



Review

A Decade of Innovation: A Bibliometric Analysis of Advergames and Gamification in Tourist Destinations

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Abstract: This study presents a comprehensive bibliometric analysis of the research landscape surrounding advergames and gamification in tourist destinations over the past decade. By analyzing 623 scholarly publications indexed in the Web of Science (WoS) database, this study identifies key trends, thematic clusters, influential authors, and collaborative networks within this interdisciplinary field. The findings highlight the growing importance of digital innovations in tourism marketing, particularly using gamification to enhance tourist experiences, promote cultural and heritage sites, and support sustainable tourism practices. The study also underscores the global nature of research in this area, with significant contributions from leading countries and the emergence of new research centers. The analysis provides valuable theoretical and practical insights, offering actionable recommendations for tourism marketers, destination managers, and policymakers on leveraging advergames and gamification to achieve strategic objectives. Despite its contributions, this study acknowledges limitations, such as the reliance on a single database and the need for more qualitative analyses. It suggests several avenues for future research to advance the field further.

Keywords: advergames; gamification; tourism marketing; sustainable tourism; digital marketing; tourist destinations



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1. Introduction

The convergence of gaming and marketing, particularly through advergames and gamification, has ushered in a new era of innovative strategies to engage consumers in unique and memorable ways [1,2]. Over the past decade, the tourism industry has increasingly embraced these digital tools to enhance visitor experiences, promote destinations, and foster a deeper connection between travelers and the places they visit [3,4]. Advergames, which blend advertising and gaming, offer an interactive platform where users engage with branded content through gameplay [5–7]. These games are designed to subtly promote a brand or a destination while providing entertainment [8]. Recognizing the potential of advergames, the tourism sector has adopted them to create immersive experiences beyond traditional marketing methods [9]. For instance, destinations can develop advergames that allow potential visitors to virtually explore attractions, learn about cultural heritage, or experience local traditions, thereby generating interest and a desire to visit [10]. Such interactive experiences help create a lasting impression, enhancing brand recall and fostering emotional connections with the destination [11,12].

Similarly, gamification, the application of game design elements in non-game contexts, has found significant applications in tourism [13]. Gamification leverages elements such as

point scoring, leaderboards, and challenges to motivate and engage tourists [9,13]. This technique has been employed to enhance various aspects of the tourism experience, from navigation and exploration to learning and conservation efforts [14]. For example, tourists might use a gamified app that rewards points for visiting certain landmarks, participating in local activities, or making sustainable choices [14,15]. By gamifying the travel experience, destinations can create a more engaging and enjoyable journey for tourists, encouraging repeated visits and positive word-of-mouth [16].

The integration of advergames and gamification in tourism marketing strategies is not just a fleeting trend but a response to the evolving preferences of modern travelers [17]. Today's tourists, particularly millennials and Generation Z, seek more interactive and personalized experiences. They are digital natives, accustomed to technology-driven interactions, and are more likely to be influenced by innovative marketing approaches [17,18]. Therefore, understanding how advergames and gamification have been utilized over the past decade provides valuable insights into their effectiveness and the changing landscape of tourism marketing. For instance, personalized advergames can cater to the unique interests of different tourist segments, while gamification strategies can be tailored to enhance specific aspects of the travel journey.

Despite the growing body of research on advergames and gamification in tourism, significant gaps remain. While numerous studies have explored their applications in enhancing tourist engagement, promoting destination branding, and supporting sustainable practices, there is a limited understanding of the thematic evolution and intellectual structure of this field. Specifically, few studies have comprehensively analyzed the trends, key contributors, and interdisciplinary connections within the research landscape over an extended period. Additionally, while the role of advergames and gamification in fostering user engagement and influencing tourist behavior is well-documented, the potential for leveraging these tools in underexplored areas such as cultural preservation, heritage tourism, and cross-cultural engagement remains inadequately addressed.

This study aims to bridge these gaps by employing a bibliometric approach to explore the evolution, impact, and future trends of advergames and gamification within the context of tourist destinations. By delving into the academic literature on advergames and gamification in tourist destinations, we seek to map research trends, key themes, and influential studies. We aim to identify the most prolific authors, institutions, and countries contributing to this field by examining scholarly articles, conference papers, and other academic sources. This study also seeks to highlight the collaborative networks and emerging topics shaping the future of gamified tourism marketing. Through a systematic analysis of citations, co-citations, and co-authorship networks, we can uncover the intellectual structure of this research area and identify seminal works and key contributors.

The following research questions will guide this study:

- RQ1. What is the significance and impact of scholarly sources in the realm of advergames and gamification in tourist destinations, considering both the number of articles published and the number of citations?
- RQ2. Which themes have obtained the highest visibility and impact concerning advergames and gamification in tourist destinations in different periods based on their co-citation patterns?
- RQ3. Who are the most influential authors and countries within the realms of advergames and gamification in tourist destinations?

This study makes several important contributions to the existing literature on advergames and gamification in tourism. First, it provides a comprehensive bibliometric analysis, systematically reviewing academic research trends over the past decade—an effort that has been largely absent in previous studies. Second, it highlights the interdisciplinary

nature of advergames and gamification, demonstrating their applications across fields such as tourism, marketing, and sustainability, and offering a more integrated understanding of their impacts on destination branding. Third, it identifies emerging themes and future research opportunities, guiding both scholars and practitioners to explore under-researched areas and enhance digital marketing strategies. These contributions collectively advance the understanding of how game-based strategies are reshaping the tourism industry.

The remainder of this paper is organized as follows: Section 3 delves into the methodological framework that underpins our bibliometric analysis, providing a detailed description of the techniques and tools employed. Section 4 presents the data analysis and results, offering a comprehensive examination of the key findings derived from the bibliometric study. Section 5 encompasses the discussion, where we interpret the results and explore their broader implications, both theoretical and practical. Finally, Section 6 concludes the paper by summarizing the key insights, outlining the study's limitations, and suggesting directions for future research.

2. Literature Review

The convergence of digital marketing, gamification, and advergames in the tourism industry has gained increasing academic and practical significance over the past decade. With the growing reliance of the tourism sector on digital platforms to attract, engage, and retain visitors, game-based marketing strategies have emerged as powerful tools for enhancing visitor experiences, promoting destinations, and fostering long-term relationships with travelers. The integration of gamification and advergames into tourism marketing not only amplifies user engagement but also strengthens brand positioning and influences consumer behavior. Given this evolving landscape, a systematic review of the existing body of research on gamification and advergames in tourism is essential to identify key themes, emerging trends, and areas for future exploration.

Several scholars have explored the role of gamification and advergames in enhancing tourism experiences. The impact of serious games and gamification on tourism was examined in [9], emphasizing their potential to create immersive and interactive visitor experiences. Similarly, the authors of [13] conducted a systematic literature review on the application of gamification in tourism and hospitality, highlighting its effectiveness in fostering visitor engagement and enhancing brand–consumer interactions. Moreover, research by the authors of [6] provided a comparative analysis of the persuasive effectiveness of advergames versus in-game advertising, shedding light on their differential impacts on consumer attitudes and behaviors. These studies collectively contribute to the broader discourse on digital tourism marketing, offering valuable insights into how game-based strategies influence consumer decision-making and destination perception.

2.1. Advergames in Tourism Marketing

Advergames—digital games designed specifically to promote a brand, product, or destination—have gained prominence as an effective tool for marketing in the tourism sector [8]. These games merge entertainment with advertising, allowing users to interact with branded content in a seamless and engaging manner. Advergames offer an immersive method for marketing tourist destinations by enabling users to explore virtual environments that closely mimic real-world travel experiences. This interactive form of marketing facilitates deeper engagement with potential visitors, allowing them to become familiar with a destination's cultural, geographical, and historical offerings even before their actual visit [11].

