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# Disruptions, Diversity, and Ethics in Marketing

First International Conference  
on Advanced Marketing Practice  
(ICoAMP), Almeria, Spain, April 18-19,  
2024

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# Preface

The editors would like to announce this publication that features ten relevant contributions presented at the I International Conference on Advanced Marketing Practice (ICoAMP), which was recently held Virtually (online) on April 18–19 at the Faculty of Economics and Business of the University of Almería, Spain. The first edition of this international interdisciplinary conference focused on disruptions, diversity, and ethics. Modern businesses and marketers alike must understand the intricacies of these factors and their implications in the world of marketing. Consequently, this publication is a suitable guide for both marketing researchers and practitioners actively involved in the marketing sector. However, it is also a valuable resource for managers of modern businesses in a wide range of industries.

Throughout an extensive diversity of methodological approaches applied by the contributing authors, this handbook covers a broad range of topics focused on analytics, measurement, and methodologies in marketing, health, medical, and beauty decision-making; impact of digital technologies on marketing management; marketing education; marketing orientated to sustainable development goals (SDG), nonprofit marketing and marketing ethics (CSR), and social media and digital marketing practice, among others, and tries to elucidate on the newest trends that engage marketing researchers and scholars.

Chapters 1 and 2 are related to analytics, measurement, and methodologies in marketing. To clarify the role of bibliometric review in the marketing field as a tool for developing advancement of theory, Chap. 1 investigates under a comprehensive analysis approach various aspects and limitations related to the rigorousness in the application of bibliometric reviews from marketing researchers such as sample size selection, database comprehensiveness, methodological complementariness, contributions to theory, and implications for practice, supported by a methodological literature review that included 140 studies published in the top 47 marketing journals in Web of Science. Although their findings disclose a great adoption of the bibliometric review methodology in marketing research, the authors identify several limitations in their application, so there is opportunity for improvements in several aspects, namely ensuring adequate sample sizes and replicability, improving database comprehensiveness, employing theory-driven frameworks, and establishing

implications for practice. In summary, by providing recommendations for marketing scholars to adopt bibliometric analysis effectively, their contribution constitutes a valuable guide that allows marketing researchers to develop theoretical advances, obtain new insights, and identify novel research gaps through proper application of bibliometric methodology.

Chapter 2 covers the impact of digital technologies on marketing management. Focused on hospitality research, where geographical location plays a relevant role along with the current high availability of geolocated data generated by service consumers in the hotel and restaurant industry, the authors try to illustrate through an extensive bibliographic review how Geographic Information Systems (GIS) have become a useful technology for both market research and marketing management. The authors relied on a hotspot analysis approach to explore hotel sector in Madrid with the aim of attaining a better understanding of factors that promote hotel agglomeration in certain areas. In conclusion, the authors highlight how, through the incorporation of the use of GIS, hospitality managers and industry stakeholders can evaluate the adequacy of the offer to the relevant geographic market, identify submarkets within a same destination, carry out up-to-date competitive analysis, facilitating agile decision making.

Due to the growing interest around the concept of patient satisfaction and its main drivers, Chap. 3, related to the topic of health, medical, and beauty decision making, discusses about the mainly issues of the effectiveness of the healthcare system in Spain regarding patient satisfaction. The authors attempt to shed light on how quality healthcare indexes can impact patient satisfaction. Specifically, based on data from seventeen Spanish regions in the period 2007 to 2019, the authors analyse whether the number of readmissions, physicians of primary care physicians, in-hospital mortality, hospital beds, medical devices, and specialists have a significant impact on patient satisfaction through a dynamic panel data model regression estimated with the two-step Generalised Method of Moments. Their findings underline how an increase in mortality rates diminishes patient satisfaction while the rest of the quality factors do not affect patient satisfaction. The authors presented recommendations to policy makers and health practitioners on the indicators that most affect patient satisfaction in the case of Spain.

Chapters 4, 5, and 6 deal with marketing education. Chapters 4 and 5, contrary to the main part of the academic literature based on educational institutional analysis approach, focus on the exploration of student outcomes through a qualitative survey of 129 university students in two Iberian universities, the University of Almeria in Spain, and the University of Beira Interior in Portugal. Specifically, in Chap. 4, aligned with the Principles for Responsible Management Education (PRME) for responsible education in management with the Sustainable Development Goals (SDGs), the authors compare whether the attitudes of students from both universities differ from different perspectives, the personal valuation of the importance of a more sustainable society, the specific integration of sustainability in business, the preference of training towards PRME-oriented educational organisations, or the labour insertion as a worker in sustainable companies. Their findings offer practical insights and recommendations for academic institutions to improve the

evaluation of their efforts in curricular changes, course redesign, pedagogical proposals, and adjustments in mission and institutional objectives. In Chap. 5, although sustainability teaching has become an essential element for facing the new challenges that the planet and the society need to solve, recently the effective integration of sustainable practices by Higher Education Institutions has been questioned due to the existence of a high heterogeneity of sustainability learning approaches, with none of them incorporating the students' perspective. As a result, higher education institutions lack valuable guidelines for a successful sustainability teaching. Based on an importance performance analysis of marketing students' perceptions of sustainability teaching at the two above-mentioned university, this contribution explores the performance of sustainability teaching and aim to shed light whether there are different students' perception about learning approaches for sustainability integration and their respective effectiveness depending on their Higher Education Institution. The authors claim that their contribution offers a practical guide for universities on how to properly integrate sustainability into their learning programmes. Under an educational approach, Chapter 6 analyses both the effect of the inclusion of works of art in the product design and the incorporation of Game-Based Learning (GBL) on the consumer perception of a product. Through an educational experience in a secondary school, the authors aim to study whether the inclusion of artistic elements in a product and additional activities based on GBL can provoke among students a different perception of its value, quality, or luxury. Their findings conclude that an improvement in the perception of the value and quality of the product is derived from the inclusion of artistic elements and GBL activities that highlight the relevance of incorporating both art and active methodologies in the teaching process.

Related to marketing orientated to ODS, despite the diminishing role of geographical proximity to foster communication in the current business landscape, Chap. 7 discusses how clusters organisations can encourage collaboration for Green Marketing initiatives harnessing their nonspatial proximity advantages, such as social, cognitive, institutional, and organisational proximities. The authors imply that their contribution posits that research collaboration and knowledge sharing can be encouraged by social proximity, the exchange of resources and expertise can be promoted by cognitive proximity facilitates, advocacy for policy initiatives can be supported by institutional proximity, and organisational proximity can lead to joint marketing initiatives and innovation. The authors claim that the provided framework offers guidance and enables for deeper examinations in future studies.

Under the nonprofit marketing and marketing ethics track, Chap. 8 discusses the strategic convergence among sustainability practices, relational marketing, and firm attitudes in the agricultural sector as innovative and long-term solutions to the exceptional challenges derived from climate change concerns, resource depletion, and ethical sourcing escalate. A new conceptual framework based on stakeholder theory is posited where firm's relational marketing, stakeholders, sustainable practices, and the moderating role of firm attitudes towards sustainability are integrated. This contribution highlights how stakeholders play a key role in promoting sustainable initiatives in agricultural firms and underscores how strong relationships have



a positive influence on the adoption of sustainable practices. The authors also investigate the role of proactive organisational attitudes in fostering the relationship between relational marketing and the implementation of sustainable practices.

Regarding sector-based marketing, Chap. 9 analyses with an exploratory-sequential design the explanatory factors that can impact the intention to play golf. The findings state that the factor with the strongest impact is the value attributed to the environment where golf is played. In addition, golf courses are perceived to be responsible of players' environmental management of players, which in turn has a direct impact on the intention to play. Although there is a relationship between experiential consumption and the perception of golf as a healthy sport, the authors claim that after the pandemic, the impact of both the course experience and the health factor on the intention to play golf is smaller than the impact of the natural surroundings or the environmental factor. The authors conclude that a suitable marketing strategy to attract new golf players and increase opportunities for golf tourism destinations involves reliable communication of environmental practices to position golf as an environmentally friendly sport.

Finally, Chap. 10 is related to social media and digital marketing practice. Through a conceptual model based on both the Technology Acceptance Model (TAM) and the Information System Success Model (IS), this contribution assesses the role that chatbots can play in fostering customer online trust in brands, and how, in turn, this trust can mediate the impact of interaction with chatbots on brand preference and purchase intention. Specifically, with the aim to attain a better understanding of how brands can improve the relationship with the consumer and increase purchases through trust in seller, authors explore the relationships between the utility, ease-of-use, and responsiveness of a chatbot, online trust, brand preference, and purchase intention based on a sample of Spanish consumers. Their findings can support and help both brands and professionals in designing chatbots to provide e-services that strengthen customer relationships and foster sales.

Overall, the editors are very pleased to recommend this book, as it provides valuable contributions for everyone who wants to advance his/her comprehension and learning about contemporary issues related to how disruptions, diversity, and ethics can interplay and impact the marketing sector. The editors also encourage readers of this book to participate in future editions of ICoAMP (for more details on future editions of ICoAMP, readers can visit <https://icoamp.com>).

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## **Peer Review Process**

The committee attests that the peer review process was designed to ensure rigorous evaluation and fairness for all papers/articles included in these proceedings. A double-blind review system was employed, which means that both the authors and the reviewers remain anonymous to each other throughout the evaluation process. The review process was overseen by members of the Scientific Committee, who were responsible for resolving any discrepancies that may arise between the reviews of the reviewers.

# Acknowledgement

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# Chapter 1

## A Brief Review of Bibliometric Analysis Use in Marketing Studies



Eduardo Terán-Yépez , Manuel Sánchez-Pérez ,  
Cristina Segovia-López , and María Belén Marín-Carrillo 

**Abstract** This study investigates the adoption and application of bibliometric reviews in marketing literature by conducting a methodological literature review of 140 studies published in the top 47 marketing journals. Drawing on a comprehensive analysis, we explore various aspects of bibliometric review methodology, including sample size selection, database comprehensiveness, methodological complementarity, contributions to theory, and implications for practice. Our findings reveal a growing recognition and utilization of bibliometric techniques in marketing research. However, concerns persist regarding the rigor and potential contributions of bibliometric analysis. We identify key areas for improvement, such as ensuring adequate sample sizes and replicability, enhancing database comprehensiveness, employing theory-driven frameworks, and establishing implications for practice. Moreover, we provide recommendations for marketing scholars to navigate the complexities of bibliometric research effectively and make meaningful contributions to the advancement of marketing scholarship. By adhering to established guidelines and recommendations, marketing researchers can harness the power of bibliometric analysis to extract valuable insights, identify research gaps, and contribute to theoretical advancements in the discipline. This study serves as a call to action for marketing researchers to embrace bibliometric analysis as a potent tool for literature review and knowledge synthesis while also providing guidance for reviewers and editors to ensure the quality and impact of bibliometric reviews in marketing literature.

**Keywords** Bibliometric literature review · Guidelines · Marketing · Methodological review · Research methodology

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## 1.1 Introduction

Bibliometric review has become an established literature review technique in business research in the last decade [9, 18], and marketing research is not an exemption. The study by Mukherjee et al. [20] found that between 1950 and April 2022, within the business literature, the field of marketing ( $n = 24$ ) is the second most prolific only behind management ( $n = 99$ ) in terms of bibliometric review publications in FT-50 journals. The authors also contend that there has been a steady increase in bibliometric articles within FT-50 marketing journals over the decades. This trend—which is in line with our findings on the basis of the top 47 marketing journals—serves as compelling evidence that bibliometric research is increasingly recognized and valued by prestigious marketing researchers and outlets.

However, because there are constant concerns and tensions among scholars about the rigor and potential contribution of bibliometric analysis to the literature (e.g., [5, 15, 18, 24]), questions arise regarding the extent to which marketing researchers adhere to best practice guidelines, and there is a need for guidance to navigate this growing interest effectively. In fact, in a recent editorial in the *Journal of the Academy of Marketing Science*, Hulland [13] calls on marketing researchers to make better use of bibliometric tools in crafting reviews in order to drive their use appropriately and enable bibliometric reviews to achieve greater potential and value. Similarly, in a recent study published in the *International Journal of Consumer Studies*, Klarin [16], after detecting several limitations in the use of bibliometric analysis in marketing literature, provides guidance on how to conduct a bibliometric content analysis.

In other words, as bibliometric review has become an integral part of the marketing researcher's toolkit, it is imperative to assess whether marketing researchers are implementing the methodology rigorously and ethically, considering the inherent complexities and nuances associated with bibliometric review. Consequently, we provide a methodological literature review of bibliometric review usage in 140 studies published in the top 47 marketing journals. For this study, we employ the definition of methodological literature review provided by Aguinis et al. [3], who defined it as “articles that formally or informally review the existing literature regarding about methodological issues, summarize the literature, and provide recommendations for improved practice.”

Our objective is not to present an exhaustive review but rather to offer an initial glimpse into the utilization of bibliometric reviews in the context of marketing literature. By scrutinizing the application of bibliometric reviews in the marketing domain, we aim to elucidate valuable insights into the method's application, its limitations, and the potential avenues for refinement to ensure its optimal use within the realm of marketing research. Thus, we also offer the first recommendations for improving marketing researchers' application practices. We focus on six aspects: (1) *sample size selection*; (2) *comprehensiveness*; (3) *structured, transparent, and documented search process*; (4) *methodological complementariness*; (5) *contributions to theory*; and (6) *contributions to practice*.

In the subsequent sections, we explain how we selected articles comprising bibliometric review applications in marketing and present the results of our review of the six aspects mentioned above. Our analysis reveals key findings regarding bibliometric review usage in marketing and the potential for improving the method's application. We therefore provide guidance for the bibliometric reviews method's utilization in marketing research.

## 1.2 Bibliometric Analysis Applications in Marketing Research

First, we review bibliometric review applications in marketing by considering the top 30 marketing journals according to Hult et al. [14] journal ranking, which is still used today to conduct studies with similar purposes to this research (e.g., see Sarstedt et al. [27] study on the use of PLS-SEM in marketing research). However, to be as comprehensive as possible, we have identified 17 other journals that have become relevant in the field of marketing (e.g., *International Journal of Consumer Studies*, *Journal of Consumer Behaviour*) after the 2009 Hult ranking. Table 1.1 shows the 47 journals selected for this study. We subsequently undertook a search of Web of Science (WoS) and Scopus databases for articles published in the 47 journals, using the search formula “bibliometric\*” OR “scientometric\*” OR “science mapping” OR “citation analysis” OR “co-citation analysis” OR “bibliographic coupling” OR “co-authorship analysis” OR “co-author analysis” OR “co-word analysis” OR “co-occurrence analysis” OR “informetric\*” The search period was from 1956 to 2022. Once we had assessed each article yielded in the query to determine whether they applied bibliometric review methodology, we obtain a final sample of 140 articles to be reviewed.

An overview of the 140 articles by year of publication shows an upward trend in bibliometric analysis use in marketing literature (Fig. 1.1). Although the first article in the review dates back to 1998, it is worth noting that the second article does not appear until 5 years later, and indeed, 89 of the 140 articles were published during the 2021–2022 biennium. Compared to its use in other business disciplines, such as management, the use of bibliometric analysis in the field of marketing is relatively new [20]. However, since 2019 and more pronounced since 2021, there has been an increase in the use of BA in the marketing field.

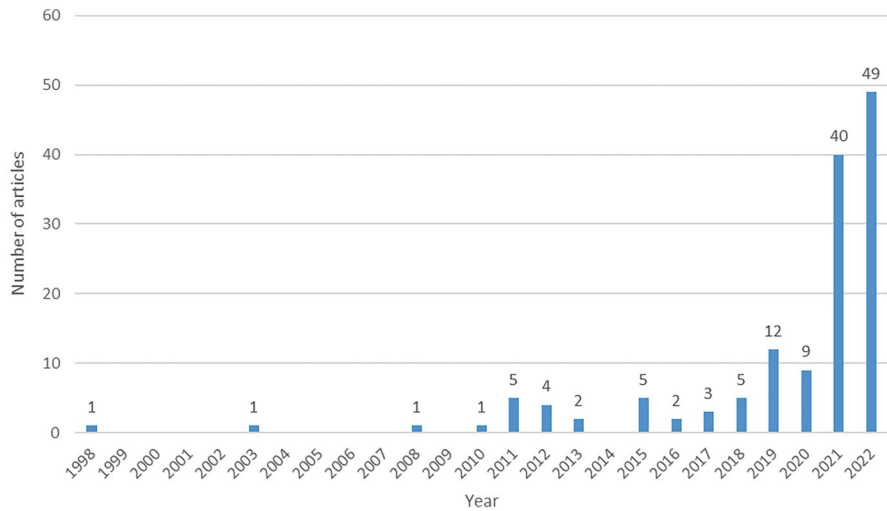
A breakdown by journal indicates that *Journal of Business Research* (28 articles), *Journal of Business & Industrial Marketing* (16 articles), and *Industrial Marketing Management* (14 articles) are the top three journals in terms of the number of studies published utilizing bibliometric review. Furthermore, the other six journals that have published more than five bibliometric reviews are as follows: *European Journal of Marketing*, *International Journal of Consumer Studies*, *International Marketing Review*, *Marketing Intelligence & Planning*, *Psychology & Marketing*, and *International Journal of Bank Marketing* (see Table 1.1).



**Table 1.1** Bibliometric reviews in the top 47 marketing journals

Journal	Number of articles
<i>Journal of Business Research</i>	28
<i>Journal of Business &amp; Industrial Marketing</i>	16
<i>Industrial Marketing Management</i>	14
<i>European Journal of Marketing</i>	8
<i>International Journal of Consumer Studies</i>	8
<i>International Marketing Review</i>	7
<i>Marketing Intelligence &amp; Planning</i>	7
<i>Psychology &amp; Marketing</i>	6
<i>International Journal of Bank Marketing</i>	6
<i>Journal of Advertising</i>	4
<i>International Journal of Retail &amp; Distribution Management</i>	3
<i>Journal of Business-To-Business Marketing</i>	3
<i>Journal of Product and Brand Management</i>	3
<i>Journal of The Academy of Marketing Science</i>	3
<i>International Journal of Advertising</i>	3
<i>Journal of Hospitality Marketing &amp; Management</i>	3
<i>Journal of Destination Marketing &amp; Management</i>	2
<i>Journal of Brand Management</i>	2
<i>Journal of Interactive Marketing</i>	2
<i>Journal of Retailing</i>	1
<i>Journal of Social Marketing</i>	1
<i>Journal of Consumer Psychology</i>	1
<i>Journal of Consumer Behaviour</i>	1
<i>Journal of Retailing and Consumer Services</i>	1
<i>Journal of Marketing</i>	1
<i>Journal of Fashion Marketing and Management</i>	1
<i>Journal of Service Research</i>	1
<i>International Journal of Research in Marketing</i>	1
<i>Asia Pacific Journal of Marketing and Logistics</i>	1
<i>Journal of International Business Studies</i>	1
<i>Journal of International Marketing</i>	1

Note: *Advances in Consumer Research*, *Journal of Advertising Research*, *Journal of Business*, *Journal of Marketing Management*, *Journal of Product Innovation Management*, *Journal of Public Policy and Marketing*, *Marketing Letters*, *California Management Review*, *Harvard Business Review*, *Journal of Consumer Research*, *Journal of Marketing Research*, *Management Science*, *Marketing Science*, *Quantitative Marketing and Economics*, *Sloan Management Review*, *Journal of Business*, and *Journal of Service Theory and Practice* did not publish any relevant bibliometric review article



**Fig. 1.1** Bibliometric analysis' articles in the marketing field over time

## 1.3 Review of Bibliometric Analysis in Marketing Research: 1998–2022

### 1.3.1 Sample Size

Scholars argue that the contribution that bibliometric reviews can make to the adequate study and understanding of a scientific field requires the use of an analytical minimum number of manuscripts; otherwise, the results may lead to inaccurate interpretations [9, 26]. Indeed, bibliometric analysis were primarily designed to handle large volumes of data [25], which are difficult to analyze using other methodologies such as systematic literature reviews (SLR) or meta-analysis [9]. So, the sample of documents selected must be sufficiently large and representative of the field of study considered. Rogers et al. [26] empirically propose a minimum sample size of 200 publications to prevent misinterpretation, while Donthu et al. [9] suggest its use only if there are considerable hundreds (e.g., 500 or more) or thousands of papers. It could be said that these authors therefore establish even a more restrictive threshold of 500 publications to guarantee representativeness.

Our review of bibliometric analysis use in marketing studies reveals that three articles do not report the sample size of their bibliometric review (Table 1.2), thus failing to guarantee the transparency and reproducibility of these review studies [30]. The remain 137 studies fluctuate between a minimum of 31 and a maximum of 45,260 documents as sample size (Table 1.3). Table 1.3 also displays that the overall median and mean numbers of the sample size used amounted to 357 and 1210 respectively. As displayed in Table 1.2, the results of our review indicate that most marketing researchers of our review used a sample of fewer than 500 items

**Table 1.2** Sample size used

Sample size used	Number of articles ( $N = 137^a$ )	% of Articles
< 200	44	32
200–499	40	29
500–999	22	16
1000–1999	15	11
2000–9999	14	10
> 10,000	2	2

<sup>a</sup>The statistics presented here are based on only 137 BA, where the numbers of included research items could be identified

**Table 1.3** Statistics of sample size used

Statistics	Databases used ( $N = 137^a$ )
Mean	1210
Median	357
Minimum	31
Maximum	45,260

<sup>a</sup>The statistics presented here are based on only 137 BA, where the numbers of included research items could be identified

(61%). Specifically, 44 articles (32%) have a sample of fewer than 200 items, and 40 articles (29%) have a sample between 200 and 500 items, which could cast doubt on the results of these, since they do not reach the minimum suggested by Rogers et al. [26] and Donthu et al. [9].

From our point of view, the adequacy of sample size is still a complex issue within bibliometric reviews, as it is still poorly substantiated and, indeed, depends very much on the bibliometric technique to be used. For example, although it seems logical that having “several hundred” papers is good for co-citation analysis, we see no reason why so many studies are need for bibliographic coupling or co-authorship analysis. These techniques would also work well with smaller samples (less than 200 papers). Therefore, we consider that it is necessary to go deeper into a more detailed study of what would be the minimum sample size according to each bibliometric technique.

Having said this, and knowing that the fundamental reason for using bibliometric reviews in a scientific field is to handle large volumes of bibliometric data, we would like to make the following reflection for marketing scholars. Starting from a rational basis, it is logical to think that the minimum number of items to carry out a bibliometric study should be the number of items that exceed the mental capacity to be worked manually (deemed manageable). Determining the exact number is not easy and depends on several factors (e.g., the number of co-authors, the capacity of each of them, the time of each of them). However, for us, a good approximation could be to analyze indicators of sample sizes used in SLR. Hiebl [12], for example, detected that the average number of research articles included for an SLR in management literature is 139 and that the interval of them ranges

from 42 to 265 articles. The inference could be that the authors of the management literature have considered that values around 265 articles are no longer manageable. Therefore, taking into account three aspects: (1) the minimum of 200 articles proposed by Rogers et al. [26]; (2) that Donthu et al. [9] do not specify why 500 articles should be the minimum number to take into account and did not explain which review method is better to use in the case of having between 300 and 500 items; and, (3) the findings of Hiebl [12] about SLR items manageability, we suggest as a rule of thumb that the minimum number of articles required for carrying out a bibliometric review should range between 200 and 300 articles. Of course, this reflection must be taken with caution, and as we have said before, this is an issued that requires more in-depth study in order to bring greater rigor to the methodology of the bibliometric reviews.

### 1.3.2 *Comprehensiveness*

To analyze the comprehensiveness of bibliometric reviews, we have chosen as data the number of databases used. Many marketing scholars frequently ponder whether they should utilize multiple databases (such as WoS and Scopus) when crafting bibliometric research for their respective topics of study. Indeed, reviewers and editors sometimes advise marketing researchers to perform searches across multiple databases for their bibliometric studies. This vision is in line with the initial idea that bibliometric reviews basis serves to conduct a thorough and comprehensive review of all relevant literature; thus, it should not rely on a single database because this cannot provide complete coverage [4]. Scholars argue that the use of multiple databases makes it possible to increase the comprehensiveness of bibliometric reviews since the use of a single database increases the possibility of missing articles that have been published in journals indexed in other databases [12]. In the marketing field specifically, some scholars suggest bibliometric reviews of a minimum of two databases to mitigate the effects of different coverage between individual databases. These suggestions can be found in two articles published in the *Journal of Marketing Analytics*, in which Echchakoui [10] and Caputo and Kargina [7] explain user-friendly methods to merge WoS and Scopus data for conducting bibliometric reviews.

However, there exists an alternative perspective on this matter. Some authors (e.g., [22]) contend that employing multiple databases in bibliometric research may not necessarily be advantageous. The authors with this vision argue that utilizing multiple databases can lead to potential overlap or redundancy in publications, thereby casting doubt on the reliability of the research findings. Most journals are indexed in both WoS and Scopus concurrently, particularly in the field of business (with marketing journals being no exception). Consequently, there is significant overlap in the publications retrieved using the same search terms in the initial search.

Considering the aforementioned discussions, it is crucial for marketing researchers to possess comprehensive insights into the advantages and limitations of various databases. They need to make informed decisions regarding the scope of their research and which papers to incorporate into their analysis after choosing the suitable database to identify relevant literature. Therefore, marketing scholars initially establish the terms (keywords, concepts) to be utilized in the initial search from the chosen database, aiming to include papers that best represent the pertinent field. In essence, marketing researchers should select one (or more, depending on the research objectives) of these databases based on bibliometric research criteria.

Having said this, we proceed to an analysis of the databases used by marketing researchers to conduct their bibliometric reviews. As displayed in Table 1.4, WoS stands out as the most widely used database for bibliometric reviews in our review. Specifically, 84 (60%) of the 135 articles used this database. Scopus 71 (51%), Google Scholar 18 (13%), and EBSCO 8 (6%) are the next three most used databases. It should be noted that, as shown in Table 1.5, five (4%) articles did not provide any information on the database(s) used, which does not contribute to the transparency and reproducibility of these reviews [30]. This finding will be analyzed in more detail in Sect. 3.3. It should also be noted that only 34 (24%) of the 135 used two or more databases. Indeed, as displayed in Table 1.5, the overall median and mean numbers of databases used amount to 1 and 1.49, respectively. However, Table 1.5 also shows that the maximum number of databases used in a single bibliometric review was 10; this data is also in agreement with that detected by Hiebl [12].

