

## Research Trends on Digital Marketing Strategies and Student Satisfaction in Higher Education: A Bibliometric Analysis

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### Abstract

*The main objective of this bibliometric article is to analyze and synthesize existing research that explores the relationship between digital marketing strategies implemented by higher education institutions and the satisfaction perceived by students. A bibliometric methodology was adopted, constructing a canonical search equation in the Scopus database, without temporal restrictions. The extracted data were processed using Bibliometrix and VOSviewer to create scientific maps and perform statistical analyses. The main results reveal a significant growth in scientific production, with a total of 1126 published papers and a remarkable international collaboration. The central concepts are social networks, e-commerce, student satisfaction and digital marketing. An interdisciplinary nature is observed, with contributions from various areas of knowledge. Although the interest is global, the growing participation of Middle Eastern nations stands out. In conclusion, the field of digital marketing research on college students has experienced significant growth, reflecting the adoption of digital technologies in higher education and the need for effective digital marketing strategies to attract and retain students.*

**Keywords:** *Bibliometrics, higher education, digital marketing, student satisfaction, social networks.*

### Introduction

In today's digital age, higher education institutions are challenged to adapt to disruptive changes in the communication and marketing landscape. The proliferation of social media and digital platforms has radically transformed the way universities interact with their current and prospective students. University digital marketing has emerged as a powerful tool to strengthen brand image, attract new students, and foster satisfaction and loyalty among current students. Numerous studies have explored the impact of digital marketing strategies on student perceptions, highlighting the importance of social networks, user-generated content and online experience in shaping attitudes and behaviors (Jamil et al., 2023).

The advent of digital technologies has transformed the marketing landscape in higher education. Jo (2023) examined the factors influencing the practical use of the AI chatbot ChatGPT among college students, highlighting the impact of knowledge application, perceived intelligence, and usability on the attitude toward its adoption. Azzam et al. (2023) analyzed the role of digital marketing dimensions, such as attraction, communication, and retention, in improving the mental image of educational services from the perspective of university students. Mamytbayeva et al. (2024) investigated the concept of "research culture" in relation to student teachers, formulating basic requirements for its development in the digital era.

Student satisfaction is a key factor in the success of university digital marketing strategies. Abu-Taieh et al. (2022) investigated factors influencing the use of YouTube as a learning tool and its impact on academic performance in a bilingual academic context. Sagynbekova et al. (2021) found that universities can better position themselves to compete when they employ user- and business-generated social network

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communications to build their brand. Avogo et al. (2022) examined the effect of using word-of-mouth marketing strategies and online housing websites for student housing selection and satisfaction with building services during COVID-19.

Student adoption of digital technologies and their impact on satisfaction have been the subject of numerous studies. Ahmed et al. (2020) examined the influence of smartphones on the academic performance of university students in Pakistan, considering factors such as apps, messaging services, and entertainment. Ismail et al. (2020) investigated consumer acceptance of mobile marketing services by applying the Theory of Planned Behavior and examining the impact of risk perception. Escandon-Barbosa et al. (2020) analyzed brand image as a determinant of brand attitude and the moderating effect of brand equity on online information use among millennial consumers.

Higher education institutions must adapt their digital marketing strategies to student preferences and behaviors. German Ruiz-Herrera et al. (2023) examined the factors involved in the technological acceptance of e-commerce among young college students by articulating the Technology Acceptance and the Theory of Planned Behavior. Cruz et al. (2021) studied variables influencing favorable behavioral intentions toward mobile marketing acceptance and adoption among college students. Kala & Chaubey (2023) investigated the relationship between students' technology acceptance, engagement and perceived learning in tourism-related massive open online courses (MOOCs).

Digital marketing strategies should also consider cultural and sociodemographic factors that influence student adoption and satisfaction. Guzel et al. (2020) analyzed value co-creation in new product development from a consumer perspective, highlighting the impact of factors such as extroversion, openness to experience, and product category involvement. Villegas-Ch et al. (2022) investigated the inclusion of information and communication technologies in education, proposing a method to establish students' needs and doubts about the use of educational technologies without affecting their performance. Daoud et al. (2023) determined the factors influencing the improvement of the mental image of students in private universities in Jordan who mainly use Google, considering search engine optimization and search engine performance.