For example, several tourist destinations have embraced advergames to simulate the experience of visiting cultural landmarks or historical sites, giving potential tourists a

chance to explore these attractions virtually [10]. By participating in these games, users can gain a virtual “preview” of what their trip might entail, thereby increasing their likelihood of visiting the destination. In turn, these experiences create a sense of connection and emotional resonance, which is essential for fostering brand loyalty.

In recent studies, the effectiveness of advergames in shaping traveler perceptions and attitudes toward destinations has been well documented. Advergames significantly enhance users’ emotional connections to a destination by immersing them in local traditions, geography, and culture [8]. These games offer destinations an opportunity to differentiate themselves from competitors by providing distinctive, memorable virtual experiences that align with tourists’ interests and preferences [5]. By allowing tourists to engage with destinations in an interactive way, advergames not only enhance brand recall but also influence consumer decision-making, encouraging visitors to form long-term relationships with the destinations they explore virtually [19].

Moreover, advergames can serve as a potent tool for destination branding. By crafting digital narratives that emphasize the unique cultural and historical aspects of a location, these games can build a strong, positive image of the destination in the minds of potential tourists [9]. This creates a long-lasting emotional bond, making the destination more appealing compared to those using traditional marketing approaches. Therefore, the impact of advergames on destination branding is profound, offering a unique and innovative approach to capture consumer interest and encourage actual visits [20].

2.2. Gamification and Tourist Engagement

Gamification, defined as the application of game design elements—such as point systems, badges, and leaderboards—in non-game contexts, has become a key strategy for enhancing tourist engagement [9,13]. In the context of tourism, gamification uses these elements to motivate and incentivize tourists to explore destinations more thoroughly, participate in local activities, and share their experiences across social media platforms. The introduction of gamified experiences can deepen users’ interactions with destinations, transforming a routine visit into a more enjoyable and rewarding experience [9].

Tourist destinations that implement gamified systems benefit from the competitive, goal-oriented nature of the process, which encourages users to continue engaging with the destination to unlock rewards, earn badges, or achieve a higher status within the system [6]. These game-based incentives not only enhance the tourist experience but also encourage repeat visits and positive word-of-mouth promotion. As tourists seek to accumulate rewards or gain recognition within the gamified system, their continued engagement leads to deeper connections with the destination, ultimately driving loyalty and advocacy [13].

Beyond increasing engagement, gamification has also been found to promote sustainable tourism practices. Gamification can be used to reward tourists for making environmentally friendly choices during their trip. By offering points or rewards for actions such as using public transportation, reducing plastic waste, or visiting eco-friendly attractions, destinations can encourage sustainable behaviors [15]. This approach is particularly effective at encouraging tourists to participate in green initiatives, as it makes sustainability an integral and rewarding part of their experience. Furthermore, gamified apps tracking tourists’ eco-friendly activities have been successful in promoting greater awareness of sustainability and increasing participation in local conservation efforts [14].

Thus, gamification serves a dual purpose within the tourism industry: enhancing the visitor experience and promoting responsible tourism [6]. By integrating elements of fun and reward into the travel experience, gamification helps destinations meet the

evolving demands of modern tourists while simultaneously contributing to broader goals of environmental and cultural preservation [9].

2.3. *Advergames, Gamification, and Destination Image*

Both advergames and gamification have been identified as key tools in shaping the image of tourist destinations [20]. In today's digital age, millennials and Generation Z travelers—two of the largest consumer demographics in tourism—are particularly drawn to personalized and interactive marketing strategies [18]. These groups, often referred to as digital natives, seek meaningful connections with the places they visit and prefer experiences that resonate with their individual preferences and values. Advergames and gamification offer exactly this by providing personalized, interactive experiences that allow tourists to explore destinations in a way that aligns with their interests.

Advergames allow destinations to craft tailored narratives that appeal directly to these younger audiences. By offering engaging and immersive virtual experiences, destinations can build a strong emotional connection with tourists, leading to an enhanced overall perception of the destination. This personalized approach is especially effective for destinations looking to stand out in a competitive global tourism market, where travelers are inundated with options and need compelling reasons to choose one destination over another [10].

Furthermore, gamified systems provide an opportunity for destinations to position themselves as innovative and forward-thinking. By incorporating technology-driven marketing strategies, destinations can appeal to tech-savvy audiences who value novelty and modernity in their travel experiences. For instance, gamifying cultural or historical attractions can transform them into interactive experiences, making them more appealing to younger travelers who might otherwise overlook these sites [17]. As destinations implement gamified experiences around their unique offerings—whether cultural, historical, or natural—they not only enhance visitor engagement but also build a distinct and appealing brand identity [9]. These focuses on personalization and engagement position advergames and gamification as essential components of modern destination marketing strategies.

In conclusion, both advergames and gamification have transformed the landscape of destination marketing by offering innovative and engaging ways for tourists to connect with destinations. By providing personalized, interactive experiences, these tools have proven effective at enhancing visitor engagement, building strong destination brands, and promoting sustainable tourism practices. As the tourism industry continues to evolve, the integration of these game-based marketing strategies will undoubtedly play a pivotal role in shaping the future of destination marketing.

3. Methodology

3.1. *Study Design*

This study employs a bibliometric approach to examine the literature on advergames and gamification in tourist destinations. Bibliometric analysis, a quantitative method, is used to assess and map scholarly publications within this specific research domain [7,21,22]. By utilizing bibliometric techniques, this study aims to uncover trends, influential authors, seminal works, and emerging research themes in the field [23,24].

This analysis seeks to understand the evolution and significance of advergames and gamification in tourist destinations; evaluate the influence of academic sources; identify prominent authors; investigate the geographical distribution of publications; explore relevant topics; analyze the relationships between advergames, gamification, and tourist destinations or visitor attractions; review methodological approaches; and suggest future research directions. The insights garnered from this study can reveal best practices and

innovative applications that can be replicated or customized for different destinations. The systematic review adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) criteria, inspired by Alqudah et al. (2024) [24], as illustrated in Figure 1.

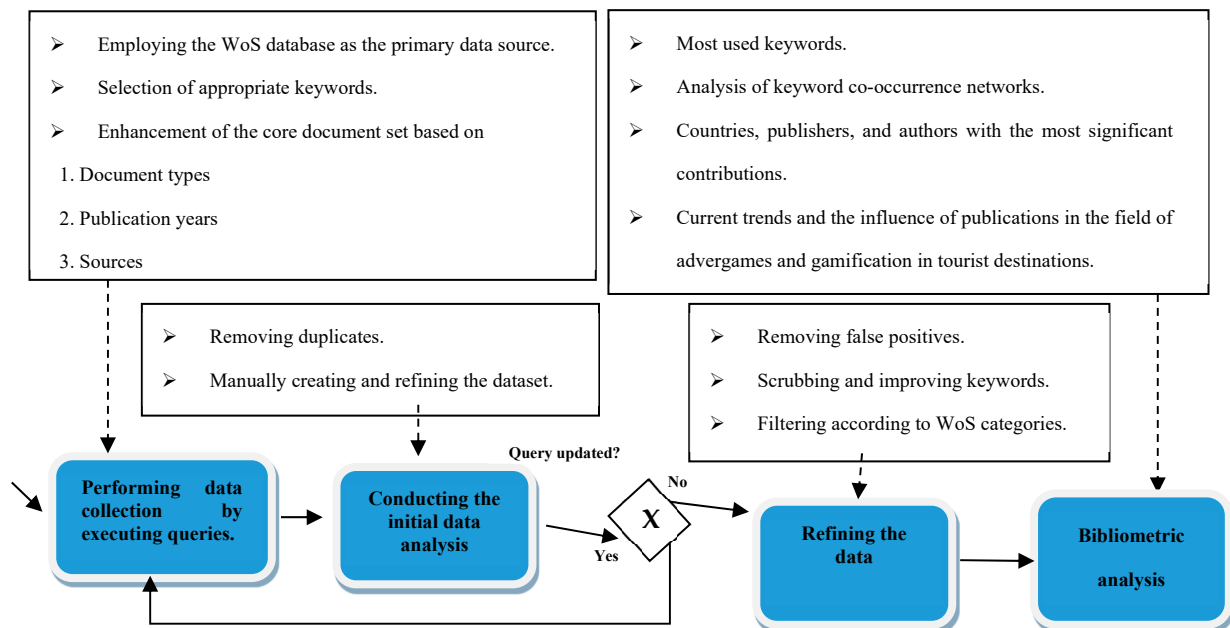


Figure 1. Research methodology.