**Table 1.4** Frequently used databases

Used databases	Number of articles ( $N = 135^a$ )	% of Articles
WoS	84	60
Scopus	71	51
Google scholar	18	13
EBSCO	8	6
Other databases	14 <sup>b</sup>	11

<sup>a</sup>The statistics presented here are based on only 135 database-driven review articles because 5 review articles did not disclose the names or the number or of the databases used

<sup>b</sup>For instance, includes ScienceDirect, ProQuest, ABS list, Econlit, Abi Inform JSTOR

**Table 1.5** Number of databases used

Statistics	Databases used total ( $N = 135^a$ )
Mean	1.49
Median	1
Minimum	1
Maximum	10

<sup>a</sup>The statistics presented here are based on only 135 database-driven review articles because 5 review articles did not disclose the names or the number or of the databases used

### ***1.3.3 Structured, Transparent, and Documented Search Process***

Bibliometric reviews are expected to report in a detailed manner the steps taken during the search process [1], as well as to report in great detail the methodology used to ensure the transparency and reproducibility of the study [11]. Ideally, bibliometric reviews should disclose at least the database(s), the search formula (e.g., keywords, logic operators, and filters), inclusion and exclusion criteria, the review techniques and software used, as well as unveil the final review sample, and the phases taken to arrive at it [22, 23]. This information allows scholars to update or reproduce the bibliometric reviews, while failure to do so would result in a methodological opacity that would seriously limit the quality, transparency, and reproducibility of the study.

As shown in Tables 1.2 and 1.4, 3 (2%) bibliometric reviews in the marketing field did not provide the final review sample size used to conduct the bibliometric analysis and five (4%) articles did not provide any information on the database(s) used. The lack of transparency about the number of included research items and databases used was also identified by Hiebl [12], who detected that 16% of SLR in the field of management do not report the final sample size used and that 7% of them did not report which database(s) was used to perform the review. Taking into account the importance of reporting in a detailed manner the steps taken during the search process in order to guarantee the transparency and reproducibility of any bibliometric review [12, 28] and in particular for bibliometric review studies [9, 22], the results obtained in our study alert marketing scholars of bibliometric studies to the need to be even more detailed and transparent when documenting the methodological steps of their reviews and reviewers and suggest to editors that they should pay more attention to ensure that these details are followed to guarantee the rigor and reproducibility of the bibliometric analysis.

We suggest that marketing scholars developing bibliometric reviews in the future explain thoroughly the steps that led them to choose the initial sample size and all the inclusion and exclusion criteria that led them to obtain the final sample size. Likewise, we suggest that they mention the databases used and explain in great detail the search formula used, the filters applied, as well as any other step they have taken, which affects the final sample of articles. All this together will make the work more transparent and therefore reproducible by other marketing researchers, as well as demonstrating greater rigor.

### ***1.3.4 Methodological Complementariness***

Bibliometric methodology is categorized into three main techniques: (a) performance analysis, which assesses the productivity and impact of a particular field using various metrics; (b) science mapping, which scrutinizes the structural and intellectual connections among the components of the studied research; and (c)

**Table 1.6** Frequently used bibliometric techniques

Used bibliometric techniques	Number of articles ( $N = 140$ )	% of Articles
Performance analysis	99	71
Science mapping	123	88
Network analysis	121	86

**Table 1.7** Number of bibliometric techniques used

Statistics	Bibliometric analysis used ( $N = 140$ )
Mean	2.45
Median	3
Minimum	1
Maximum	3

network analysis, which are used to enrich the assessment of bibliometric analysis [8, 9]. Based on this categorization, we have classified each of the 140 articles according to the technique(s) used (see Table 1.6). This categorization has been carried out following the metrics and analysis proposed by Donthu et al. [9] that belong to each technique. We have been able to identify that 123 (88%) articles used science mapping techniques, 121 (86%) network analysis techniques, and 99 (71%) performance analysis techniques. Of particular relevance is that 56% (79) of the articles applied the three techniques in a complementary manner, while 32% (45) applied two of the three. As shown in Table 1.7, the overall median and mean numbers of bibliometric techniques used amount to 3 and 2.45, respectively.

Performance analysis techniques study the contributions of a set of papers to the scientific discipline considered through descriptive analysis and, in some way, form the hallmark of bibliometric studies. So, this type of analysis is usually developed in most reviews. However, our analysis reveals that it is the least used technique of the three considered and that when marketing researchers decide to apply two of these three methodologies, they opt precisely to discard the performance analysis. Network analysis techniques are used to complement bibliometric analyses and to enrich the research debate around the field of study considered and are implemented in a considerable percentage of the sample. Science mapping techniques, the most widely used by marketing scholars to conduct their bibliometric reviews, are analyzed in greater detail later in this study.

Taking into account that the main bibliometric techniques (i.e., performance analysis and science mapping) are closely related to each other and their joint use is not exclusive, but rather complements and extends the review work developed, we suggest that marketing researchers should include both bibliometric techniques (performance analysis metrics and at least one science mapping technique). While performance analysis recognizes through descriptive indicators the importance of different constituents in a research field, science mapping studies the relationships between cited research constituents. For their part, network analysis techniques are tools that enrich the results of bibliometric analyses due to the enormous possibilities they offer researchers when identifying thematic subsets and visualizing scientific

fields [31]. This is why we recommend the consideration of what Donthu et al. [9] call “enrichment techniques” (i.e., network metrics, clustering, or visualization) to be included in future bibliometric reviews developed by marketing scholars.

Science mapping techniques include citation analysis, co-citation analysis, bibliographic coupling, co-word analysis, and co-authorship analysis [13, 31]. While each technique serves a distinct purpose, employing several of them simultaneously can enhance the reliability of the findings. Noyons et al. [21] advocate for utilizing the results from one bibliometric method to validate those from another, promoting the combined use of diverse science mapping techniques for more accurate and precise outcomes.

Delving into the analyses used within the science mapping technique, we have detected that citation analysis is the most used (93 articles, i.e., 66%), followed by co-citation analysis (67 articles, i.e., 48%), and co-words analysis (61 articles, i.e., 44%) (see Table 1.8). The analyses of bibliographic coupling (24%) and co-authorship (14%) have had considerably less application. These findings imply that bibliometric reviews in marketing research have mostly been conducted to study citation rates (citation analysis), past intellectual structure (co-citation analysis), and cognitive structure (co-words analysis). However, they have somewhat neglected the examination of the current intellectual structure (bibliographic coupling) and social structure (co-authorship analysis). We found that one article applied the five science mapping analyses, five applied four of them, 31 applied three, 52 applied two, and 51 applied only one science mapping technique. When using two analyses, the most frequent co-occurrence is applying citation and co-citation analyses together (24/52, i.e., 46%). When using three analyses, the most frequent co-occurrence is applying citation, co-citation, and co-word analyses together (11/31, i.e., 35%). As shown in Table 1.9, the overall median and mean numbers of science mapping analyses used amount to 2 and 1.95, respectively. The data confirm that among bibliometric reviews in marketing research, citation, co-citation, and co-word analysis predominate. These

**Table 1.8** Frequently used science mapping methods

Used science mapping methods	Number of articles ( $N = 140$ )	% of Articles
Citation	93	66
Co-citation	67	48
Bibliographic coupling	33	24
Co-authorship	19	14
Co-words	61	44

**Table 1.9** Number of science mapping methods used

Statistics	Science mapping methods used ( $N = 140$ )
Mean	1.95
Median	2
Minimum	1
Maximum	5



results corroborate those obtained by Zupic and Čater [31] in the field of management, whose work similarly evidences the much more marginal use of bibliographic coupling and co-authorship techniques.

As mentioned above, the combined use of different bibliometric analysis techniques contributes to enriching the understanding and evaluation of a field of research. However, 36% of bibliometric analyses in the field of marketing use only one scientific mapping technique. Following the proposal of Cobo et al. [8], we recommend the combined use of these tools (in our case we suggest at least two science mapping techniques) to make a more complete and comprehensive contribution to the marketing topic under consideration. The choice of these science mapping techniques will be determined by the objectives of the bibliometric review. For example, a co-word analysis can be performed as a means to better understand the thematic clusters derived from the co-citation analysis, the co-citation analysis, the bibliographic coupling, and the co-word analysis can be combined to assess the past, present, and future of a scientific discipline.

The software employed for bibliometric analysis varies in attributes, with numerous options available (e.g., Bibexcel, CiteSpace, SciMat, VOSViewer) [16]. Ideally, a combination of these tools should be utilized to conduct comprehensive analyses from various perspectives. With advancements in algorithms and technology, integrating different bibliometric software enhances the outcomes of bibliometric analyses [17, 18].

It is important to note that in our review 113 out of the 140 articles (80%) have used at least one bibliometric software to conduct their bibliometric review. In total, we have identified up to 16 different software packages that marketing scholars have used. Looking at Table 1.10, it can be seen that VosViewer, Bibliometrix R, and Bibexcel stand out as the three most used. Although Table 1.11 shows that marketing researchers have used up to four different software packages, only 33% of papers have used more than one software package. Thus, the overall median and mean numbers of software used amount to 1 and 1.40, respectively.

**Table 1.10** Software used

Used databases	Number of articles ( $N = 113^a$ )	% of Articles
VosViewer	71	63
Bibliometrix R	25	22
Bibexcel	12	19
Gephi	10	9
SciMAT	8	7
Citespace	8	7
Ucinet	5	4
Pajek	5	4
Other visualization software	17 <sup>b</sup>	15 <sup>b</sup>

<sup>a</sup>The number (%) presented here are based on only 113 review articles that have used any visualization software

<sup>b</sup>For instance HistCite, Leximancer, NodeXL, VantagePoint, CitNetExplorer, NetDraw, iGraph, and Loet Leydesdorff's software are included

**Table 1.11** Number of visualization software used

Statistics	Databases used ( $N = 113^a$ )
Mean	1.40
Median	1
Minimum	1
Maximum	4

<sup>a</sup>The statistics presented here are based on only 113 review articles that have used any visualization software

It should be said that the different bibliometric software implements complementary features that usually require researchers to use more than one software program. Their combined use contributes to framing the literature review according to different approaches, without compromising in any case the consistency and robustness of the results. Nevertheless, only 33% of bibliometric reviews in the marketing field have used more than one software package. Thus, we venture to suggest that the ideal recommendation would be to use at least two different software packages, to strengthen the results obtained from different analysis perspectives, as suggested by authors such as Cobo et al. [8] or Marchiori et al. [19]. The existence of a wide variety of options in this regard, as a result of the boom in bibliometric review studies, together with its greater accessibility and ease of use, facilitates its adoption by marketing researchers.

### 1.3.5 Contributions to Theory

There is much debate in the marketing literature as to whether or not bibliometric reviews contribute to the advancement of theory [13]. In fact, providing clear and concise advances to theory is considered a necessary attribute of bibliometric literature reviews today [18, 20, 24]. That is, bibliometric reviews in the marketing field should develop a theory-driven organizing framework to clarify and synthesize current literature [16, 29] and detect key research gaps for future research [22, 23]. Concerning the former aspect, Mukherjee et al. [20] stated that an organizational framework should be designed to provide a visual representation of the knowledge structure of the field under study or the relationships among the main variables/constructs. Concerning the latter aspect, Paul and Criado [23] added that good bibliometric reviews should devote at least 20–25% of the article to proposing a broad roadmap for future research.

To determine whether the bibliometric reviews in the marketing field provide advances, in theory, we focused on analyzing whether the papers in our sample contain a development, proposal, or extension of a theory or framework as well as including future research lines. As shown in Table 1.12, only 22 (16%) of the 140 articles have developed a theory-based organizational framework to clarify, propose, or extend the existing literature, which shows that only a few bibliometric papers in the marketing field contribute to the advancement of theory through the

**Table 1.12** Advancing theory

Advancing theory	Number of articles ( $N = 140$ )	% of Articles
Development, proposal, or extension of a theory/framework	22	16
Propose future research lines	119	85

development or extension of a theory/framework. On the other hand, as shown in Table 1.6 most of the articles include future research lines (85%; 119 of 140), and, therefore, from this point of view, the bibliometric reviews in marketing research are contributing to the advancement of theory.

We suggest that marketing scholars should include in their bibliometric review papers a section on theoretical advances and contributions that allow the enrichment, extension, and expansion of existing theory. In this regard, we suggest that scholars review the contribution of Tsotsou et al. [29] who offer guidelines on how to conduct a theory-building literature review as well as the proposals of Breslin and Gatrell [6], Mukherjee et al. [20], and Post et al. [24] who set out different ways of generating theory from literature reviews. Moreover, as Mukherjee et al. [20] point out, well-executed bibliometric research allows researchers to discover clusters of knowledge, present the state of the research field, learn about the development of knowledge in the field, understand where the field is going, and recognize knowledge gaps to situate the future. Concerning this last aspect, we advise scholars to identify future lines of research in bibliometric reviews by including a section that clearly and precisely record these contributions. In this sense, and following the statements of Paul and Criado [23], we recommend that at least 20–25% of the bibliometric review article should be devoted to establishing a comprehensive future research agenda so that future scholars are aware of knowledge gaps in the literature and future contributions against established research streams.

### 1.3.6 Contributions to Practice

Mukherjee et al. [20] highlight the value underlying bibliometric research when these present contributions to the advancement of practice. They point out that bibliometric research, in addition to finding gaps and social dominance or hidden biases in the research field, should establish implications for practice development. As various authors point out, bibliometric studies must establish why practitioners should care about the findings and practical implications of this type of review [2, 20].

To find out whether bibliometric reviews in the marketing field offer any advancement in practice, we focused on analyzing whether these papers include implications for practitioners. Only 35% (49 out of 140) of the bibliometric review articles of our sample established practical contributions. These practical contributions are usually found in empirical and conceptual papers, whereas they are not so frequent

in literature reviews. If bibliometric reviews developed in the marketing field collect practical contributions, marketing practitioners will be able to find out more related and applied findings to their occupation and, therefore, generate a real advancement in practice. For all these reasons, we suggest marketing academics that, although it is not usual for bibliometric review papers to include these practical contributions, they should establish managerial implications in their papers that can be taken into account by practitioners. A good guide on how a bibliometric article can contribute to the advancement in practice can be found in the work of Mukherjee et al. [20].

## 1.4 Conclusion

This study highlights the increasing acknowledgment and adoption of bibliometric techniques in top marketing journals, indicating a growing interest in utilizing quantitative methods for literature analysis and synthesis within the field. While concerns exist regarding the rigor and potential contributions of bibliometric analysis, this study offers valuable insights into current practices and challenges encountered by marketing researchers.

As such, this research underscores the importance of applying rigor and transparency in the utilization of bibliometric analysis within marketing research. Through an examination of 140 bibliometric reviews published in the leading marketing journals, significant insights have been gained concerning the application of bibliometric reviews in the field. The findings emphasize the necessity for marketing researchers to carefully consider factors such as sample size selection, database comprehensiveness, methodological complementarity, and the use of theory-driven frameworks to enhance the quality and impact of bibliometric reviews. By adhering to established guidelines and recommendations, marketing scholars can utilize bibliometric analysis to extract valuable insights, identify research gaps, and contribute to theoretical advancements in the discipline.

Moreover, this research reports data on (1) the most commonly used bibliometric techniques, (2) the most commonly used science mapping methods, (3) the most commonly used databases, and (4) the most commonly used software for conducting bibliometric studies, which may serve as benchmarks for future bibliometric reviews in the marketing field.

As final conclusion, our aim is that this brief review of bibliometric analysis use in marketing studies serves as a call to action for marketing researchers to embrace bibliometric analysis as a potent tool for literature review and knowledge synthesis. By following established guidelines and recommendations, scholars can effectively navigate the complexities of bibliometric research and make meaningful contributions to the advancement of marketing scholarship. Moreover, we hope that the recommendations put forward in this article will be useful both to marketing researchers when conducting their next bibliometric reviews and to reviewers and editors of such reviews who could use these suggestions as a reference to guide their reviews and decisions.

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## References

1. Abramo, G., & Oxley, L. (2021). Scientometric-based analysis in business and economics: Introduction, examples, and guidelines. *Journal of Economic Surveys*, 35(5), 1261–1270. <https://doi.org/10.1111/JOES.12476>
2. Abramo, G., D'Angelo, C. A., & Caprasecca, A. (2009). Allocative efficiency in public research funding: Can bibliometrics help? *Research Policy*, 38(1), 206–215. <https://doi.org/10.1016/J.RESPOL.2008.11.001>
3. Aguinis, H., Ramani, R. S., & Alabduljader, N. (2023). Best-practice recommendations for producers, evaluators, and users of methodological literature reviews. *Organizational Research Methods*, 26(1), 46–76. <https://doi.org/10.1177/1094428120943281>
4. Bramer, W. M., Rethlefsen, M. L., Kleijnen, J., & Franco, O. H. (2017). Optimal database combinations for literature searches in systematic reviews: A prospective exploratory study. *Systematic Reviews*, 6(1), 245. <https://doi.org/10.1186/s13643-017-0644-y>
5. Breslin, D., & Bailey, K. (2020). Expanding the conversation through ‘debate essays’ and ‘review methodology’ papers. *International Journal of Management Reviews*, 22(3), 219–221. <https://doi.org/10.1111/IJMR.12234>
6. Breslin, D., & Gatrell, C. (2023). Theorizing through literature reviews: The miner-pro prospector continuum. *Organizational Research Methods*, 26(1), 139–167. <https://doi.org/10.1177/1094428120943288>
7. Caputo, A., & Kargina, M. (2022). A user-friendly method to merge Scopus and web of science data during bibliometric analysis. *Journal of Marketing Analytics*, 10(1), 82–88. <https://doi.org/10.1057/s41270-021-00142-7>
8. Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62(7), 1382–1402. <https://doi.org/10.1002/asi.21525>
9. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/J.JBUSRES.2021.04.070>
10. Echchakoui, S. (2020). Why and how to merge Scopus and web of science during bibliometric analysis: The case of sales force literature from 1912 to 2019. *Journal of Marketing Analytics*, 8(3), 165–184. <https://doi.org/10.1057/s41270-020-00081-9>
11. Gusenbauer, M., & Haddaway, N. R. (2021). What every researcher should know about searching—Clarified concepts, search advice, and an agenda to improve finding in academia. *Research Synthesis Methods*, 12(2), 136–147. <https://doi.org/10.1002/JRSM.1457>
12. Hiebl, M. R. W. (2021). Sample selection in systematic literature reviews of management research. *Organizational Research Methods*. <https://doi.org/10.1177/1094428120986851>
13. Hulland, J. (2024). Bibliometric reviews—Some guidelines. *Journal of the Academy of Marketing Science*, 1–4. <https://doi.org/10.1007/S11747-024-01016-X>
14. Hult, G. T. M., Reimann, M., & Schilke, O. (2009). Worldwide faculty perceptions of marketing journals: Rankings, trends, comparisons, and segmentations. *GlobalEdge Business Review*, 3(3), 1–23.
15. Jones, O., & Gatrell, C. (2014). Editorial: The future of writing and reviewing for IJMR. *International Journal of Management Reviews*, 16(3), 249–264. <https://doi.org/10.1111/IJMR.12038>

16. Klarin, A. (2024). How to conduct a bibliometric content analysis: Guidelines and contributions of content co-occurrence or co-word literature reviews. *International Journal of Consumer Studies*, 48(2). <https://doi.org/10.1111/IJCS.13031>
17. Kraus, S., Breier, M., Lim, W. M., Dabić, M., Kumar, S., Kanbach, D., Mukherjee, D., Corvello, V., Piñeiro-Chousa, J., Liguori, E., Marqués, D. P., Schiavone, F., Ferraris, A., Fernandes, C., & Ferreira, J. J. (2022). Literature reviews as independent studies: Guidelines for academic practice. *Review of Managerial Science*, 2022, 1–19. <https://doi.org/10.1007/S11846-022-00588-8>
18. Kraus, S., Bouncken, R. B., & Yela Aránega, A. (2024). The burgeoning role of literature review articles in management research: An introduction and outlook. *Review of Managerial Science*, 18(2), 299–314. <https://doi.org/10.1007/S11846-024-00729-1>
19. Marchiori, D. M., Popadiuk, S., Mainardes, E. W., & Rodrigues, R. G. (2020). Innovativeness: A bibliometric vision of the conceptual and intellectual structures and the past and future research directions. *Scientometrics*, 126(1), 55–92. <https://doi.org/10.1007/S11192-020-03753-6>
20. Mukherjee, D., Lim, W. M., Kumar, S., & Donthu, N. (2022). Guidelines for advancing theory and practice through bibliometric research. *Journal of Business Research*, 148, 101–115. <https://doi.org/10.1016/J.JBUSRES.2022.04.042>
21. Noyons, E. C. M., Moed, H. F., & Luwel, M. (1999). Combining mapping and citation analysis for evaluative bibliometric purposes: A bibliometric study. *Journal of the American Society for Information Science*, 50(2), 115–131. [https://doi.org/10.1002/\(SICI\)1097-4571\(1999\)50:2](https://doi.org/10.1002/(SICI)1097-4571(1999)50:2)
22. Öztürk, O., Kocaman, R., & Kanbach, D. K. (2024). How to design bibliometric research: An overview and a framework proposal. *Review of Managerial Science*, 1–29. <https://doi.org/10.1007/S11846-024-00738-0>
23. Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
24. Post, C., Sarala, R., Gatrell, C., & Prescott, J. E. (2020). Advancing theory with review articles. *Journal of Management Studies*, 57(2), 351–376. <https://doi.org/10.1111/JOMS.12549>
25. Ramos-Rodríguez, A. R., & Ruíz-Navarro, J. (2004). Changes in the intellectual structure of strategic management research: A bibliometric study of the strategic management journal, 1980-2000. *Strategic Management Journal*, 25(10), 981–1004. <https://doi.org/10.1002/smj.397>
26. Rogers, G., Szomszor, M., & Adams, J. (2020). Sample size in bibliometric analysis. *Scientometrics*, 125(1), 777–794. <https://doi.org/10.1007/s11192-020-03647-7>
27. Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology & Marketing*, 39(5), 1035–1064. <https://doi.org/10.1002/MAR.21640>
28. Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
29. Tsiotsou, R. H., Koles, B., Paul, J., & Loureiro, S. M. C. (2022). Theory generation from literature reviews: A methodological guidance. *International Journal of Consumer Studies*, 46(5), 1505–1516. <https://doi.org/10.1111/IJCS.12861>
30. Williams, R. I., Clark, L. A., Clark, W. R., & Raffo, D. M. (2021). Re-examining systematic literature review in management research: Additional benefits and execution protocols. *European Management Journal*, 39(4), 521–533. <https://doi.org/10.1016/J.EMJ.2020.09.007>
31. Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>

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# Chapter 2

## Geographic Information System in Hospitality: Spatial Clustering of Hotels Based on Marketing Variables



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**Abstract** Geographic information systems (GIS) have emerged as a valuable technology for marketing management. Its relevance emanates from the distinct importance of establishment location in hospitality and restaurant industries, the continued availability and depth of geospatial data continuously generated by the consumer and generating maps as visual elements. Assuming that strategies involving group-level customer customization are optimal, this paper aims to understand how geographical location is related to certain hotel and marketing variables. After reviewing the relevant literature on the use of GIS in the hospitality and restaurant industries, spatial and hotspot analyses of the hotel sector in Madrid are carried out to identify spatial clusters of hotels and to determine what can explain the possible agglomeration of hotels in certain areas.

**Keywords** Geographic information system · Geomarketing · GIS · Hotspot analysis · Hospitality · Restaurants · Spatial analysis

### 2.1 Introduction

Traditionally, location has been considered a decisive variable in retail management and performance [31]. In the case of the hospitality and restaurant industries, the spatial location of the establishment is widely recognized as an essential component of tourism management, with the spatial component being part of the management of the supply and demand experience [30], and at both the destination and micro-geographic location level [51].

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The GIS constitutes one of the current pillars of the digital economy, shaped as a geospatial ecosystem in which the different participants and links in the value chain are coordinated. Thus, there are consolidated forums for collaboration at the different levels of the value chain. For example, the World Geospatial Industry Council brings together the geospatial industry to improve the level of collaboration with all stakeholders, including governments and policymakers.

Literature review on the use of GIS reveals that it has been mostly used for tourism planning and development, with multicriteria decision-making being the most common methodology, with an increasing use of GIS for decision-making and as a modeling tool [48]. The increasing availability and depth of geospatial data is driving new marketing methods and questions for the field [57].

Therefore, the objectives of this study are, first, to analyze the hotel industry in a geographical space and, second, to understand how geographical location is related to certain tourism marketing variables, by identifying the existence of spatial clusters of hotels. To this end, after a review of the literature on the use of GIS in the hotel and restaurant industries, an empirical study is carried out on a hotel scenario such as that of hotels located in the city of Madrid.

## 2.2 Literature Review

### 2.2.1 *GIS and Marketing*

The introduction of space to manage resources and explain business decisions has led to the emergence of a new field of study understood as an approach that seeks to optimize decisions based on the characteristics of the place where they take place. To this end, micromarketing procedures, GIS software, and geodemographics are linked, affecting any marketing domain [7]. At the terminological level, it is useful to distinguish the terms geomarketing, spatial marketing, and GIS. The first is associated with marketing decisions based on the use of location-based data, highlighting the precise location of the units analyzed with tools such as maps. The second term is more related to understanding space and the landscape, in which geospatial location is just another tool [20]. The term GIS has a more technological meaning, centered on tools for storing, obtaining, representing, and analyzing geographic data, and is used in a wide range of disciplines.

General standardization as a cost-effective strategy, on the one hand, and individually tailored offers, on the other hand, show important limitations: the former because of their revenue reduction and the latter because of the high costs involved. One option that can benefit from both extremes is customization-by-clusters [45]. Specifically, GIS has proven to be a tool that fits perfectly into this strategic alternative. In particular, the analysis of the population by where they live [19] is built on the assumption that the homogeneity of the population of a geographical area implies similar needs and purchasing behavior [8]. Connected to this marketing

domain, as analytical capabilities have been incorporated, the use of GIS has gained relevance as a key strategic planning tool for companies and public institutions involved in business planning [9]. Without being exhaustive, distinctive applications in the marketing field have been [1, 6, 36, 60, 57]:

- Selection of the most suitable sales outlets.
- Selection of the most suitable type of distribution format.
- Identification of the most efficient customer route.
- Explaining the relationship between neighborhood characteristics on the relative attractiveness of product categories within a store.
- Doing marketing research and sales forecasting.
- Managing communication media and implementing direct marketing programs.
- Finding out where customers move around using a digital map.
- Identifying where different competitors are located and which ones dominate the market.
- Measuring the performance of each branch linked to the parent company.
- Analysis of the preferred location for opening new branches.
- Optimization of logistics activities.

### ***2.2.2 GIS in the Hospitality Industry***

The hospitality industry has proven to be the main area of application of business intelligence through GIS, with interesting consequences for hospitality management. Typical uses have been research of resource inventories, location, hotel impact, or visitor flow management [26]. The consequences of GIS in hospitality are not less significant. Huebscher et al. [22] studied in Tenerife through GIS the relationship between the prices set for renting a home through Airbnb and renting homes through the traditional method and identified that the effect of the advertisements made to hire the services of accommodation impacts differently depending on the way of renting and the location of the home. After this study, Airbnb's prices and use of ads were lower per inhabitant when compared to larger cities with a wide tourist offer.