On the other hand, the adoption of digital technologies and student satisfaction are also influenced by factors such as environmental awareness and financial literacy. Rezaei et al. (2022) determined the effect of online social networks on environmentally responsible behavior of college students. Alomari & Abdullah (2023) investigated the factors that can predict the behavioral intention of public university students in Saudi Arabia toward cryptocurrency use, incorporating security, awareness, and financial literacy as moderators. Luna-Cortes (2024) examined whether virtual social network communication guided by an official source reduces perceived risks of delinquency and increases trust and intention to attend an event among students in Colombia.

Social networks have taken on a dominant role in the lives of college students, influencing various aspects of their academic and personal experience. Sanwal et al. (2023) explored the need to modify traditional teaching and learning methods due to the innovation of social networks. Jeong (2023) highlighted the integration of social networking services, such as KakaoTalk and YouTube, into mobile device-assisted learning, which supports language learning and fosters learner motivation and engagement. Jonsson et al. (2022) analyzed learner preferences for online or face-to-face learning during the COVID-19 pandemic, identifying advantages of both modalities, such as a more enriching learning environment and better teacher-learner interaction in face-to-face classes, and flexibility and self-directed learning in online learning.

The adoption of social networks in education has been studied from various theoretical perspectives. Ajibade et al. (2022) examined the uptake of social networking for e-learning in Nigerian universities using the Technology Acceptance (TAM), focusing on perceived ease of use, perceived usefulness and behavioral intention to adopt new technologies.

For their part, Karácsony et al. (2020) investigated the job search habits of young people, particularly university students, and how companies adapt to the widespread use of social networks in the online labor market.

Social networks have proven to be effective platforms for marketing and building brand awareness in higher education institutions. Sanchez Garza et al. (2024) examined the effect of marketing activities on the generation of brand awareness, image, and loyalty in social networks of a public higher education institution, based on social network theory and Bilgin's (2018) model. Kaoud et al. (2023) analyzed the effect of institution-generated electronic word of mouth (eWOM) and student satisfaction on brand equity of a private university in Egypt, finding that institution-generated content on internal social networks is considered more trustworthy and that "Brand Trust" was the most important component in capturing student satisfaction.

The influence of social networks in higher education has also been analyzed from the perspective of marketing and e-commerce. Jiang et al. (2023) investigated the role of anxiety in college students' consumption patterns within the online-to-offline (O2O) e-commerce model in China, highlighting the importance of customer loyalty, customer satisfaction, and product quality. Dogra & Kaushal (2023) identified factors affecting trust in online stores, such as website quality, familiarity, ease of use, and online reviews and ratings, and their impact on customers' purchase intention. Wang & Park (2023) found that accidental discovery of tourism information on social networks had a greater impact on travel intention than intentional search among Chinese college students.

It should be noted that beyond the benefits, the challenges and limitations of using social networks in higher education have also been explored. Kisworo et al. (2021) investigated student perceptions of the effectiveness of online learning during the pandemic, finding that most believed it was less effective than face-to-face learning due to inefficient learning tools, less interaction, inattention to workload, and distractions from the home environment.

Against this backdrop, it is imperative to comprehensively examine the implications of university digital marketing on student satisfaction. The main objective of this bibliometric article is to analyze and synthesize existing research that explores the relationship between digital marketing strategies implemented by higher education institutions and perceived student satisfaction. Through a comprehensive analysis of the literature, this bibliometric article aims to provide a comprehensive and up-to-date view of the current research landscape, laying the groundwork for the development of more effective digital marketing strategies and the improvement of the student experience in the university environment.

## Methodology

Given the growing interest in understanding the phenomenon of digital marketing in the university environment and its influence on student satisfaction, we chose to employ a bibliometric methodology. This technique, rooted in the mathematical and statistical analysis of scientific production, provides a systematic and rigorous framework for investigating the evolution and trends within a specific field.

The research approach adopted is part of a qualitative paradigm, focused on exploring and describing the process related to the scientific approach to the topic. To carry out this research, a longitudinal non-experimental design was adopted, with the objective of examining in detail the relationship between the digital marketing strategies implemented by universities and the perception of quality and satisfaction of students.

