuasion impacts campaign performance and backers’ behavior.

The documents written by Majumdar and Bose (2018), Courtney et al. (2017), and Gleasure and Feller (2016) in the third cluster (blue), which consists of eight documents, are interconnected through their focus on factors influencing crowdfunding success. These studies present different forms of communication and signaling such as persuasive narratives, endorsements, and emotional versus rational appeals and discuss their respective levels of impact on the effectiveness of crowdfunding campaigns. By referring to these studies, researchers

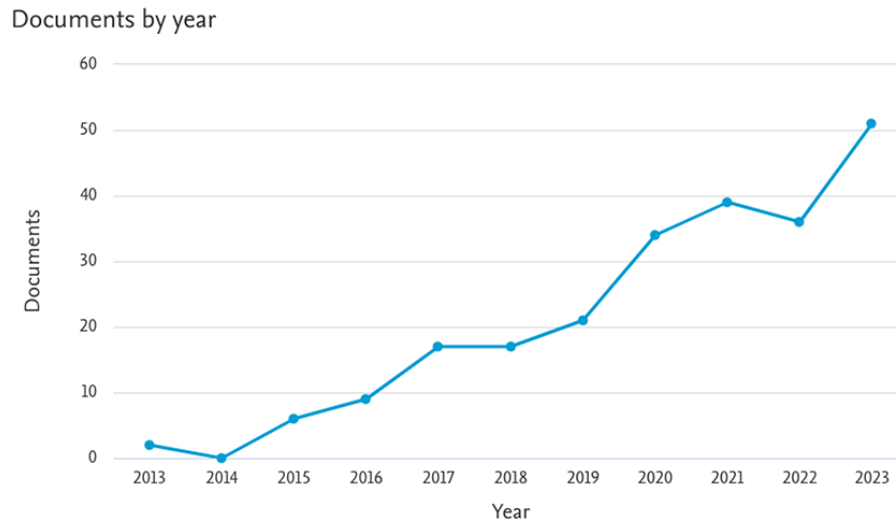


Fig. 3. Annual scientific production.

can highlight how understanding emotional dynamics and communication strategies are crucial for successful crowdfunding, linking emotional engagement to overall campaign effectiveness.

The smallest cluster (yellow) includes two items that explore how language and signaling play critical roles in shaping perceptions and behaviors, though [Tausczik and Pennebaker \(2010\)](#) focus on textual analysis broadly, while [Ahlers et al. \(2015\)](#) apply this concept specifically to crowdfunding contexts. These two documents reflect the connection between language use and emotions in the context of crowdfunding. [Tausczik and Pennebaker \(2010\)](#) provide a framework for analyzing the psychological impact of language through tools such as LIWC, which can be applied to understand emotional content in crowdfunding communications. [Ahlers et al. \(2015\)](#), on the other hand, explore how signaling and communication affect investor decisions in equity crowdfunding, which inherently involves emotional and psychological factors. By referring to these documents, researchers have illustrated how textual analysis and signaling strategies in crowdfunding are intertwined with emotional responses, offering insights into how language influences both backer engagement and investment outcomes.

Fig. 3 shows the graphic representation of the total number of publications during the period and illustrates the publication landscape within the domains of crowdfunding and emotions from 2013 to 2023. Beginning with a mere handful of publications in 2013, the field experienced a gradual increase until 2016. The years 2017 and 2018 saw a plateau, with approximately 18–20 publications annually. However, from 2019 onwards, the field witnessed significant growth, with publications nearly doubling to around 40 per

year by 2020. Despite a slight dip in 2021, possibly due to the impact of the COVID-19 pandemic on research activities, the field rebounded strongly. The years 2022 and 2023 marked a substantial surge, with 2023 reaching a peak of about 50 publications. This overall upward trend, particularly pronounced in recent years, indicates a growing interest and recognition of the importance of emotional factors in crowdfunding research. The graph clearly demonstrates that this interdisciplinary area has gained considerable traction within the academic community over the past decade. Consequently, academic literature on crowdfunding has experienced significant growth in recent years, which is indicative of the escalating interest among researchers in this field. On the other hand, Fig. 4 shows a graph with the annual citations' trend which illustrates a continuous increase in the citations between the years 2017 and 2023. Based on cocitation results, we present the scope and development of research on the use of emotions and crowdfunding in the past 13 years.

4.2 Co-occurrence analysis of keywords (COA-K)

The purpose of keyword analysis is to illustrate the past and current research emphasis and assist future researchers in conducting specific studies guided by the co-occurrence analysis of author keywords ([Li & Xu, 2021](#); [Radhakrishnan et al., 2017](#)). The co-occurrence of keywords refers to the frequency of similar words and phrases appearing together within a given dataset of documents ([Bashar et al., 2021](#)). To conduct co-occurrence analysis of author keywords (COA-K), we employed the VOSviewer software (version 1.6.19), a comprehensive tool

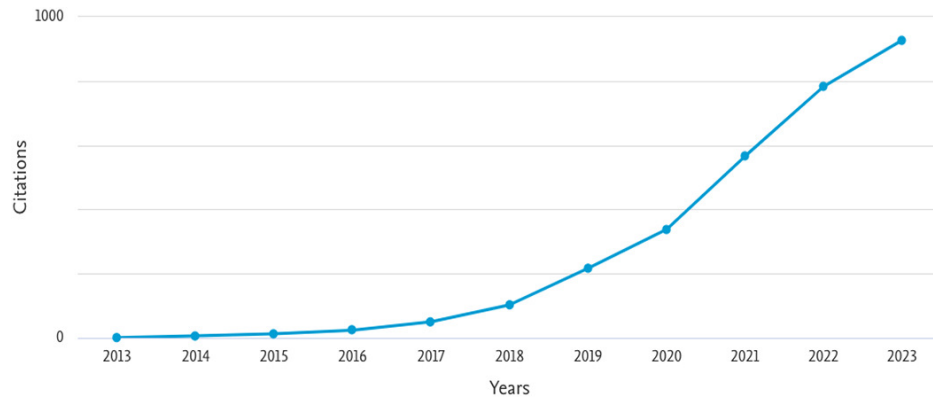


Fig. 4. Annual citations.