3.2. Data Collection and Filtering

The primary dataset consisted of scholarly articles sourced from the Web of Science (WoS) core collection database. The WoS database was chosen due to its comprehensive indexing of high-quality, peer-reviewed journals and structured metadata that facilitate a bibliometric analysis [25,26]. It offers valuable metadata, including titles, keywords, abstracts, references, authors, journals, and citations, making it highly suitable for bibliometric studies [21,27]. While we recognize that other databases such as Scopus and Google Scholar contain relevant research, WoS ensures consistency and comparability in bibliometric studies. Nonetheless, we acknowledge this as a limitation, as the exclusion of studies from other databases may result in the omission of valuable insights, particularly qualitative research.

A systematic search strategy utilizing relevant keywords ensures the inclusiveness of the literature review. Keywords such as “Advergames”, “Gamification”, “Digital Marketing”, “Online Marketing”, “Video Game”, “Advertising Games”, “Gaming”, “Tourist Destinations”, and “Visitor Attractions”, along with their synonyms, were incorporated into the search query. Keywords were selected to ensure a comprehensive retrieval of relevant publications. “Digital Marketing” and “Online Marketing” were included to capture the highest number of research studies on gamification and advergames in digital tourism strategies. The search was conducted within the title, abstract, and keywords fields of the Web of Science database to maximize the inclusion of relevant studies.

The inclusion criteria focused on peer-reviewed journal articles published within the specified timeframe of the past decade, from 2014 to 2024, with data collection concluding on 12 July 2024. The study focuses just on the past decade to capture the most recent developments and trends in advergames and gamification in tourism. This period was chosen to reflect the increasing integration of digital tools in tourism marketing and to ensure a relevant and contemporary analysis. Although the number of publications for

the year 2024 is limited due to its ongoing nature, efforts were made to include them to mitigate bias and maintain the accuracy and integrity of the analysis.

The filtering process was based on several criteria: publication year, Web of Science categories, and language. Emphasis was placed on specialized publications in tourism, marketing, business, economics, finance, and management. Additionally, non-English publications were omitted due to language processing consistency in the bibliometric analysis. Book chapters were excluded as they may not undergo the same peer-review standards as journal articles. Furthermore, publications from categories unrelated to tourism, marketing, and business were filtered out to maintain the research focus, narrowing the dataset to 623 publications, as shown in Table 1.

Table 1. Data formation.

Sample	Publications
A sample search for keywords in Web of Science (WOS)	2624
Publications outside the study period	−546
Publications related to different categories	−1309
Book chapters	−50
Publications not in English	−96
Net sample	623

3.3. Software Utilized for Data Analysis

A bibliometric analysis was conducted to derive valuable insights from the data. Various metrics and statistical methods were utilized, including the h-index, total citations, and temporal distribution of publications. A keyword analysis was employed to study the keyword frequency, extract relevant data on advergames and gamification in tourist destinations, identify methodological approaches, and highlight potential avenues for future research.

VOSviewer (version 1.6.20) was used to visualize and analyze term networks and co-occurrences. Statistical analyses and visual graphs were generated using Microsoft Excel 365. VOSviewer was selected for its flexibility and user-friendly interface, enabling the creation of networks encompassing diverse entities and providing effective visualization options [24,27]. Although other tools like Gephi, CiteSpace, Sci2, and HistCite are available, VOSviewer's features make it particularly suitable for generating, visualizing, and exploring complex bibliometric maps effectively [24,25,28].

Bibliometric facilitates comprehensive bibliometric studies by allowing researchers to code various elements categorized as sources, authors, records, and conceptual, social, and intellectual structures [22,23]. It utilizes clustering algorithms such as “walktrap” and “leading eigenvalues” to create network graphics illustrating co-occurrences among bibliographic metadata [29]. For the keyword co-occurrence analysis, Bibliometric employed the leading eigenvalues algorithm to generate a co-occurrence network map [30,31].

Before performing the science mapping analyses, the dataset of raw keywords was normalized using a thesaurus to eliminate duplicates, standardize spelling, and merge synonyms. Bibliometric techniques were employed to automatically assign articles to thematic clusters based on a specific probability level. This review aimed to discuss key insights and complement the bibliometric analysis outcomes, highlighting emerging research directions and suggesting opportunities for future research. The expanded and refined methodology ensures a comprehensive and systematic approach to understanding the roles and impacts of advergames and gamification in tourist destinations.

4. Results

4.1. Analysis of Publication Performance

To address RQ1 (What is the significance and impact of scholarly sources in the realm of advergames and gamification in tourist destinations, considering publishers, the number of articles published, and the number of citations?), an initial assessment of the performance of articles within the Web of Science Core Collection (WoS) was conducted prior to bibliometric mapping. This evaluation focused on key metrics, such as productivity, citation counts, Web of Science indexing, and related publications. The data were extracted from the WoS “document search results”, enabling a comprehensive overview of the research landscape and the impact of scholarly contributions in this interdisciplinary field.

Figure 2 illustrates the yearly frequency of papers published from 2014 to 2024 for the 623 articles analyzed. In this figure, the bars represent the number of publications, while the line represents the number of citations. The total number of citations for all publications during this period was 8541, resulting in an average of 13.71 citations per publication.

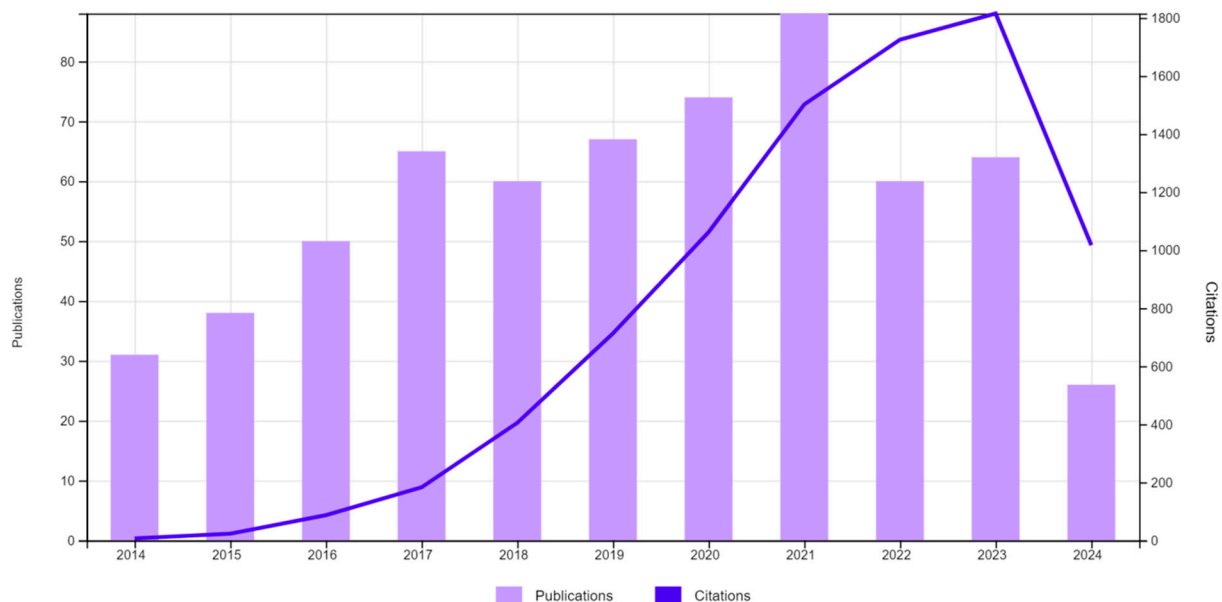


Figure 2. Publications in the years from 2014 to 2024.