A canonical search equation was constructed in the Scopus database, incorporating relevant key terms, namely ( "digital marketing" OR "online marketing" OR "internet marketing" OR "digital strategies" ) AND ( "university" OR "universities" OR "higher education" ) AND ( "higher education student" OR "university student" ) AND ( "satisfaction" OR "quality perception" ). The formulation of the search equation was directly adjusted to the research topic, "University digital marketing and student satisfaction", highlighting that no temporal restrictions were applied. The objective was to cover the evolution of the topic from its first appearances in scientific research to the current date. The search strategy implemented until April 25, 2024 yielded a total of 1126 documents specifically related to university digital marketing and student satisfaction.

Scopus data were exported as CSV for mathematical and statistical analysis, then converted to Excel format to facilitate processing and analysis. They are available at this link: <https://zenodo.org/records/11089928>

Data extracted from Scopus, encompassing relationships between metadata such as authors, institutions and journals, were used to create scientific maps using Bibliometrix and VOSviewer. Bibliometrix, based on R, offers statistical analysis and graphics (Bibliometrix, 2024), requiring R and Rstudio. VOSviewer, developed by Leiden University, builds and visualizes bibliometric citation, co-citation and co-authorship networks, as well as performs text mining for co-occurrence networks of key terms (VOSviewer, 2024).

## Results and Discussion

The most relevant data from the bibliometric research on digital marketing in university students are presented below:



**Figure 1.** Summary of the main information of the collection.

**Note:** Collection summary prepared with Bibliometrix software, based on metadata extracted from Scopus.

The indicators of bibliometric research on digital marketing in university students based on data extracted from Scopus, point to significant trends. During the analysis period from 2002 to 2024, an annual growth of 24.5% in scientific production is evident, with a total of 1126 papers published in 650 journals. International collaboration is remarkable, representing 32.42% of co-authorship, with an average of 3.29 authors per paper. The extensive reference to 93075 sources stands out, indicating a solid knowledge base. The average age per paper of 3.42 suggests current and relevant research. In addition, the average number of citations per paper of 15.91 reflects a significant impact on the academic community, supporting the quality and relevance of the research conducted in the field of digital marketing in undergraduate students.

The marked annual increase of 24.5% in scientific output, supported by a total of 1126 projected papers from 2002 to 2024, highlights the currency and relevance of university digital marketing, as noted by Jo (2023), Azzam et al. (2023), and Mamytbayeva et al. (2024). These authors explore the factors influencing the adoption of digital technologies, the dimensions of digital marketing, and the concept of "research culture" in the digital era. In addition, remarkable international collaboration (32.42% co-authorship) and an average of 3.29 authors per paper reflect a global perspective, in tune with studies cited from diverse regions. Extensive reference to 93075 sources supports the strong knowledge base mentioned in the introduction, which examines research on the impact of digital marketing on student perception, adoption, satisfaction, and behavioral intention.