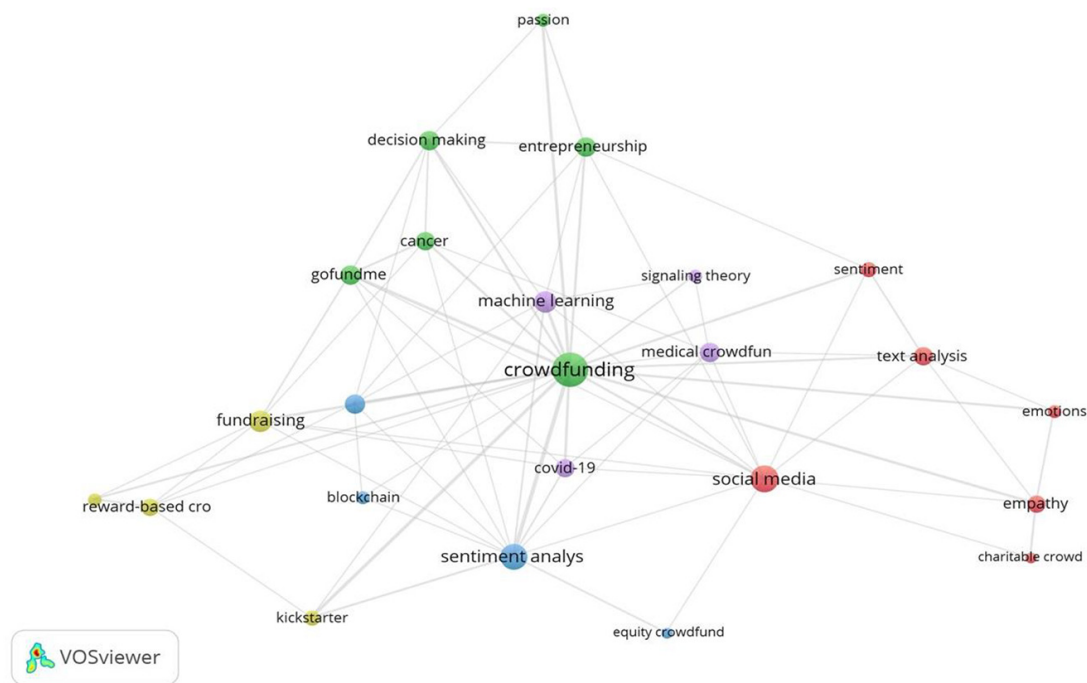


Fig. 5. Clustered network of keywords based on their co-occurrence.

widely employed for network bibliometric analysis (Ding & Yang, 2022). In generating the network map, we set a minimum occurrence threshold of five for each keyword. Out of the 876 keywords available in the dataset under consideration, a total of 24 keywords met this threshold.

The resulting network map consists of five distinct clusters. The first two clusters each contain six keywords, while the third, fourth, and fifth clusters each include four author keywords. Fig. 5 illustrates the network visualization map based on the co-occurrence of author keywords. The red cluster focuses on the emotional and psychological dimensions of crowdfunding, with keywords such as “emotions,” “empathy,” “charitable crowd,” and “sentiment.” It explores how emotional appeals in crowdfunding

campaigns influence donor behavior and the role of empathy in engaging potential donors. The presence of “sentiment analysis” suggests a methodological approach to studying these emotional aspects. The green cluster is focused on entrepreneurial aspects linked to crowdfunding, highlighting terms such as “entrepreneurship,” “passion,” and “cancer.” The connection between “cancer” and “GoFundMe” within this cluster likely points to the prevalent use of crowdfunding platforms for medical and health-related fundraising, which involves strong emotional and entrepreneurial narratives to engage donors. The blue cluster centralizes on the technological and operational facets of crowdfunding, including keywords such as “blockchain,” “Kickstarter,” “reward-based crowdfunding,” and so forth.

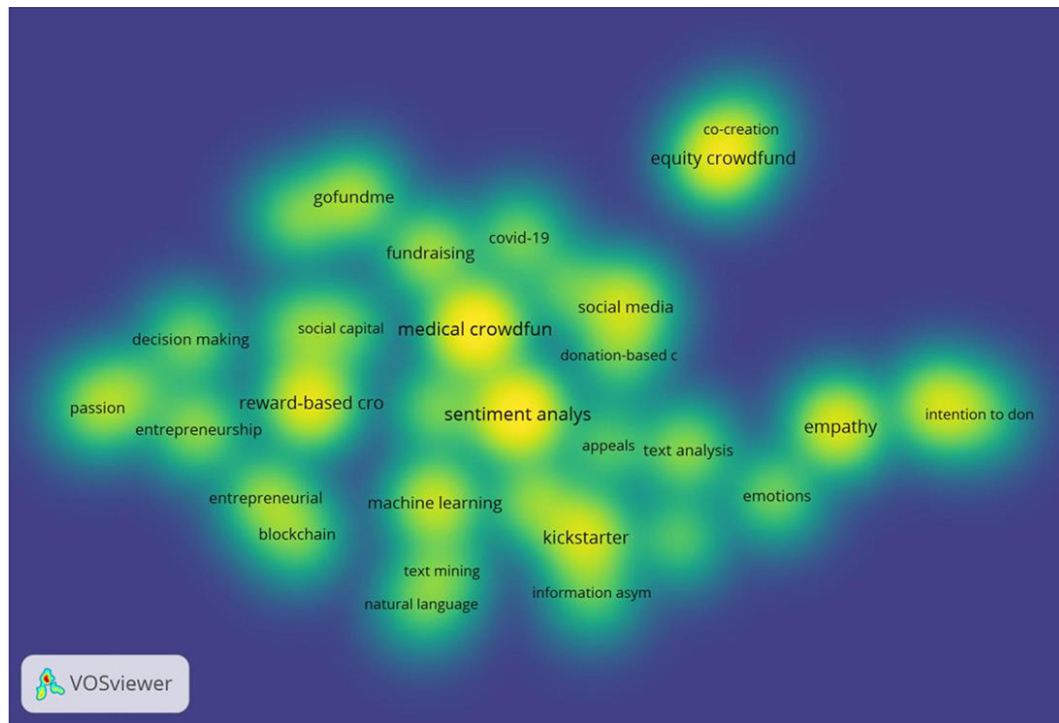


Fig. 6. Density visualization map of emerging keywords.

This cluster suggests a focus on the mechanics and platforms of crowdfunding, exploring how different technological solutions and platform choices influence the success and operation of crowdfunding campaigns. The purple cluster assesses the influence of external events such as COVID-19 on medical crowdfunding campaigns. This visualization highlights the multifaceted nature of crowdfunding research, integrating technical, emotional, entrepreneurial, and social dimensions. The purple cluster likely represents a comprehensive analysis of how medical crowdfunding campaigns have adapted and performed during the COVID-19 pandemic, with a specific focus on how theoretical concepts such as signaling and technological tools such as machine learning have been employed to optimize fundraising outcomes. This cluster suggests a dynamic interplay between theory, technology, and practical application in the face of a global health crisis.

Using VOSviewer, we grouped the keywords and studied the emerging themes. In generating the network map, we set a minimum occurrence threshold of four for each keyword. Out of the 876 keywords available in the dataset under consideration, a total of 36 keywords met this threshold. Based on VOSviewer, the visualization of the themes that emerged from 269 publications is shown in Fig. 6.

Table 2 displays the top keywords that frequently appear among the author-provided keywords

Table 2. Top-cited emerging keywords.

Keyword	Occurrences	Total link strength	Average publication year
Sentiment analysis	17	30	2019
Medical crowdfunding	17	9	2020
Reward-based crowdfunding	12	10	2019
Equity crowdfunding	12	4	2018
Empathy	11	14	2021
Kickstarter	10	16	2020
Machine learning	9	17	2020
Social media	9	16	2021
Charitable crowdfunding	9	7	2018
GoFundMe	7	18	2021
Passion	6	10	2019
COVID-19	5	12	2021
Signaling theory	5	4	2021
Psychological ownership	5	8	2021

Source: VOSviewer.

associated with publications related to crowdfunding and emotions. These keywords are assessed based on their average publication years, with occurrences indicating how frequently they appear in the publications. Link strength indicates the relevance of these keywords to our research.