The data reveal consistent increases in both the number of publications and citations over the years. The peak of publications occurred in 2021 with 88 publications. This surge could be attributed to the COVID-19 pandemic, during which researchers and academics highlighted the importance of tourism and focused on the significance of digital marketing in the digital era. Additionally, the peak of citations was in 2023, with 1815 citations. This trend underscores the growing significance of advergames and gamification in tourist destinations within academic and professional discourses. The upward trajectory of publication and citation counts reflects the field’s expanding relevance and the increasing scholarly interest in these topics.

As digital technologies continue transforming marketing practices, the emphasis on advergames and gamification has become more pronounced, driving a surge in research output. This trend indicates the field’s dynamic nature and critical role in advancing digital marketing techniques and practices in a digital era [32]. By understanding the publication performance trends, we can better contextualize the significance of various research contributions and identify key areas of focus and emerging themes within the field [27].

Moreover, the growing body of literature on advergames and gamification in tourism reflects the increasing recognition of these tools as effective marketing strategies. The consistent rise in publication numbers suggests that researchers are continuously exploring new dimensions and applications of these digital tools, contributing to a deeper understanding of their potential impacts on tourist behavior and destination marketing.

4.2. Web of Science Index Distribution

Table 2 presents the distribution of the 623 articles analyzed across various Web of Science (WoS) indexes. This distribution offers valuable insights into the classification and reach of scholarly work on advergames and gamification in tourist destinations. The table details the record count for each index and the corresponding percentage of the total articles.

Table 2. Web of Science Index distribution.

Web of Science Index	Record Count	% of 623
Social Sciences Citation Index (SSCI)	281	45.104%
Emerging Sources Citation Index (ESCI)	202	32.424%
Conference Proceedings Citation Index—Social Science & Humanities (CPCI-SSH)	133	21.348%
Conference Proceedings Citation Index—Science (CPCI-S)	23	3.692%
Science Citation Index Expanded (SCI-EXPANDED)	6	0.963%
Book Citation Index—Social Sciences & Humanities (BKCI-SSH)	2	0.321%

The data illustrate that most of the literature on advergames and gamification in tourist destinations is concentrated within the Social Sciences Citation Index (SSCI), which accounts for 45.104% of the total publications. This highlights the academic prominence of this research area within the social sciences. The substantial presence in the Emerging Sources Citation Index (ESCI) and the Conference Proceedings Citation Index—Social Science & Humanities (CPCI-SSH), representing 32.424% and 21.348% of the total publications, respectively, further underscores the dynamic and evolving nature of this research field. These indexes capture new and innovative studies, indicating growing scholarly interest and the dissemination of research findings through academic conferences.

The distribution across these indexes demonstrates the interdisciplinary appeal and the expanding relevance of advergames and gamification in tourist destinations. The presence in both social science and scientific contexts, albeit to a lesser extent, signifies this research's broad applicability and recognition. Overall, the data underscores the critical roles of these digital tools in advancing tourism marketing practices and highlights the field's ongoing development and scholarly engagement.

4.3. Top Journals and Publishers

Highlighting the importance of journals in advergames and gamification in tourist destinations is crucial. Journals are pivotal platforms for disseminating research findings, facilitating knowledge exchange, and nurturing scholarly discussions within this field [24,28]. They provide a centralized repository of peer-reviewed articles, case studies, and theoretical frameworks that significantly advance the understanding of advergames' and gamification's impacts on tourist destinations and visitor attractions.

Moreover, journals are crucial in shaping academic discourse, setting research agendas, and establishing standards of excellence within the discipline. Researchers rely on reputable journals to access the latest developments, methodologies, and best practices, thereby enhancing the rigor and relevance of their work. Additionally, journals act as conduits for interdisciplinary collaboration, allowing researchers from diverse fields such as tourism, marketing, management, business, and economics to share insights and perspectives

on online marketing in the digital business landscape. Therefore, by showcasing the most prominent publication titles associated with the keywords in this study, this section underscores the central role of journals in advancing knowledge and fostering innovation.

Figure 3 illustrates the most prominent journals associated with the keywords in the study within the WoS database. The leading journal is “Tourism Management”, with 37 publications, forming 5.939% of the 623 publications analyzed. Following closely is “Current Issues in Tourism”, contributing 33 publications, or 5.297% of the total. Other significant journals include the “Journal of Heritage Tourism” and the “Journal of Destination Marketing & Management”, contributing 20 and 18 publications, respectively. These four journals account for 17.335% of the overall publications, emphasizing their critical role in disseminating research on advergames and gamification in tourist destinations.

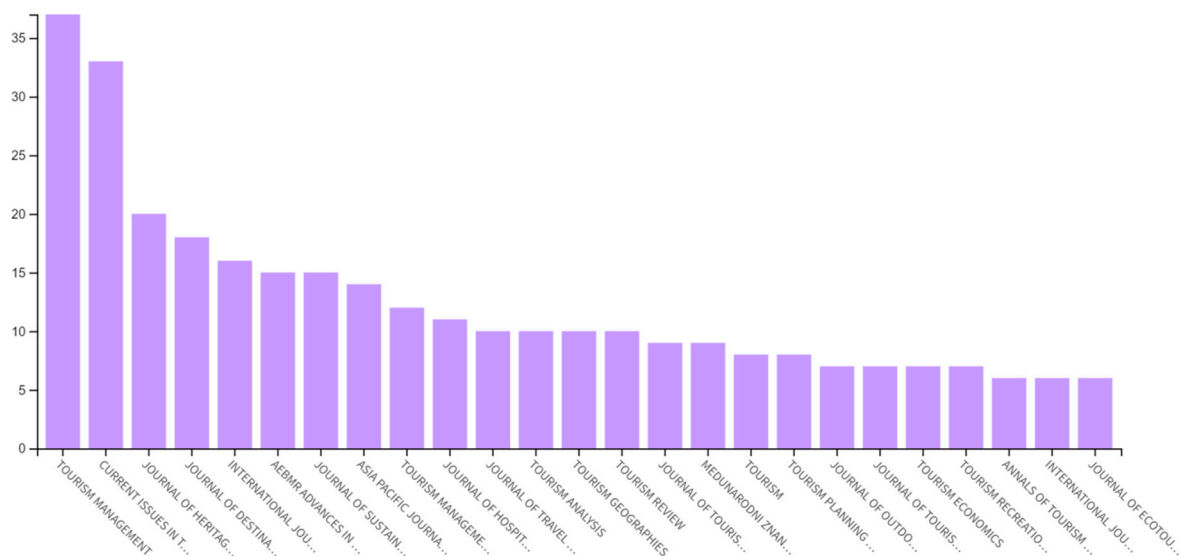


Figure 3. Top contributing journals.

Figure 4 highlights the publishers with the highest number of records in the field of advergames and gamification in tourist destinations. Leading the list is Taylor & Francis, with an impressive 170 records, representing 27.287% of the total 623 publications. Elsevier follows with 110 records, comprising 17.657% of the overall tally. Emerald Group Publishing secures the third position with 73 records, accounting for 11.717% of the total publications.