Regarding hotel location, several studies have incorporated the use of GIS when analyzing hotel location patterns [13, 16, 17, 29, 32–34, 44]. Therefore, Cró and Martins [13] analyzed the different location patterns between high-category hotels, low-category hotels, and hostels and found that while high-category hotels tend to be located near shopping centers, low-category hotels, and hostels tend to be located in areas with more nightlife attractions and higher levels of crime. Fang et al. [16] analyzed at a regional level the factors that influence hotel location in an urban destination, such as Hong Kong, and concluded that the effect of each of the factors analyzed is spatially heterogeneous depending on the region analyzed and that, in general, the effect in peripheral regions is strong and gradually decreases in the urban center. Similarly, Fang et al. [17] analyzed at the country level, spatial

correlation in the hotel location pattern, and also the factors that can influence hotel location and concluded that, while in areas of high hotel agglomeration, hotels tend to establish themselves. In areas of higher socioeconomic status, in areas with low hotel agglomeration, hotels usually look for areas with a larger urban population and are located near tourist attractions. Lee et al. [29] analyzed whether the spatial distribution of hotels is not random across the USA, and its relationship with natural and constructed amenities and confirmed that both amenities were related to the hotel spatial distribution patterns, but the relationship is stronger for constructed amenities. Li and Du [32] analyzed through GIS the hotel spatial-temporal variations from 1822 to 2012 in Manhattan, New York, and revealed that at the beginning of the twentieth century, the mid-price hotels with smaller sizes, to benefit from Times Square and Central Park, were concentrated in central Manhattan. When competition became stronger in this group, another hotel cluster appeared in Lower Manhattan to benefit from Wall Street. Li et al. [33] found that upper-grade hotels are more likely to be located in commercial areas, while lower-grade hotels are more likely to be closer to attractions, but these patterns vary over time. Luo and Yang [34] established that there is an inverted U effect in the selection of hotels with a high hotel concentration.

Qin et al. [44] analyzed the hotel location patterns of six hotel chains in China and found that although the decisions of the six chains were based on two different spatial location strategies (national and provincial), the spatial evolution of the hotel distribution of each chain over time can differ substantially. Furthermore, Chen et al. [11] investigated the relationship between regional public facilities in an area of Yilan in Taiwan with the optimal location of tourist hotels. The hotels in this area were located in optimal areas next to hot spring areas with hot springs and a place of tourist transit.

Furthermore, hotel research has also analyzed through GIS the factors that influence the economic results of hotels, mainly focusing on hotel price [21, 23, 25, 27, 49] but also to a lesser extent in hotel performance [32, 52]. Concerning hotel price, Park et al. [41] found that the impact of competition on hotel prices is U-shaped, such that hotel prices decrease the further hotels are from their competitors, up to a threshold of 20 kilometers beyond which hotel prices increase the further hotels are from the competitors. Some previous studies [21, 23, 25, 27, 49] combine the incorporation of GIS with the use of GWR to assess spatial variations in determinants of hotel price, and all of them show spatial variations of the effect of some factors on the hotel price as well as an improvement in the model fit in relation to traditional methods such as OLS. Therefore, Hernández et al. [21] concluded that the availability of a swimming pool and proximity to attractions and the nearest beach allow rural tourism accommodation to charge price premiums while a larger size of the rural house and a higher population density reduce the price. Kim et al. [25] found that despite local variations, hotel size, hotel class, online reputation, distance to airport, and distance to highway exit can allow hotels to achieve price premiums whereas an increase in distance to the top tourist attractions and hotel age can reduce hotel price. Illescas-Manzano et al. [23] studied the effect of vertical and horizontal differentiation strategies on hotel price under the confrontation between

competition and agglomeration and concluded that the more significant differentiation factors to unbalance the opposite effect of agglomeration and competition are hotel location and hotel online reputation. The results of Latinopoulos [27] showed that the effect of sea view on hotel price varies from areas where sea view is not significant to attaining a price premium to areas where sea view increases hotel price by up to 11% and distance to the nearest forest can positively impact hotel price in some areas but diminishes it in others. Similarly, Soler and Gemar [49] found that all significant determinants for hotel price geographically vary and, in some areas, they can foster hotel price, but in others, they can reduce it. Concerning hotel performance, Li and Du [32] using GIS found that hotel agglomeration and hotel competition are not significant factors for hotel performance, but hotel size, proximity to subway entrances and airports, and agglomeration next to restaurants and shopping malls can increase hotel performance, and level of hotel category and crime can decrease it. Additionally, Urtasun and Gutiérrez [52] analyzed how hotel clustering can affect hotel performance through local indicators of spatial association (LISA) concluded that although for high-resource hotels, performance decreases as the number of hotels within the same cluster increases, if they are located near other high-resource hotels of similar price and differentiated services, performance improves, being the persistent price effect over time.

### ***2.2.3 GIS in the Restaurant Industry***

One of the main areas of application of GIS has been the restaurant industry. This may be because it has been used to understand the relationship between the offer and the characteristics of the environment and the market to which that offer is directed. Thus, since the 1990s, there has been a profound change in the way of managing and planning restoration, incorporating GIS as a tool to know the physical location, relate it with other available commercial data, and link it to map data in layers (e.g., [38]). The collection of data and its analysis over time, as well as the use of GIS systems, has allowed managers, developers, and operators in the restaurant sector to know deeper their customers (e.g., [10]), analyze patterns and trends on a visual support, thus providing timely and accurate information for the decision making [46]. At the same time, research began to emerge that used GIS to test hypotheses about the relationship between location and different variables.

On the one hand, there are articles that have focused on analyzing the location of a restaurant to determine patterns of evolution and growth of restaurants according to different variables [15, 38, 42, 43, 46, 58], and [56]. The pioneering paper of Muller and Inman [38] discusses restaurant failure identifying a set of causal factors that could predict mortality in restaurants. The results obtained using GIS showed that the areas were not saturated with casual restaurants. They also suggested that the downtown areas have more than just household income as demand generators. Additionally, the study noted that transportation lines, along with more typical demand factors, should be considered when restaurants evaluate potential sites for

new locations. Similarly, in a study conducted on how economics can play a substantial role in the demise of restaurants, Parsa et al. [42] use GIS methodology to explore the effect of restaurant location and density on restaurant failures, identifying spatial patterns. Recession and economic recovery were found to significantly and differently affect restaurant failure rates depending on location, restaurant density, type of cuisine, risk level, and number of citations for code violations of health. Specifically, some types of restaurants were more likely to survive better in dense markets; although no evident relationship was found between location and failure, there is a clear pattern of restaurant failures by zip code. The study by Wang et al. [56] focuses on the lost customers to the effect of COVID-19 applying the GIS methodology to analyze the origin-destination and neighborhood characteristics of lost customers. The results of the study reveal that distance plays a role in the relationship between lost customers and the places where customers reside. Home states with shorter distances were associated with lower percentages of lost customers, while the interrelationship between lost customers and neighborhood characteristics varies across space, revealing the diverse impact of COVID-19 on consumer behavior and restaurant visits.

In relation to the patterns of evolution and growth of restaurants, the paper of Shriber et al. [46] reveals that restaurant growth and activity do not always change in direct relation to changes in population. The results obtained using the GIS system indicated that there was no clear linear relationship between the growth of sales in restaurants and the increase in population, although there exists an almost inverse relationship between changes in the population level and the propensity of residents to eat away from home. Therefore, residents in more populated and urban areas are not the ones who eat out the most frequently. Similarly, the study by Dillon et al. [15] examines the growth and spread of Mexican restaurants, applying the GIS methodology to know the diffusion and assimilation of foods of an ethnic group in areas occupied by other groups. The results showed that the growth and expansion of Mexican restaurants followed a trend that cannot be explained solely in terms of the Mexican or Hispanic population. Therefore, the growth of inexpensive fast-food chains that encouraged this group of foods led to the acceptance of these foods, which were exotic, like a family staple. The paper by Prayag et al. [43] highlights the usefulness of GIS techniques to understand location patterns of restaurant locations identifying two clustering periods as well as agglomeration within a short walk of Central Business District and indirect effects towards the north of the city. So, the results obtained allowed us to identify land use patterns in the city and potential areas to develop new restaurants. While Zhai et al. [58] mapped, using a geographic information system, the popularity of urban restaurants based on consumer review scores and physical data of restaurants to establish patterns of popularity of urban restaurants. The results showed that the restaurants of high popularity were generally concentrated in old urban districts and close to urban functional units (bank, shopping mall, school, cinema, hotel, etc.).

Other papers analyze the causal relationship between the locations of unhealthy restaurants, fast-food restaurants, and different sociodemographic variables of the populations [10], and [18], as well as their proximity to other geographic features

such as schools, parks and other attractions that provide potential customers [4, 55, 61]. Therefore, Block et al. [10] examine the geographic distribution of fast-food restaurants in relation to the type of consumers located near each restaurant. Applying the GIS methodology, they identified a correlation between the location of quick-service restaurants and low-income black areas in the United States. Furthermore, they showed a causal relationship between the location near unhealthy food sources and populations with a higher weight than expected. Similarly, Walker et al. [55] examined the density and proximity of fast-food restaurant and convenience store and levels of neighborhood median incomes using Geographic Information Systems. The results showed that the higher the income of neighborhoods, the lower the density of fast-food restaurants. In addition, schools in higher-income neighborhoods had fewer fast-food restaurants and were further away from fast-food restaurants.

Finally, regarding the proximity of fast-food restaurants with geographical characteristics such as schools or playgrounds, Burdette et al. [61] examined the relationship between child overweight and environmental variables such as fast-food restaurant proximity, playground proximity, and neighborhood safety. Within a population of low-income urban preschoolers, the results indicated that being overweight was not associated with fast-food restaurants and proximity to playgrounds or with the level of neighborhood crime. Austin et al. [4] used GIS to analyze the concentration of fast-food restaurants in areas proximal to schools. The results obtained showed that fast-food restaurants were concentrated within a short distance of schools, with 3–4 times more fast-food restaurants near schools than would be expected if restaurants were distributed throughout the city and with at least one fast-food restaurant nearby in most schools. Furthermore, Forsyth et al. [18] studied whether access to fast-food restaurants was related to the frequency of fast food. The results showed that black, Hispanic, and Native American adolescents lived near more fast-food restaurants than white and Asian adolescents and also ate at fast-food restaurants more often compared to their peers.

## 2.3 Methodology

### 2.3.1 *Empirical Setting, Sample, Variables, and Spatial Data Analysis*

In this study, we considered the hotel industry in Madrid, Spain, during the year 2021 as the study framework to apply GIS analysis to explore the structure of the hotel industry in a relevant European city. Although in 2021 the hotel industry faced the deepest crisis caused by the COVID-19 pandemic, Madrid ranked fifth among the most important European cities (Top 15 European Cities–total bed nights) with 10.93 million overnight stays, its best position during the period from 2019 to 2022 in which Madrid was one of the most important tourist cities in Europe, since it was always in the Top 10 European cities in total bed nights [50].

A hotel sample was collected using web scraping and web crawling procedures applied with R through the RCrawler package RCrawler [24]. On the one hand, due to the information about the hotel’s online reputation requiring a trusted source of information that provides reliable online reviews from real customers, we retrieved the information about the hotel’s online reputation from the international wholesaler Veturis, which only allows real customers to share their own experience in online reviews after a real stay in the hotel. Veturis is a relevant international wholesaler (Veturis was included in the “1000 Companies to inspire Europe,” London Stock Exchange Group 2017) that brings together a variety of travel agencies, so as a source of information, Veturis is comparable to online travel agencies (OTA), which have been fully employed in lodging research [25, 27, 54, 59]. Additionally, Veturis commercial areas were considered as competition areas among hotels. On the other hand, to retrieve hotel information about hotel price, hotel category, hotel size, or hotel age, we considered as the source of information the hotel’s web pages. The final sample included  $n = 158$  hotels in Madrid free from missing data with the following information:

- *Hotel Size*. This variable measures the total number of rooms in each hotel [27].
- *Hotel Age*. To measure the age of the hotel, we consider the number of years from the opening date of the hotel [47].
- *Hotel Price*. To measure the price without any alterations caused by seasonal effects or the existence of commercial events [28], we considered the yearly average daily rate (ADR) in 2021 for a standard double room in compliance with several previous studies [3, 25, 49, 53, 59]. This uniform pricing approach is more suitable than the dynamic pricing approach to evaluate a long-term pricing plan and long-term objectives [37].
- *Hotel Category*. The official hotel category ranges from one to five stars and is a vertical quality indicator widely considered in hotel research [47]. The hotel category in Madrid is assigned by government regulations of the Autonomous Community of Madrid.
- *Hotel Online Reputation*. To measure the online reputation of each hotel, we considered the yearly average customer rating review from reviews hosted in Veturis during 2021 on a 0 to 10-point scale [27, 59].
- *Hotel Differentiation*. To measure hotel differentiation in services, based on previous studies [47, 52], we considered a horizontal differentiation index based on a differentiation distance measure [12]. For a hotel  $j$ , the horizontal differentiation was computed with respect to hotels located in the same commercial area  $C_j$  of hotel  $j$  as follows:

$$\mathbf{Hotel\ Differentiation}_j = \text{sum}(V_j) \cdot \underset{l \neq j}{\text{mean}}_{l \in C_j} (d(V_j, V_l)) \quad (2.1)$$

where  $V_j$  is a vector that includes 71 dummy variables that represent the services available in the hotel  $j$  (food services, sport services, and hotel style) and  $d(V_j, V_l)$

measures the distance between  $V_j$  and  $V_l$ . This distance was set to zero when hotel  $j$  includes all services offered by the hotel  $l$ . Otherwise,  $d(V_j, V_l)$  was defined as follows:

$$d(V_j, V_l) = \left( \cos^{-1} \frac{V_j \cdot V_l}{\|V_j\| \cdot \|V_l\|} \right) / \left( \frac{\pi}{2} \right) \tag{2.2}$$

Thus, the higher the value of hotel differentiation, the higher the horizontal differentiation in the services the hotel  $j$  relates to the rest of the hotels in the same commercial area.

Finally, to develop the spatial analysis in a more suitable way, we considered the official administrative neighborhoods of the city of Madrid [5]. Table 2.1 provides the descriptive statistics for the variables included in the analysis.

To analyze the hotel industry in Madrid, a spatial analysis was performed with GIS software with QGIS software, version 3.28. To explore spatial autocorrelation in the lodging industry in Madrid, we considered a hotspot analysis with LISA statistics (Local Indicators of Spatial Association) [2]. Specifically, the LISA statistic considered in our spatial analysis was the Getis-Ord  $G_i^*$  statistic [39] that allows us to detect spatial clusters. Spatial clusters are locations where neighbor spatial units show significantly similar values for a specific variable, i.e., locations where significant positive spatial autocorrelation appears. The Getis-Ord  $G_i^*$  statistic allows us to identify two types of spatial clusters, hotspots or HH (high-high) clusters and cold spots or LL (low-low) clusters. Hotspots are areas with units that show high values for an observed variable surrounded by other units with also high values, and cold spots are areas that include units' low values surrounded by other units with also low values.

To analyze the hotel industry in Madrid, a spatial analysis was performed with GIS software with QGIS software, version 3.28. To explore if the study variables in lodging industry in Madrid show spatial autocorrelation, we considered a Hotspot Analysis with LISA statistic (Local Indicators of Spatial Association) [2]. The LISA statistics allow us to detect the existence of significant local autocorrelation patterns (called hotspots) in the spatial distribution of a study variable and finally units can be classified in spatial clusters that are locations where neighbor spatial units show significant similar values for a specific variable, i.e., locations where significant

**Table 2.1** Sample descriptive statistics

Variable	Min	Max	Median	Mean	St. dev.
Hotel size	20	1500	109.5	157.1	174.076
Hotel age	7	138	18	20.090	12.987
Hotel price	45.61	1257.06	108.080	132.940	113.045
Hotel category	1	5	4	3.690	0.657
Hotel online reputation	5.700	9.600	7.900	7.827	0.691
Hotel differentiation	0	3.464	1.414	1.466	0.873



positive spatial autocorrelation appears. Specifically, the LISA statistic considered in our spatial analysis was the Getis-Ord  $G_i^*$  statistic [39] which formulation is given by (2.3):

$$G_i^* = \frac{\sum_k w_{ik} \cdot x_k}{\sum_k x_k} \quad (2.3)$$

with  $x_k$  denotes the value of the study variable at the  $k_{th}$  unit and the matrix  $w_{ik}$  is a symmetric spatial weight matrix [14, 40]. The Getis-Ord  $G_i^*$  statistic allows us to identify two types of spatial clusters, hotspots or HH (High-High) clusters and cold spots or LL (Low-Low) clusters. Hotspots are areas with units that show high values for an observed variable surrounded by other units with also high values, and cold spots are areas that include units' low values surrounded by other units with also low values. A significant positive Z-score from Getis-Ord  $G_i^*$  statistic indicates a hotspot while a significant negative Z-score of Getis-Ord  $G_i^*$  statistic indicates a cold spot [14, 40].

## 2.4 Results

We performed a hotspot analysis with Getis-Ord  $G_i^*$  statistic with all variables included in the hotel sample. Figures 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6 display the results of the hotspot analysis for each variable. Figure 2.1 shows the spatial cluster in Madrid for the variable Hotel Size. It shows a large cold spot that extends through the central districts of Madrid, while hotspots are observed in the districts located to the north and Northeast. Thus, in these areas of Madrid, there is a significant concentration of larger hotels, while in the areas of the city center, smaller hotels are significantly concentrated.

Regarding *Hotel Age*, from Fig. 2.2 we can observe that the hotels in Madrid are located randomly and there are no significant spatial autocorrelations.

Figure 2.3 displays the hotspot analysis for *hotel price* and shows the existence of a large hotspot significant at 90% level that extends through the central districts of Madrid. Thus, hotels grouped in the city center tend to charge price premiums as they are located in more attractive locations for tourists.

Regarding the *hotel category*, Fig. 2.4 shows a situation very similar to the hotel size variable, with the existence of a large coldspot that occupies the entire central part of the city, while in the north the hotels with larger category are significantly concentrated. As with the hotel size, there is a hotspot in the Northeast area, although in this case it is located near the central districts. Thus, the price premium achieved by hotels in central districts is not due to a higher hotel category.

Concerning *online reputation*, from Fig. 2.5, we can again find the existence of a coldspot in the central districts of Madrid and a hotspot that extends in the northern area of the city. In this way, hotels concentrated in central districts tend to be worse

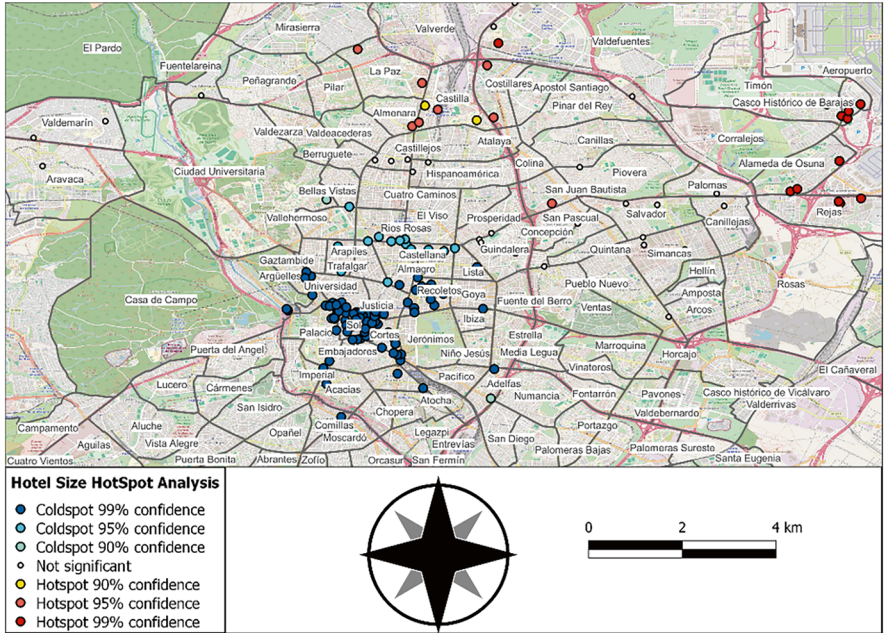


Fig. 2.1 Hotspot analysis for hotel size

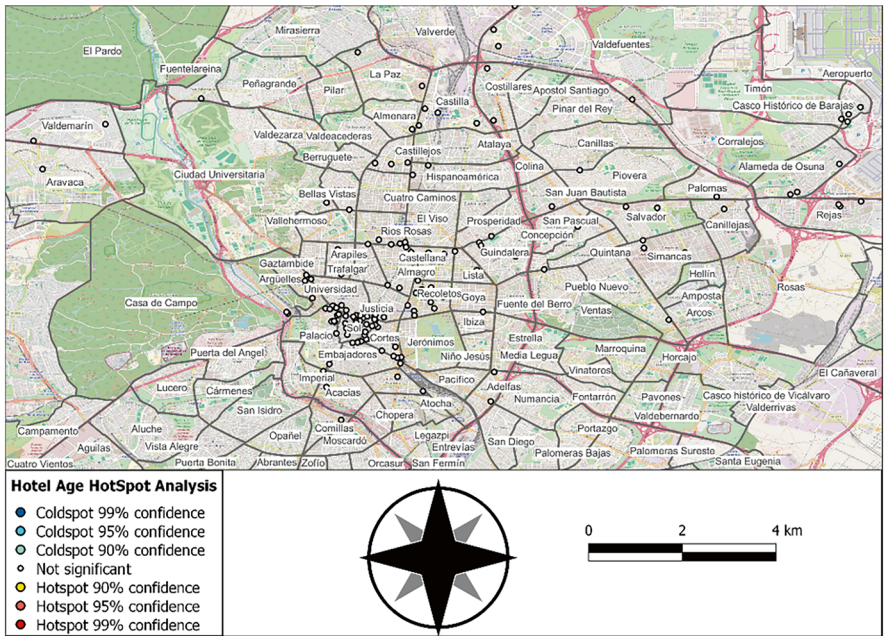


Fig. 2.2 Hotspot analysis for hotel age

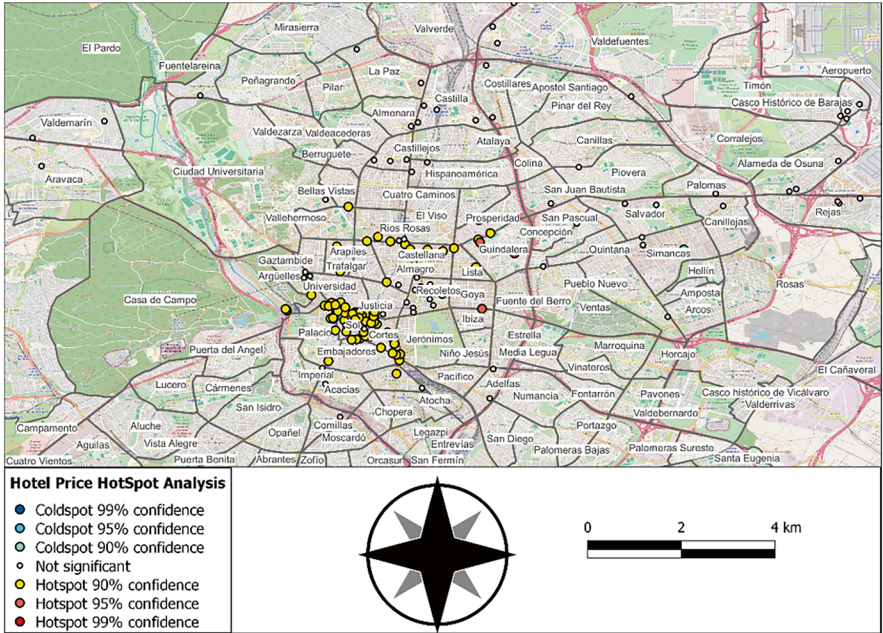


Fig. 2.3 Hotspot Analysis for hotel price

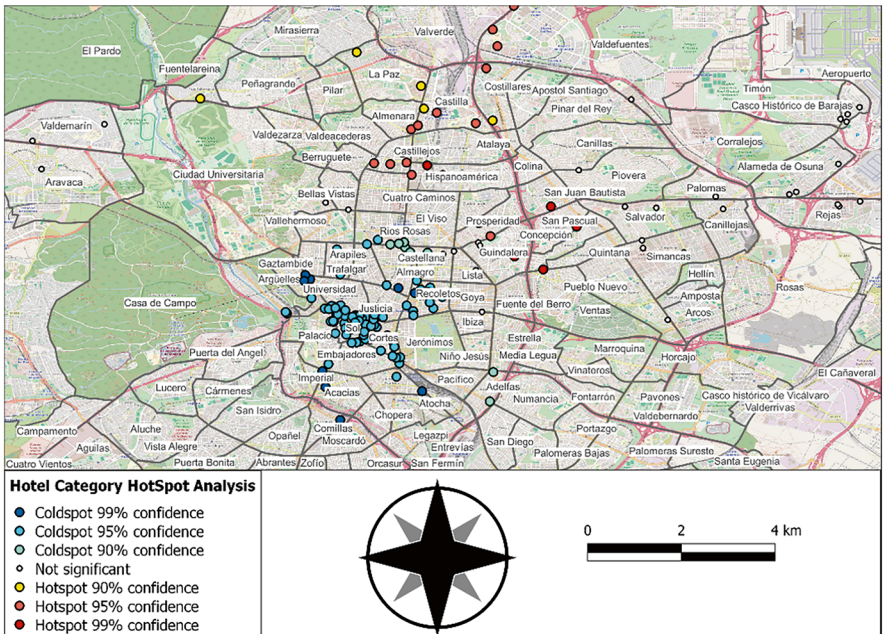


Fig. 2.4 Hotspot analysis for hotel category

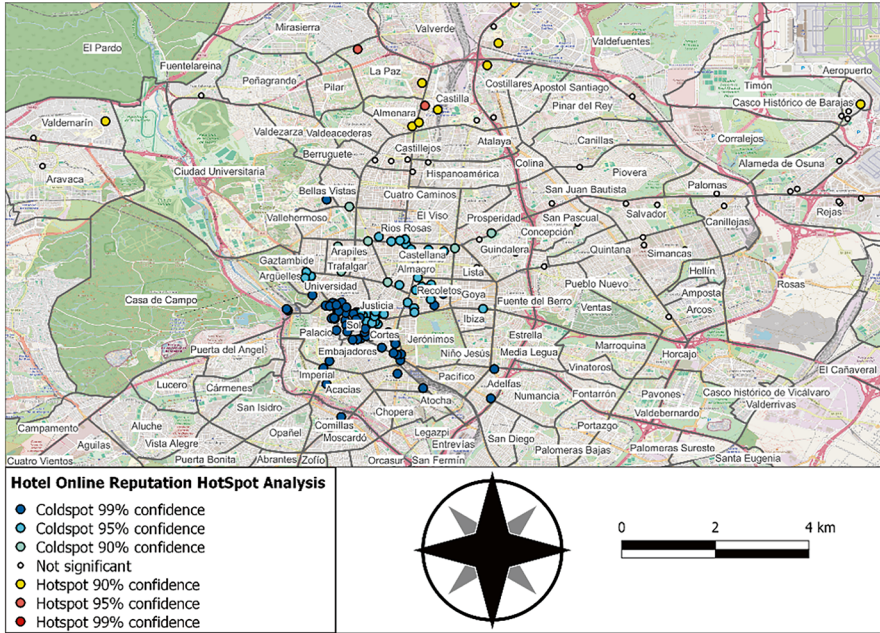


Fig. 2.5 Hotspot analysis for hotel online reputation

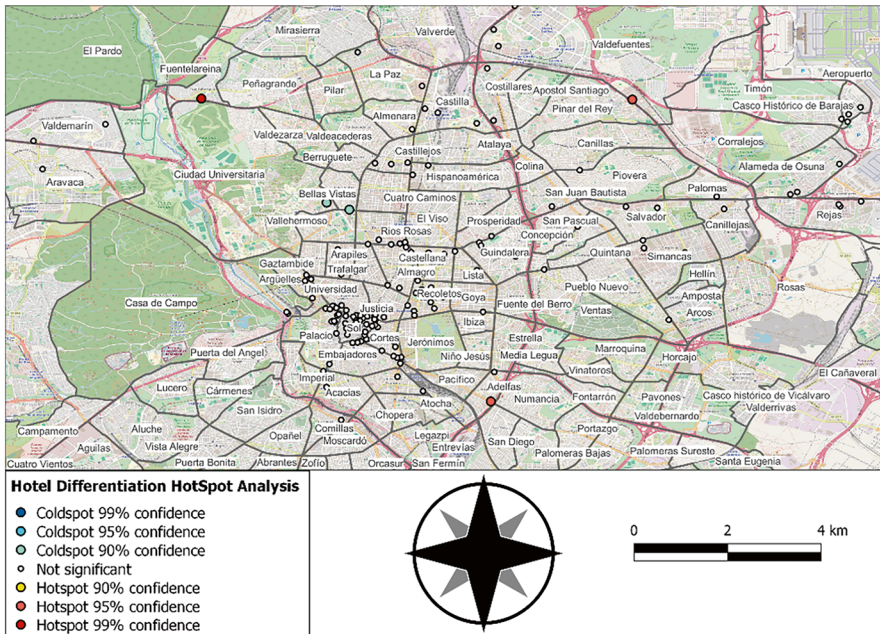


Fig. 2.6 Hotspot analysis for hotel differentiation

valued by customers, while hotels in the northern districts tend to be better valued. Therefore, the price premium observed in hotels concentrated in the central part of the city does not correspond to the level of service quality perceived by customers.