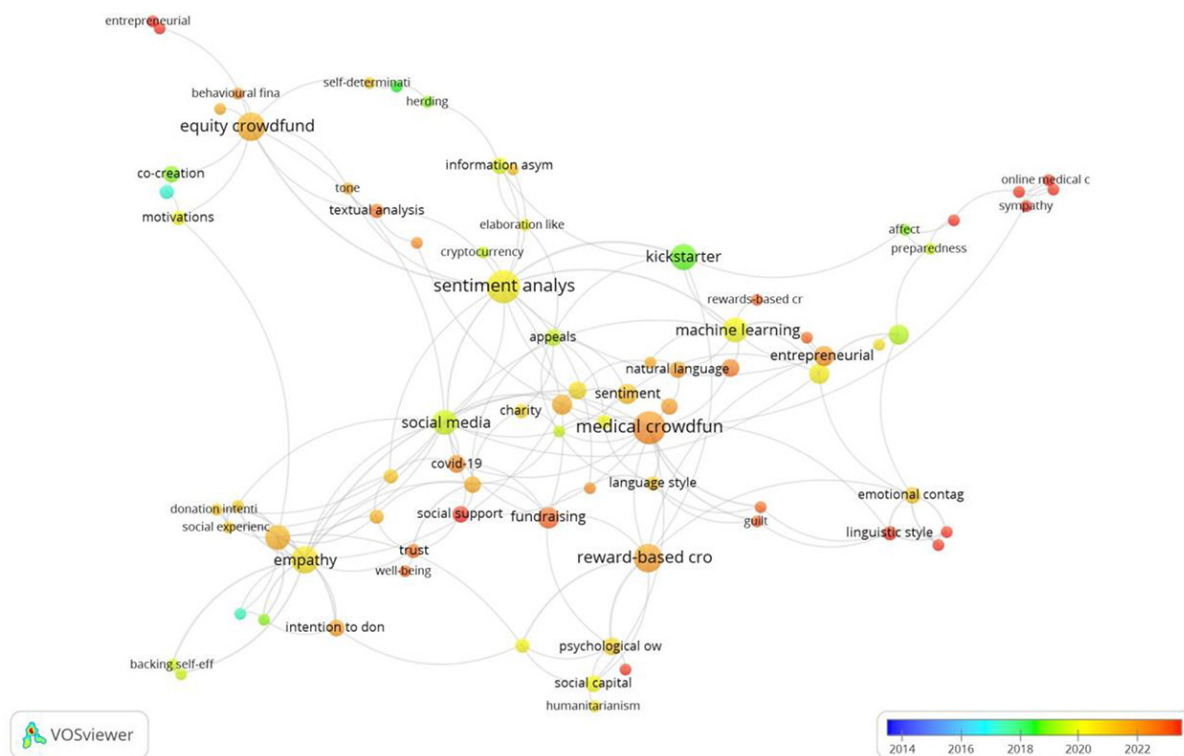


Fig. 7. Overlay visualization based on keywords and average publication year (timeline analysis).

We excluded the term “crowdfunding” from the density visualization map because it was evident that it would form the largest cluster as it is the most frequently occurring keyword. Other terms, for example, sentiment analysis, medical crowdfunding, reward-based crowdfunding, equity crowdfunding, and empathy, have high frequencies. The brightness and proximity of nodes indicate the relative importance and interconnectedness of these themes in the current research landscape. This cluster map from VOSviewer provides valuable insights into the research landscape of crowdfunding and emotions. “Medical crowdfunding” and “sentiment analysis” appear as central, bright yellow nodes, indicating they are key focus areas in this research field. Various forms of crowdfunding are represented by “equity crowdfunding,” “reward-based crowdfunding,” and “donation-based crowdfunding,” suggesting research covers different crowdfunding models. “Empathy,” “emotions,” and “intention to donate” form a cluster, highlighting the importance of emotional factors in crowdfunding research. “Machine learning,” “blockchain,” “text mining,” and “natural language processing” are present, indicating the use of advanced technologies in analyzing crowdfunding data. “GoFundMe” and “Kickstarter” are prominently featured, suggesting platform-specific studies are common. “Social media,” “text

analysis,” and “appeals” form a cluster, emphasizing the role of communication in crowdfunding success. “COVID-19” appears, indicating research on how the pandemic has impacted crowdfunding. “Entrepreneurship,” “passion,” and “decision making” are grouped, suggesting a focus on the creator’s perspective in crowdfunding. “Information asymmetry” and “social capital” indicate research on the dynamics and structures within crowdfunding ecosystems. “Cocreation” appears near equity crowdfunding, possibly indicating new research directions.

Fig. 7 provides a visual representation of the author-provided keywords associated with crowdfunding and emotions. Each keyword’s color indicates the timeframe in which it was most actively discussed in the literature, forming a temporal gradient from blue (around 2014) to red (around 2023). The years were categorized into five segments, each spanning two years. We present an analysis of the thematic evolution of interdisciplinary studies in crowdfunding and emotions, over the past decade (2013–2023), as reflected in author keywords. Table 3 provides insights into the shifting and emerging interests of researchers in the respective fields. We have analyzed the visualization by breaking down the themes and their connections.

The early years in the fields of crowdfunding and emotions focus on psychological factors such as

Table 3. Identified themes for each year (2013–2023).

Year	Color	Keywords	Themes
2013–2014	Blue	Backing self-efficacy, intention to donate, empathy	Initial exploration of emotional drivers in crowdfunding
2015	Light blue	Social experience, trust, well-being	The role of social interactions and trust in crowdfunding success
2016	Green	Donation intention, social capital, humanitarianism	Social motivations and the impact of broader humanitarian values
2017	Light green	Psychological flow, reward-based crowdfunding, guilt	Emotional responses and psychological impacts on donation behavior
2018	Yellow	Medical crowdfunding, language style, emotional contagion	Emotional spread and narrative styles in medical crowdfunding
2019	Orange	Sentiment, charity, social support, fundraising, COVID-19	The rise of digital platforms and their role during global crises
2020	Light orange	Kickstarter, machine learning, appeals, cryptocurrency	Technological advancements and new financial trends in crowdfunding
2021	Red orange	Sentiment analysis, natural language processing, textual analysis	Advanced analytics in assessing crowdfunding campaigns
2022–2023	Red	Entrepreneurial sentiment, equity crowdfunding, behavioral finance	Market trends and psychological insights in entrepreneurship-focused crowdfunding

empathy, backing self-efficacy, and social experiences which influence donation intentions in crowdfunding contexts. Middle years highlight psychological flow and emotional contagion, showing how donors' emotions are influenced and shared through campaign narratives and community interactions. Machine learning and natural language processing were used to analyze sentiments in crowdfunding campaigns and the role of social media and charity during the COVID-19 pandemic. The latest trends in recent years have brought attention to advanced sentiment analysis techniques and the implications of market trends such as cryptocurrency and equity crowdfunding.