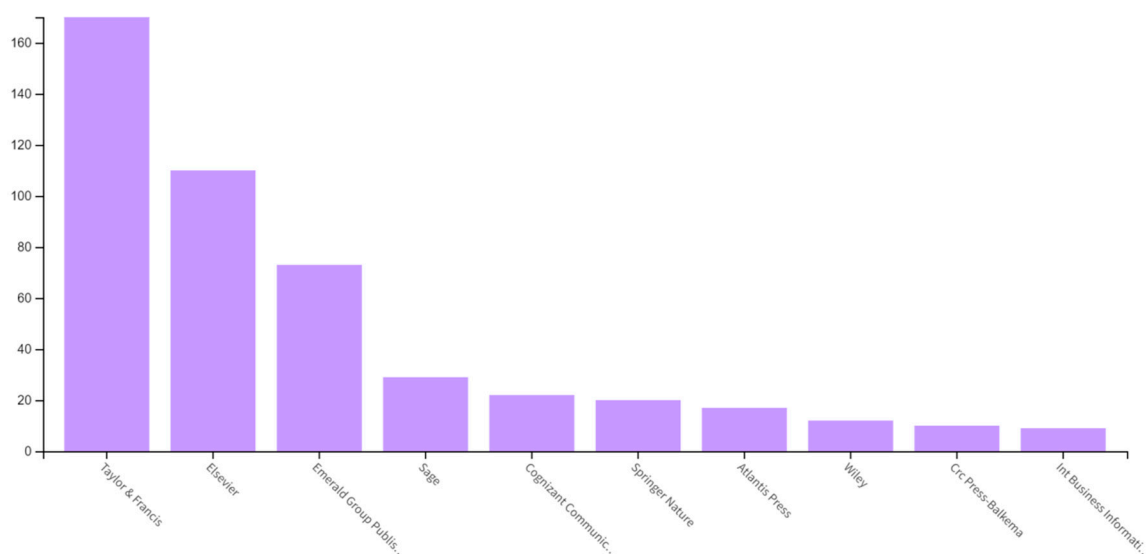


Figure 4. Top contributing publishers.

These distinguished publishers are noteworthy for their substantial contributions, each contributing more than 10% of the overall publications in this domain. They constitute 56.661% of the total number of publications indexed in the WoS database, highlighting their significant role in disseminating research on advergames and gamification and their impacts on tourist destinations.

The prominence of these publishers underscores their critical role in the academic landscape, providing robust platforms for scholars to share their findings and advance the discourse in this field. Their extensive portfolios reflect a commitment to fostering high-quality research and facilitating scholarly communication across disciplines, thereby shaping future research directions in advergames and gamification in tourist destinations. By offering well-regarded venues for publication, these journals and publishers ensure that innovative ideas and rigorous research reach a broad audience, driving the field forward and supporting the ongoing evolution of digital marketing practices in the tourism industry.

4.4. Thematic Analysis

To address RQ2 (Which themes have gained the highest visibility and impact in relation to advergames and gamification in tourist destinations across different time periods based on their co-citation patterns?), a comprehensive bibliometric analysis was conducted using bibliometric mapping techniques.

Bibliometric mapping is a sophisticated analytical technique used in bibliometrics to quantitatively analyze scholarly publications [21,24]. This method visually depicts the structure, relationships, and patterns within the literature on advergames and gamification in tourist destinations. Researchers can use statistical and computational tools to generate graphical representations illustrating author collaborations, citation relationships, and thematic clusters. Such visualizations systematically organize extensive scholarly data, aiding in identifying trends, evaluating research impact, and exploring potential areas for further study [24,27].

In this study, VOSviewer software was employed to uncover patterns and gaps in the literature, identify potential research areas, and highlight key contributors within the field. By applying scientometric techniques, particularly a bibliographic data analysis, the study conducted an in-depth examination of the existing body of research [24,28]. A co-occurrence analysis was used to pinpoint frequently appearing terms, while bibliographic coupling facilitated the detection of keyword clusters, prominent authors, and contributing nations [30,31].

The cluster analysis identified four significant clusters, each representing major research trends in the field, as illustrated in Figure 5. The analysis revealed a total of 659 links with an overall link strength of 1458, underscoring the interconnected nature of the research topics. These clusters underscore central themes and emerging areas of interest in studying advergames and gamification and their influence on tourist destinations.

The insights derived from bibliometric mapping are invaluable for both researchers and practitioners. By visualizing the complex network of relationships and identifying key focus areas, this approach supports strategic planning for future research initiatives. Additionally, it provides a comprehensive overview of the field's current state, assisting scholars in navigating the intricate landscape of the literature on advergames and gamification in tourist destinations.

The co-occurrence network map visually represents the relationships among frequently occurring keywords within the literature [31]. To enhance clarity, isolated keywords—those nodes without connections—were excluded, retaining only those with at least one connection (edges). This refinement produced a network map featuring 50 keywords, which were subsequently categorized into four distinct and well-defined thematic clusters.

enhances brand visibility and credibility, particularly when combined with WOM strategies that leverage customer reviews and testimonials [39]. Reference [41] supports this perspective, demonstrating that WOM, when amplified through social media, significantly influences travel-related decisions and brand perception.

Influencer marketing is another significant factor for leveraging social media in tourism. Reference [42] reveals that influencer endorsements effectively enhance the attractiveness and credibility of tourism destinations, particularly when influencers strongly align with the target audience of the tourism business [42]. Reference [43] corroborates this by showing that influencer-generated content on social media platforms can drive consumer engagement and positively affect destination branding [43].

Moreover, the role of social media in shaping tourism experiences and consumer behavior has been further explored in the recent literature. Reference [44] highlights that interactive social media features, such as live streaming and virtual tours, are becoming increasingly influential in the tourism sector, providing immersive experiences that enhance consumer engagement [44]. A study emphasizes that social media interactive capabilities contribute to more personalized and engaging tourist experiences [45].

Additionally, the effectiveness of WOM in the digital age is highlighted by findings from the authors of [46], who note that positive online reviews and recommendations significantly impact tourist choices and brand reputation. This aligns with the conclusions in [47], which argues that leveraging positive WOM through social media platforms can increase brand loyalty and customer retention in the tourism industry.

Cluster 2—Tech-Driven Games and Governance: A Path to Sustainable Tourism (Green Cluster)

The tourism industry has undergone significant transformations in recent years, driven by technological advancements and innovative approaches [48]. Among these innovations is integrating tech-driven games and gamification strategies, which have emerged as powerful tools for engaging tourists, enhancing their experiences, and promoting sustainable tourism practices [49]. This intersection of technology and tourism governance presents a promising pathway toward achieving sustainable tourism by balancing economic growth with environmental preservation and cultural sensitivity [50,51].

Tech-driven games, including augmented reality (AR) and virtual reality (VR) applications, location-based games, and advergames, offer immersive and interactive experiences that can captivate and educate tourists [9]. These technologies enable the creation of virtual tours, historical re-enactments, and scavenger hunts that entertain tourists while informing them about their destinations' cultural and environmental significance [52]. For instance, AR applications can overlay historical information on real-world landmarks, allowing tourists to engage with and learn about the heritage of a site in an engaging manner [53]. Similarly, VR can transport users to remote or fragile environments, offering virtual experiences that reduce the physical impact while raising awareness about conservation efforts [14,54].

Governance in tourism involves the strategic management and regulation of tourism activities to ensure they contribute positively to the economy while minimizing adverse environmental and social impacts [55]. The integration of tech-driven games into tourism governance frameworks can enhance these strategies' effectiveness. By incorporating gamification elements such as rewards, challenges, and feedback systems, tourism authorities can motivate tourists to adopt sustainable behaviors [13,56]. For example, a mobile application that rewards users for visiting eco-friendly attractions, using public transportation, or participating in conservation activities can incentivize sustainable practices. This approach enhances tourist experiences and aligns their actions with broader sustainability goals [56,57].

Moreover, tech-driven games can facilitate data collection and analysis, providing valuable insights for tourism governance [50,58]. Through gamified applications, tourists can share their preferences, behaviors, and feedback, generating real-time data to inform decision-making processes [13]. This data-driven approach enables tourism authorities to identify trends, monitor the effectiveness of sustainability initiatives, and tailor strategies to meet tourists' evolving needs and preferences [51]. By leveraging big data and analytics, tourism governance can become more adaptive and responsive, fostering a more sustainable and resilient tourism sector [58].