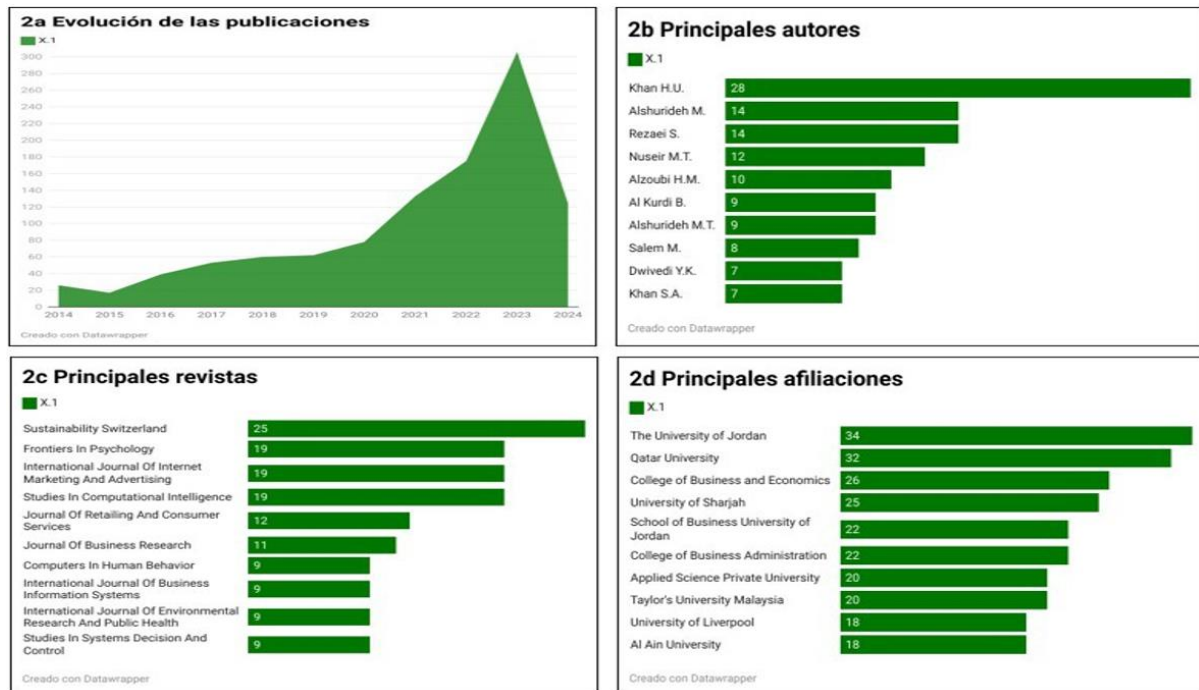


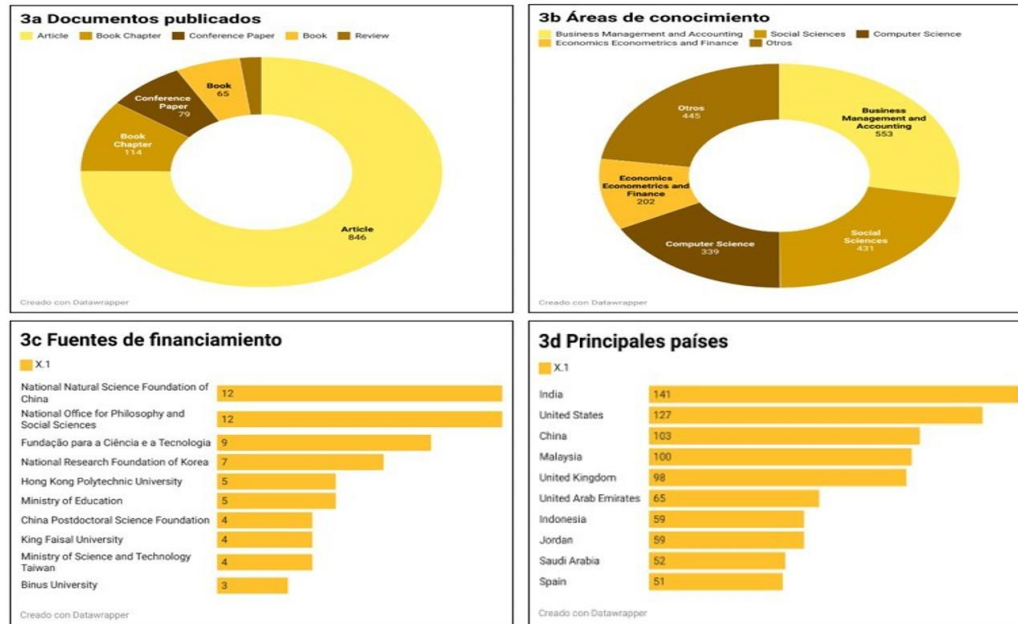
Figure 2. Evolution, authors, journals and affiliations.

**Note:** Main bibliometric indicators related to the evolution of publications, authors, journals and affiliations, based on Scopus metadata, processed in the app <https://app.datawrapper.de/>.