4.3 Clusters of knowledge

The clusters shown in Table 4 represent various thematic areas within the interdisciplinary studies of crowdfunding and affective science. Each cluster groups the keywords based on their relevance and co-occurrence patterns in scholarly literature. The presence of keywords such as “sentiment analysis,” “machine learning,” and “natural language processing” in the same cluster reflects their association with analytical methods applied in crowdfunding research. Similarly, keywords related to different types of crowdfunding, such as equity crowdfunding and reward-based crowdfunding, form distinct clusters, indicating their focus areas within the broader research domain. However, “signaling” and “emotional contagion” theories represent different clusters, suggesting their importance as major theoretical frameworks so far in understanding the emotions

studied in crowdfunding. Hence, we can propose that more theories are required to be included in future studies of CF and emotions such as social exchange theory, expectancy theory, and goal-setting theory.

4.4 Analysis of trending and popular research terms and their thematic progression

Many crowdfunding researchers have shown interest in more humanistic subjects such as psychology and gender, highlighting the fusion of technology, such as blockchain (Albrecht et al., 2019, 2020; Kolbe et al., 2022), with social science topics within the context of crowdfunding. These research papers have discussed the significance of emotions in the success of blockchain-based crowdfunding. This observation supports the argument for the multidisciplinary nature of crowdfunding research. The pandemic situation has brought to light the vulnerabilities in the healthcare systems of many countries, with a particular emphasis on medical crowdfunding during the COVID-19 pandemic. These emerging terms have enhanced the significance and applicability of scholarly research in the field of crowdfunding, reaffirming the practical implications of this fundraising method in the medical context. The term “pandemic” has strongly emerged between the years 2021 and 2023, showing a relevance score above 2.00. Over the past four years, the primary emotion under discussion has been “passion,” while the analysis has identified additional positive emotions, including “happiness,” “empathy,” “excitement,” “enthusiasm,” and “confidence,” which addresses the importance of displaying emotions in crowdfunding. On the other hand,

Table 4. Clusters of knowledge.

Clusters	Emotion-related	Actions	Theoretical framework	Analytical methods	Types of crowdfunding	Platforms
Generated keywords	Passion	Perceived credibility	Signaling	Sentiment analysis	Medical crowdfunding	Kickstarter
	Empathy	Personal impulsiveness	Emotional contagion	Machine learning	Reward-based crowdfunding	Social media
	Trust	Donation behavior		Natural language processing	Equity-based crowdfunding	GoFundMe
	Entrepreneurial sentiment	Intention to donate		Textual analysis	Donation-based crowdfunding	
	Self-efficacy					
	Self-determination					
	Sympathy					
	Guilt					

Table 5. Thematic progression of items based on relevance scores (RS).

2012–2014		2015–2017		2018–2020		2021–2023	
Term	RS	Term	RS	Term	RS	Term	RS
New venture	1.72	Fear	2.30	Information asymmetry	2.06	Pandemic	2.94
Innovation	1.15	Entrepreneurial narrative	1.74	Enthusiasm	1.40	Sadness	2.21
		Happiness	1.27	Passion	1.12	Medical crowdfunding	2.03
		Kickstarter	1.20	Equity crowdfunding	1.02	Empathy	1.67
		Excitement	1.16			Gender	1.58
						Charitable crowdfunding	1.53

Source: Scopus and VOSviewer.

negative emotions such as “fear” and “sadness” have also emerged, which signifies their role in crowdfunding decision making, particularly for charitable and medical crowdfunding.

This section identifies the diverse strands of scholarly development within the literature, shedding light on shifts in trends, subject matter, and theoretical perspectives in the interdisciplinary field of crowdfunding and emotions over the years. Our study digs deeper into the evolution of themes related to crowdfunding between 2013 and 2023, employing terms used in titles and abstracts as the basis for analysis. We directly imported the text data file into VOSviewer. We considered “full counting” instead of “binary counting” as we wanted to emphasize the overall frequency and intensity of terms, which would allow us to better analyze the impact of specific terms within the dataset (Perianes-Rodriguez et al., 2016; Van Eck & Waltman, 2011). With “full counting,” the occurrences reflect the total number of times a term appears across all documents, while in the “binary” option, a term is counted only once per document, regardless of how many times it actually appears within that document. The software identified 6224 terms in the data, with 217 of them appearing 10 times. Subsequently, VOSviewer recommends using a default relevance score to choose the top 60% of most relevant terms,

which equaled 130 terms in this setting. We decided to include all 130 terms. However, we selected only those terms which are related to our study. Table 5 presents the terms with the highest relevance scores for each year. To comprehensively examine the progression and changes in themes, we segmented these years into four distinct periods. Terms with high relevance scores exhibit a noticeable inclination towards other specific terms.

As a result, it is postulated that within a co-occurrence network, terms with a higher relevance score tend to form clusters, with each cluster representing a specific topic (Van Eck & Waltman, 2011) as shown in Fig. 8. VOSviewer’s network visualization map shows a complex web of relationships between terms related to crowdfunding and illustrates how these concepts form different thematic clusters. Each cluster, represented by a different color, highlights a particular aspect of crowdfunding research. In the red cluster, “sentiment” and “investment” are the focal points, with a strong connection to terms such as “community” and “signal.” This suggests that the emotional tone of a crowdfunding campaign and the community’s reaction are critical in determining investment outcomes. Keywords such as “attention,” “enthusiasm,” and “potential backer” highlight how emotional engagement and social signals can