The benefits of tech-driven games and gamification in promoting sustainable tourism extend beyond environmental conservation [50]. These technologies can also enhance the cultural and social dimensions of tourism. Interactive games that showcase local traditions, crafts, and cuisines can foster cultural appreciation and respect among tourists. Additionally, by engaging local communities in developing and implementing these games, tourism initiatives can create economic opportunities and strengthen community ties [49]. This inclusive approach ensures that tourism development is sustainable and equitable, benefiting all stakeholders involved.

However, integrating tech-driven games into tourism governance is not without challenges. Issues such as the digital divide, privacy concerns, and the need for technological infrastructure and expertise must be addressed to ensure the successful implementation and widespread adoption of these innovations [13]. Collaborative efforts between governments, tourism authorities, technology developers, and local communities are essential to overcome these challenges and harness the full potential of tech-driven games for sustainable tourism [59].

Cluster 3—Cultural Tourism: The Impact of Service Quality on Behavioral Intentions and Motivation (Blue Cluster)

Cultural tourism, defined as travel directed toward experiencing a place's arts, heritage, and unique character, has become a significant segment of the global tourism industry [60]. This form of tourism contributes to economic development and promotes cultural preservation and intercultural understanding [61]. As tourists increasingly seek authentic and enriching experiences, the role of service quality in shaping their behavioral intentions and motivations becomes paramount [62,63].

Service quality, a multifaceted construct encompassing dimensions such as tangibility, reliability, responsiveness, assurance, and empathy, is crucial in determining tourists' satisfaction and loyalty [64,65]. In the realm of cultural tourism, service quality extends beyond the provision of basic amenities and services. It involves delivering unique and meaningful experiences that reflect the cultural essence of the destination [62]. High-quality service can significantly enhance a tourist's experience by providing insightful information, personalized interactions, and seamless logistics, all of which contribute to a deeper appreciation of the destination's cultural heritage [63].

The impact of service quality on behavioral intentions is well-documented in the tourism literature. Behavioral intentions, such as revisiting a destination, recommending it to others, and engaging in positive word-of-mouth, are critical indicators of a destination's success and sustainability [65]. In cultural tourism, positive behavioral intentions are influenced by tourists' perceptions of the quality of services they receive [66]. For instance, a tourist who experiences high-quality service at a cultural site may be more likely to revisit, extend their stay, or explore additional cultural attractions within the destination [67]. Conversely, poor service quality can lead to negative behavioral intentions, deterring repeat visits, and damaging the destination's reputation [68].

Motivation, the driving force behind tourists' decision-making processes, is another crucial factor influenced by service quality [69]. In cultural tourism, motivations can be

diverse, ranging from a desire for educational enrichment and cultural immersion to the pursuit of leisure and social interactions [60,61]. Service quality plays a pivotal role in fulfilling these motivations by creating an environment that meets or exceeds tourists' expectations [64]. For example, knowledgeable guides, well-maintained heritage sites, and engaging cultural activities can satisfy tourists' educational and immersive needs, reinforcing their motivation to engage in cultural tourism [62]. Additionally, the assurance of high-quality services can reduce the perceived risks associated with travel, further motivating tourists to choose cultural destinations [70].

Understanding the interplay between service quality, behavioral intentions, and motivation is essential for destination managers and tourism service providers [65]. By identifying the specific elements of service quality that most significantly influence tourists' intentions and motivations, stakeholders can develop targeted strategies to enhance the overall visitor experience [71]. This could involve training staff to provide exceptional service, investing in preserving and presenting cultural assets, and implementing feedback mechanisms to continuously improve service delivery [63].

Moreover, high service quality in cultural tourism can contribute to the sustainable management of cultural resources by fostering positive tourist behaviors, such as respect for local customs and support for conservation efforts [72]. It can also drive economic benefits through increased tourist spending and repeat visitation, supporting local communities and cultural preservation initiatives [63].

Cluster 4—Enhancing Heritage Tourism: The Role of Gamification in Shaping Visitor Perceptions (Yellow Cluster)

Heritage tourism, which involves traveling to historical and cultural sites, has gained increasing popularity as tourists seek deeper connections with the past and authentic experiences [73]. This tourism sector preserves and celebrates cultural heritage and significantly contributes to local economies [74]. However, the challenge lies in engaging a diverse audience, particularly younger generations, and fostering a deeper appreciation and understanding of heritage sites. In this context, gamification—the application of game design elements in non-game contexts—emerges as a powerful tool to enhance visitor engagement and shape perceptions of heritage tourism [13].

Gamification leverages elements such as points, badges, leaderboards, challenges, and narratives to create interactive and motivating experiences. In heritage tourism, these elements can be seamlessly integrated into educational activities, guided tours, and interactive exhibits, transforming passive observation into active participation [75]. By making learning about history and culture fun and engaging, gamification can attract a broader audience and enhance the overall visitor experience [76].

One of the primary advantages of gamification in heritage tourism is its ability to capture and retain visitor interest [13]. Traditional methods of presenting historical information can sometimes be perceived as dry or unengaging, especially by younger audiences [12]. Gamification addresses this issue by introducing elements of play and competition, which can make the learning process more dynamic and enjoyable [75]. For instance, a scavenger hunt that requires visitors to solve riddles and find specific artifacts within a heritage site can turn a routine visit into an exciting adventure. This makes the experience more memorable and encourages visitors to explore and learn more about the site [77].

Moreover, gamification can enhance visitor perceptions by providing personalized and immersive experiences [13,14]. Digital platforms, such as mobile apps and augmented reality (AR), can offer tailored content based on visitor preferences and behaviors [9]. These technologies can guide visitors through a heritage site, providing contextual information, interactive maps, and multimedia content that bring historical narratives to life [52]. For example, AR can superimpose historical scenes onto present-day landscapes, allowing

visitors to visualize how a site looked in the past and understand its historical significance in a more tangible way [9,53].

Using gamification in heritage tourism also facilitates social interaction and community building [75]. Many gamified experiences are designed to be collaborative, encouraging visitors to work together to complete tasks or challenges. This fosters a sense of community among participants and can lead to positive word-of-mouth promotion [16]. Additionally, social media integration allows visitors to share their achievements and experiences with their networks, further enhancing the visibility and appeal of heritage sites [78].

From an educational perspective, gamification can significantly improve knowledge retention and understanding. Interactive and hands-on learning experiences are more likely to be retained than passive information consumption [79]. By actively engaging with the content through gamified activities, visitors can develop a deeper understanding and appreciation of heritage sites' historical and cultural significance. This not only enriches their experience but also fosters greater respect for cultural preservation and heritage conservation [80].

However, successfully implementing gamification in heritage tourism requires careful planning and consideration [75]. Balancing entertainment with educational value is essential, ensuring that the gamified elements complement rather than overshadow the historical content [56]. Furthermore, accessibility and inclusivity must be prioritized to ensure that all visitors, regardless of age or technical proficiency, can benefit from gamified experiences [75].

4.5. The Most Active Authors and Countries

To address RQ3 (Who are the most influential authors and countries within the realms of advergames and gamification in tourist destinations?), this section identifies key contributors, focusing on both individual authors and national research output. A comprehensive bibliometric analysis of scholarly publications indexed in the Web of Science highlights the most prolific and influential authors, based on their publication counts, citation impact, and contributions to advancing the theoretical and practical understanding of advergames and gamification in tourism. These authors have played a pivotal role in shaping the application of gamification to enhance tourist engagement, destination marketing, and sustainability initiatives.

In addition to individual authors, the analysis identifies the most active countries in the field, evaluating the volume of publications, citation impact, and levels of international collaboration. These countries are at the forefront of innovation, influencing the research agenda and fostering cross-border collaborations that contribute to both the academic and practical advancements in gamification and advergames within the global tourism industry.