Finally, with respect to hotel differentiation (Fig. 2.6), with limited exceptions, the location of the hotels does not show spatial correlation with respect to differentiation. Therefore, the differentiated hotels are geographically randomly located.

On one hand, results from Figs. 2.1, 2.2, 2.3, 2.4, 2.5 and 2.6 show that in the central districts of Madrid, there are concentrated hotels of small size, low category, and low online reputation that set price premiums for their rooms, and since they are hotels with low category and low online reputation, this price premium achieved is due to the fact that the main competitive advantage of these hotels is their location in the central districts of Madrid that are most attractive to tourists. On the other hand, these maps also show that hotels concentrated in the northern part of the city are larger, have a higher hotel category and tend to be better evaluated by customers, and do not show the price premiums of the hotels located in the central districts. Thus, the main competitive advantages of hotels in the northern area are their greater capacity to accommodate guests and offering better quality at a lower price than hotels in the central area of the city, and hence these hotels can compensate for their poor location and compete with hotels in the central districts. In the Northeastern area, next to the central districts, there is also a concentration of higher-category hotels that try to offer higher quality than the hotels in the central districts to attract guests. Finally, also in the Northeastern districts of the city near the Barajas airport, there is a significant concentration of larger hotels.

## 2.5 Conclusions and Discussion

### 2.5.1 *Theoretical and Managerial Implications*

In this paper, we carry out an analysis of the use of GIS in the hospitality and catering industries, both in terms of theoretical and empirical review. Beginning their application in these industries in the 1990s, GIS has only grown, both in terms of the volume of data and the type of variables considered. Thus, the literature review reveals an evolution of the data from exclusively Census Bureau, to also include directories and, web listings, and, more recently, online travel agents. Also, initially, the explanatory variables were concentrated on economic and demographic data, with more and more decisional variables being progressively added.

Geospatial analysis has made it possible to characterize the hotel offer on a geographical level, characterizing each hotel in relation to its geographical location. We explore the features and marketing variables of different hotels to identify those that could explain similar strategic behavior among hotels. In particular, size, category, online reputation, and price allow us to explain spatial concentrations of similar hotels in terms of these variables. The age of the hotels and the level of

differentiation did not show a defined pattern of location, which was distributed throughout the city. Thus, certain areas of Madrid concentrate a high number of hotels in terms of the number of rooms, category, price level, or reputation. These results support the benefits of agglomeration and the externalities generated [35]. Specifically, a location strategy orientated toward the proximity of establishments with a similar strategy has been detected. And from the point of view of supply, the city center is a preferred location for hotels of a lower category and online reputation, in contrast to other areas (north and northeast), which are preferred by larger, higher category hotels.

Location is a key component of hospitality management, and the ubiquitous availability of Internet-connected devices provides an opportunity for more realistic analyses, continuous updates, tailored marketing programs, and better calibration of decision parameters. In addition, GIS can bring together different data sources, with a wealth of data types (e.g., maps). In fact, they are a more realistic way to assess competition. For consumers, GIS constitutes an information system that facilitates consumer choice and evaluation processes. The benefits of GIS are especially valuable for approaching densely populated areas.

The methodology implemented, which is based on spatial analysis, constitutes a valuable approach for crowded areas with a wide and diverse supply. It allows to evaluate the adequacy of the offer to the relevant geographic market, especially the extended offer. It also provides an alternative methodology for analyzing competition. One of the most relevant utilities is the identification and valuation of externalities, with the growing wealth of map data available (e.g., OpenStreetMap). In addition, it is worth highlighting the value of the visualization of alternatives. Finally, the analytical approach developed allows hospitality managers and industry stakeholders, in general, to carry out up-to-date competitive analysis, facilitating agile decision-making.

### ***2.5.2 Limitations and Future Research***

The possibility of including other variables from the hotel environment represents the main limitation of this article and constitutes a future research opportunity. In particular, the existence of commercial, business, tourism, and leisure infrastructure near the hotel may help to explain the location of certain hotel clusters in certain areas of the city. That is to say, to determine the degree of influence of the environment on the location of hotels. Likewise, the inclusion of variables characteristic of hotel marketing, such as belonging to a chain or the type of hotel marketing channel, are decisions whose impact it would be desirable to know. Finally, this analysis is intended to be carried out in other cities and countries to generalize the results and assess differential factors.

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## References

1. Allo, N. B. (2010). *Disaggregating the Nigerian postcode: A step to creating an environment for Geo-marketing in Nigeria*. In GIS Research UK (GISRUK) 2010 conference. University College London.
2. Anselin, L. (1995). Local indicators of spatial association – LISA. *Geographical Analysis*, 27(2), 93–115.
3. Arora, S. D., & Mathur, S. (2020). Hotel pricing at tourist destinations—A comparison across emerging and developed markets. *Tourism Management Perspectives*, 35, 100724.
4. Austin, S. B., Melly, S. J., Sanchez, B. N., Patel, A., Buka, S., & Gortmaker, S. L. (2005). Clustering of fast food restaurants around schools: A novel application of spatial statistics to the study of food environments. *American Journal of Public Health*, 95(9), 1575–1581.
5. Ayuntamiento de Madrid. (2024). *Límites de los Barrios Administrativos de Madrid*. <https://datos.madrid.es/portal/site/egob/menuitem.c05c1f754a33a9f9be4b2e4b284f1a5a0/?vgnextoid=46b55cde99be2410VgnVCM1000000b205a0aRCRD&>. Last accessed 2024/01/09.
6. Banerjee, S. (2019). *Geo-marketing and situated consumers: Opportunities and challenges*. In Proceedings of the 3rd ACM SIGSPATIAL International workshop on location-based recommendations, geosocial networks and geoadvertising. ACM.
7. Baray, J., & Pelé, M. (2020). A new geographical pricing model within the principle of geomarketing-mix. *Recherche et Applications en Marketing (English Edition)*, 35(3), 29–51.
8. Birkin, M. (1995). Customer targeting, geodemographics and lifestyles approaches. In P. Longley & G. Clarke (Eds.), *GIS for business and service planning* (pp. 104–149). Longman.
9. Birkin, M., Clarke, G. P., & Clarke, M. (1999). GIS for business and service planning. *Geographical Information Systems*, 2, 709–722.
10. Block, J. P., Scribner, R. A., & DeSalvo, K. B. (2004). Fast food, race/ethnicity, and income: A geographic analysis. *American Journal of Preventive Medicine*, 27(3), 211–217.
11. Chen, Y. C., Yao, H. L., Weng, S. D., & Tai, Y. F. (2022). An analysis of the optimal facility location of tourism industry in plain region by utilizing GIS. *SAGE Open*, 12(2), 21582440221095020.
12. Chisholm, D. C., McMillan, M. S., & Norman, G. (2010). Product differentiation and film-programming choice: Do first-run movie theatres show the same films? *Journal of Cultural Economics*, 34, 131–145.
13. Cró, S., & Martins, A. M. (2018). Hotel and hostel location in Lisbon: Looking for their determinants. *Tourism Geographies*, 20(3), 504–523.
14. De Smith, M. J., Goodchild, M. F., & Longley, P. (2007). *Geospatial analysis: A comprehensive guide to principles, techniques and software tools*. Troubador.
15. Dillon, J. S., Burger, P. R., & Shortridge, B. G. (2007). The growth of Mexican restaurants in Omaha, Nebraska. *Journal of Cultural Geography*, 24(1), 37–65.
16. Fang, L., Li, H., & Li, M. (2019). Does hotel location tell a true story? Evidence from geographically weighted regression analysis of hotels in Hong Kong. *Tourism Management*, 72, 78–91.
17. Fang, L., Xie, Y., Yao, S., & Liu, T. (2021). Agglomeration and/or differentiation at regional scale? Geographic spatial thinking of hotel distribution—A case study of Guangdong, China. *Current Issues in Tourism*, 24(10), 1358–1374.

18. Forsyth, A., Wall, M., Larson, N., Story, M., & Neumark-Sztainer, D. (2012). Do adolescents who live or go to school near fast-food restaurants eat more frequently from fast-food restaurants? *Health & Place, 18*(6), 1261–1269.
19. Harris, R., Sleight, P., & Webber, R. (2005). *Geodemographics, GIS and neighbourhood targeting* (Vol. 7). Wiley.
20. Hatan, S., Fleischer, A., & Tchetchnik, A. (2021). Economic valuation of cultural ecosystem services. The case of landscape aesthetics in the agritourism market. *Ecological Economics, 184*, 107005.
21. Hernández, J. M., Suárez-Vega, R., & Santana-Jiménez, Y. (2016). The inter-relationship between rural and mass tourism: The case of Catalonia, Spain. *Tourism Management, 54*, 43–57.
22. Huebscher, M., Schulze, J., Lage, F. Z., & Ringel, J. (2020). The impact of Airbnb on a non-touristic city. A case study of short-term rentals in Santa Cruz de Tenerife (Spain). *Erdkunde, 3*, 19.
23. Illescas-Manzano, M. D., Martínez-Puertas, S., Marín-Carrillo, G., & Marín-Carrillo, M. B. (2023). Dynamics of agglomeration and competition in the hotel industry: A geographically weighted regression analysis based on an analytical hierarchy process and geographic information systems (GIS) data. *Oeconomia Copernicana, 14*(1), 213–252.
24. Khalil, S., & Fakir, M. (2017). RCrawler: An R package for parallel web crawling and scraping. *SoftwareX, 6*, 98–106.
25. Kim, J., Jang, S., Kang, S., & Kim, S. (2020). Why are hotel room prices different? Exploring spatially varying relationships between room price and hotel attributes. *Journal of Business Research, 107*, 118–129.
26. Kisilevich, S., Keim, D., & Rokach, L. (2013). A GIS-based decision support system for hotel room rate estimation and temporal price prediction: The hotel brokers' context. *Decision Support Systems, 54*(2), 1119–1133.
27. Latinopoulos, D. (2018). Using a spatial hedonic analysis to evaluate the effect of sea view on hotel prices. *Tourism Management, 65*, 87–99.
28. Lee, S. K. (2015). Quality differentiation and conditional spatial price competition among hotels. *Tourism Management, 46*, 114–122.
29. Lee, K. H., Kang, S., Terry, W. C., & Schuett, M. A. (2018). A spatial relationship between the distribution patterns of hotels and amenities in the United States. *Cogent Social Sciences, 4*(1), 1444918.
30. Lee, Y., Pennington-Gray, L., & Kim, J. (2019). Does location matter? Exploring the spatial patterns of food safety in a tourism destination. *Tourism Management, 71*, 18–33.
31. Levy, M., Weitz, B. A., & Grewal, D. (2013). *Retailing management* (9th ed.). McGraw-Hill Education.
32. Li, Y., & Du, T. (2018). Assessing the impact of location on hotel development: An analysis of Manhattan hotels, 1822–2012. *Papers in Applied Geography, 4*(1), 21–33.
33. Li, M., Fang, L., Huang, X., & Goh, C. (2015). A spatial-temporal analysis of hotels in urban tourism destination. *International Journal of Hospitality Management, 45*, 34–43.
34. Luo, H., & Yang, Y. (2016). Intra-metropolitan location choice of star-rated and non-rated budget hotels: The role of agglomeration economies. *International Journal of Hospitality Management, 59*, 72–83.
35. McCann, B. T., & Folta, T. B. (2009). Demand-and supply-side agglomerations: Distinguishing between fundamentally different manifestations of geographic concentration. *Journal of Management Studies, 46*(3), 362–392.
36. Mitchell, V. W., & McGoldrick, P. J. (1994). The role of geodemographics in segmenting and targeting consumer markets: A Delphi study. *European Journal of Marketing, 28*(5), 54–72.
37. Mitra, S. K. (2020). An analysis of asymmetry in dynamic pricing of hospitality industry. *International Journal of Hospitality Management, 89*, 102406.
38. Muller, C. C., & Inman, C. (1994). The geodemographics of restaurant development. *Cornell Hotel and Restaurant Administration Quarterly, 35*(3), 88–95.



39. Ord, J. K., & Getis, A. (1995). Local spatial autocorrelation statistics: Distributional issues and an application. *Geographical Analysis*, 27(4), 286–306.
40. Oxoli, D., Prestifilippo, G., & Bertocchi, D. (2017). Enabling spatial autocorrelation mapping in QGIS: The hotspot analysis plugin. *GEAM. Geoingegneria Ambientale E Mineraria*, 151(2), 45–50.
41. Park, C., Kim, Y. R., & Frye, W. D. (2022). Keeping the competition close: The impact of competitor distance in the lodging industry. *International Journal of Tourism Research*, 24(3), 400–412.
42. Parsa, H. G., Kreeger, J. C., van der Rest, J. P., Xie, L. K., & Lamb, J. (2021). Why restaurants fail? Part V: Role of economic factors, risk, density, location, cuisine, health code violations and GIS factors. *International Journal of Hospitality & Tourism Administration*, 22(2), 142–167.
43. Prayag, G., Landré, M., & Ryan, C. (2012). Restaurant location in Hamilton, New Zealand: Clustering patterns from 1996 to 2008. *International Journal of Contemporary Hospitality Management*, 24(3), 430–450.
44. Qin, J., Qin, Y., & Liu, C. (2023). Location and regionalization patterns of hotel chains: Evidence from China. *Tourism Geographies*, 25(2–3), 729–755.
45. Rigby, D. K., & Vishwanath, V. (2006). Localization – The revolution in consumer markets. *Harvard Business Review*, 84(4), 82–148.
46. Shriber, M., Muller, C., & Inman, C. (1995). Population changes and restaurant success. *Cornell Hotel and Restaurant Administration Quarterly*, 36(3), 43–49.
47. Silva, R. (2015). Multimarket contact, differentiation, and prices of chain hotels. *Tourism Management*, 48, 305–315.
48. Singh, P. (2015). Role of geographical information systems in tourism decision making process: A review. *Information Technology & Tourism*, 15, 131–179.
49. Soler, I. P., & Gemar, G. (2018). Hedonic price models with geographically weighted regression: An application to hospitality. *Journal of Destination Marketing & Management*, 9, 126–137.
50. Statista. (2023). *Leading city tourism destinations in Europe from 2019 to 2022, by number of bed nights*. <https://www.statista.com/statistics/314340/leading-european-city-tourism-destinations-by-number-of-bednights/>. Last accessed 2024/01/21.
51. Urtasun, A., & Gutiérrez, I. (2006). Hotel location in tourism cities: Madrid 1936–1998. *Annals of Tourism Research*, 33(2), 382–402.
52. Urtasun, A., & Gutiérrez, I. (2017). Clustering benefits for upscale urban hotels. *International Journal of Contemporary Hospitality Management*, 29(5), 1426–1446.
53. Viglia, G., & Abrate, G. (2017). When distinction does not pay off—investigating the determinants of European agritourism prices. *Journal of Business Research*, 80, 45–52.
- 54.
55. Walker, R. E., Block, J., & Kawachi, I. (2014). The spatial accessibility of fast food restaurants and convenience stores in relation to neighborhood schools. *Applied Spatial Analysis and Policy*, 7, 169–182.
56. Viglia, G., Minazzi, R., & Buhalis, D. (2016). The influence of e-word-of-mouth on hotel occupancy rate. *International Journal of Contemporary Hospitality Management*, 28(9), 2035–2051.
57. Wang, S., Wang, R., Huang, X., Li, Z., & Bao, S. (2023). A GIS-based analytical framework for evaluating the effect of COVID-19 on the restaurant industry with big data. *Big Earth Data*, 7(1), 37–58.
57. Wichmann, J. R., Scholdra, T. P., & Reinartz, W. J. (2023). Propelling international marketing research with geospatial data. *Journal of International Marketing*, 31(2), 82–102.
58. Zhai, S., Xu, X., Yang, L., Zhou, M., Zhang, L., & Qiu, B. (2015). Mapping the popularity of urban restaurants using social media data. *Applied Geography*, 63, 113–120.
59. Zhang, Z., Ye, Q., & Law, R. (2011). Determinants of hotel room price: An exploration of travellers' hierarchy of accommodation needs. *International Journal of Contemporary Hospitality Management*, 23(7), 972–981.

- 60. Verhetsel, A. (2005). Effects of neighbourhood characteristics on store performance supermarkets versus hypermarkets. *Journal of Retailing and Consumer Services*, 12(2), 141–150.
- 61. Burdette, H. L., & Whitaker, R. C. (2004). Neighborhood playgrounds, fast food restaurants, and crime: relationships to overweight in low-income preschool children. *Preventive Medicine*, 38(1), 57–63.

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# Chapter 3

## Analyzing the Relationship Between Healthcare Quality and Patient Satisfaction in the Case of Spain: Some Panel Data Evidence



Paula Ortega Peralas , Salvador Cruz Rambaud ,  
and Javier Sánchez García 

**Abstract** One of the major concerns of every national government is to achieve the effectiveness of the healthcare system and understanding the efficiency of a system in terms of patient satisfaction. Currently, quality of care is the main driver of patient satisfaction, and their relationship has been widely studied in recent years mainly due to the COVID-19 pandemic. The main objective of this work is to demonstrate the relationship between quality and satisfaction in the case of Spain and to determine which quality indicators in healthcare affect patient satisfaction. The data analyzed correspond to the 17 regions of Spain from 2007 to 2019. The methodology used is based on dynamic panel data with a two-step generalized method of moments applied in the regression models. The results show that hospital mortality is the only quality variable affecting patient satisfaction in a negative way. The main contribution of the work is to empirically test the relationship between these two variables in the case of Spain by taking into account the differences between regions. For further research, other quality measures and satisfaction indices should be implemented in order to complete the recent work.

**Keywords** Patient satisfaction · Healthcare quality · Panel data · GMM estimator

### 3.1 Introduction

Patients are considered to be at the center of every national health system. Over the years, consumer satisfaction has gained growing importance as a measure of the effectiveness of the system [16, 21]. In the beginning, the reason for improving patient satisfaction was a secondary objective, not more important than increasing

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economic benefits. Nowadays, it is a major concern of healthcare professionals and national governments. The most relevant driver of patient satisfaction and the most studied in the existing literature seems to be quality of care (also labeled as healthcare quality). Healthcare quality exhibits several dimensions affecting patients, which vary across different countries depending on cultural and social factors [20]. In spite of the efforts to evaluate which quality factors are the best to take care of and the connotations with consumer satisfaction, the question remains unsolved.

Currently, satisfying patients has become more difficult as health consumers are more aware and knowledgeable, continuously demanding more attention and better services [18]. Satisfying health consumers is, indeed, a challenge for medical services. Studies on the implications of this relationship reveal that there is a direct and positive link between technical quality dimensions and patient satisfaction [9]. Take into account that health systems are composed of a set of technical resources for which public expenditure must be taken care of since they are the most determinant for patients. Other studies focus on the functional part of quality, which is often more difficult to measure by health professionals.

In the case of Spain, health is provided by the Spanish National Health System and financed by taxes and funds from citizens [5]. Golinelli et al. [10] claim the difficulty of reaching high-quality standards and the efficiency required by a decentralized system where every region has its own budget and makes completely different decisions when applying health policies. Moreover, recent disruptions of COVID-19 have exacerbated the previously existing problems [14].

The objective of the study is to analyze the link between patient satisfaction and healthcare quality in the Spanish healthcare system by studying the differences between the 17 regions of Spain in the period 2007–2019. The findings show the direct and negative effect of the in-hospital mortality on patient satisfaction. However, other quality dimensions do not have any effect on patients according to the regression models. Thus, the main contribution of this study is twofold. Firstly, it empirically tests, by using a reliable and robust estimator, the relationship between patient satisfaction and healthcare quality according to its technical perspective. Secondly, it reveals which factors have been more important to patients in the case of Spain, taking into account the Great Recession.

Finally, the structure of the work can be defined as follows. In Sect. 2, the theoretical background is discussed. Section 3 describes the methodology and the description of the data. In Sect. 4, the results and discussion of the study are presented. Finally, Sect. 5 summarizes and concludes.

## 3.2 Theoretical Background

Whereas patients are the priority of health practitioners, policymakers try to control their experiences [12]. Heterogeneous perspectives have tried to shed light on the relationship between healthcare quality and patient satisfaction. However, the question is still unanswered. The challenge of an efficient healthcare system is more

difficult to be solved than in the past. Alibrandi et al. [1] reaffirm the existence of different dimensions of quality of care affecting patient experiences and, therefore, claim the increasing difficulty of paying attention to all of them. For this reason, health professionals must know which main drivers to focus on them are. Several studies affirm that the functional dimensions of quality are the ones to be taken into account, while other authors change their perspective and associate technical factors with patient satisfaction instead of functional aspects. For example, Fatima et al. [8] take into account for their study that communication with patients, safety, and information as the main drivers of patient satisfaction. In contrast, Atinga et al. [4] make technical factors responsible for patient satisfaction without giving an important role to service indicators. Finally, most of the emerging literature around the topic concluded in the SERVQUAL [2, 15] or 5Q models [22]. These two models contain several perspectives of quality that correspond to the technical and functional dimensions of quality of care.

Other researchers have investigated the connotations between certain sociocultural contexts. From the results, it can be extracted the obvious role of demographics and culture. Sociodemographic factors are often interlinked with the relationship between quality of care and patient satisfaction. Verma et al. [20] emphasize the noticeable fact of demographic factors. In their study, they analyze the association of quality determinants with patients and, compared with other studies, the results are completely different. In the study of Turkey, functional dimensions are the best option for consumers but, in the case of China, they prefer technical aspects. Results invite policymakers to investigate possible social differences to satisfy patients according to their context. By understanding which dimensions of quality are important in each country, policymakers will better perform their tasks.

The real problem is to unveil the solutions to reach the effectiveness of the health service. As explained in the first paragraph, there are contradictions between researchers. Ciasullo et al. [7] established a relationship between waiting times and patient health status, emphasizing the functional parts of clinical quality. On their part, Senapati and Panda [14] state that achieving and augmenting healthcare quality affect several dimensions at the same time, not only service aspects. Verma et al. [20] detail the link between communication and the interaction of doctors with satisfaction, while Soares and Farhangmehr [17] stress the existing link between the physical environment and patient experiences in hospitals. Furthermore, García-Corchero and Jiménez-Rubio highlight technical aspects, such as the expertise of the doctor, with patient satisfaction in a positive way. In this study, it can be seen that, especially in the case of Spain where health is universal for all inhabitants, not achieving certain quality standards can result in an increase of deaths, several diseases and, most importantly, bad patient experiences. The case of Spain must be reviewed in detail as the decentralized system makes it more difficult to treat patients equally in all regions and with the same resources.

To summarize, satisfying patients is one of the main objectives of governments, whereby public resources must be invested in increasing healthcare quality in hospitals. On the other hand, surveying consumer experiences can enforce public health by pushing health practitioners to be aware of the quality of their services. To do

this, scarce resources should be used in the best way in order to reach patient satisfaction.

In the case of Spain, the healthcare system is public and universal for all inhabitants [9]. This fact enforces the importance of the study, as the Spanish government should look for solutions that increase patient satisfaction and the quality of healthcare services.

### 3.3 Methodology

#### 3.3.1 Econometric Modelling

In Table 3.1, the description of the variables has been presented. The choice of the quality dimensions is based on the existing and most recent literature. The variables contain technical parameters in the definition of healthcare quality:

$$Y_{i,t} = \beta_0 + \alpha_1 Y_{i,t-1} + \alpha_2 Y_{i,t-2} + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \dots + \beta_k X_{k,it} + \mu_i + \epsilon_{i,t} \quad (3.1)$$

where  $Y_{i,t}$  is the dependent variable for region  $i$  at time  $t$  and  $Y_{i,t-1}$  and  $Y_{i,t-2}$  are the lagged values used as other independent variables. Along with lagged values, the independent variables have been completed by  $X_{1,it}, \dots, X_{k,it}$ , the region-specific effects are collected by  $\mu_i$ , and the error term is given by  $\epsilon_{i,t}$ . The symbol  $\beta$  represents the estimated coefficient of each exogenous variable and the parameters  $\alpha_i$  denote the coefficients of the lagged values of the dependent variable.