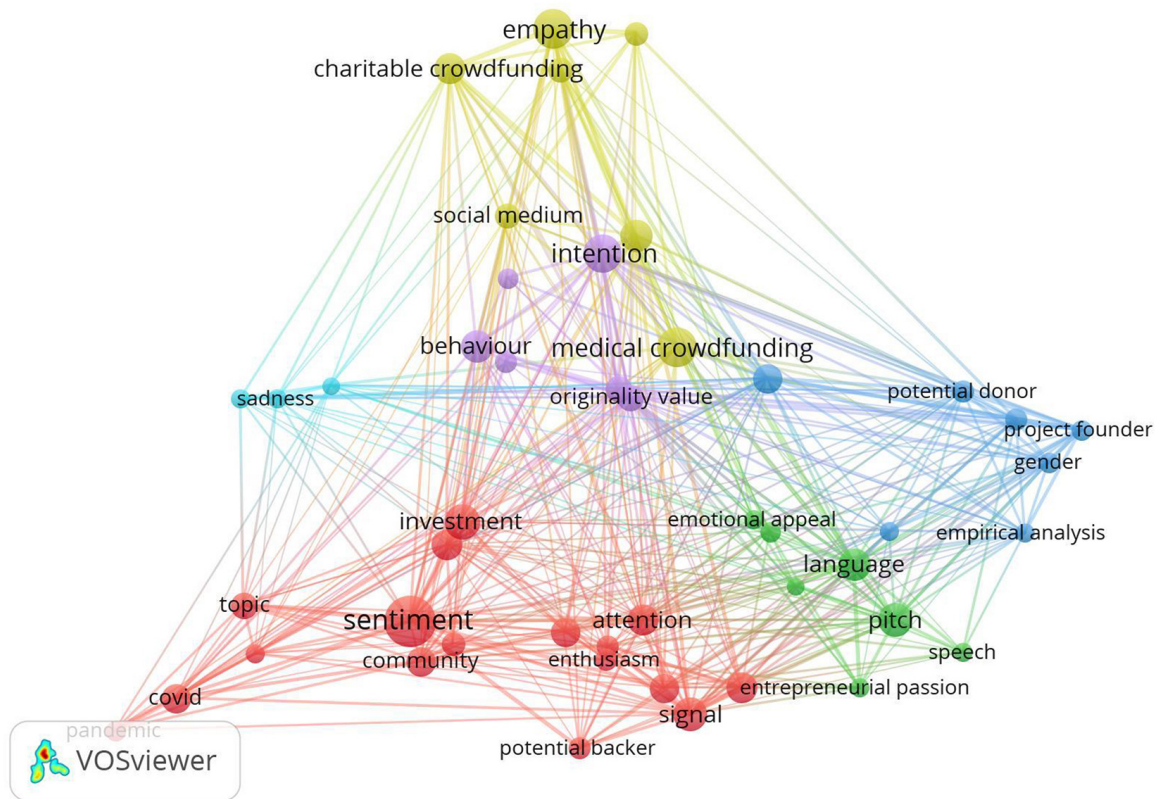


Fig. 8. Network visualization map based on terms. Colors indicate clusters of related terms.

drive investment decisions. Moreover, the presence of keywords such as “COVID” and “pandemic” signifies how external factors such as a pandemic contribute to the success or failure of crowdfunding campaigns. In contrast, the blue cluster emphasizes the emotional aspects of crowdfunding, particularly focusing on “trust,” “sadness,” “fear,” and “negative emotion.” Factors such as “gender” and “project founder,” suggest that demographics and the identity of the entrepreneur can influence donation behavior. The presence of “empirical analysis” implies that studies within this cluster might focus on quantitative evaluations of these factors. This cluster suggests an exploration of the emotional and altruistic motivations behind backers’ support for crowdfunding campaigns.

The green cluster focuses on “pitch” and “entrepreneurial passion,” pointing out that the way a crowdfunding pitch is delivered and the passion of the entrepreneur play a vital role in attracting backers. Concepts such as “language” and “emotional appeal” suggest that the choice of words and the ability to evoke emotion are crucial to creating successful pitches. The key node in the purple cluster is “intent,” surrounded by terms such as “psychological ownership,” “behavior,” and

“originality value.” This means that the research focuses on the behavioral aspects of supporters in crowdfunding, including how the communication of the campaign, the presentation (pitch), and the originality value of the product can influence supporter attention and engagement. The yellow cluster is particularly interesting because it combines key concepts related to crowdfunding and emotions. At the center of this cluster is “empathy,” which is strongly associated with concepts such as “charitable crowdfunding” and “medical crowdfunding.” This suggests that empathy is an important emotional factor that drives contributions to campaigns for social causes or medical needs. Surrounding “empathy” are terms such as “donation intention” and “social media,” suggesting that researchers are investigating how empathic responses, often communicated and amplified via social media, influence the donation intention of potential supporters. The inclusion of “credibility” in this cluster highlights the role of perceived trustworthiness and authenticity in influencing supporter behavior alongside emotional appeals. The close association of “medical crowdfunding” and “charitable crowdfunding” suggests that these types of campaigns, based on compassion and trust, are closely linked to emotional motivators

such as empathy that encourage potential backers to participate.

This analysis suggests that crowdfunding is gaining interest as a subject of study in various areas beyond its traditional domains. This means that researchers are recognizing the relevance and applicability of crowdfunding in various fields, including services, technology, and business development. This expansion of crowdfunding as a research focus indicates its growing influence and applicability in different industries and sectors, adapting to different contexts beyond the original concept of fundraising for entrepreneurial projects. Essentially, this emphasizes the interdisciplinary nature of crowdfunding research and its adaptability to a wide range of fields. The current observation is in line with the thematic progression analysis presented in Table 5. The emotion-related terms “passion,” “trust,” “fear,” “enthusiasm,” and “sadness” were identified as emerging keywords, indicating their growing importance in the context of crowdfunding research. This means that the importance of innovation and new ventures in crowdfunding, already identified in 2012–2014, has evolved into different types of crowdfunding. This development over time, especially postpandemic, suggests that the intersection of different types of crowdfunding has become a significant area of interest, underpinning the idea that crowdfunding plays an increasingly important role in medical and charity-related projects, fundraising, or initiatives.

4.5 Bibliographic coupling analysis of sources (BCA-S)

The data include the number of citations received by each source and the link strength, indicating the relevance of the publications to the subject matter. It also provides information on the total number of publications in each journal, the number of citations those journals have received in the context of crowdfunding and emotions, and the average number of citations per document. We present the leading journals in terms of publication output in the fields of crowdfunding and emotions using bibliographic coupling of sources (BCA-S). Appendix B, Table B3 displays the top 12 results from the bibliographic coupling analysis. This approach assesses the similarity between two sources (journals) based on their publications.

The *Journal of Business Research* leads the ranking with seven publications accounting for 13% of the top 12 sources and 3% of the total sample publications. The top-cited article in this journal is “The Effects of Brand Prominence and Narrative Features on Crowdfunding Success for Entrepreneurial Aftermarket Enterprises” by Moradi and Badrinarayanan (2021). This research paper explores how brand prominence

and narrative features impact the success of crowdfunding campaigns for entrepreneurial aftermarket enterprises, focusing on how emotionally compelling narratives can enhance donor engagement and funding outcomes. This study highlights the critical role of emotional appeal in the storytelling elements of crowdfunding projects.

The *Journal of Business Venturing* stands second with six publications dedicated to the topics of crowdfunding and emotions. These publications constitute 11% of the top 12 sources and 2% of the entire sample of publications. The most frequently cited article in the *Journal of Business Venturing* is titled “Funders’ Positive Affective Reactions to Entrepreneurs’ Crowdfunding Pitches: The Influence of Perceived Product Creativity and Entrepreneurial Passion,” authored by Davis et al. (2017), with 366 citations in the Scopus database. This paper investigates how funders’ positive emotional responses are influenced by the perceived creativity of the product and the passion of the entrepreneur presenting the pitch. This research understands the significance of emotional engagement in crowdfunding, demonstrating how entrepreneurial passion and innovative product ideas can effectively attract and inspire potential backers.

Though *Entrepreneurship Theory and Practice* has the highest number of citations per document (167), the *Journal of Business Venturing* has the highest link strength (1202) compared to other sources within the top 12 list, which signifies that the articles published there are more relevant to the fields of crowdfunding and emotions. On the other hand, the journal *Entrepreneurship Theory and Practice* stands out with the highest number of citations per document and the second-highest number of forward citations (501), indicating its popularity among researchers worldwide in these fields. Furthermore, the inclusion of journals such as *New Media and Society*, *Electronic Commerce Research and Applications*, *Information Technology and People*, and the *Journal of Medical Internet Research* in the top 12 list indicates that the domain of affective science (emotions) in crowdfunding extends beyond entrepreneurship, business, and management, including areas such as new media development, information technology, and digitalized medicine.