Steady growth in the number of publications is evident since 2010, with notable peaks in 2023 and 2024 (projected), reflecting a marked academic interest in university digital marketing and students. This interest can be attributed to the widespread adoption of digital technologies in higher education and the need for effective marketing strategies to attract and retain students in an ever-changing environment. Furthermore, the projected increase suggests that the topic will remain relevant and attractive to researchers for the foreseeable future, providing a meaningful context for bibliometric study and highlighting its current importance. The most productive authors, such as Khan, H.U., Alshurideh, M., and Rezaei, S., have a considerable number of publications, making it easier to identify the most influential researchers and to establish collaborations or citations in the bibliometric article. The diversity of authors suggests a global appeal of the subject, while certain prominent institutions, such as Jordan University and Qatar University, indicate the presence of established research groups. The most popular journals for publishing university digital marketing research and students include "Sustainability Switzerland", "Frontiers in Psychology" and "International Journal of Internet Marketing and Advertising", signaling an interest in both multidisciplinary and specialized journals. The diversity of journals in related areas reflects the interdisciplinary nature of the subject and guides the selection of appropriate publications, while the geographic distribution of the most prolific institutions suggests a particular interest in regions where higher education and digital marketing are developing rapidly. The presence of world-renowned institutions on the list underscores the global interest and impact of the topic in diverse and advanced contexts.

Bibliometric analysis shows a steady growth in publications on university digital marketing and students since 2010, projecting notable peaks for 2023 and 2024. This trend aligns with the introduction, highlighting the irruption of digital technologies and adaptation to changes in communication and marketing in higher education (Jo, 2023; Azzam et al., 2023). The increase in academic interest is attributed to the widespread adoption of digital technologies in higher education institutions and the need for effective digital marketing strategies to attract and retain students, as noted by several authors (Abu-Taieh et al., 2022; Sagynbekova et al., 2021; Avogo et al., 2022). Prominent authors such as Khan, H.U., Alshurideh, M. and Rezaei, S., along with a geographic diversity of contributors, suggest a global appeal of the subject, supported by the presence of prolific institutions such as Jordan University and Qatar University. The journals identified, such as "Sustainability Switzerland", "Frontiers in Psychology" and

"International Journal of Internet Marketing and Advertising", reflect the interdisciplinary nature of the topic, citing research from diverse perspectives. The geographical distribution of prolific institutions in the Middle East, Asia and Europe partially coincides with studies mentioned, supporting the global interest of the topic and its impact in diverse contexts, as suggested in the introduction.



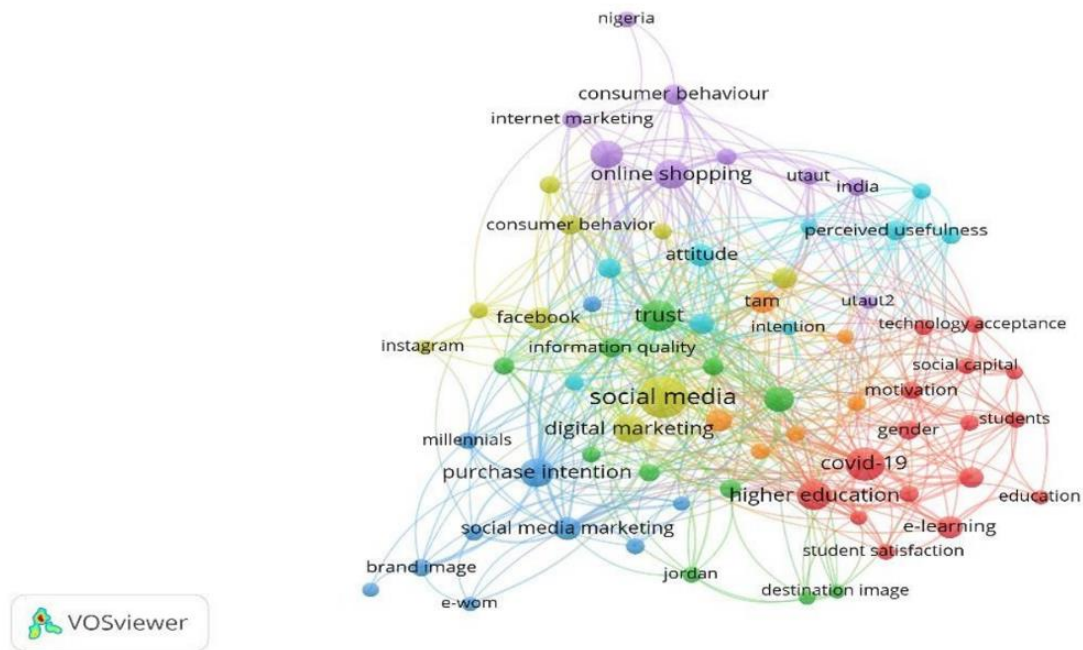
**Figure 3.** Types of documents, knowledge areas, funders and countries.