This section also examines the contributions and collaborative networks of the most active authors in the field, as depicted in Figure 6. Using bibliographic coupling, a method that identifies connections between authors based on shared references, this analysis maps the research networks within the domain. Bibliographic coupling reveals that authors who frequently cite the same studies tend to share similar research interests and methodologies, underscoring the thematic coherence in their work [27,28].

Anna Leask from Edinburgh Napier University stands out as the leading author, with 10 published documents in the Web of Science (WoS) database during the study period and a total of 3882 citations. Her extensive body of work underscores her central role in the field, significantly contributing to scholarly discourse on heritage tourism and visitor attractions management. Following closely is Songshan (Sam) Huang from Edith Cowan University, who has published six documents in the WoS database and amassed a total of 12,000 ci-

tations. His active engagement in research and ongoing contributions have advanced knowledge in tourism marketing, hospitality marketing, and business management.

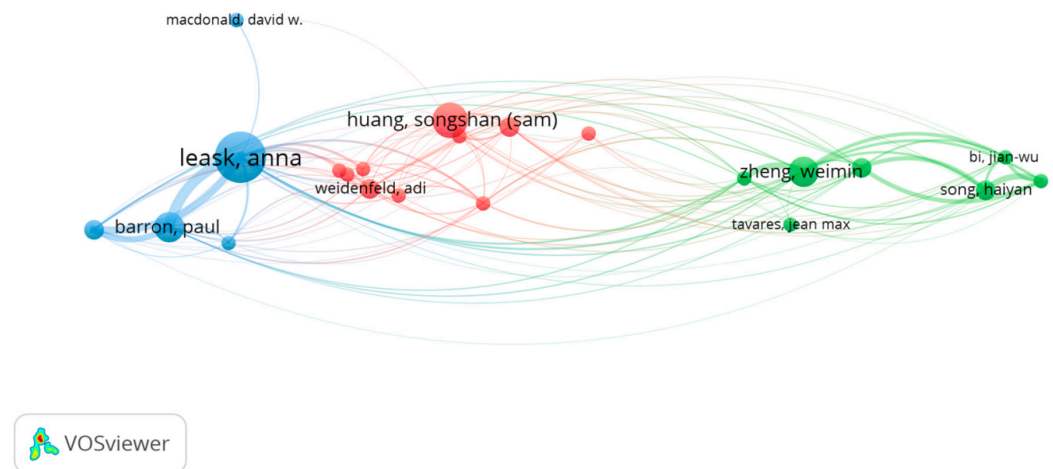


Figure 6. The most active authors.

The analysis also highlights the collaborative nature of research within this field. Authors who share a high number of references are inferred to have similar research focuses and methodologies, fostering thematic clusters and collaborative efforts. This interconnectedness enhances the robustness of the research through diverse perspectives and promotes the dissemination and validation of new findings across the scholarly community.

If we focus on the most active countries, Figure 7 illustrates the collaborative network among countries and territories, considering a minimum threshold of seven documents. This visualization showcases five clusters, each representing over five hundred of the most significant bibliographic connections. Each item on the map is represented by a circle, with the size of the circle corresponding to the item's weight, indicating its importance in the study context. Hence, larger circles signify more relevant and critical contributions. The lines and distances between items indicate the connections and relatedness of countries in the researched field. A notable advantage of this map is its ability to identify countries or territories with similar research characteristics.

This map in Figure 7 underscores the global nature of research in the field of advergames and gamification in tourist destinations by illustrating the interconnectedness and collaborative efforts of different countries. The visualization identifies key countries that are prolific in their research output and play central roles in international collaborations. China, for example, leads with 132 publications and 1872 citations, indicating its pivotal position in the global research network and its extensive partnerships with other European nations and Iran. The USA follows closely with 77 publications and 1412 citations, demonstrating substantial research productivity and strong collaborative ties with England, South Korea, Scotland and Australia.

This network analysis highlights how countries with similar research interests and expertise tend to cluster together, facilitating the exchange of knowledge, resources, and innovative ideas across borders. It also shows these leading countries' critical roles in advancing the field, setting research agendas, and influencing the global scholarly discourse on advergames and gamification in tourist destinations.

By visualizing these relationships, the map provides valuable insights into the geographical distribution of research activities and the collaborative dynamics among countries. This interconnectedness enhances the robustness of the research through diverse perspectives and promotes the dissemination and validation of new findings across the scholarly community.

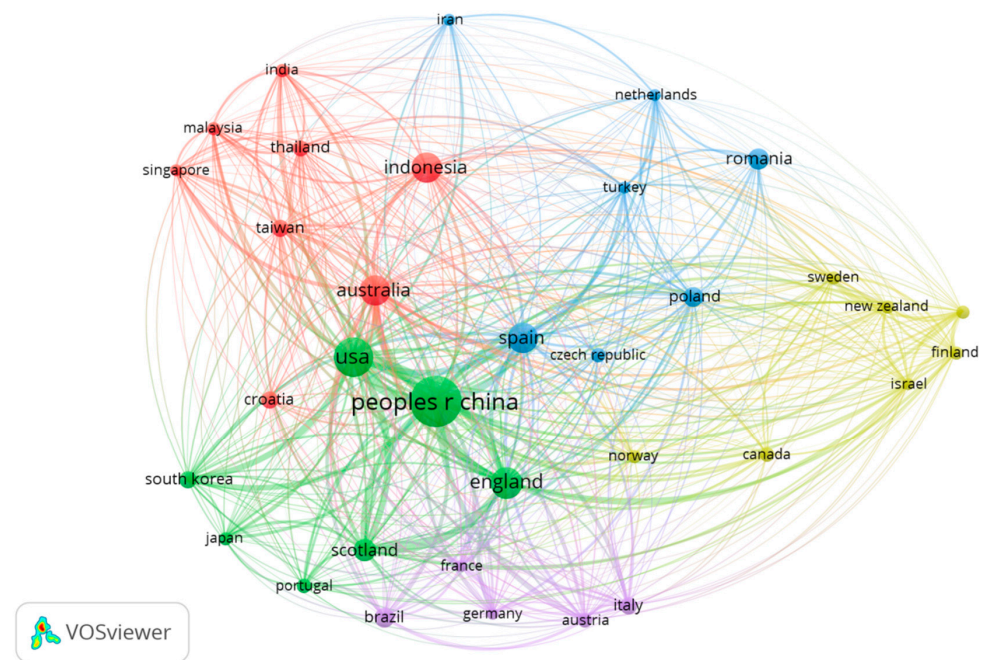


Figure 7. The most active countries.

Moreover, the visualization reveals emerging research centers in regions that are becoming increasingly active in the field. For instance, countries like Spain, Australia and South Korea show growing engagement and collaborative efforts in advergames and gamification research. While these countries may not be as prominent as the leading nations, their contributions add valuable perspectives and innovations, enriching the overall body of knowledge.

The interconnectedness depicted in the map also underscores the importance of cross-country collaborations in enhancing the quality and impact of research. By leveraging diverse perspectives and expertise, collaborative efforts can address complex research questions more effectively and generate comprehensive insights.

5. Discussion

In the rapidly evolving digital marketing sphere, tourism businesses are increasingly leveraging WOM and social media as essential tools to connect with and influence potential travelers. These elements play crucial roles in driving engagement, enhancing brand reputation, and fostering consumer trust. This study's findings align with previous studies that emphasize the role of gamification in enhancing tourist engagement [9,13].

However, our study differs in its focus on a bibliometric analysis, which provides a structured map of research trends and collaborations. Unlike previous qualitative reviews, our approach identifies publication patterns, citation networks, and emerging themes. This enables a broader understanding of how gamification and advergames have evolved over time in the context of tourism. Additionally, our study highlights key authors, countries, and influential works in the field, offering a comprehensive overview of the academic landscape. This bibliometric approach also reveals research gaps and emerging areas, such as the integration of immersive technologies like AR/VR in gamification and the growing focus on sustainable tourism through gamified interventions. By presenting a quantitative analysis, our research complements existing qualitative studies and provides a valuable resource for future scholars exploring digital marketing in tourism. These findings can inform future studies on the application of gamification for sustainable tourism, destination branding, and user engagement.