Using the variables in Table 3.1, the econometric model can be specified as follows:

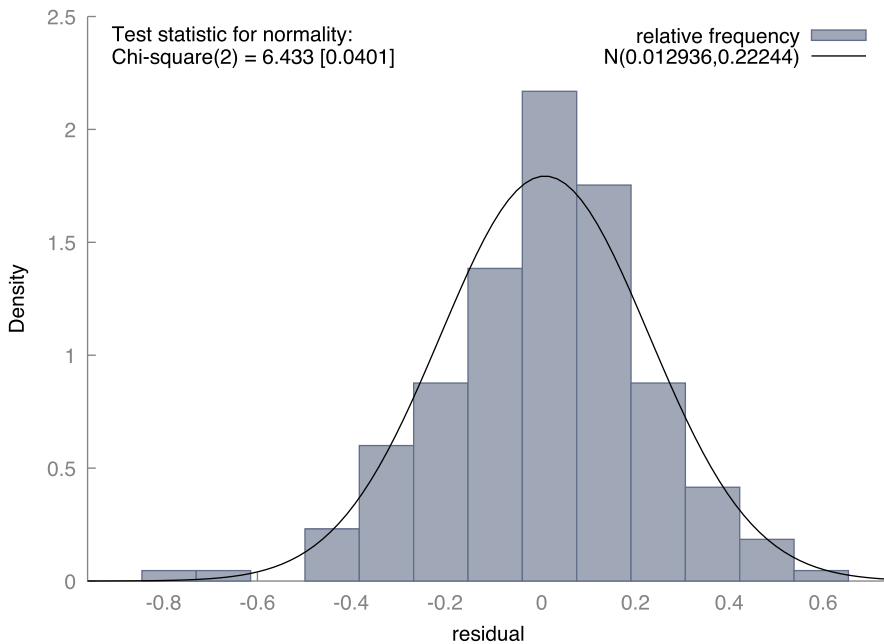
**Table 3.1** Definition of variables\*

Name of variable	Symbol	Definition
<i>Patient satisfaction</i>	<i>Sati,t</i>	Patient global satisfaction in public hospitals in region $i$ at time $t$
<i>Beds</i>	<i>Bedsi,t</i>	Number of beds in hospitals per 1000 inhabitants in region $i$ at time $t$
<i>Readmissions</i>	<i>READi,t</i>	Overall percentage of readmissions to acute care hospitals in region $i$ at time $t$
<i>Physicians</i>	<i>Phii,t</i>	Number of physicians in primary attention per 1000 inhabitants in region $i$ at time $t$
<i>Hospital Mortality</i>	<i>HMorti,t</i>	Overall in-hospital mortality per 100 hospital discharges in region $i$ at time $t$
<i>Specialists</i>	<i>Spi,t</i>	Medical personnel in specialized care per 1000 inhabitants in region $i$ at time $t$
<i>Medical Devices</i>	<i>MDevi,t</i>	Number of technical devices in hospitals per 1.000 inhabitants in region $i$ at time $t$

Source: Own elaboration

$$\begin{aligned}
 Sat_{i,t} = & \beta_0 + \beta_1 Sat_{t-1} + \beta_2 Sat_{t-2} + \beta_3 PBed_{i,t} + \beta_4 READ_{i,t} + \beta_5 Phi_{i,t} + \\
 & \beta_6 HMort + \beta_7 HMort_{i,t-1} + \beta_8 Sp_{i,t} + \beta_9 MDev_{i,t} + \mu_i + \epsilon_{i,t}
 \end{aligned}
 \tag{3.2}$$

As can be seen in Eq. (3.2), the lagged values of the independent variables are used as instruments of the two-step GMM model [3]. In the regression model, patient satisfaction is taken as the dependent variable of the model. The exogenous variables representing quality factors are the number of beds in hospitals, the overall percentage of readmissions to acute care hospitals, the number of physicians of primary attention, the in-hospital mortality, the medical personnel in specialized care, and finally the medical technical devices in hospitals. The validity of the instruments is proved by the Hansen and Sargan test [11, 13], which shows that the error term is not correlated with the independent variables. Furthermore, there is no heteroskedasticity as the standard errors of the coefficients are normal (see Figs. 3.1 and 3.2) and, therefore, the model is robust for inferences. The main advantage of the GMM estimator is the absence of endogeneity, autocorrelation, and normality of residuals. The GMM estimator eliminates the correlation of the explanatory variables with the error term [19]. Finally, the difference between Model 1 and Model 2 is the addition of 2 years lagged value of patient satisfaction.



**Fig. 3.1** Normality test for Model 1. Data is normally distributed

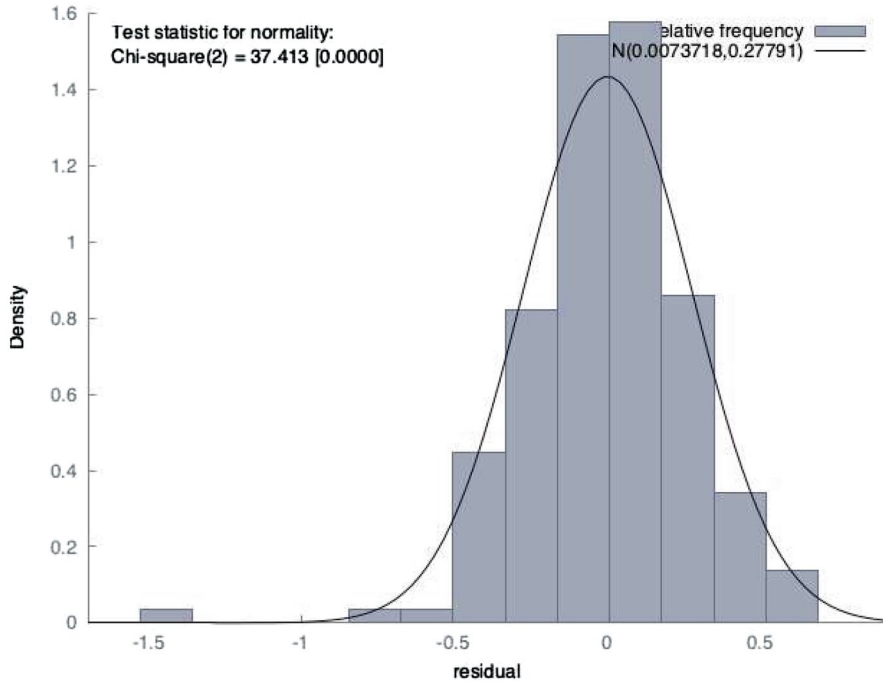


Fig. 3.2 Normality test for Model 1. Data is normally distributed

### 3.3.2 Descriptive Data Analysis

Table 3.1 shows the descriptive analysis of data. As can be seen, the variables that vary the most are satisfaction, beds, medical devices, and hospital mortality. Specifically, in some regions of Spain, there are double the number of beds per 1000 inhabitants than in others. The number of physicians exhibits a scarce value in all regions of Spain, the mean being less than one per 1000 inhabitants, while specialists are 1.8 per 1000 inhabitants. With respect to fat tails, in the case of hospital mortality, medical devices, and physicians, there is a higher concentration of data around the mean whereas, in the other variables as can be seen with kurtosis, there is a lower centrality of the data.

There are some specifications to be taken into account when interpreting the variables. Specifically, some of the variables have been taken as proxies of the technical dimensions of the quality of care. In effect, medical devices are referred to the CT (computer axial tomography) equipment, as a proxy of technologies in healthcare quality; on the other hand, primary care physicians and specialists have been taken as a proxy of human resources; and, finally, readmissions have been chosen as a proxy of the reliability of the health system. These variables have been explained in the literature as a part of the dimensions of healthcare quality in the SERVQUAL and 5Q models (Tables 3.2 and 3.3).



**Table 3.2** Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Max	Kurtosis	Skewness
Satisfaction	221	6.6043	0.42644	5.1500	7.5500	-0.0094966	-0.28020
Medical devices	221	1.6539	0.23300	0.96000	2.4800	1.0758	0.14654
Beds	221	3.1992	0.48457	2.1700	4.2600	-0.37103	-0.53775
Readmissions	221	7.5000	1.1277	5.1900	9.9200	-0.68827	-0.20544
Physicians	221	0.78683	0.10322	0.59000	1.1200	2.6255	1.3464
Hospital mortality	221	4.1604	1.1265	1.0000	5.9200	2.1941	-1.4518
Specialists	221	1.8976	0.24183	1.4000	2.6000	-0.11297	0.61172

Source: own calculations

**Table 3.3** Correlation matrix

	Satisfaction	Beds	Readmissions	Physicians	Mortality	Specialists	Medical devices
<i>Satisfaction</i>	1	0.1702	0.0240	0.2294	-0.0253	0.5836	0.2600
<i>Beds</i>		1	-0.2065	0.2520	-0.0181	0.4346	0.0090
<i>Readmissions</i>			1	0.4047	0.2665	-0.2160	0.1396
<i>Physicians</i>				1	0.2335	0.0615	0.1597
<i>Hospital mortality</i>					1	-0.0112	0.0655
<i>Specialists</i>						1	0.4363
<i>Medical devices</i>							1

All the data has been obtained from the Spanish Ministry of Health and refer to the 17 Spanish regions, namely, Andalusia, Aragón, Asturias, Balearic Islands, Cantabria, Canary Islands, Castilla-La Mancha, Castilla and León, Catalonia, Valencia, Extremadura, Galicia, La Rioja, Madrid, Navarra, Murcia, and Basque Country. After extraction, data were cleaned and organized in a panel format, and Gretl software was used to perform the regression models. The results of the models have been presented in Table 3.4. Observe that data availability was conditioned by two important facts. First, patient satisfaction started to be recorded by the Ministry of Health by 2007; second, due to COVID-19, after 2019, there were no data on most variables.

## 3.4 Results and Discussion

### 3.4.1 \*Average Absolute Correlations

In Table 3.4, the results of the econometric model have been shown. Model 1 includes 1-year lagged satisfaction by using the two-step GMM estimator, while Model 2 includes 2-year lagged satisfaction by using the two-step GMM estimator.

As can be seen in Table 3.4, in the row of the average absolute correlations, there is no cross-sectional dependence between the regions of Spain in any of the two models.

In the results, it can be seen that the in-hospital mortality is the only quality variable affecting patient satisfaction in the case of Spain. The effect is negative since the number of deaths decreases not only consumer satisfaction but also their return to hospitals [5]. However, observe that only the current mortality affects the patients, whereas the lagged in-hospital mortality has no effect on the patient satisfaction, which could mean that health consumers do not take into account past events as they are focused on the present time. According to the literature, when patients perceive a bad service, they react negatively. It is well-known that hospital mortality is a negative sign of hospital performance [6]. Zepeda et al. [21] stated that hospital performance can enhance less readmissions, which leads to a decrease in hospital mortality rates, whose main consequence is more satisfied patients.

Contrary to the existing literature, all other explanatory variables do not seem to have an effect on patient satisfaction. However, this fact could mean that, in the case of Spain, patients do not feel satisfied with these healthcare aspects. Observe, for example, the case of Turkey [20], where patients experience more satisfaction with medical devices and the functional parts of the service. Moreover, Atinga et al. [4] state that there is an association between the accuracy of the treatment and the satisfaction of patients. In our case study, this is similar to readmissions (which reminds that they were a proxy of an effective system, synonym of accuracy), but in the results of our study, readmissions have no effect on patients in the regions of Spain. Maybe, in the case of Spain, resources are not sufficient for the amount of patients, or maybe the part affecting patients in Spain is the other factor, viz. the functional part of the quality of care.

In the last row in Table 3.4, the cross-sectional dependence has been tested by using the Pesaran test. Notice that, in none of the models, there is a spatial relationship between the different regions in Spain.

The collinearity has been measured by using the Belsley-Kuh-Welsch test. The results of Model 1 show no problems of collinearity, whereby only Model 2 Belsley-Kuh-Welsch test has been shown. Results reveal that there exists “moderate-strong” linear dependence between the variables *1-year lagged satisfaction*, *beds*, *readmissions*, *physicians of primary attention*, *hospital mortality*, *lagged hospital mortality*, and *specialists* because their count of “Cond” values is over 0.5. However, a moderate correlation is admitted in this case. The collinearity can be due to the close relationship between these variables as they are all healthcare quality indicators. The Belsley-Kuh-Welsch test measures the count of condition indices between variables in such a way that, when their sum is higher than 10, moderate strong collinearity exists. In Table 3.5 can be seen that there are two cases when the count of condition is greater than 10.

As can be seen in Figs. 3.1 and 3.2, the residuals of the model follow a normal distribution. The chi-square(2) statistic in the first model equals to 6.43317, its *p*-value being 0.0400917, while, in the second model, the chi-square(2) statistic is 37.4127 with a *p*-value of 0.0000.

**Table 3.4** Regression models

	Model 1	Model 2
Satisfaction $t-1$	0.163402 (0.5118)	-0.0180205 (0.9151)
Satisfaction $t-2$	-	0.199141 (0.4198)
Beds	0.404498 (0.3910)	1.72374 (0.1088)
Readmissions	0.0344157 (0.6354)	0.0414469 (0.4979)
Physicians	3.08163 (0.5805)	7.63019 (0.3767)
Hospital mortality	-0.0289228** (0.0254)	-0.0484077** (0.0104)
Hospital mortality $t-1$	-0.0332781 (0.1141)	-0.0313893 (0.1336)
Specialists	0.597119 (0.4013)	0.364643 (0.5762)
Medical devices	0.383243 (0.4556)	0.668732 ((0.1154)
Obs	187	170
Instruments	73	72
AR (1)	-1.29457 (0.1955)	-0.697608 (0.4854)
AR (2)	-0.337219 (0.7360)	-1.20778 (0.2271)
Sargan test	81.0317 (0.0866)	78.3345 (0.0992)
Hansen test	14.7204 (1.0000)	9.84749 (1.0000)
Wald (joint) test	69.9867 (0.0000)	116.803 (0.0000)
Cross-sectional dependence	2.94268	0.864809
$p$ -value	0.0000	0.387143
Correlations*	0.285	0.272

Source: own calculations. \*\* $p < 0.05$ ; \* $p < 0.1$ .

**Table 3.5** Belsley-Kuh-Welsch collinearity diagnostics for Model 2

Lambda	Cond	Sat	Sat $t-1$	MDev	Beds	READ	Phi	HMort	HMort $t-1$	Sp
4.687	1.000	0.006	0.004	0.002	0.001	0.002	0.001	0.000	0.002	0.002
2.761	1.303	0.000	0.001	0.006	0.003	0.001	0.000	0.005	0.008	0.003
0.716	2.559	0.001	0.229	0.000	0.000	0.005	0.000	0.001	0.030	0.000
0.368	3.569	0.000	0.034	0.008	0.021	0.025	0.001	0.020	0.096	0.022
0.262	4.232	0.345	0.001	0.000	0.033	0.043	0.002	0.004	0.008	0.007
0.106	6.648	0.413	0.052	0.121	0.063	0.010	0.001	0.000	0.300	0.088
0.066	8.446	0.017	0.016	0.608	0.005	0.057	0.001	0.113	0.000	0.285
0.024	14.069	0.101	0.530	0.186	0.078	0.848	0.083	0.527	0.015	0.351
0.011	20.314	0.116	0.133	0.069	0.797	0.009	0.912	0.330	0.541	0.241

Source: own calculations

Lambda = eigenvalues of inverse covariance matrix (smallest is 0.0113579)

Cond = condition index

Note: variance proportions columns sum to 1.0

### 3.5 Conclusions

There is a growing interest around the concept of patient satisfaction and its main drivers. Over the years, the quality of care has been shown to be the most important antecedent of patient satisfaction. Its improvement and development are a priority for governments and health practitioners, since improved quality drives an increasing satisfaction of the health consumer. Therefore, looking for technical factors in public health that improve quality standards is of great relevance. Regarding the concept of quality of care, researchers can pay attention to the functional or technical aspects depending on what they are looking for in the investigation. In the present study, quality indicators are based on the technical factors of public health, specifically, the number of readmissions, physicians of primary attention, in-hospital mortality, hospital beds, medical devices, and specialists.

The objective of this study was to empirically test the link between patient satisfaction and healthcare quality in the Spanish healthcare system by analyzing the 17 regions of Spain in the period 2007–2019. As can be seen, it has been implicit during the Great Recession period, which adds more inquiry into possible differences across regions in the country because of the limited resources of some of them in that period of time. The findings show the direct and negative effects of in-hospital mortality on patient satisfaction. An increase in mortality rates diminishes patient satisfaction. According to the existing literature and reinforced by the results, hospital deaths can be a huge detriment to patient perceptions. Contrary to previous literature on this topic, none of the other quality factors affect patient satisfaction in the case study. The number of physicians and specialists has no effect on patients, and, moreover, other physical resources, such as hospital beds and medical devices, have no effect on patients.

The main contribution of this study is twofold. On the one hand, it broadens the existing literature on health economics and consumer management in the area of health. On the other hand, it empirically demonstrates, with a robust and reliable estimator, the quality factors affecting patient satisfaction during the last 13 years. Thus, the study has crucial implications for policymakers and health practitioners since these results can shed light on which are the indicators that most affect patient satisfaction in the case of Spain and help future researchers to look for other factors that can enhance satisfaction. This study is not without limitations because data were only available until 2019. Also, patient satisfaction has been studied since 2007 in most regions, so the time period should be considered from that moment. For further research, an international approach could be developed to see the contrast between countries and not only domestic regions as in the case study. In addition, another study could be performed in order to see possible health outcomes in the case of Spain. In conclusion, the future of healthcare is based on the improvement of the current healthcare system by implementing patient-based systems.

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## References

1. Alibrandi, A., Gitto, L., Limonasi, M., & Mustica, P. F. (2023). Patient satisfaction and quality of hospital care. *Evaluation and Program Planning*, *97*, 1–7.
2. Anabila, P. (2019). Service quality: A subliminal pathway to service differentiation and competitive advantage in private healthcare marketing in Ghana. *Health Marketing Quarterly*, *36*(2), 136–151.
3. Arellano, M., & Bond, B. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277–297.
4. Atinga, R. A., Abekah-Nkrumah, G., & Domfeh, K. A. (2011). Managing healthcare quality in Ghana: A necessity of patient satisfaction. *International Journal of Healthcare Quality Assurance*, *24*(7), 548–563.
5. Borra, C., Pons-Pons, J., & Vilar-Rodríguez, M. (2020). Austerity, healthcare provision, and health outcomes in Spain. *The European Journal of Health Economics*, *21*, 409–423.
6. Cavicchioli, M., & Pistoiesi, B. (2020). Unfolding the relationship between mortality, economic fluctuations, and health in Italy. *The European Journal of Health Economics*, *21*, 351–362.
7. Ciasullo, M. V., Manna, R., Cavallonec, M., & Palumbod, R. (2020). Envisioning the future of health systems: Exploratory insights from European countries. *Futures*, *121*, 1–12.
8. Fatima, T., Malik, S. A., & Shabbir, A. (2018). Hospital healthcare service quality, patient satisfaction and loyalty: An investigation in context of private healthcare systems. *International Journal of Quality and Reliability Management*, *35*(6), 1195–1214.
9. García-Corcheró, J. D., & Jiménez-Rubio, D. (2021). How do policy levers shape the quality of a national health system? *Journal of Policy Modeling*, *44*, 203–221.
10. Golinelli, D., Toscano, F., Bucci, A., Lenzi, J., Fantini, M. P., Nante, N., & Messina, G. (2017). Health expenditure and all-cause mortality in the ‘galaxy’ of Italian regional healthcare systems: A 15-year panel data analysis. *Applied Health Economics and Health Policy*, *15*, 773–783.
11. Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, *50*, 1029–1053.
12. Khaleel, M., Ilkhanizadeh, S., & Khrais, H. (2022). Impact of healthcare service quality on patient satisfaction and loyalty in a Jordanian private hospital. *International Journal of Productivity and Quality Management*, *37*(3), 422–434.
13. Sargan, J. D. (1958). The estimation of economic relationships using instrumental variables. *Econometrica*, *26*, 393–415.
14. Senapati, S., & Panda, R. K. (2023). Enriching healthcare service quality by leveraging service experiences in Indian private hospitals: Application of fuzzy AHP approach. *International Journal of Quality & Reliability Management*, *40*(10), 2301–2325.
15. Senić, V., & Marinković, V. (2013). Patient care, satisfaction and service quality in health care. *International Journal of Consumer Studies*, *37*, 312–319.

16. Silva, A. G. G., Ferreira, P. L., & Daniel, F. B. (2018). Portuguese university hospital patient satisfaction and service quality. *Internacional Journal of Healthcare Quality Assurance*, 31(5), 428–435.
17. Soares, A. M., & Farhangmehr, M. (2015). Understanding patient satisfaction in a hospital emergency department. *International Review of Public and Nonprofit Marketing*, 12, 1–15.
18. Swathi, K., Barkur, G., & Somu, G. (2023). Assessment of healthcare service quality effect on patient satisfaction and care outcomes: A case study in India. *Cogent Business and Management*, 10, 1–25.
19. Ullah, S., Akhtar, P., & Zaefarian, G. (2018). Dealing with endogeneity bias: The generalized method of moments (GMM) for panel data. *Industrial Marketing Management*, 71, 69–78.
20. Verma, P., Kumar, S., & Sharma, S. K. (2020). E-healthcare service quality: Consumer satisfaction and its association with demographic characteristics. *International Journal of Healthcare Quality Assurance*, 33(6), 413–428.
21. Zepeda, E. D., Nyaga, G. N., & Young, G. J. (2021). On the relations between focus, experience, and hospital performance. *Health Care Management Review*, 46(4), 289–298.
22. Zineldin, M., & Vasicheva, V. (2019). Patient emotional support and healthcare organisational performance and effectiveness. *International Journal of Work Organisation and Emotion*, 10(1), 19–27.

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# Chapter 4

## Sustainability in Marketing Education: Student's Attitudes at Iberian Universities



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**Abstract** Since the alignment of the Principles for Responsible Management Education (PRME) for responsible education in management with the SDGs, both launched by the United Nations, the role of Higher Education Institutions (HEI) has become a fundamental pillar for the academic training of future leaders to contribute to the architecture of a sustainable society. However, the academic literature focuses primarily on educational institutional analysis rather than on student outcomes. University students not only reflect a growing awareness of environmental, social, and economic challenges but also display attitudes that influence their personal and professional choices. This paper focuses on a qualitative survey oriented to the attitudes toward sustainability of 129 university marketing students, carried out in two universities in the Iberian Peninsula (University of Almería—Spain and University of Beira Interior—Portugal). By means of a t-student analysis between the two sample groups, it was analyzed whether the attitudes of students from both universities differ from different perspectives, the personal valuation of the importance of a more sustainable society, the specific integration of sustainability in business, the preference of training toward PRME-oriented educational organizations, or the labor insertion as a worker in sustainable companies. The results of this work can guide academic institutions in the evaluation of their efforts in curricular changes, course redesign, pedagogical proposals, and adjustments in mission and institutional objectives.

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**Keywords** Sustainability teaching · Marketing education · Student attitudes · Principles for Responsible Management Education (PRME) · Higher Education Institutions (HEI) · Sustainable Development Goals (SDG) · Spanish University · Portuguese University

## 4.1 Introduction

University education plays a key role in shaping future business and professional leaders. In this context, the Principles for Responsible Management Education (PRME) have become a framework for integrating sustainability into higher education. The PRME were launched in 2007 by the United Nations Secretary-General in collaboration with business leaders and academics during the United Nations Global Compact Summit (New York) [1]. The PRME initiative was designed to mobilize higher education institutions (HEI) toward the integration of sustainability, ethics, and social responsibility into their academic programs and training activities. The adoption of PRME by HEI marks a significant commitment to educational transformation at the undergraduate and graduate level in business-economic education oriented toward actions based on the triple bottom line (TBL) and the Sustainable Development Goals (SDGs) of the UN 2030 Agenda [2].

PRME play a crucial role in training professionals for building a more sustainable, responsible, and ethical business environment globally. This challenge implies, on the one hand, assuming an educational proposal that promotes attitudinal change and emphasizes curricular integration of the critical issues expressed by the SDGs [3]. Starting from SGD4, which highlights the fundamental role that HEI is expected to play in promoting sustainability by integrating sustainable principles into their educational structures [4] with a special focus on SDG12 (responsible production and consumption), SDG13 (climate action), and SDG17 (partnerships to achieve the Goals) according to studies by Severino-González et al. [5] and Laurett et al. [6]. In the particular case of SDG12, according to Pantelic et al. [7], HEI that have additional marketing and market research-oriented offerings, in their role as educators, should take a more active role in shaping students' attitudes toward sustainability. Also, Delacroix [8] states that educating marketing students in sustainable consumption and production is a legitimate and urgent mission for marketing educators.

University students' attitudes toward sustainability not only reflect a growing awareness of environmental, social, and economic challenges but also influence their personal and professional choices. These attitudes can be framed from different perspectives depending on the role played. From the personal valuation of the importance of a more sustainable society in their role as citizen-consumer, from the integration of sustainability in business in their role as entrepreneur-producer or from their training preferences in their role as student toward educational organizations oriented to PRME or to the labor insertion as worker in sustainable companies. This paper presents a comparative analysis of the attitudes of university students toward sustainability, enrolled in marketing, commercialization, and market research degrees, carried out in two Iberian universities.



## 4.2 Literature Review

Currently, 17 years after the launch of the PRME, the scientific publication on its implementation in HEI is extensive, varied, and transversal worldwide [9–12]. Parra-Torres et al. [13] analyzed the trends in the academic literature on proposals for improving ethics teaching in business schools and the results indicate that interest in the subject has declined. Predominantly, proposals for curricular changes, with course redesign, new pedagogical proposals, and adjustments in the mission and institutional objectives, as a response to the commitment made by HEI to the PRME. It is unclear whether this change was more “cosmetic” than a comprehensive transformation of the educational offer, incapable of overcoming the existing barriers to improve the ethical teaching of professionals.

Previously, Cullen [14] concluded that the predominant focus in most studies of PRME implementation in HEI is on analyzing the institutions that deliver the education rather than focusing on those who receive it, the students.

Recently, Martinez-Bravo et al. [15] detected another drawback that can be added as a barrier to the integration of sustainability in business and management education, namely, the abundance of existing sustainability learning approaches. Studies by Erskine and Johnson [16] and Singhal et al. [17] have identified up to 37 different sustainability learning approaches, making it difficult to determine the main measures that HEI should adopt in the implementation of the PRME. Vicente-Molina et al. [18] emphasize that sustainability knowledge is necessary but not a sufficient condition for expressing a sustainability-oriented attitude in students with subsequent sustainable behavior through actions. However, Sia et al. [19] do state that sustainable behavior is a reflection of the knowledge associated with it. For this reason, student-oriented research focuses not only on learning approaches but also on the attitudes that students develop towards sustainability [20, 21]. A wide range of research exists, including analyses of students' attitudes toward personal importance toward sustainability, the valuation of sustainability in the business environment, work preferences toward sustainable enterprises, and the valuation of knowledge on sustainable aspects at the business level [16, 17].