**Note:** Main bibliometric indicators related to the evolution of publications, authors, journals and affiliations, based on Scopus metadata, processed in the app <https://app.datawrapper.de/>.

The dataset reveals that the majority of publications in university and student digital marketing are journal articles, followed by book chapters, conference proceedings and books. This distribution, common in academia, shows that peer-reviewed journal articles are the main dissemination channel, but the presence of other types of documents suggests a diversity of communication channels used by researchers. The most prominent subject areas are "Business, Management and Accounting", followed by "Social Sciences" and "Computer Science", indicating the disciplinary breadth of the subject. Other relevant areas include Economics, Engineering, Psychology and Environmental Sciences, reflecting their interdisciplinary nature. The diversity of funding sources, from agencies such as the National Natural Science Foundation of China to government bodies, underscores the institutional interest in the field. The countries with the highest scientific output are India, the United States, China and Malaysia, with increasing participation from Middle Eastern nations such as the United Arab Emirates and Saudi Arabia, indicating a global interest and expansion of the field in various regions.

The dataset shows a typical distribution in academia, where peer-reviewed journal articles are the main dissemination channel in university digital marketing and students, supported by publications such as "Sustainability Switzerland" (Jo, 2023), "Frontiers in Psychology" (Azzam et al., 2023) and "International Journal of Internet Marketing and Advertising" (Sagynbekova et al., 2021). However, the presence of other papers such as book chapters and conference proceedings points to a diversity of communication channels, as indicated by Avogo et al. (2022) and Abu-Taieh et al. (2022). Prominent subject areas, such as "Business, Management and Accounting", "Social Sciences" and "Computer Science", along with others such as Economics, Engineering, Psychology and Environmental Sciences, reflect the interdisciplinary nature of the subject, supported by studies by Mamytbayeva et al. (2024), Ismail et al. (2020), Escandon-Barbosa et al. (2020), Villegas-Ch et al. (2022), German Ruiz-Herrera et al. (2023) and Rezaei et al. (2022). The variety of funding sources, from agencies to governmental bodies, underlines the institutional interest, mentioned by Kala & Chaubey (2023) and Alomari & Abdullah (2023). Finally, countries with large production such as India, the United States, China, and Malaysia, along with the

increasing participation of Middle Eastern nations, reflect the global perspective, supported by authors from various regions such as Ahmed et al. (2020), Luna-Cortes (2024), and Jeong (2023).

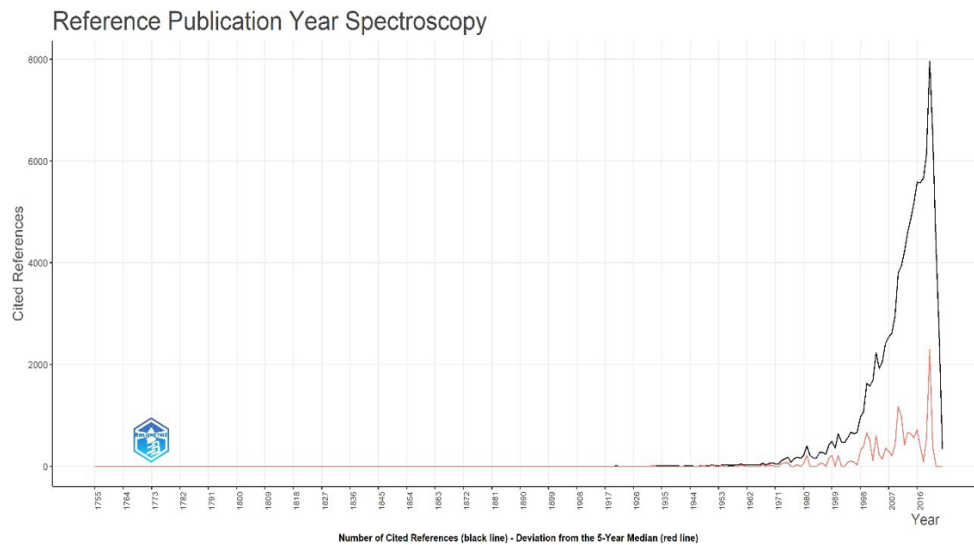


**Figure 4.** Semantic map related to public policies.

**Note:** Visual map elaborated with VOSViewer, based on keyword metadata from the collection extracted from Scopus on digital marketing in university students.