5.1. Theoretical Implications

This study's bibliometric analysis of advergames and gamification in tourist destinations contributes significantly to the existing body of knowledge by mapping out the thematic evolution, research trends, and collaborative networks within this field. The findings underscore the interdisciplinary nature of advergames and gamification research, highlighting intersections with digital marketing, tourism, heritage preservation, sustainability, and cultural studies. The identified clusters reveal the diversity of research topics, such as the roles of social media and word-of-mouth in tourism marketing [41] and the application of gamification in promoting sustainable tourism and enhancing cultural experiences [15].

A key theoretical implication is the validation of gamification as a vital tool in modern marketing strategies for tourism. Gamification, which incorporates game design elements into non-gaming contexts, has proven to be effective at engaging tourists and shaping their behaviors, particularly within heritage and cultural tourism [80]. This supports theories of experiential marketing, which suggest that creating immersive and memorable experiences enhances consumer satisfaction and fosters brand loyalty. By allowing for deeper emotional connections through personalized and interactive experiences, gamification emerges as a critical tool in shaping tourists' perceptions and encouraging engagement with destinations [9].

Additionally, this study highlights the importance of social media and word-of-mouth in influencing tourist behavior, reinforcing theories on digital marketing and consumer engagement. The integration of social media platforms into tourism marketing strategies is crucial for reaching younger, tech-savvy audiences who are more influenced by digital interactions. Furthermore, this study reveals that user-generated content and influencer marketing play pivotal roles in enhancing destination image and attractiveness, supporting previous findings on the impact of digital platforms in shaping consumer decision-making [18].

This research also contributes to the field of sustainable tourism, demonstrating how tech-driven gamification can promote environmentally and culturally responsible behaviors among tourists. The findings align with existing theories advocating for the use of digital innovations to drive sustainable practices in tourism. By showing how gamified systems can encourage eco-friendly behaviors, this study extends the literature on sustainability by providing practical examples of how digital tools can align tourist behaviors with broader environmental goals [14].

Furthermore, this study adds to the literature on service quality in cultural tourism, confirming the importance of high-quality, culturally relevant services in shaping tourist satisfaction and influencing revisitation intentions. This is consistent with the SERVQUAL model, which posits that reliability, assurance, tangibility, empathy, and responsiveness are key dimensions of service quality [81]. By emphasizing the role of culturally informed and responsive services, this study broadens the understanding of how service quality impacts tourist behavior, particularly in cultural settings.

5.2. Practical Implications

The practical implications of this study are significant for tourism marketers, destination managers, and policymakers. The identification of key themes and trends in advergames and gamification offers actionable insights into how these tools can be employed to enhance tourist experiences and promote destinations effectively.

Firstly, the findings suggest that tourism businesses should prioritize social media integration and word-of-mouth strategies in their marketing plans. Given the substantial influence of these factors on tourist behavior, marketers should focus on creating engaging,

shareable content that encourages user interaction and fosters positive word-of-mouth. Leveraging influencer marketing can also help destinations reach targeted audiences more effectively, especially when influencers align with the destination's brand values and target demographics. Destinations can use social media platforms not only to attract visitors but also to maintain engagement, leading to sustained interest and higher visitation rates [82].

Secondly, this study highlights the potential of gamification in enhancing heritage and cultural tourism. Destination managers should consider incorporating gamified elements into their visitor experiences, such as interactive tours, challenges, and rewards that encourage exploration and learning. These strategies not only make cultural sites more engaging but also help educate tourists about the historical and cultural significance of the sites, thereby promoting conservation efforts. Gamified experiences, which tap into tourists' desire for entertainment and competition, can increase engagement and foster long-term connections with the destination [9].

Service quality is another key area for practical application. Tourism professionals should focus on delivering high-quality, personalized services that resonate with the cultural expectations of tourists. These include training staff to provide culturally informed service, investing in the preservation and presentation of cultural assets, and implementing feedback mechanisms to continuously improve service delivery. By prioritizing service quality, destinations can enhance tourist satisfaction and encourage repeat visits, which are crucial for building a loyal customer base [73].

Moreover, this study's findings on sustainable tourism suggest that tech-driven gamification can be an effective tool for promoting environmentally responsible behaviors among tourists. Policymakers and destination managers should explore the development of digital applications that reward sustainable practices, such as choosing eco-friendly transportation options or participating in conservation activities. By aligning gamified strategies with sustainability goals, destinations can encourage tourists to adopt more responsible behaviors that support the long-term viability of the environment and local communities [14].

Finally, this study underscores the importance of cross-country collaborations in advancing research and innovation in advergames and gamification. International partnerships can facilitate the exchange of knowledge and best practices, enabling destinations to adopt successful strategies from around the world. Policymakers should encourage such collaborations to enhance the global impact of research and innovation in this field, ensuring that tourism marketing continues to evolve in response to technological advancements and changing consumer preferences.

6. Conclusions

This study presents a comprehensive bibliometric analysis of the research landscape surrounding advergames and gamification in the context of tourist destinations. It offers in-depth maps of thematic clusters, leading authors, prominent institutions, and contributing countries, alongside an examination of emerging trends and collaborative networks within this interdisciplinary field. The findings emphasize the growing importance of digital innovations in tourism marketing, with gamification identified as a potent tool for enriching tourist experiences, promoting cultural and heritage sites, and advancing sustainable tourism practices. By systematically analyzing scholarly publications from the past decade, this study illustrates the dynamic and evolving nature of research in this domain, highlighting the multifaceted applications of advergames and gamification in addressing the needs of contemporary tourists and enhancing the effectiveness of tourism marketing strategies.

6.1. Study Limitations

Despite its contributions, this study is subject to certain limitations. Firstly, the analysis was confined to publications indexed in the Web of Science (WoS) database, which, although extensive, may not encompass the entire spectrum of research on advergames and gamification, particularly studies published in non-indexed journals or regional databases. This restriction could result in the omission of relevant works, especially those published in languages other than English or emerging market contexts. Additionally, while effective at identifying trends and connections, this study's emphasis on quantitative bibliometric methods does not allow for a deep qualitative analysis of the content and context of the research, thereby missing the nuanced insights offered by individual studies' theoretical frameworks, methodologies, and findings. Another limitation is this study's temporal focus on the past decade (2014–2024), which may constrain the understanding of the field's historical development, as foundational works from earlier periods were not included. Lastly, this study's reliance on bibliometric coupling and co-occurrence analyses, though valuable for mapping relationships, may not fully capture the complexities of interdisciplinary research, where concepts and methodologies often overlap in more intricate ways than these methods can reveal.

6.2. Future Research Directions

Given the dynamic and evolving nature of advergames and gamification, several avenues for future research present themselves. Expanding the analysis to include other academic databases, such as Scopus or regional indexes, and incorporating non-English language publications could offer a more comprehensive global perspective on the research landscape. Additionally, integrating a qualitative content analysis with bibliometric methods could provide richer insights into the theoretical and methodological underpinnings of the field, enhancing our understanding of how these digital tools are applied across various tourism contexts. Extending the temporal scope of analysis to include earlier works would also allow for a more longitudinal perspective, tracing the evolution of advergames and gamification in response to broader technological and societal trends. Furthermore, exploring the intersections of this research with other disciplines, such as psychology, education, and sustainability, could yield new theoretical and practical insights. Investigating the impact of emerging technologies, such as artificial intelligence and augmented reality, on the future of advergames and gamification in tourism and conducting cross-cultural studies to understand how these tools are perceived and used across different cultural contexts would also be valuable areas of inquiry. Future research may consider an expanded keyword approach add additional keywords such as "Tourism Experience" and "Immersive Technologies". Addressing these directions in future research will not only fill the existing gaps but also advance the field, contributing to the development of more effective and sustainable tourism practices.

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