This study focuses on providing more relevant information on the attitudes of marketing students from two different universities to determine whether or not they differ in terms of the importance and decision-making around sustainability at a personal and/or business level.

## 4.3 Survey and Methodology

### 4.3.1 *Attitudinal Survey on Sustainability*

A qualitative survey was conducted among university students on the approaches to sustainability education implemented by academic institutions in follow-up to the PRME. The survey items are based on the studies of Erskine and Johnson (2012)

and Singhal et al. (2018). The survey was addressed to 129 marketing students, 82 from the University of Almeria (UAL), and 47 from the University of Beira Interior (UBI). The questionnaire included demographic data of the students, their perceptions of learning approaches for sustainable teaching in higher education, and questions about their attitudes toward different aspects of sustainability.

The survey was oriented towards four main aspects to be known:

- Personal importance toward sustainability. The adoption of sustainable lifestyles has become an integral part of the identity of many students, who seek to incorporate sustainable practices into their daily lives, from product choices to responsible resource management.
- Valuing sustainability in business. Students recognize that sustainable business practices not only benefit environmental and social aspects but also contribute to long-term economic profitability. Sustainability is perceived as a key element in building a strong brand and gaining the trust of conscious consumers.
- The shift in labor preference toward sustainable companies. This change in mindset is reflected in students' preference to work in companies committed to sustainability to avoid the dissonance of a sustainable attitude with a sustainable job role. The current generation of university students is looking for employers who adopt ethical and responsible practices, prioritizing sustainability as an integral part of their business. The choice of employers aligned with these values has become an important criterion in job decision-making.
- Valuing knowledge on sustainability issues at the business level. University education plays a role in actively integrating sustainability knowledge into academic programs so that students acquire a solid understanding of business sustainability principles, including ethical management, corporate social responsibility, and the integration of environmental, social, and governance (ESG) criteria.

### **4.3.2 Parametric Analysis T-Student**

In the present study, the parametric t-Student test [22] was carried out to perform the comparison of means between two independent samples [23] belonging to UAL and UBI. This statistical tool is widely recognized for its robustness and effectiveness in assessing significant differences between the means of two different groups [24]. This methodological approach provides a sound basis for the interpretation of significant differences in means and contributes to the validity and reliability of the results obtained in the comparative analysis. All previous requirements for the application of parametric tests, normal distribution of the quantitative variable in the groups being compared, homogeneity of variances in the populations from which the groups are drawn, and a sample  $n$  of no less than 30 are met [25]. The procedure began with the formulation of the null and alternative hypotheses, where the former postulates the equality of means and the latter the existence of significant differences between the samples. Subsequently, T-test statistics and the corresponding

p-values were calculated, allowing us to determine whether the differences observed between the samples were statistically significant using SPSS software. This SPSS software tool allows the comparison of means analysis to be carried out by introducing more than one contrast variable and calculates a T-test for each of the variables (four attitudes to be analyzed) belonging to independent samples (UAL—UBI).

## 4.4 Results and Discussion

The group statistical results (Table 4.1) show that the UAL sample presents higher mean values, except for the fourth activity concerning the valuation of knowledge on sustainable aspects at a business level.

The first observable assessment in the T-test for equality of means between independent samples (Table 4.2) is the comparison of the variances of the two samples (based on Snedecor's F-statistic) via Levene's test [13]. If Levene's test yields a significance greater than 0.05 then the homoscedasticity requirement (expressed in the table as "equal variances have been assumed" via the F-statistic) is met. This can be affirmed since  $0.108 < F < 2.808$ .

Having checked the variances of both samples, the data of interest is the bilateral significance of the t-test. In three of the four attitudes A1-A2-A3, it is greater than 0.05, which means that the alternative hypothesis is not fulfilled. In other words, there are no significant differences between students from both universities in attitudes referring to personal importance toward sustainability in general or specifically to the business field and work preference toward sustainable companies. However, in attitude A4, the bilateral significance of the t-test is less than 0.05, which means that the alternative hypothesis is not fulfilled and that there are significant differences between students from both universities with respect to the self-assessed valuation of the student's knowledge of sustainable aspects at the business level. In other words, belonging to a particular university influences student attitudes toward knowledge of sustainable business aspects.

**Table 4.1** Group statistical

Student's attitudes on sustainability	University	N	Average	Standard deviation	Standard error average
A1. Sustainability is an important topic in business	UAL	82	6.08	0.990	0.109
	UBI	47	5.87	1.244	0.182
A2. I would prefer to work for a company that embraces sustainability as a core value	UAL	82	5.66	1.161	0.127
	UBI	47	5.49	1.333	0.194
A3. Sustainability is an important topic to me	UAL	82	5.65	1.163	0.128
	UBI	47	5.34	1.256	0.183
A4. I am very knowledgeable about sustainability issues in business	UAL	82	3.81	1.234	0.135
	UBI	47	4.64	1.241	0.181

**Table 4.2** T-test for equality of means between independent samples<sup>a</sup>

Student’s attitudes on sustainability	Levene’s test		T-test for equality of means				
	F	Sig	t	Signification		Differences	
				P one factor	P two factors	Means	Standard error
A1. Sustainability is an important topic in business	2.808	0.096	1.067	0.144	0.288	0.212	0.199
A2. I would prefer to work for a company that embraces sustainability as a core value	2.532	0.114	0.774	0.220	0.440	0.173	0.224
A3. Sustainability is an important topic to me	0.479	0.490	1.419	0.079	0.158	0.310	0.219
A4. I am very knowledgeable about sustainability issues in business	0.108	0.744	3.681	<0.001	<0.001	-0.831	0.226

<sup>a</sup>Equal variances are assumed

Based on the results obtained through the t-student analysis, which revealed no significant differences in attitudes 1, 2, and 3 between the university students of the two academic institutions, it can be suggested that the attitudes toward the personal importance of sustainability (Attitude 1), the valuation of sustainability in business (Attitude 2), and the work preference toward sustainable businesses (Attitude 3) are consistent and comparable between students of both universities. This homogeneity may indicate similarities in the perception and prioritization of these aspects at a general level in the university student community. This finding highlights the uniformity in the perception of the personal importance of sustainability, the valuing of sustainable business, and the preference for employers committed to sustainability and may be due to the generational condition of the students. In contrast, the disparity in valuing knowledge of sustainability issues at the business level, revealed by the significant discrepancy in Attitude 4, suggests that students from both universities differ attitudinally. This finding highlights a possible disparity in the integration and valuing of sustainability principles in academia between the two institutions and points to the possibility that educational strategies and the inclusion of sustainability issues in academic programs differ between the two universities. The presence of significant differences underlines the relevance of university education in shaping future perceptions, attitudes, and behaviors toward corporate sustainability.

It is not possible to compare the results with other academic institutions, as the same survey on student attitudes towards sustainability has not been applied. However, according to the study by Ali Khalfan Al-Naqbi and Qasim Alshannag [10], students in the United Arab States have low attitudes toward some specific challenges of sustainable development (SD), climate change, and the use and management of available natural resources. The authors emphasize that providing university students with opportunities to recognize and identify more aspects of SD and sustainability education is an important aspect of preparing the new generation to face the future and its needs. However, the behavior of the participants toward SD

and sustainability education was moderate, indicating that having sufficient knowledge about SD and sustainability education is not enough to create good enough behavior.

## 4.5 Limitations and Further Research Lines

The results of this research suggest that further analysis of the attitudes of marketing students is needed, in particular, with the aim of trying to understand the reasons why there is a significant difference between the students of the two universities with regard to their knowledge of sustainable business issues. Whether this identified difference is due to personal aspects of the students or depends on the difference in the instruments implemented in each academic institution. Conducting this type of study among students of the same degree but enrolled in different universities provides relevant information that perhaps cannot be extracted from studying endogenously all degrees belonging to the same academic institution. Students' perceptions may be influenced by other factors such as their university experience, values, academic training, etc. This analysis should be complemented by the contributions and perceptions of the faculty who teach these students. In this way, the contribution of this work could be significantly enriched by incorporating qualitative interviews or focus group dynamics with the faculty, or with other key actors (e.g., university governance team, business faculty or department, etc.) to gather their approaches and assessments in depth.

Another interesting question to be addressed is related to the analysis of the actions and measures adopted by both universities (UAL & UBI) for the implementation of a better and greater teaching of sustainability. Contrasting the actions implemented in real terms by these universities with the students' perceptions would allow identifying possible strategic deviations and developing more specific and interesting inputs for each university. It would also be interesting to consider the possibility of conducting a cross-sectional study, to incorporate other universities into the study, and longitudinal to investigate such perceptions over time, evaluate their changes and evolution, and so on.

Finally, as a future line of research and given the direct relationship of the academic content of marketing degrees with the SDG12, more specific items should be included in the design of the survey.

## 4.6 Conclusions

In summary, the results of this work show that Attitudes 1, 2, and 3 do not show significant differences, but Attitude 4 reveals disparities between students from both universities in relation to the valuation of knowledge in sustainable aspects at the business level, suggesting that the diversity of educational approaches can have

different attitudinal results. Academic institutions must actively emphasize these issues in order to contribute to the application of PRME at the societal level.

College students' attitudes toward sustainability are transforming the way business and decision-making are approached. This new generation of professionals not only values sustainability as a key component in business but also actively seeks to contribute to a more sustainable future on both a professional and personal level. The integration of PRME into higher education plays a vital role in preparing these students to lead responsibly in a world increasingly focused on sustainability.

This work seeks to contribute in various areas to improve learning in sustainability, contributing to university management initiatives, university teaching strategies, or guidelines for teaching planning in economics and business faculties with marketing degrees. This implies not only to incorporate superficially and in isolation concepts on sustainability and SD but to do it in an organized way from the initial courses to the final degree projects.

This study is a first approximation that aims to provide relevant information on the attitudes of marketing students from two different universities to determine whether or not they differ in terms of the importance and decision-making around sustainability at a personal and/or business level. It is essential to complement this work with other lines of future research aimed at expanding the sample cross-sectionally, incorporating other universities with marketing majors, and longitudinally analyzing the temporal evolution of these attitudes. Simultaneously, lines could be developed aimed at the continuous review of academic programs and annex the perspective of the teaching staff in order to provide a comprehensive overview of initiatives to university management on university teaching strategies in business faculties and departments in marketing degrees.

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## References

1. Parkes, C., Buono, A. F., & Howaidy, G. (2017). The principles for responsible management education (PRME): The first decade—what has been achieved? The next decade—responsible management Education's challenge for the sustainable development goals (SDGs). *The International Journal of MANAGEMENT EDUCATION*, 15(2), 61–65.
2. Avelar, A. B. A., Farina, M. C., & da Silva Pereira, R. (2022). Principles for responsible management education-PRME: Collaboration among researchers. *The international. Journal of Management Education*, 20(2), 100642.
3. Ramos Torres, D. I. (2021). Contribución de la educación superior a los Objetivos de Desarrollo Sostenible desde la docencia. *Revista española de educación comparada*, 37(1), 89–110.
4. United Nations (2015). *SDG4.2 Equal access to affordable technical, vocational and Higher Education*.

5. Severino-González, P., Sarmiento-Peralta, G., Villar-Olaeta, J., & Ramírez-Molina, R. I. (2022). Consumo sustentable socialmente responsable: el caso de estudiantes universitarios de una ciudad de Perú. *Formación universitaria*, 15(1), 219–230.
6. Laurett, R., Paço, A., & Mainardes, E. W. (2022). Sustainability in higher education institutions: A case study of project FUCAPE 120% sustainable. *International Journal of Sustainability in Higher Education*, 23(7), 1604–1627.
7. Pantelic, D., Sakal, M., & Zehetner, A. (2016). Marketing and sustainability from the perspective of future decision makers. *South African Journal of Business Management*, 47(1), 37–47.
8. Delacroix, E. (2023). Raising marketing students' awareness of their role in achieving sustainable development goals: An arts-and-crafts-based pedagogy. *Journal of Marketing Education*, 02734753231209701.
9. Al-Naqbi, A. K., & Alshannag, Q. (2018). The status of education for sustainable development and sustainability knowledge, attitudes, and behaviors of UAE University students. *International Journal of Sustainability in Higher Education*, 19(3), 566–588. <https://doi.org/10.1108/IJSHE-06-2017-0091>
10. Al-Nuaimi, S. R., & Al-Ghamdi, S. G. Assessment of knowledge, attitude and practice towards sustainability aspects among higher education students in Qatar. *Sustainability*, 14(20), 13149.
11. Estrada-Vidal, L. I., & Tójar-Hurtado, J. C. (2017). College student knowledge and attitudes related to sustainability education and environmental health. *Procedia-Social and Behavioral Sciences*, 237, 386–392.
12. Santos-Villalba, M. J., Leiva Olivencia, J. J., Navas-Parejo, M. R., & Benítez-Márquez, M. D. (2020). Higher education students' assessments towards gamification and sustainability: A case study. *Sustainability*, 12(20), 8513.
13. Parra-Torres, J. M., Torres-Castillo, G. C., & Idrovo-Carlier, S. (2022). Formación ética en escuelas de negocios: un debate que no avanza. *Educación y Educadores*, 25(2), e2526. <https://doi.org/10.5294/edu.2022.25.2.6>
14. Cullen, J. G. (2020). Varieties of responsible management learning: A review, typology and research agenda. *Journal of Business Ethics*, 162(4), 759–773. <https://doi.org/10.1007/s10551-019-04362-x>
15. Martínez-Bravo, M. M., Capobianco-Uriarte, M. M., Terán-Yépez, E., Marín-Carrillo, G. M., & Casado-Belmonte, M. (2024). Integrating sustainability into business and management studies in higher education. *The International Journal of Management Education*, 22(1), 100939.
16. Erskine, L., & Johnson, S. D. (2012). Effective learning approaches for sustainability: A student perspective. *Journal of Education for Business*, 87(4), 198–205.
17. Singhal, N., Gupta, H., & Mittal, G. (2018). Importance-performance analysis to identify effective learning approaches for sustainability in an Indian business school. *Vision*, 22(3), 276–283.
18. Vicente-Molina, M. A., Fernández-Sáinz, A., & Izagirre-Olaizola, J. (2013). Environmental knowledge and other variables affecting pro-environmental behaviour: Comparison of university students from emerging and advanced countries. *Journal of Cleaner Production*, 61, 130–138.
19. Sia, A. P., Hungerford, H. R., & Tomera, A. N. (1986). Selected predictors of responsible environmental behavior: An analysis. *The Journal of Environmental Education*, 17(2), 31–40.
20. Larrán, M., Andrades, J., & Herrera, J. (2018). An examination of attitudes and perceptions of Spanish business and accounting students toward corporate social responsibility and sustainability themes. *Revista de Contabilidad-Spanish Accounting Review*, 21(2), 196–205.
21. Tang, K. H. D. (2018). Correlation between sustainability education and engineering students' attitudes towards sustainability. *International Journal of Sustainability in Higher Education*, 19(3), 459–472.
22. By Student. (1908). The probable error of a mean. *Biometrika*, 6, 1–25.
23. Hurtado, M. J. R., & Silvente, V. B. (2012). Cómo aplicar las pruebas paramétricas bivariadas t de Student y ANOVA en SPSS. Caso práctico. *Reire*, 5(2), 83–100.

24. Montilla, J. M., & Kromrey, J. (2010). Robustez de las pruebas T en comparación de medias, ante violación de supuestos de normalidad y homocedasticidad. *Ciencia e Ingeniería*, 31(2), 101–107.
25. Pértega, D. S. (2001). *Métodos paramétricos para la comparación de dos medias. T de student*. Unidad de Epidemiología Clínica y Bioestadística. Complejo Hospitalario Juan Canalejo A Coruña. Cad Aten Primaria, pp. 37–41.

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# Chapter 5

## Sustainability Teaching in Marketing: An Importance-Performance Analysis in Higher Education Institutions



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**Abstract** Sustainability teaching has come to the fore as a foundation for addressing the unprecedented challenges that the planet and the society face. However, the effectiveness of higher education institutions (HEI) in their pivotal role in educating and instructing the students who will occupy leadership, management, and marketing positions in the future has been questioned. The objective of this study is to examine the performance of sustainability teaching based on an importance-performance analysis of the perceptions of marketing students in two HEI: the University of Almería and the University of Beira Interior. We analyze whether students differ in which learning approaches they consider important for integrating sustainability into their competencies, whether they consider them effective, and how their opinions differ depending on the HEI they come from. This study contributes to guiding universities in their actions to ensure that graduates are prepared to navigate the complex landscape of sustainability in their upcoming work career.

**Keywords** Marketing education · Sustainability teaching · Sustainable development · Importance-performance analysis

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## 5.1 Theoretical Framework

Sustainable development is extremely suffering the consequences of current and unsustainable operations, practices, and behaviors [4]. Business, management, and marketing are key stakeholders who could either aggravate or address this challenge. Specifically, marketing has been particularly in the spotlight due to the underlying traditional idea that it promotes overconsumption and ignores the associated consequences [7]. Indeed, marketing has been highlighted as a key factor in the transformation of organizations toward sustainability [5, 13, 18]. In this sense, the transformation of how people, and especially those occupying marketing positions, interact with the planet toward more sustainable practices and behaviors requires guidance, awareness, and education [20].

Education institutions play an essential role in addressing unsustainable practices and behaviors [11]. Indeed, the United Nations (UN) Global Compact defined the Principles for Responsible Management Education (PRME) in 2007 [17], which aim to integrate the Sustainable Development Goals (SDG) within business and management higher education [2]. However, the success of HEI in their attempt to integrate sustainable practices and behaviors, such as ethics, environmental awareness, or corporate social responsibility, has been questioned due to several drawbacks [15]. First, sustainability learning approaches are too abundant, and defining which of them should be embraced as a priority is challenging. Second, the learning approaches have been defined without considering the students' points of view [19] even if marketing students have already stated their negative feelings in their pursuit of a career which promotes overconsumption and waste [7]. Third, and as a consequence of the mentioned drawbacks, there is a lack of a general framework for institutions to integrate sustainability within their programs.

This study addresses the abovementioned research gaps based on an importance-performance analysis of marketing students' perceptions of sustainability teaching at the University of Almería (Spain) and the University of Beira Interior (Portugal) comparing the results obtained separately in both universities and analyzing the results for the total sample considering both institutions. This work encompasses several contributions to the field of sustainability education in marketing higher education. First, it offers an empirically based framework for adapting sustainability teaching to be effective from an institution approach and from a more general approach. Second, by considering marketing students' perceptions, this research work identifies four areas where sustainability teaching efforts should be developed differently in order to properly integrate sustainability within their programs.

## 5.2 Methodology

A qualitative survey was conducted to 129 marketing students at the University of Almería (UAL) and at the University of Beira Interior (UBI) within their economics and business faculties. Among the students who responded to the questionnaire, 82

were from the UAL and 47 from the UBI. The questionnaire included information about students' demographics and a total of 37 learning approaches<sup>1</sup> for sustainable teaching in higher education. This selection is derived from 125 publicly available Principles for Responsible Management Education (PRME), from which Erskine and Johnson [8] and Singhal et al. [19] extracted 37 learning approaches. The approaches are presented in the self-reports of business schools assessing their pedagogical practices as followers of the PRME.

We used the importance-performance analysis (IPA) as it has been signaled as a simple but effective tool [6, 16], which has successfully been used in research on sustainability learning approaches assessment (e.g., [19]). The importance-performance analysis results in four quadrants which have been traditionally called: (I) concentrate here, (II) keep up the good work, (III) low priority, and (IV) possible overkill [14].

There are different techniques and approaches to carry out and analyze an IPA. First, regarding the kind of data that is used, we chose the direct measurement method due to its simplicity and effectiveness [12] and because previous works showed a better performance of direct measures against indirect measures such as correlation-based measures and regression-based measures [3]. Second, regarding the technique to establish the specific partitions of the quadrants, we adopted the "data-centered quadrants approach" to contemplate the empirical means obtained from the data as the cross-points for establishing the quadrants [1, 9, 10] instead of

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<sup>1</sup> 1:Providing sustainability-related scholarships, 2:Sustainability integrated into various subjects, 3:Promoting internships related to sustainable business practices, 4:Use of sustainability-related business simulations, 5:Implementation of sustainability practices at the university level, 6: International opportunities to learn about sustainability, 7:A field trip away from campus to learn about sustainability, 8:Additional points for students involved in sustainability projects, 9: Conducting case studies in classes based on sustainability, 10: Guest speakers in classes to discuss sustainability, 11:Invited lectures by experts in sustainability (Master Class), 12:Enhanced environmentally friendly (green) initiatives on campus, 13:Establishing a sustainable business centre at the university, 14:Incorporating sustainability learning goals within existing courses, 15:Promoting student team projects related to sustainability, 16:Floating elective subjects in sustainability for students, 17:Starting a degree programme in sustainability within the university, 18:Promoting research-level studies about on sustainability among students, 19: Mentoring programme to help students learn about sustainability, 20: A career fair about sustainability jobs, 21: Promote the creation of student organizations targeting sustainability projects, 22:Conducting workshops on sustainability issues with teachers and business people, 23:Conducting call for sustainability study projects, 24:Conducting student competitions in the classes based on sustainability issues, 25:Forming a student club focused on sustainability, 26:Certification for students involved in innovative sustainability activities, 27:Sustainability incorporated into the university's mission, 28:Compulsory sustainability course for students, 29:Organization of conferences focused on sustainability issues, 30:Holding a film series focused on sustainability issues, 31:Student panel discussion pertaining to sustainability, 32:Student network projects related to sustainability,33:Social nights on-campus/off-campus for students groups to discuss sustainability issues, 34: Online webinars related to sustainability, 35:A pledge taken by students to observe sustainability practices, 36:Membership of international sustainability forums (such as PRME-Principles for Responsible Management Education), 37:Participation in sustainability rankings/ratings such as Princeton rankings.

the traditional IPA mapping which considers the means of the scale as the cross-points [14] because it is more practical than traditional rigid IPA models due to the possibility of adapting partitions according to each specific situation [12].

We first divided the sample regarding the university of origin of the respondents. We carried out the IPA for the University of Almería and for the University of Beira Interior separately and observed which approaches were placed in each of the four quadrants. Afterward, we proceed alike with the complete sample.

### 5.3 Results

The importance and performance were measured based on a seven-point Likert scale answers to a questionnaire. The scale goes from 1 (not important) to 7 (extremely important) for importance and performance, respectively. The aim of this study is to analyze the importance of learning approaches for students and to observe if the implementation of those approaches is performing effectively. The statistical analyses carried out for this study were developed using SPSS software (v. 29). Table 5.1 shows the means of the total of the learning approaches following the different samples (UAL, UBI, and total).

As previously mentioned, the IPAs were performed based on direct measurements and adopting the “data-centered quadrants approach.’ Hereafter, we discuss the results obtained for each of the samples.

#### 5.3.1 University of Almería (UAL)

Figure 5.1 shows the IPA carried out for marketing students at the University of Almería. The IPA for the UAL showed the following results:

*Concentrate here (Quadrant I):* 1, 7, 13, 16, 20, 21, 22, 26, 37 (9 approaches).

*Keep up the good work (Quadrant II):* 2, 3, 5, 6, 9, 10, 11, 12, 14, 15, 18, 19, 27 (13 approaches).

*Low priority (Quadrant III):* 4, 8, 17, 23, 24, 25, 28, 30, 31, 32, 33, 34, 35, 36 (14 approaches).

*Possible overkill (Quadrant IV):* 29 (1 approach).

**Table 5.1** Means for importance and performance depending on the sample

Mean	UAL	UBI	Total
Importance	5.116	4.892	5.035
Performance	2.711	2.847	2.760
n	82	47	129

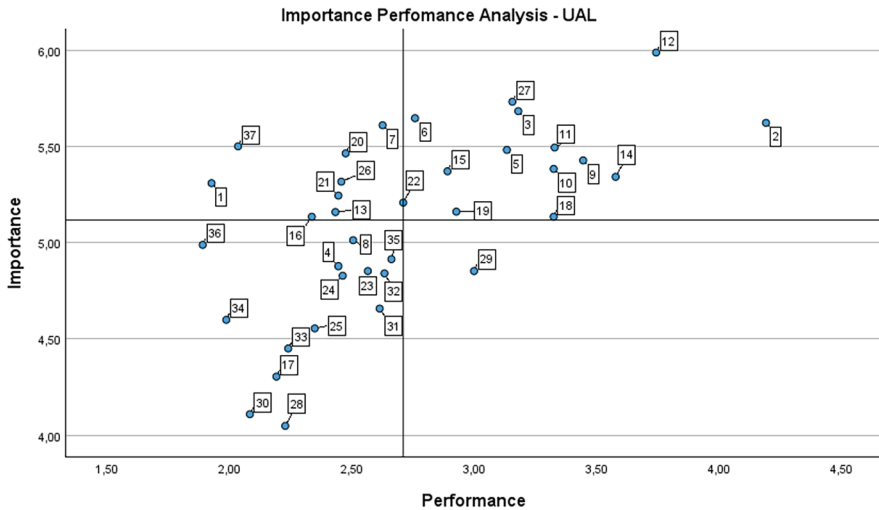


Fig. 5.1 Importance-performance analysis for the UAL

### 5.3.2 University of Beira Interior (UBI)

Figure 5.2 shows the IPA carried out for marketing students at the University of Beira Interior. The IPA for the UBI showed the following results:

*Concentrate here (Quadrant I):* 1, 7, 8, 13, 20, 36, 37 (7 approaches).

*Keep up the good work (Quadrant II):* 2, 3, 5, 6, 9, 10, 11, 12, 14, 15, 22, 26, 27 (13 approaches).

*Low priority (Quadrant III):* 4, 17, 21, 23, 24, 25, 28, 30, 31, 33 (10 approaches).

*Possible overkill (Quadrant IV):* 16, 18, 19, 29, 32, 34, 35 (7 approaches).

### 5.3.3 Total Sample

Figure 5.3 shows the IPA carried out for marketing students at both the University of Almería and the University of Beira Interior. The IPA for the UAL and the UBI together showed the following results:

*Concentrate here (Quadrant I):* 1, 7, 13, 16, 20, 21, 26, 36, 37 (9 approaches).

*Keep up the good work (Quadrant II):* 2, 3, 5, 6, 9, 10, 11, 12, 14, 15, 22, 27 (12 approaches).

*Low priority (Quadrant III):* 4, 8, 17, 23, 24, 25, 28, 30, 31, 32, 33, 34, 35, (13 approaches).

*Possible overkill (Quadrant IV):* 18, 19, 29 (3 approaches).

Figure 5.3 shows the IPA corresponding to the complete sample.