We also present a visual map in Fig. 9, depicting the results of the bibliographic coupling of sources based on their average publication year. Notably, the journals *Journal of Business Research* and *Journal of Business Venturing* are prominently shown, representing strong connections with the domains of crowdfunding and emotions. These findings align with those in Appendix B, Table B3. The *Journal of Small Business Management*, *Information Technology and People*,

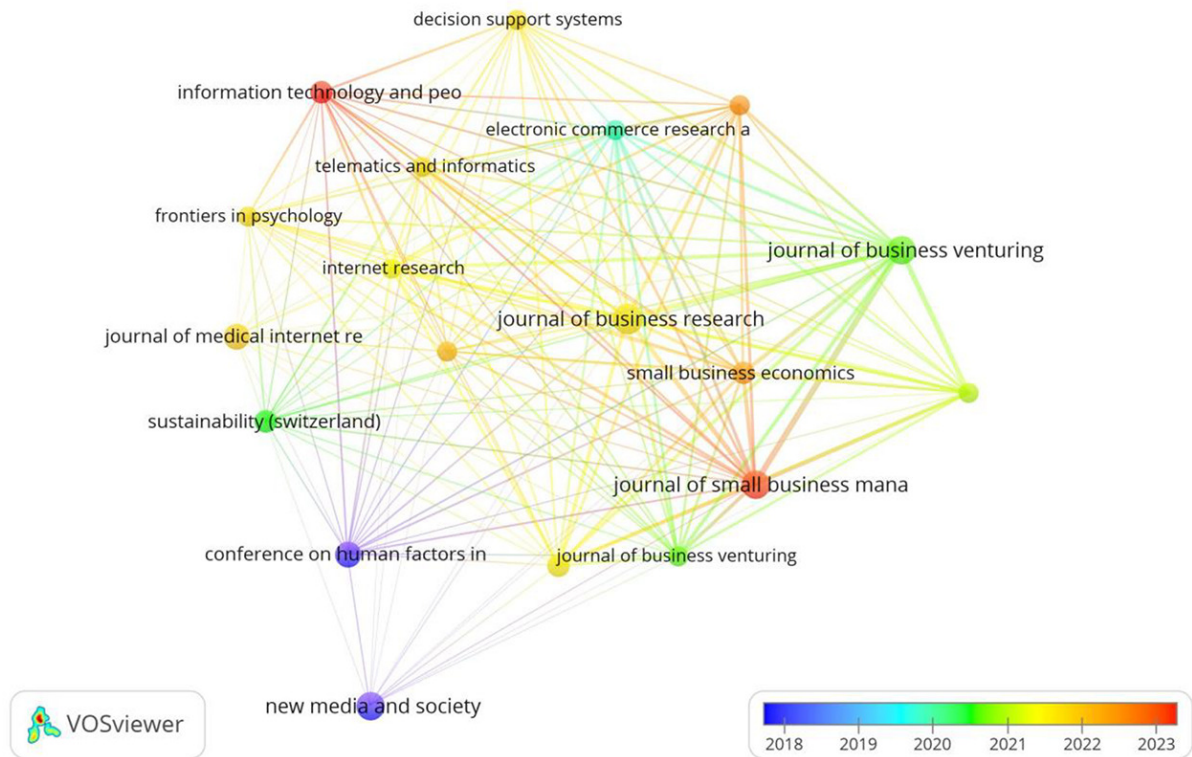


Fig. 9. Visual map of bibliographic coupling of sources over past 5 years.

Small Business Economics, and *Journal of the Academy of Marketing Science* are represented in orange and red colors, which indicates articles published in the years 2022–2023 and highlights their popularity among academics and researchers in recent times. The rest of the journals exhibit an average publication year between 2018 and 2021.

We have used this visualization to gauge the scholarly impact and relevance of journals in their fields of study. Overall, the visualization appears to provide information about the recent popularity of various academic sources in the fields of crowdfunding and emotions. It offers a quick way to identify influential journals and articles and understand their publication timelines.

5 Discussion

The purpose of this research is to review and integrate existing research on the use of emotions in crowdfunding in order to summarize the state of the art of knowledge. To this end, we illustrate the emergence of distinct subfields centered around essential concepts found in specific seminal papers. Our first research question refers to an understanding of how the literature on crowdfunding and emotions developed over time by reviewing the most cited

publications. We find that crowdfunding research has grown steadily since its inception, with an increasing number of research papers published each year within business, management, accounting, computer science, economics, econometrics, finance, social sciences, decision sciences, and engineering.

The scientific literature on crowdfunding and emotions saw steady growth until 2021, with a stagnant phase between 2017–2018 and a slight decline between 2021 and 2022 due to the COVID-19 pandemic. However, publication numbers rebounded after 2022, reflecting a renewed interest in the emotional dynamics of crowdfunding, particularly in medical and socially oriented campaigns. This upward trend highlights the growing recognition of emotions' critical role in crowdfunding success. Our analyses focused on journals, author keywords, and citations reveal that journals with high productivity in this area primarily belong to the fields of business, information technology, and medical research. We also examined the most frequently cited references and articles published during this period, as well as the journals consistently known for publishing high-quality content on this topic. These research areas signify crowdfunding's multidisciplinary nature, in both areas of business and affective science.

Future researchers can consider employing more diverse and complex analyses in platform-specific studies, particularly as the field increasingly emphasizes the emotional and psychological dimensions of crowdfunding that influence backers' behavior and campaign success. Incorporating advanced techniques such as sentiment analysis and text analysis can provide deeper, data-driven insights into how external circumstances, such as the impact of COVID-19, shape crowdfunding dynamics. Additionally, exploring various types of crowdfunding, including equity, medical, and charitable, will help highlight the adaptability of strategies across different contexts and needs. This approach reflects the ongoing maturation and diversification of the field, encouraging a better understanding of crowdfunding mechanisms.

Our second research question explores the emerging topics that have dominated crowdfunding research over the years. We find that in the early years of crowdfunding research, the focus was on understanding the nature, meaning, and role of crowdfunding, as well as the evolution of the different types of crowdfunding. In contrast, more recent studies have focused on exploring the determinants of crowdfunding success and risks, employing models from economics, psychology, and sociology, and relating the phenomenon to macroeconomic issues such as sustainability, gender equality, and access to health care. The most frequently cited papers address topics such as resolving information asymmetries between entrepreneurs and backers, signaling, positive affective reactions of backers to crowdfunding pitches, the power of emotions portrayed through crowdfunding, signaling theory in crowdfunding, empathy as an emotion among backers, emotion contagion theory, funding decisions, intrinsic and extrinsic factors, and more. Emerging topics in the recent literature include blockchain, pandemic, medical crowdfunding, emotions, and charitable crowdfunding. These themes are indicative of recent advances in two different forms of crowdfunding, medical and charitable crowdfunding: both are based on the theory of emotion contagion. In short, crowdfunding has evolved into an area of research that examines both entrepreneurial behavior and the decision-making processes of backers. This demonstrates the untapped potential for academic research in this area that addresses both entrepreneurial and social/humanitarian behavior. We also linked the topics to the most prominent journals engaged. We find that there are many interdisciplinary studies of crowdfunding and emotions published in top journals, which addresses our third research question.