The semantic map provides a valuable visual representation of the interrelationship of key concepts in the area of university and student digital marketing. The nodes with the highest weight are "social media", "e-commerce", "satisfaction" and "digital marketing", highlighting the central importance of these areas in current research. In addition, interesting thematic clusters are observed, such as the focus on purchase intent, customer loyalty and service quality. Other important concepts include technology acceptance, perceived trust, and perceived value, which are crucial factors in college students' adoption of digital marketing strategies. This keyword co-occurrence analysis provides a solid overview of the conceptual structure and prominent areas of interest in this field of study, which can be useful in identifying trends, research gaps, and establishing future research directions.

The semantic map highlights the centrality of concepts such as "social media", "e-commerce", "satisfaction" and "digital marketing" in current research, converging with the studies cited in the introduction that examine the impact of social media and e-commerce on student satisfaction and behavioral intention (Sanwal et al., 2023; Jeong, 2023; Jonsson et al., 2022; Ajibade et al., 2022; Jiang et al., 2023; Dogra & Kaushal, 2023; Wang & Park, 2023). The thematic clusters focused on purchase intention, customer loyalty and service quality converge with the aforementioned research on technology adoption, perceived trust and perceived value as crucial factors (Jo, 2023; Azzam et al., 2023; Abu-Taieh et al., 2022; Sagynbekova et al., 2021; Escandon-Barbosa et al., 2020; German Ruiz-Herrera et al., 2023; Cruz et al., 2021). This keyword co-occurrence analysis provides a solid overview of the conceptual structure and prominent areas of interest, supporting the importance and topicality of the topic highlighted by authors such as Karácsony et al. (2020), Sánchez Garza et al. (2024) and Kaoud et al. (2023).



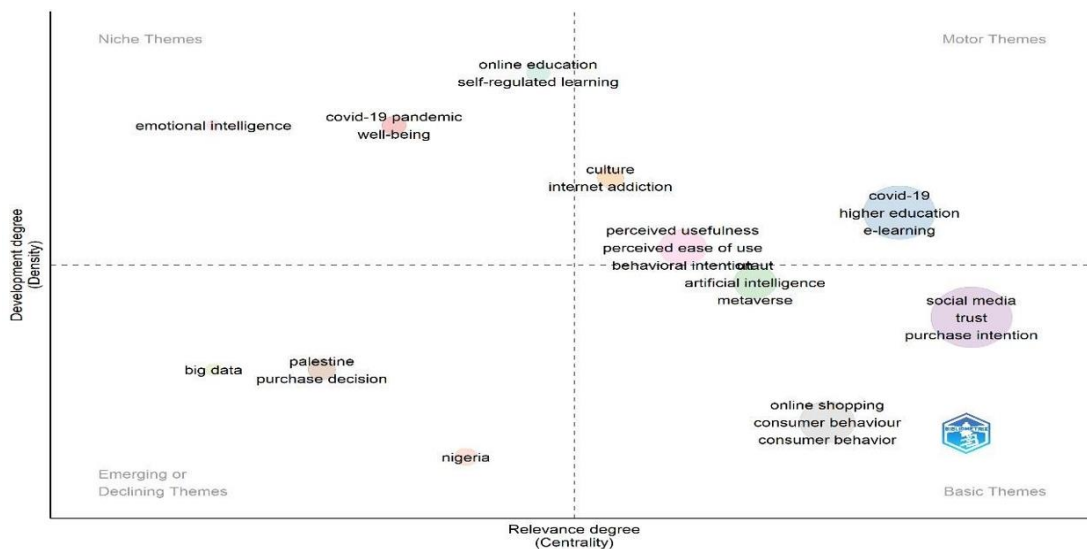
**Figure 5.** Reference spectroscopy.

**Note:** Figure elaborated with Bibliometrix, based on metadata extracted from Scopus, related to publications about digital marketing in university students.