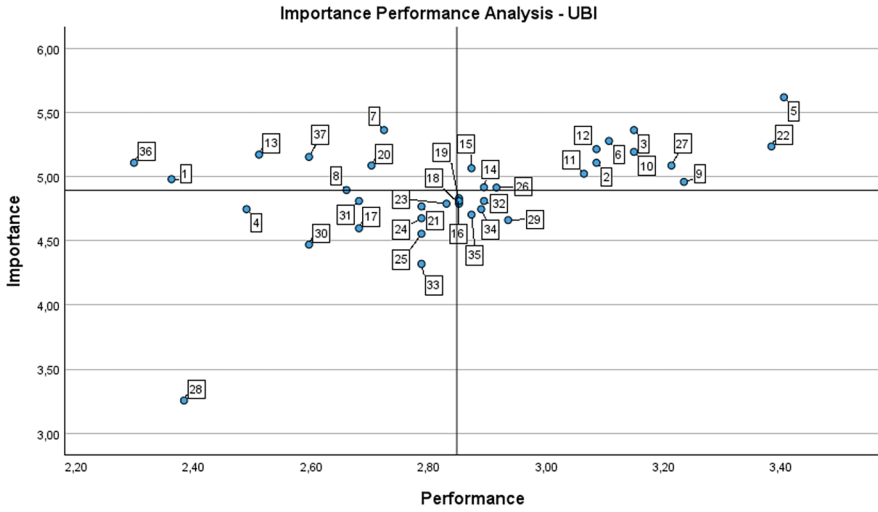


Fig. 5.2 Importance-performance analysis for the UBI

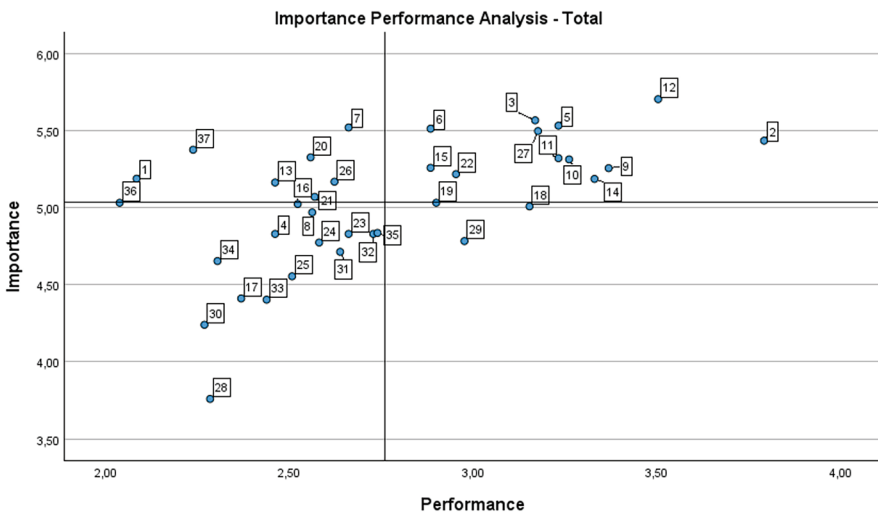


Fig. 5.3 Importance-performance analysis for the total

### 5.3.4 Comparison of the Different Samples

Table 5.2 compiles how many approaches are located in each of the quadrants for each sample for which we carried out the different IPAs.

The University of Almería and the total sample hold nine approaches in the Quadrant 1 *Concentrate here*, while the University of Beira Interior holds seven.

**Table 5.2** Approaches per quadrant depending on the sample

Quadrants	UAL	UBI	Total
I. Concentrate here	9	7	9
II. Keep up the good work	13	13	12
III. Low priority	14	10	13
IV. Possible overkill	1	7	3

For both institutions individually there are 13 approaches in the Quadrant II *Keep the good work*, while the total sample gets 12 approaches. In terms of Quadrant III *Low priority*, the UAL shows 14 approaches, the UBI 10 approaches, and the total sample 13 approaches. Finally, in the Quadrant IV *Possible overkill*, the UAL shows 1 approach, the UBI 7 approaches, and the total sample 3 approaches.

## 5.4 Discussion

Hereafter, we discuss the approaches that should be implemented for addressing the underlying possible issues resulting in the approach classification within each specific quadrant.

First, in terms of the classification within Quadrant I (QI) *Concentrate here*, we suggest that institutions prioritize the classified approaches, since this quadrant represents what the students consider important, but low in effectiveness in their learning experience. Regarding the sample of UAL marketing students, the approaches classified in the QI are, among other, sustainability-related scholarships (1), trips away from the campus (7), the establishment of a sustainable business center (13), or elective subjects in sustainability (16). The UAL got nine approaches classified in QI. In terms of the classification of approaches within the UBI, we find within the QI approaches such as a career fair about sustainability jobs (20), membership of international sustainability forums (such as the PRME) (36), or participation in sustainability rankings/ratings such as Princeton rankings (37). The UBI got seven approaches classified in QI, getting two approaches less than the UAL in this quadrant. With respect to the results for the total sample for QI, we see a combination of the mentioned with some more added to those from the UBI sample, such as promoting the creation of students' organizations targeting sustainability projects (21), certification for students involved in innovative sustainability activities (26), or sustainability incorporated into the university's mission (27). The total sample IPA resulted in nine approaches classified within QI. Overall, we observed approaches related to possibilities for students and universities to engage more deeply in sustainability beyond what is required.

Second, in terms of the classification within Quadrant II (QII) *Keep up the good work*, we observe approaches in which institutions implement the necessary efforts according to the importance and effectiveness perceived by marketing students. Regarding the sample of UAL marketing students, the approaches classified in QII

are, among other, sustainability integration into various subjects (2), promoting internships related to sustainable business practices (3), implementation of sustainability practices at the university level (5), or international opportunities to learn about sustainability (6). The UAL got 13 approaches classified in QII. In terms of the classification of approaches within the UBI, we find within the QII approaches such as conducting case studies in classes based on sustainability (9), guest speakers in classes to discuss sustainability (10), invited lectures by experts in sustainability (Master class) (11), enhanced environmentally friendly (green) initiatives on campus (12), or incorporating sustainability learning goals within existing courses (14). The UBI got 13 approaches classified in QI, getting the same number of approaches as the UAL in this quadrant. With respect to the results for the total sample for QII, we see a combination of the mentioned with some more added to those from the UBI sample, such as promoting students team projects related to sustainability (15), conducting workshops on sustainability issues with teachers and businesspeople (22), and sustainability incorporated into the university's mission (27). The total sample IPA resulted in 12 approaches classified within QII. The approaches that have been classified within this quadrant include formal ways of considering sustainability.

Thirdly, based on the classification within Quadrant III (QIII) *Low priority*, we suggest that institutions continue to deal with the classified approaches as they have been doing, since the approaches located there are seen as having low importance and performance from the students' perspective. The UAL students' answers to the questionnaire imply a classification in the QIII of approaches such as the use of sustainability-related business simulations (4), additional points for students involved in sustainability projects (8), starting a degree program in sustainability within the university (17), or conducting a call for sustainability study projects (23). The UAL got 14 approaches classified in QIII. In terms of the QIII classification of approaches within the UBI, we find approaches such as promoting the creation of students' organizations targeting sustainability projects (21), conducting student competitions in the classes based on sustainability issues (24), forming a student club focused on sustainability (25), or compulsory sustainability course for students (28). The UBI got ten approaches classified in QI, resulting in four approaches less than the UAL in this quadrant. With respect to the results for the total sample for QIII, we see a combination of the mentioned with some more added to those from the UBI sample, such as holding a film series focused on sustainability issues (30), student panel discussion pertaining to sustainability (31), student network projects related to sustainability (32), or social nights on-campus/off-campus for student groups to discuss sustainability issues (33). The total sample IPA resulted in 13 approaches classified within QIII. Approaches commonly classified within QIII include initiatives promoting healthy sustainable competitiveness.

Fourth, in terms of the classification within Quadrant IV (QIV) *Possible overkill*, we suggest that institutions might be prioritizing the classified approaches while students do not find them to be important within their sustainability learning, since this quadrant represents what the students do not consider important, but high in effectiveness in their learning experience. Regarding the sample of UAL marketing



students, the approach classified in the QIV is an organization of conferences focused on sustainability issues (29), so the UAL got only 1 approach classified in QIV. In terms of the classification of approaches within the UBI, we find within the QIV approaches such as elective subjects in sustainability for students (16), promoting research-level studies about sustainability among students (18), or mentoring programs to help students learn about sustainability (19). The UBI got seven approaches classified in QIV, getting six approaches more than the UAL in this quadrant. With respect to the results for the total sample for QI, we see a combination of the mentioned approaches numbers 18, 19, and 29. The total sample IPA resulted in three approaches classified within QIV. The approach commonly classified within QIV is organization of conferences focused on sustainability issues (29). We therefore suggest that conferences on sustainability issues are less likely to seem interesting or useful for students.

We observe the biggest difference in the approaches classified in QIV, which results in one approach for the UAL and seven approaches for the UBI, showing that the UBI is more likely focusing on non-useful initiatives based on students' perceptions.

Additionally, we observe that the three samples have common approaches classified in the same quadrant. More specifically, the three samples share the approaches 1, 7, 13, 16, 20, and 37 in the first quadrant QI *Concentrate here*. In terms of the common approaches in the second quadrant QII *Keep up the good work*, the three samples share approaches 2, 3, 5, 6, 9, 10, 11, 12, 14, 15, and 27. Regarding the common approaches classified within the third quadrant QIII *Low priority*, we observe approaches 4, 17, 23, 24, 25, 28, 30, 31, and 33. Finally, the common approach classified in the fourth quadrant QIV *Possible overkill* is approach number 29.

In this vein, comparing the three samples, we see agreement in the students' classification for 27 out of 37 approaches. In other words, the students agree 73% of the time when classifying each approach in terms of importance and performance. Furthermore, if we analyze the theoretical content of the approaches classified within the same quadrant, although we do not see a clear relationship, we define big fields for each quadrant common approaches. For instance, we see within the first quadrant QI *Concentrate here* approaches which are diverse such as sustainability-related scholarships (1), a field trip away from campus to learn about sustainability (7), establishing a sustainable business center at the university (13), floating elective subjects in sustainability for students (16), a career fair about sustainability jobs (20), and participation in sustainability rankings/ratings such as Princeton rankings (37). We observe that the approaches differ in the concepts they refer to (e.g., scholarships, field trips, sustainable business center, elective subjects, career fair, and sustainability rankings), while they are rated as having the same importance (high) and performance (low) levels for students. These specific approaches could be highlighted as the most suitable ways of improving the integration of sustainability in teaching against others that might be more similar but perceived as less important (those classified in QIII). Approaches commonly classified within QI include possibilities for students and universities to engage more deeply in sustainability

beyond what is required. We therefore suggest that this kind of opportunities for students and universities to engage more deeply with sustainability issues should be promoted in universities.

In terms of the outcomes for the quadrant QII *Keep up the good work*, we observe that the approaches classified by the three samples in the quadrant are sustainability integrated into various subjects (2), promoting internships related to sustainable business practices (3), implementation of sustainability practices at the university level (5), international opportunities to learn about sustainability (6), conducting case studies in classes based on sustainability (9), guest speakers in classes to discuss sustainability (10), invited lectures by experts in sustainability (Master class) (11), enhanced environmentally friendly (green) initiatives on campus (12), incorporating sustainability learning goals within existing courses (14), promoting student team projects related to sustainability (15), and sustainability incorporated into the university's mission (27). These approaches differ in the concepts they refer to (e.g., internships, sustainability practices at the university, international opportunities, case studies development, guest speakers, etcetera), while they are considered to have the same importance (high) and performance (high) for the students in the three samples. These specific approaches are highlighted as the most important and most effective ways of integrating sustainability in teaching. The approaches that have been classified within this quadrant QII include formal ways of considering sustainability. We, therefore, conclude that universities need to keep on the efforts that they are developing for these formal ways of considering sustainability.

Regarding quadrant QIII *Low priority*, the approaches classified by the respondents of the three samples in this quadrant resulted to be use of sustainability-related business simulations (4), starting a degree program in sustainability within the university (17), conducting a call for sustainability study projects (23), conducting student competitions in the classes based on sustainability issues (24), forming a student club focused on sustainability (25), and compulsory sustainability course for students (28). The approaches classified within this quadrant differ among them (e.g., a new degree program in sustainability, sustainability study projects, student competitions, student clubs, a compulsory sustainability course) while they are considered to have the same importance (low) and the same performance (low) for the students in the different samples. These specific approaches result to be the less important and less effective for students, giving an idea of the approaches that students perceive as not useful or effective for integrating sustainability in their learning. Approaches commonly classified within QIII include initiatives promoting healthy sustainable competitiveness. These findings suggest that students assign low priority to initiatives related to promoting healthy sustainability competitiveness.

Lastly, within the fourth quadrant QIV *Possible overkill* we observe the common result for the three samples was the approach organization of conferences focused on sustainability issues (29). Students from the three different samples consider that institutions are dedicating too many efforts to the organization of conferences on sustainability issues while they do not consider this an important approach for sustainability learning. This outcome provides an idea of an approach in which

**Table 5.3** Coincident approaches' classification in the three samples

<b>QI Concentrate here</b>	<b>QII Keep up the good work</b>
1,7, 13, 16, 20, 37	2, 3, 5, 6, 9, 10, 11, 12, 14, 15, 27
<b>QIII Low priority</b>	<b>QIV Possible overkill</b>
4, 17, 23, 24, 25, 28, 30, 31, 33	29

institutions are making efforts but not having a real effect on students' sustainability learning. We therefore suggest that conferences on sustainability issues are less likely to seem interesting or useful for students. Table 5.3 shows an overview of the coincident approaches' classification for the different samples.

### 5.4.1 Limitations and Further Research Lines

This study goes along with some limitations. First, it is a regional study based on data from two institutions based in two cities, and the data are related to two single universities, supposing that extrapolation to other contexts or institutions might not be possible in a direct way. Besides, the study is based on students' perceptions, which might be influenced by specific factors within their contexts such as specific cultural, social, or economic aspects of the two studied regions. Also, the total sample embrace a bigger amount of the UAL students than UBI students, which may unbalance the total sample findings.

With the aim of addressing these limitations, this study could be further developed by studying more institutions based on more regions, considering studies at the national, Iberian, or international levels. In terms of the context influences on the students' perceptions, context information could be gathered in order to control for the possible alternative results explanations.

## 5.5 Conclusion

Sustainability teaching has come to the fore as a necessity for addressing the challenges that the society and the planet currently face [11]. Education in sustainability has the possibility of shaping the profile of the people who will occupy business, management, and marketing positions in a near future and who will likely be in charge of organizations main decisions which may impact the environment. More specifically, marketing departments and positions have been highlighted as key in the transformation toward sustainability [5, 13, 18] due to the traditional idea that marketing favors overconsumption and do not take into consideration the associated consequences [7].

Besides, extant research on sustainability teaching lacks a general framework for institutions to properly integrate sustainability within their programs [15] and fails

to consider a cornerstone for the effectiveness of teaching: the students' perceptions [19]. Thus, this study advances existing research on sustainability teaching by carrying out an importance-performance analysis of students' perceptions of sustainability teaching at the University of Almería (Spain) and the University of Beira Interior (UBI) and making a comparison of the results obtained for the two samples individually and analyzing the outcomes of the total sample considering both institutions.

The present work supposes different contributions to the field of sustainability education in marketing higher education. On the one hand, it provides an empirically based framework for adapting sustainability teaching to be effective from an institutional approach and from a more general approach. On the other hand, it includes marketing students' perceptions identifying four areas where sustainability teaching efforts should be developed differently in order to assign the required power in each of the four areas to properly integrate sustainability.

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## References

1. Albery, S., & Mihalik, B. J. (1989). The use of importance-performance analysis as an evaluative technique in adult education. *Evaluation Review*, 13(1), 33–44.
2. Avelar, A. B. A., Farina, M. C., & da Silva Pereira, R. (2022). Principles for responsible management education-PRME: Collaboration among researchers. *The International Journal of Management Education*, 20(2), 100642.
3. Bacon, L. D. (2003). A comparison of approaches to importance-performance analysis. *International Journal of Market Research*, 45(1), 55–71.
4. Bolis, I., Morioka, S. N., & Sznelwar, L. I. (2017). Are we making decisions in a sustainable way? A comprehensive literature review about rationalities for sustainable development. *Journal of Cleaner Production*, 145, 310–322.
5. Bolton, R. N. (2022). The convergence of sustainability and marketing: Transforming marketing to respond to a new world. *Australasian Marketing Journal*, 30(2), 107–112.
6. Caber, M., Albayrak, T., & Matzler, K. (2012). Classification of the destination attributes in the content of competitiveness (by revised importance-performance analysis). *Journal of Vacation Marketing*, 18(1), 43–56.
7. Delacroix, E. (2023). Raising marketing students' awareness of their role in achieving sustainable development goals: An arts-and-crafts-based pedagogy. *Journal of Marketing Education*, 02734753231209701.
8. Erskine, L., & Johnson, S. D. (2012). Effective learning approaches for sustainability: A student perspective. *Journal of Education for Business*, 87(4), 198–205.
9. Guadagnolo, F. (1985). The importance-performance analysis: An evaluation and marketing tool. *Journal of Park and Recreation Administration*, 3(2).

10. Hollenhorst, S. J., Olson, D., & Fortney, R. (1992). Use of importance-performance analysis to evaluate state park cabins: The case of the West Virginia state park system. *Journal of Park and Recreation Administration*, 10(1), 1–11.
11. Kohl, K., Hopkins, C., Barth, M., Michelsen, G., Dlouhá, J., Razak, D. A., Abidin Bin Sanusi, Z., & Toman, I. (2022). A whole-institution approach towards sustainability: A crucial aspect of higher education's individual and collective engagement with the SDGs and beyond. *International Journal of Sustainability in Higher Education*, 23(2), 218–236.
12. Lai, I. K. W., & Hitchcock, M. (2015). Importance–performance analysis in tourism: A framework for researchers. *Tourism Management*, 48, 242–267.
13. Lim, W. M. (2022). Empowering marketing organizations to create and reach socially responsible consumers for greater sustainability. In J. Bhattacharyya, M. K. Dash, C. Hewege, M. S. Balaji, & W. M. Lim (Eds.), *Social and sustainability marketing: A casebook for reaching your socially responsible consumers through marketing science* (pp. 3–9). Routledge.
14. Martilla, J. A., & James, J. C. (1977). Importance-performance analysis. *Journal of Marketing*, 41(1), 77–79.
15. Martínez-Bravo, M. M., Capobianco-Uriarte, M. M., Terán-Yépez, E., Marín-Carrillo, G. M., & Casado-Belmonte, M. P. (2024). Integrating sustainability into business and management studies in higher education. *The International Journal of Management Education*, 22(1), 100939.
16. Matzler, K., Bailom, F., Hinterhuber, H. H., Renzl, B., & Pichler, J. (2004). The asymmetric relationship between attribute-level performance and overall customer satisfaction: A reconsideration of the importance–performance analysis. *Industrial Marketing Management*, 33(4), 271–277.
17. Parkes, C., Buono, A. F., & Howaidy, G. (2017). The principles for responsible management education (PRME): The first decade—What has been achieved? The next decade—Responsible management Education's challenge for the sustainable development goals (SDGs). *The International Journal of Management Education*, 15(2), 61–65.
18. Rosenbloom, A. (2022). Marketing scholarship and the sustainable development goals: Thoughts on moving forward. *Australasian Marketing Journal*, 30(2), 113–118.
19. Singhal, N., Gupta, H., & Mittal, G. (2018). Importance-performance analysis to identify effective learning approaches for sustainability in an Indian business school. *Vision*, 22(3), 276–283.
20. Yadav, A., & Prakash, A. (2022). Factors influencing sustainable development integration in management education: An empirical assessment of management education institutions in India. *The International Journal of Management Education*, 20(1), 100604.

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# Chapter 6

## Game-Based Learning Through the Use of Artwork Images: Influence on the Perception of a Product



Alejandro Galindo-Durán , Juan Uribe-Toril , and José Luis Ruiz-Real 

**Abstract** This study analyzes the impact on the perception of a product by consumers, in an educational context, through the inclusion of works of art in the product design and applying active methodologies such as game-based learning (GBL). An educational intervention carried out in a secondary school is presented, trying to investigate if the incorporation of artistic elements to a product is perceived in different magnitude in relation to its value, quality, or luxury among students. In addition, an experimental group to which an activity using GBL was previously applied is shown and the results of the different answers given by the different groups of students are compared. The results suggest that the incorporation of artistic elements improves the perception of the value and quality of the product and that those students who were part of the experimental group valued the products even better, with significant differences between the two groups, in addition to enriching their educational experience. This research highlights the importance of integrating art into the educational curriculum as well as the application of active methodologies in the teaching process in order to improve both the educational experience and the learning process.

**Keywords** Game-based learning · Education · Active methodologies · Art infusion · Marketing · Consumers perception · Advertising

### 6.1 Introduction

Playing is a way of simulating reality. The use of games as a tool to motivate and maximize students' abilities is relatively recent [1]. The influence of games in the development of certain skills has made it possible to increase student participation,

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motivation, and academic performance and to promote learning that is more meaningful.

This perspective implies a change in the traditional learning approach, where students assume a more proactive and autonomous role in their education. Today's students take an active role in their life and education, developing skills such as exploration and creation, so they do not need to memorize large amounts of information but to provide the necessary tools to discover and act autonomously [2]. When games are used for educational purposes, a distinction is usually made between the occasional use of some type of game and what is involved in a more complex proposal that transforms the methodology through which to improve a given proposal or didactic program [3].

The learning methodologies addressed enhance students' autonomy and skills by providing them with greater control over their learning process; therefore, most of the studies agree on the positive impact of the new active methodologies on students, which provide them with more autonomy and initiative, as well as more skills to develop and adapt to what is proposed to them [4–7].

Having established the outline of active game-based methodologies, it is crucial to differentiate between gamification and game-based learning, two terms that are often confused but have distinct characteristics and objectives. Within the methodologies that use games as a training tool, a distinction is usually made between gamification and game-based learning (GBL), sometimes even indistinctly.

On the one hand, gamification integrates key elements of games such as points, ambiance, bonuses, and inputs that foster motivation and addiction to continue the game in order to captivate learners, while game-based learning uses games as tools for deep and meaningful learning. Although the term gamification is popularly used to refer to any experience related to games, the truth is that there are different approaches that make it necessary to structure, define, and differentiate the way in which games can be used from an educational point of view [3]. Gamification is defined as the use of game mechanics in environments or environments outside the game [8] and is a tool that makes it possible to motivate the student and encourages participation in the classroom [9, 10] through the use of games resulting in a learning methodology that provides a great opportunity to work on aspects such as motivation, effort, loyalty, and cooperation, among others, within the school environment [11].

On the other hand, GBL is a methodology whose ultimate purpose is to use games in order to learn through them. The game becomes the vehicle for learning or for working on a given concept. During the game, or at the end of the game, the teacher can reflect on what is happening in the game and the contents to be worked on [7].

The GBL, as an innovative methodology, takes advantage of the educational potential of video games, serious games, or digital games to promote any educational process, encouraging users to acquire learning in a motivating way, involving them and giving them a more active role [12], using them as tools to activate skills and acquire knowledge, and allowing the student to leave their reality to immerse themselves in a simulation.

In addition, incorporating art components into the games used in the GBL not only captivates students' visual preferences but also enhances their understanding and admiration for the concepts learned. When art and games are integrated, motivation is enhanced, and a deeper, more individual understanding of the topics is fostered, which is crucial for applying knowledge in various real-life situations.

When introducing innovative methodologies, one must consider how incorporating art into teaching materials not only enhances the learning experience but also influences students' views on the value of the object. What factors influence the processes by which an image is taken into account and explored? Despite their massive presence in all school materials, students are not used to learning from images, nor do they consider them serious sources of useful information [13]. In an investigation [14], students were asked to read very carefully without missing any information from the pages of an illustrated textbook. It was found that some subjects had not looked at the pictures at all and 25% had done so for amusement while reading.

Our research investigates how the inclusion of works of art in products varies the perception of them by consumers-students. The union between the field of education and art through active methodologies to see the response of the consumer or student in this case enriches the educational experience as well as promotes a more meaningful learning by providing a critical vision on the products based on their knowledge acquired in the didactic experience. Therefore, this research suggests that the inclusion of artistic elements in products positively influences the consumer's perception of value and quality. Furthermore, these significant differences in value perception are reinforced by innovative teaching methods such as GBL.

The main objective of this research is to verify how the perception of a group of students about products can vary with the inclusion of works of art in them if an active didactic methodology such as GBL is also applied. It is also intended to unite two fields of work, such as marketing and education, with a common thread, such as art, in order to promote a more meaningful learning.

## **6.2 Literature Review**

### ***6.2.1 Game-Based Learning***

Nowadays, the teaching-learning process is sought to be increasingly dynamic and active, so that it results in motivation for the student [15, 16]. In this context, GBL can be a very useful option to promote the active participation of students, also facilitating the exchange of information [17].

This method of learning, which emphasizes active, collaborative participation, serves as a basis for investigating how certain strategies, such as gamification and serious learning, can be successfully implemented in educational settings. With the promotion of GBL, it is clear that teachers have new opportunities, but, at the same



time, they must take on new challenges. In the same sense, Jeres [21] argues that gamification and GBL enhance the ability of group work, in addition to social values and harmony with the original environments, favoring the transition from the static position of many teachers to a much more dynamic one, generating more motivating educational strategies for students.

In exploring the uses of GBL, it is crucial to emphasize how these techniques not only captivate learners but also foster the growth of essential skills through hands-on experimentation and direct engagement. Gros [22] defines serious games as powerful learning tools that allow participants to gain experience by having the opportunity to safely learn from their own mistakes. The main objective would be to create learning environments that, through games, allow experimentation with real problems. The game creates a virtual environment that recreates real-life situations so that students can develop in a risk-free context but where there are rules and interactivity [23]. Typical teaching systems propose to the student different exercises to be solved according to their level of mastery, which become more complex as the student acquires more skills [24].

Other significant elements of the use of GBL are participation and collaboration, since most games allow the incorporation of multiple participants, thus stimulating problem-solving by working in groups and the development of negotiation skills. In other words, not only learning from the game itself but also, and throughout the process, learning from the interaction with the other participants. Given that many of these games are developed from multiple platforms, following Gros [25], this would give meaning and educational value to the use of different types of smart devices (smartphones, tablets, multimedia players, video game consoles...).

Huang et al. [26] argue that to stimulate students' motivation toward the learning process, games should consider three essential characteristics: (a) structure; i.e., clear information, tasks, and objectives, simple rules, and help during the development of the game; (b) involvement, for which the game should be fun, attractive to students, and have a role; and (c) appearance, since the game should also be attractive from a visual point of view, with graphics and animations, besides being able to incorporate audio elements as well. Games, by presenting concrete challenges and challenges to students, can help create a creative and stimulating environment for knowledge acquisition, also enhancing teamwork [27], thus becoming a fun learning medium.