Finally, as a part of the last research question, we aimed to address how the existing body of research in crowdfunding, with a focus on the role of emotions in crowdfunding campaigns, informs future studies. Based on our findings, we suggest several avenues for future research. One potential study could examine how the visible passion of entrepreneurs, as conveyed through campaign materials and communication, influences backers' engagement and the overall success of crowdfunding campaigns, especially in social or humanitarian contexts. Additionally, future studies can explore how social entrepreneurs use crowdfunding to scale their ventures, with a focus on the role of emotional and social appeals in attracting support. Researchers should also consider investigating the impact of platform choice on campaign success in the context of social entrepreneurship. We further discuss specific theoretical and practical implications.

5.1 Theoretical and practical implications

The bibliometric analysis of emotions in crowdfunding research offers significant theoretical implications for future scholars who want to conduct research on affective science and crowdfunding as well as interdisciplinary bibliometric studies. Our research provides a comprehensive overview of the field, mapping its intellectual structure by identifying key contributors, influential works, and prevailing trends. Highlighting gaps and underexplored areas, such as backers' emotional responses to crowdfunding campaigns or how emotions change over time in crowdfunding, encourages new research directions and theoretical developments. Our study not only synthesizes existing knowledge but also lays a solid foundation for future theoretical advancements in the study of emotions in crowdfunding, potentially leading to new models and frameworks that can enhance the understanding of this multidisciplinary field.

More comprehensive theories should be included that account for the complex interplay between entrepreneurial behavior, backer motivations, and emotional appeals in crowdfunding. Theories such as social exchange theory (Homans, 1958, 1974), expectancy theory (Vroom, 1964), and goal-setting theory (Locke, 1968; Locke & Latham, 2002) need more attention in upcoming studies. Research could explore how the principle of reciprocity, a core concept in social exchange theory (Cropanzano et al., 2017; Homans, 1974), influences backers' emotions and behavior in crowdfunding. This could involve examining how emotional appeals in campaigns create a sense of obligation or desire for reciprocity.

among backers, leading them to contribute to a campaign. The perceived value of the exchange (e.g., emotional satisfaction, social recognition) could be a key focus of their research. The expectancy theory of motivation (Vroom, 1964) postulates that individuals are motivated when they believe their efforts will lead to desired outcomes. In the future, studies could use this theory to explore how backers' expectations regarding the emotional and tangible rewards of contributing to a campaign influence their decisions to support a project. The theory of goal setting (Locke, 1968; Locke & Latham, 2002) could be used to investigate how clearly defined campaign goals influence the emotional responses of backers. Researchers could investigate whether backers feel more motivated and emotionally connected to campaigns with clear, challenging goals and how these emotions influence their decisions to fund a project. For example, studies could examine how clear communication of potential rewards (e.g., social impact, personal fulfillment, achievement of goal, etc.) affects backers' engagement.

The current body of empirical research on emotions and crowdfunding is predominantly focused on reward-based and medical models, with other forms receiving less attention. This imbalance presents an opportunity for researchers to address the existing gap, particularly in donation- and equity-based crowdfunding. These forms of crowdfunding likely involve different backers' motivations and campaign dynamics compared to other types, which makes this a potentially rich area for new studies and insights.

The bibliometric analysis of emotions in crowdfunding research guides future scholars by highlighting influential studies, trends, and gaps, offering a roadmap for aligning with current and emerging research areas. It also identifies underexplored topics, guiding new research directions for potential breakthroughs. Additionally, network visualization techniques aid in understanding complex relationships within the literature (Butticè & Ughetto, 2021; Zupic & Čater, 2015), helping researchers better contextualize and position their work. Overall, this study not only enhances the efficiency of the research process but also supports the development of more targeted and impactful research projects in the evolving fields of affective science and crowdfunding, enabling scholars to make more significant contributions. Based on our findings, we emphasize key topics to be researched in future crowdfunding research to better understand the emergence of information asymmetries among backers and crowdfunders, the use of signaling strategies, and the combination of signals that entrepreneurs use for a maximum effect. Emotional aspects are often tied to the perception of

risk in crowdfunding (Bitterl & Schreier, 2018; Ren et al., 2021). This might help in creating strategies to mitigate risk perception and build trust among backers. Insights from successful emotional appeals in crowdfunding campaigns can assist entrepreneurs in optimizing their campaigns. This includes crafting persuasive messages and designing compelling visuals. Understanding the emotional factors that drive backers' engagement can lead to practical recommendations for fostering a supportive and engaged community around crowdfunding projects.

The bibliometric analysis of emotions in crowdfunding research also provides valuable insights for policymakers. It offers a comprehensive understanding of how emotions influence crowdfunding campaigns, which can inform guidelines for campaign creators. Revealing the psychological factors behind backers' motivations enables policymakers to develop tailored regulations protecting backers from manipulative emotional tactics, ensuring a fair crowdfunding environment. The study also highlights areas needing further research, helping to guide funding priorities. Ultimately, this research equips policymakers with data-driven insights to create informed policies that foster a more effective and sustainable crowdfunding ecosystem.

Therefore, this paper stands out as an up-to-date account of the evolution and trends in emotions and crowdfunding research. While other studies have focused on shorter periods and broader domains in crowdfunding, to the best of our knowledge, this research represents the most recent and concentrated bibliometric analysis of crowdfunding using the Scopus database. Notably, it captures work published during the pre- and postpandemic periods, yielding interesting insights into thematic progression in recent years. In summary, the research contributes theoretically by mapping the research landscape, identifying knowledge gaps, and developing frameworks, while offering practical insights for stakeholders involved in optimizing crowdfunding campaigns.

5.2 Limitations and future research

Usually, studies such as this one face a few limitations that are common in bibliometric analyses. Firstly, the literature for this study is limited to the Scopus database only. To overcome this constraint, future researchers can extend their data acquisition by incorporating additional databases such as Web of Science, Google Scholar, ProQuest, IEEE Explore, Dimensions API, and ABI/Inform into their research studies. Secondly, the VOSviewer tool excluded the majority of articles published in languages other than English. Another constraint is that we chose

the default or specific parameters of VOSviewer. Different parameters in the application can lead to different interpretations of the findings which depend on the results of bibliometric mapping. Moreover, future authors can provide interdisciplinary insights by performing an analysis that includes literature from multiple disciplines. Despite the limitations that we have mentioned, our paper offers a thorough examination of crowdfunding and emotions interdisciplinary research that will prove highly beneficial to both scholars and crowdfunding industry professionals. Additionally, it will contribute to the expansion and progression of research in these fields.

We expect that future research in crowdfunding will extensively rely on integrating emotions to understand intrinsic and extrinsic factors that affect funding decisions. Considering the advent of technologies, we also find that research will likely focus on emerging topics, such as blockchain, pandemic, medical crowdfunding, and charitable crowdfunding. Overall, we expect further development of theories explaining the emotional dynamics between backers and project creators.