The analysis of these metrics allows us to evaluate deviations from the central trend in the short and long term. We observe that, starting in the mid-20th century, there is a gradual growth, coinciding with the development of modern science. The number of citations shows an increasing trend with fluctuations, highlighting a significant increase since the 1970s, perhaps related to technological advances and global scientific collaboration. The metrics reveal notable deviations, possibly linked to specific events. It is crucial to interpret these data considering the influence of factors such as size of the scientific community and citation practices, leading to an evolution that allows identifying the most influential topics and those with less impact on digital marketing research among university students.

The analysis of evolutionary metrics reveals a gradual growth in the number of publications since the mid-20th century, coinciding with the development of modern science mentioned by authors such as Mamytbayeva et al. (2024) in relation to the "research culture" in the digital era. The significant increase in the number of citations since the 1970s could be related to technological advances and global scientific collaboration, factors highlighted by studies such as those of Jo (2023) on the adoption of digital technologies and Sagynbekova et al. (2021) on user-generated communications in social networks. Notable deviations observed suggest the influence of specific events, such as the COVID-19 pandemic analyzed by Jonsson et al. (2022) in relation to online and face-to-face teaching preferences. Interpretation of these data should consider factors such as the size of the scientific community and citation practices, as noted by studies on technology adoption and student satisfaction (Ahmed et al., 2020; Ismail et al., 2020; Avogo et al., 2022). This evolution allows the identification of the most influential topics, such as social networks and e-commerce (Sanwal et al., 2023; Jiang et al., 2023; Dogra & Kaushal, 2023), and those with less impact, providing valuable insight for future research in the area of university digital marketing and students.





**Figure 6.** Structural Map (Analysis of research trends).

**Note:** Figure elaborated with Bibliometrix, based on metadata extracted from Scopus, related to digital marketing publications in university students.

The analysis provides information on various thematic clusters identified in analyzed documents. Each row represents a cluster and the columns show metrics related to its importance and prominence. The metrics cover the centrality and density of the cluster in the network, as well as its frequency in the documents. The most prominent clusters, such as "covid-19", "social media" and "online shopping", exhibit high centrality and density, signaling their relevance and influence. On the other hand, clusters such as "big data", "emotional intelligence" and "palestine" show lower centrality and density, indicating their lower importance and coherence in the dataset. This evaluation reveals the most influential topics and those that have less impact within the analysis.

The thematic cluster analysis converges with the findings of the introduction and supports the relevance of key concepts such as "covid-19", "social media" and "online shopping", which exhibit high centrality and density. These themes align with cited studies examining the impact of pandemic on teaching preferences (Jonsson et al., 2022; Kisworo et al., 2021), the influence of social media on education (Sanwal et al., 2023; Jeong, 2023; Ajibade et al., 2022), and student adoption of e-commerce (Jiang et al., 2023; Dogra & Kaushal, 2023; German Ruiz-Herrera et al., 2023). On the other hand, clusters such as "big data", "emotional intelligence" and "palestine" show lower centrality and density, suggesting less importance and coherence in the dataset, which could indicate emerging research areas or areas with less attention in the field of digital marketing and student satisfaction. This assessment provides valuable insight into the most influential issues and those with less impact, supporting the importance of considering contextual and sociodemographic factors, such as those mentioned by Guzel et al. (2020), Villegas-Ch et al. (2022) and Daoud et al. (2023).

## Conclusions

The field of digital marketing research on college students has experienced significant growth in recent decades, with a projected 24.5% annual increase in scientific output from 2002 to 2024. This growth reflects the increasing adoption of digital technologies in higher education and the need for effective digital marketing strategies to attract and retain students.

Central concepts in this field of study are social networking, e-commerce, student satisfaction and digital marketing in general. These topics have become prominent areas of interest due to their impact on purchase intent, customer loyalty and the quality of service perceived by students.

Research in this field is interdisciplinary in nature, with contributions from areas such as business, social sciences, computer science, economics, engineering and psychology. This disciplinary diversity enriches the understanding of the subject and allows the challenges to be addressed from multiple perspectives.

While interest in this field of research is global, with contributions from countries such as India, the United States, China and Malaysia, there is growing participation from Middle Eastern nations such as the United Arab Emirates and Saudi Arabia, suggesting an expansion of the field in diverse regions and cultural contexts.

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