6 Conclusion

This study is the first bibliometric analysis related to crowdfunding and emotions, covering the period from 2013 to 2023. We focused on bibliometric studies related to emotions because emotions have an accentuated significance in the context of crowdfunding. Our major and intense focus on emotions is especially relevant given that crowdfunding campaigns are presented online. Based on the findings of this research, it is evident that emotions play a crucial role in the success of crowdfunding campaigns. The study highlights the growing importance of emotional content in attracting backers and fostering a sense of community, especially in the postpandemic era. As the field evolves, interdisciplinary approaches that integrate psychological and economic perspectives will be essential in deepening the understanding of backers' behavior and the effectiveness of emotional appeals in crowdfunding. This study provides a foundation for future research to build upon, with a particular focus on the role of emotions in enhancing campaign visibility, backer engagement, and overall campaign success. Furthermore, the analysis identifies a gap in the literature regarding the long-term impact of emotions on backers' loyalty and re-funding. While emotions clearly have an impact on initial funding decisions, the study suggests that future research should investigate how emotional engagement influences the willingness of backers to provide repeat funding for

other projects or additional ventures by the same entrepreneur or project creator. This study calls for a deeper examination of cultural and demographic factors, recognizing that the emotional triggers vary significantly across different audience segments. This study therefore highlights the need for interdisciplinary approaches that combine psychological and economic insights to deepen the understanding of emotions in crowdfunding and develop more effective strategies for campaign success.

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Appendix A

Search string used to extract literature on crowdfunding and emotions

(TITLE-ABS-KEY (crowdfunding) AND TITLE-ABS-KEY (emotional) OR TITLE-ABS-KEY (emotions) OR TITLE-ABS-KEY (sentiment) OR TITLE-ABS-KEY (passion) OR TITLE-ABS-KEY (gratitude) OR TITLE-ABS-KEY (affections) OR TITLE-ABS-KEY (enthusiasm) OR TITLE-ABS-KEY (excitement) OR TITLE-ABS-KEY ("negative emotions") OR TITLE-ABS-KEY ("positive emotions") OR TITLE-ABS-KEY ("emotional signaling") OR TITLE-ABS-KEY ("emotional signalling") OR TITLE-ABS-KEY ("emotional appeal") OR TITLE-ABS-KEY ("emotional engagement") OR TITLE-ABS-KEY ("emotional factors") OR TITLE-ABS-KEY ("positive sentiments") OR TITLE-ABS-KEY ("negative sentiments") OR TITLE-ABS-KEY (empathy) OR TITLE-ABS-KEY ("investor sentiment") OR TITLE-ABS-KEY ("investor feelings") OR TITLE-ABS-KEY ("backer feelings") OR TITLE-ABS-KEY ("feelings") OR TITLE-ABS-KEY ("entrepreneur feelings") OR TITLE-ABS-KEY ("backer emotions") OR TITLE-ABS-KEY (emotion) OR TITLE-ABS-KEY ("display passion") OR TITLE-ABS-KEY ("display confidence") OR TITLE-ABS-KEY ("moods and emotions") OR TITLE-ABS-KEY (mood) OR TITLE-ABS-KEY ("affective engagement")) AND PUBYEAR > 2012 AND (LIMIT-TO (LANGUAGE , "english"))

Appendix B

Table B1. Types of publications and subject areas.

Type of publication	No. of documents	Percentage of 269
Article	194	72.1
Conference paper	62	23.0
Book chapter	10	3.0
Book	2	0.7
Review	1	0.4
Subject area	No. of documents	Percentage of 269
Business, management, and accounting	131	48.7
Computer science	99	36.8
Social sciences	61	22.7
Economics, econometrics, and finance	55	20.4
Decision sciences	37	13.8
Engineering	29	10.8
Mathematics	17	6.3
Psychology	16	5.9
Arts and humanities	14	5.2
Medicine	13	4.8
Others	39	14.5

Source: Scopus.

Table B2. Top 10 cocited references (descending order).

Cocited reference	Citation	Total link strength
Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. <i>Journal of Business Venturing</i> , 29(1), 1–16.	64	222
Belleflamme, P., Lambert, T., & Schwienbacher, A. (2014). Crowdfunding: Tapping the right crowd. <i>Journal of Business Venturing</i> , 29(5), 585–609.	35	119
Parhankangas, A., & Renko, M. (2017). Linguistic style and crowdfunding success among social and commercial entrepreneurs. <i>Journal of Business Venturing</i> , 32(2), 215–236.	24	128
Allison, T. H., Davis, B. C., Webb, J. W., & Short, J. C. (2017). Persuasion in crowdfunding: An elaboration likelihood model of crowdfunding performance. <i>Journal of Business Venturing</i> , 32(6), 707–725.	22	131
Ahlers, G. K., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. <i>Entrepreneurship Theory and Practice</i> , 39(4), 955–980.	17	72
Bi, S., Liu, Z., & Usman, K. (2017). The influence of online information on investing decisions of reward-based crowdfunding. <i>Journal of Business Research</i> , 71, 10–18.	15	82
Anglin, A. H., Short, J. C., Drover, W., Stevenson, R. M., McKenny, A. F., & Allison, T. H. (2018). The power of positivity? The influence of positive psychological capital language on crowdfunding performance. <i>Journal of Business Venturing</i> , 33(4), 470–492.	14	88
Courtney, C., Dutta, S., & Li, Y. (2017). Resolving information asymmetry: Signaling, endorsement, and crowdfunding success. <i>Entrepreneurship Theory and Practice</i> , 41(2), 265–290.	14	78
Burtch, G., Ghose, A., & Wattal, S. (2013). An empirical examination of the antecedents and consequences of contribution patterns in crowd-funded markets. <i>Information Systems Research</i> , 24(3), 499–519.	14	59
Xiang, D., Zhang, L., Tao, Q., Wang, Y., & Ma, S. (2019). Informational or emotional appeals in crowdfunding message strategy: An empirical investigation of backers' support decisions. <i>Journal of the Academy of Marketing Science</i> , 47, 1046–1063.	13	86

Source: VOSviewer.

Table B3. Top 12 productive sources.

Source title	No. of documents	No. of forward citations	No. of citations per document	Link strength
<i>Journal of Business Research</i>	7	147	21	1044
<i>Journal of Business Venturing</i>	6	605	101	1202
<i>New Media and Society</i>	6	271	45	30
<i>Journal of Small Business Management</i>	6	38	6	1119
<i>Journal of Medical Internet Research</i>	5	66	13	57
<i>Small Business Economics</i>	4	113	28	706
<i>International Journal of Entrepreneurial Behavior and Research</i>	4	35	9	637
<i>Information Technology and People</i>	4	14	4	371
<i>Entrepreneurship Theory and Practice</i>	3	501	167	666
<i>Electronic Commerce Research and Applications</i>	3	208	69	584
<i>Internet Research</i>	3	177	59	671
<i>Journal of Academy of Marketing Science</i>	3	89	30	529

Source: Scopus (2013–2023).