As it was mentioned before, GBL consists of the design and use of games in educational environments with formative intentions [18]. GBL is often considered an effective means to allow students to construct knowledge while having fun, thus maintaining a higher level of motivation and enhancing their ability to apply the acquired knowledge in solving real-life problems [19]. Thus, this methodology allows students to generate knowledge from complexity, trial, and error. Attending Lee [20], GBL (gamification is also expressly mentioned), can be an outreach strategy to promote education among people as well as behavioral change.

In addition to investigating the influence of game-based learning, it is essential to contemplate how other creative components, such as art, are incorporated into various industries, such as advertising, to shape consumer perception and behavior.

## 6.2.2 *The Use of Art in Advertising*

Through the use of gaming, GBL revolutionizes education while art in advertising employs subtle and emotionally engaging techniques to communicate intricate ideas.

Advertising tries to stimulate the demand for a product or to change the opinion or behavior of the consumer [28]. The consumer's memory of the brand, the product, and the company has a strong influence on the purchase decision, and if it is positive, it logically becomes a favorable aspect [29].

The inclusion of art in advertising is not a recent development; it has undergone substantial transformation over time, adjusting to changing market conditions and consumer demands. The use of art in advertising refers to the use of artistic elements, whether painting, architecture, photography, graphic design, or music, to create attractive and memorable advertisements for the public. Advertising that uses images of works of art is known as high art [30].

Art has played a very important role in marketing and, more specifically, in advertising, exerting a powerful influence on consumers. Advertisers frequently resort to art, even hiring renowned artists for the elaboration of their productions [31]. Already at the end of the nineteenth century, advertising used advertising posters designed by artists such as Toulouse-Lautrec, to name a few of the great names that have left their mark. Somewhat later, during the 1950s and 1960s, Pop Art occupied a preferential place in advertising, as it adapted to this type of communication in a versatile way.

However, this phenomenon has become even more evident in recent decades, with a significant change in the conception of advertising and, in general, in communication processes. It is not only a matter of transmitting and repeating messages but also of seeking creative resources, so necessary today for the product or brand to be remembered by consumers [32]. Brands seek to stand out and differentiate themselves from the rest; if they manage to provoke emotions, they will be remembered and will better build customer loyalty [33].

Advertising resorts to art for inspiration, to simplify the understanding of the message and/or to differentiate itself, giving additional value to the product [34]. The use of marketing strategies is therefore intended to improve the public's perception of certain products, introducing images and artistic techniques to attract attention and convey an idea of exclusivity, among other values [35]. And this is so because, both art and advertising, either through words or images, are two disciplines that allow expressing emotions: "Art is the expression of the mental response of human beings to their natural environment, interpreting and trying to subdue reality, rationalize nature and give a visual expression to their mythologizing concepts" [36]. Big brands have adopted the concept of art with the purpose of being recognized [37].

Nowadays, consumers, especially those in the 17–34 age group, are very familiar with images and need messages that surprise them, which implies the use of a wide variety of advertising resources [38]. Petty and Wegener [39] find that persuasive tactics that focus on imagery, aesthetic design, or the incorporation of artwork, rather than on the message or rational sales pitches, are particularly effective.

The use of art in advertising can boost brand promotion, helping to make it known to a wider market segment [40, 41], while at the same time giving products a higher status through the so-called art infusion, which increases the perception of products associated with luxury or prestige [35].

Advertising associated with art usually employs old and classical style works and is preferred by a large number of consumers [40]. However, unconventional styles, more radical compositions and contemporary trends are often preferred by people with an academic background in art [42, 43]. In any case, for art to transfer its image and characteristics to a brand, the artwork must first be recognized [35].

Art's ability to transform advertising underscores its capacity to enhance and distinguish products, underscoring the compelling connection between visual creativity and commercial influence.

## 6.3 Methodology

### 6.3.1 *Development of Research Materials and Tools*

In this study, we have tried to give continuity, response, and solidity as well as to compare the results with the study conducted by Hagtvedt and Patrick [35], where he explores how the inclusion of art in the presentation of products improves the perception and evaluation of such products by consumers. For this reason, special interest has been placed on the development and elaboration of the materials used, both for the elaboration of the didactic dynamics with the GBL methodology and in the elaboration of the images for the questionnaire.

The use of GBL tries not only to capture the interest of students but also to enhance their motivation for learning in a more active way; therefore, and given that this study is applied in a compulsory secondary school, the subject of Plastic and Audiovisual Education and Technology and digitalization were used to introduce these concepts of art as well as the different didactic dynamics.

The selection of the materials to be evaluated in the survey differed from the aforementioned article, since both the cutlery and the rest of the products are outside the context of the classroom, and therefore, it was decided to evaluate this analysis with a material closer to them. Therefore, two boxes of brushes, pencils, and wood-finish paints were selected that were identical in size and content, differing only in the design of the cover.

The control box (Fig. 6.1) presented a simple design on its cover, consisting of a representation of a starry night, with a dark sky and stars distributed on it. This design was chosen for its simplicity and similarity in theme to the experimental box, which showed a reproduction of the well-known work "The Starry Night" by Vincent van Gogh (Fig. 6.2).

The choice of Vincent van Gogh's Starry Night for the cover of the box was not a random decision, as we were looking for a work with visual impact and relevant emotional intensity, which makes it suitable for assessing how the perception of art

**Fig. 6.1** Product image.  
(Control box)



**Fig. 6.2** Product image.  
(Box with Vincent van Gogh's "The Starry Night")



can affect the evaluation of educational products. In addition, the Adobe Firefly application was selected because it is a free, online tool that allows for the subtle modification of images of any kind, including artistic works, making it possible to evaluate students' detailed observation and critical analysis, which are important aspects of this research on teaching methods.

We were looking for a work with notable artistic recognition as well as to generate a visual impact on the students as it is of an original pictorial style. The inclusion of this work is intended to assess how an artistic image can influence the students' perception of the materials.

These two variants in the design of the boxes seek to establish connections with the approach proposed by previous reference research that suggests that the aesthetics of the materials can significantly influence the perception of the object and its evaluation.

### ***6.3.2 Questionnaire Design and Structure***

In order to answer and compare results to the questionnaire proposed by the previously mentioned research published in the *Journal of Marketing Research*, a similar questionnaire structure was maintained, taking advantage of the concept of "Art Infusion," a concept that answers how the perception of art influences the perception of other objects [44]. "Art Infusion" explores how the presence of art (in this case, the artistic covers of the boxes) affects the perception and valuation of educational materials.

The questionnaire provided to the students consists of four clearly defined blocks, thus structuring the different questions following to a greater extent the guidelines of the reference article. These blocks are focused on aspects such as the perception of luxury and the valuation of the artistic. Each of the blocks addressed different parameters, on the one hand, the first block with demographic questions, such as age, sex, and socioeconomic level or average family income.

The second block showed both boxes, configured to be displayed randomly with a single question assessing whether the item was considered a work of art and whether the two images were considered similar.

The third and fourth blocks addressed the questions posed by Hagtvedt and Patrick, where the perception of art and the perception of value or luxury were evaluated. In both blocks, five and four questions were asked respectively with similar content per block in order to give validity to the answers. Likewise, the answers were based on a Likert scale from 1 to 7.

One of the objectives of the study was to compare the results obtained in an educational context and to check if there is a significant difference in the results after applying an innovative and active didactic methodology such as the GBL in relation to their perception of the object. Similarly, the aim is to validate and evaluate whether the effects of "Art Infusion" observed in the field of consumption can be applied to the educational context.

The questionnaire design was based on the idea of "Art Infusion," which explores how the presence of art affects product perception. Each block of the questionnaire, keeping the same structure blocks as the original article, addresses a different aspect, from aesthetic evaluation to association with luxury, allowing a detailed and

multidimensional investigation of the artistic effects on education. This approach allows validating hypotheses on the impact of art on learning.

The questions to be assessed provided to the students in the questionnaire on each image (standard product and product with the Van Gogh cover) were as follows:

- Q1: Do you consider this product to be a work of art?
- Q2: Do you think that the previous images are similar?
- Q3: Subjective evaluation of the value of the product according to parameters such as unfavorable/favorable, negative/positive, unpleasant/pleasant, I don't like it very much/I like it very much, or bad/good.
- Q4: Evaluation of its perception as a luxury item, rating values such as luxury, prestige, attractiveness, and quality.

### ***6.3.3 Sample Selection and Characteristics***

The use of active didactic methodologies such as the GBL to evaluate the impact it has on a given group of students requires a representative and diverse sample of students and therefore the selection of participants was made with special attention to the distribution by age, gender, and educational level.

The selection criterion seeking different ages in a similar range and educational levels was carried out with the second, third, and fourth years of compulsory secondary education, as well as the first year of the basic grade training cycle. This allows a wide age range to be covered, between 12 and 17 years of age, maintaining similar cognitive and emotional development stages [45].

Given that the participants are minors, those responsible for the students were previously informed that no sensitive data would be collected from the minor, and the confidentiality and anonymity of the participating students were guaranteed.

The selection of the students was randomly made from among the students who volunteered in each course with a representative sample of each one of them, trying to guarantee that the results were as representative as possible of the educational center. With the intention of having an equitable representation in terms of both age and gender, the first selection of volunteers was fairly equitable, ensuring that the results obtained were not biased by age, gender, or other circumstances or characteristics.

After receiving the students who volunteered, they were divided into two groups, control and experimental, which would carry out the GBL dynamics. The distribution between the two groups was randomized.

The control group received the questionnaire directly without previously informing them of its content, while the experimental group began the session with the GBL methodology.

### 6.3.4 *Participant Data*

The study sample consisted of 62 students, 50% male and 50% female, aged between 12 and 17 years old ( $M = 14.82$  and  $SD = 1.13$ ), with a majority between 14 and 15 years, 27% and 32%, respectively, followed by 20% of students aged 16 years.

The control group consisted of 34 students (54%), 18 males and 16 females, 53% and 47%, respectively.

Likewise, the students who carried out the GBL activity were 28 (46%), of which 13 males and 15 females, 46% and 54%, respectively.

Regarding the family income reflected in the survey, 52% of the participants (32) belonged to families with medium income, 32% to families with medium-low income (18), and 13% (8) to families with medium-high income, and a minimum percentage of 3% (4) had low or very low economic situations.

In order to ensure an adequate and equitable representation of our study sample, we have included summary Table 6.1 detailing the distribution of participants according to age, gender, educational level, and socioeconomic status. These tables not only provide a quick understanding of the composition of our sample but also allow for comparisons between the control and experimental groups.

### 6.3.5 *Application of the GBL Methodology and Game Dynamics*

The active didactic methodology used to motivate the students as well as to try to find out if this methodology can further enhance the perception of the object was GBL, which uses game dynamics as a classroom context while addressing a specific concept, in this case, aspects of general artistic culture and pictorial techniques.

Works of art by recognized authors were selected, such as “La Gioconda” or “The Last Supper” by Leonardo da Vinci, “The David” by Michelangelo, or “The

**Table 6.1** Summary of participant demographics

Items		Control	Experimental
Gender	Male	18	13
	Female	16	15
	<b>Total</b>	<b>34</b>	<b>28</b>
Age	Average	14,14	15,64
	SD	0,9576	0,7310
Family income	Low	2	0
	Medium-low	13	7
	Medium	15	17
	Medium-high	13	4
	High	7	0



**Fig. 6.3** Artwork “The Sunflowers” Vincent van Gogh, original, modified, and solution

Sunflowers” by Vincent van Gogh (Fig. 6.3), among others. In these works, using artificial intelligence, specifically the Adobe Firefly application, the works have been modified to add discordant elements. These elements, unrelated to the original work, were used to explain aspects such as title, author, date, style, and historical context, while the work was exposed and the students had to locate them by analyzing the work in detail, encouraging detailed observation and critical analysis. Likewise, the discordant element varied in difficulty to adapt to different levels. For example, Da Vinci’s “La Gioconda” was used with sunglasses, in Michelangelo’s “The Last Supper” one of the apostles carried a cell phone, or in much more complex levels such as in Bosch’s “The Garden of Earthly Delights” (Fig. 6.4), a six-legged minotaur was included in a rather hidden area (Fig. 6.5).

The objective of identifying the discordant elements of the works of art is intended to stimulate students by increasing their capacity for observation and critical and analytical thinking.

After the dynamics, and once the session with both groups was concluded, a group reflection was carried out on the importance of artistic knowledge, discussing the numerous visual references that exist today in advertising, cinema, television, etc.

### **6.3.6 Evaluation Procedure, Data Collection, and Statistical Analysis**

The questionnaire, inspired by the study “Art Infusion” by Hagtvedt and Patrick, was given to the control group directly without prior information about its content or usefulness at the beginning of the session, while to the experimental group, it was administered after the GBL game dynamics had been carried out.





**Fig. 6.4** “The Garden of Earthly Delights” by Hieronymus Bosch, original



**Fig. 6.5** Work “The Garden of Earthly Delights” Hieronymus Bosch, modified/solution

The statistical analysis of the data collected sought to evaluate the effectiveness of the didactic strategies implemented as well as to validate the responses to the questionnaire.

On the one hand, the validation of the data collected in the survey was carried out by applying Cronbach’s alpha [46], thus evaluating the consistency of the data collected, seeking excellent or very high reliability [47].

The responses obtained between the control and experimental group were compared by analysis of variance (ANOVA) following the guidelines of Montgomery [48]; like the reference study, this analysis, allows us to determine whether there are

significant differences in the perception and assessment of the materials shown to students after applying a particular innovative didactic dynamics.

Likewise, and in order to provide greater value to the differences found, Student's t-test was used, providing additional information and supporting the difference between the data collected [49].

## 6.4 Results

This study focuses on investigating how the GBL didactic methodology can influence the perception of the object if it has an artistic sign on its cover. It responds to and reinforces the study on "Art Infusion" by comparing similar items.

The data collected through the surveys given to the students have been purified by eliminating those answers whose values showed to have been made at random and were far from the global average. The reliability of the data collected to validate this research was calculated by means of Cronbach's test, which obtained a value of 0.93, placing it in the "excellent reliability" range according to the criteria established by Hair et al. These results denote the consistency of the questionnaire, serving as a solid base on which to build the rest of the analysis using the different statistical methods.

The statistical techniques used, such as the t-test or the analysis of variance (ANOVA), are intended to locate significant differences between the different variables analyzed, not only focused on the artistic perception of the products but also on their perceived value as well as their valuation as a luxury item.

Before analyzing the different variables and comparing them to determine if there are significant differences between them, the nomenclature used in the different tables is shown in Table 6.2.

### 6.4.1 Student t-Test Analysis

The results were obtained after confronting the different variables with the t-test, obtaining 28 valid records after performing data cleaning for each group, both the control group and the group with GBL methodology, and considering the df value (degrees of freedom) as 54, with an  $\alpha$  of: 0.05. The Student's t-test yielded a critical two-tail t-value of 2.005. Likewise, Table 6.3 shows the results of each of the t-test parameters, the variables compared ( $V_1, V_2$ ); the mean ( $\bar{X}_1, \bar{X}_2$ ) and the difference between them in absolute value; the variance of each of the variables as well as the pooled variance; the calculated t Stat value; and the  $P(T \leq t)$  two-tail or two-tailed p-value.

**Table 6.2** List of nomenclature and description of the variables compared in the different tests

Nomenclature	Description
GBL 1	After the GBL dynamic: Do you consider this product to be a work of art?—product with van Gogh’s cover
GBL 2	After the GBL dynamic: Do you consider this product to be a work of art?—standard product
GBL 3	After the GBL dynamic: Do you think that the images above are similar?
GBL 4	After the GBL dynamic: Subjective value assessment—product with van Gogh’s cover
GBL 5	After performing the dynamic using GBL: Subjective value assessment—standard product
GBL 6	After performing the dynamic using GBL: Perception of luxury—product with van Gogh’s cover
GBL 7	After performing the dynamic using GBL: Perception of luxury—standard product
CONTROL 1	Without GBL: Do you consider this product to be a work of art?—product with van Gogh’s cover
CONTROL 2	Without GBL: Do you consider this product to be a work of art?—standard product
CONTROL 3	Without using GBL: Do you think that the images above are similar?
CONTROL 4	Without performing the dynamic using GBL: Subjective value assessment—product with van Gogh’s cover
CONTROL 5	Without performing the dynamic using GBL: Subjective value assessment—standard product
CONTROL 6	No GBL dynamic: Perception of luxury—product with van Gogh’s cover
CONTROL 7	Without performing the dynamic using GBL: Perception of luxury—standard product

#### 6.4.2 Analysis of Variance (ANOVA)

In this analysis, the aim is to locate significant differences between the variables mentioned above by means of a one-factor analysis of variance (ANOVA).

Comparing the results obtained both in the variables reflected in Table 6.2 and comparing them with the results of the article “Art Infusion” trying to validate and give an answer about its applicability in the educational field through methodological experiences such as the GBL.

The table of results of the analysis of variance (ANOVA) of the different variables ( $V_1$  and  $V_2$ ) with the following parameters is shown below:

The sum of the data obtained (Sum); Sum of Squares (SS) representing the variability in the data indicating Between Groups (BG), variability between groups and Within Groups (WG), variability within groups; Mean Square (MS) being the sum of squares (SS) divided by the degrees of freedom (df); the F-statistic, which indicates the proportion of variation between groups versus variation within groups; and P-value reflecting the probability of observing an F-value at least as extreme as the observed value.

**Table 6.3** Results of the t-test for the different variables compared

Variables ( $V_1, V_2$ )	Mean ( $\bar{X}_1, \bar{X}_2$ / difference)	Variance ( $V_1; V_2$ )	Pooled variance	t Stat	P(T < =t) two-tail
GBL 1 vs CONTROL 1	5.89; 6.04 / 0.2	1.43; 1.22	1.33	-0.460	0.645
GBL 2 vs CONTROL 2	4.93; 5.18 / 0.3	3.55; 2.89	3.22	-0.520	0.604
GBL 3 vs CONTROL 3	4.96; 4.18 / 0.8	1.22; 3.56	2.39	1900	0.063
GBL 4 vs CONTROL 4	5.77; 5.06 / 0.7	1.07; 1.18	1.13	2490	0.016
GBL 5 vs CONTROL 5	4.87; 4.82 / 0	2.5; 1.32	1.91	0.140	0.893
GBL 6 vs CONTROL 6	5.29; 5.19 / 0.1	2.03; 1.08	1.55	0.320	0.749
GBL 7 vs CONTROL 7	4.91; 5.15 / 0.2	1.71; 1.52	1.62	-0.710	0.481
GBL 1 vs GBL 2	4.93; 5.89 / 1	3.55; 1.43	2.49	-2290	0.026
CONTROL 1 vs CONTROL 2	5.18; 6.04 / 0.9	2.89; 1.22	2.06	-2240	0.030
GBL 4 vs GBL 5	4.87; 5.77 / 0.9	2.5; 1.07	1.79	-2520	0.015
GBL 6 vs GBL 7	4.91; 5.29 / 0.4	1.71; 2.03	1.87	-1050	0.298
CONTROL 4 vs CONTROL 5	4.82; 5.06 / 0.2	1.32; 1.18	1.25	-0.810	0.420
CONTROL 6 vs CONTROL 7	5.15; 5.19 / 0	1.52; 1.08	1.3	-0.120	0.907

It should be noted that the mean value and variance necessary for the calculation have already been reflected in Table 6.4 and that the value obtained for degrees of freedom (df), being the degrees of freedom associated with each source of variation, have been for Between Groups 1, and for Within Groups 54. Likewise, the F critical (F crit) value which determines whether the observed value of F is extreme enough to reject the null hypothesis is 4.02.

As can be seen, there are significant differences in the application of the gamified game-based experience versus the control group suggesting that it has had a perceptible impact on how students value the product.

### 6.4.3 Interpretation of the Results

Looking at both tables, Tables 6.3 and 6.4, we can highlight several variables in which the perception of the product has a significant difference, as well as other variables that, although remaining in a range above the traditionally fixed 0.05, show differences worthy of being analyzed and studied in context. Specifically, the most significant differences recorded are reproduced between the following variables:

**Table 6.4** Results of the analysis of variance (ANOVA) of the different variables compared

Variables ( $V_1, V_2$ )	Sum ( $V_1; V_2$ )	SS (BG; WG; T)	MS (BG; WG)	F	P-value
GBL 1 vs CONTROL 1	165; 169	0.29; 71.64; 71.93	0.29; 1.33	0.215	0.644
GBL 2 vs CONTROL 2	138; 145	0.88; 173.96; 174.84	0.88; 3.22	0.272	0.604
GBL 3 vs CONTROL 3	139; 117	8.64; 129.07; 137.71	8.64; 2.39	3616	0.063
GBL 4 vs CONTROL 4	161.6; 141.8	7; 60.94; 67.94	7; 1.13	6203	0.016
GBL 5 vs CONTROL 5	136.4; 135	0.03; 103.24; 103.28	0.03; 1.91	0.018	0.893
GBL 6 vs CONTROL 6	148.25; 145.25	0.16; 83.96; 84.12	0.16; 1.55	0.103	0.749
GBL 7 vs CONTROL 7	137.5; 144.25	0.81; 87.32; 88.13	0.81; 1.62	0.503	0.481
GBL 1 vs GBL 2	165; 138	13.02; 134.54; 147.55	13.02; 2.49	5225	0.026
CONTROL 1 vs CONTROL 2	169; 145	10.29; 111.07; 121.36	10.29; 2.06	5001	0.029
GBL 4 vs GBL 5	161.6; 136.4	11.34; 96.63; 107.97	11.34; 1.79	6337	0.015
GBL 6 vs GBL 7	148.25; 137.5	2.06; 100.91; 102.97	2.06; 1.87	1104	0.298
CONTROL 4 vs CONTROL 5	141.8; 135	0.83; 67.55; 68.38	0.83; 1.25	0.66	0.42
CONTROL 6 vs CONTROL 7	145.25; 144.25	0.02; 70.37; 70.39	0.02; 1.3	0.014	0.907

*GBL 4 vs CONTROL 4* represent the analysis of the value of the product with the van Gogh cover after performing the dynamic using GBL vs. the control group. *GBL 1 vs GBL 2* compares among those who performed the GBL dynamic, the consideration of the product as a work of art between the one with the van Gogh cover and the standard product.

*CONTROL 1 vs CONTROL 2* compares the results of the control group, the consideration of the product as a work of art between the one with the van Gogh cover and the Standard product.

*GBL 4 vs GBL 5* corresponds to those who, after performing the GBL dynamic, evaluated the value of the product between the one with the van Gogh cover and the standard product.

To a lesser extent, it is also worth noting the differences in the consideration of whether the product is similar to the other between those who performed the gamified dynamic and those who did not (*GBL 3 vs CONTROL 3*).

These values obtained with a p-value of less than 0.05 indicate that we can reject the null hypothesis that there are no differences between the means of the groups, suggesting a significant effect of the educational intervention. These headings are evaluated in detail below, putting them in context with their related variables.

#### ***6.4.4 Analysis of the Value of the Product after Carrying Out the GBL Dynamic Versus the Control Group***

The data reveal a significant difference in the perception of product value between the groups that performed the gamified dynamic versus the control group, obtaining a mean rating out of 7 on the Likert scale of 5.77 versus 5.06, corresponding to a  $t$  Stat of 2.49 and a  $P(T \leq t)$  two-tail of 0.016. This suggests that the GBL experience may have influenced the way students evaluate the integration of art into products, increasing their perception of product value. However, the ratings recorded for the product that did not have van Gogh's work on its cover barely varied between the control group (4.82) and the experimental group (4.87), barely reaching statistical significance ( $P = 0.893$ ). These results show that the gamified intervention did not have a significant impact on the perception of the value of the product that does not incorporate artistic elements in its design.

The analysis of variance demonstrates the hypothesis proposed and reinforces the data reflected above with a 6.203 versus the 0.018 of the  $F$  statistic, which indicates the proportion of variation between groups versus the variation within groups.

These data demonstrate that the gamified educational experience not only enhances artistic appreciation but also shapes students' aesthetic judgment of products. These values highlight the ability of GBL as a didactic tool to influence the construction of aesthetic judgments and support the numerous researches on how gamified educational experiences with active methodologies enrich the student's educational experience.

On the other hand, the study shows a significant difference in the perception of value between the product with the inclusion of artistic elements versus the standard product between both experimental groups. This difference is entirely to be expected based on the study by Hagtvedt and Patrick [35]; however, it is worth noting that in those students who carried out the educational dynamic, the valuation of the product is much higher compared to the control group.

The data obtained for the group that carried out the GBL comparing their assessment of perceived value between the product with the van Gogh and the standard product is 4.87 compared to an average of 5.77 out of 7, with a difference of 0.9. The  $t$ -test yielded a value of 2.52 and  $P = 0.015$ , as well as the ANOVA analysis yielded an  $F(1, 54) = 6.337$  and  $P = 0.026$ .

Meanwhile, the control group, faced with the same question, showed a difference in their mean rating of 0.2, starting from a 4.82 and reaching a 5.06 rating out of 7 for the product with van Gogh on its cover. Likewise, the  $t$ -test showed a value of 0.81 and  $P = 0.42$ , as well as the ANOVA analysis which resulted in an  $F(1, 54) = 0.66$  and  $P = 0.42$ .

These results again demonstrate the importance of the GBL in its influence of the perception of value of an item.

### 6.4.5 *Analysis of Artistic Perception*

The values obtained in terms of perception as an artistic work between the Standard product and the product with Vincent van Gogh's "The Starry Night" on its cover reflect significant differences between the different analysis groups.

On the one hand, the results of those who participated in the educational dynamic stand out, who rated their perception as a work of art with an average of 4.93 versus 5.89 out of 7, therefore, a difference between both ratings of 1 point, between one product or the other, reaching a t Stat of 2. Similar differences were obtained in the control group, where the difference between both means was 0.9 with a t Stat of 2.24 and a  $P(T < =t)$  two-tail of 0.03. These data reflect that, as Hagtvedt & Patrick [35] showed in their study, the differences between these products are significant. Likewise, the ANOVA analysis shows representative data, with  $F(1, 54) = 5.225$  and  $P = 0.026$  at the control group.

It should be noted that in this study, the differences obtained were 4.47 and 5.51 on average between both evaluations with an  $F(1, 97) = 7.22$  and  $P = 0.07$ .

These data, so similar to those obtained in this didactic experience, demonstrate and validate the study, and the applicability of the GBL dynamics in the educational curriculum as a didactic methodology for certain aspects becomes more important.

### 6.4.6 *Analysis of the Perceived Similarity Between Images*

Faced with the question of whether the perception of similarity between two products can be influenced through an active didactic methodology, this analysis provides and reflects interesting data in this regard, by showing how the visual perception of practically similar objects that only differ in the presence of a work of art in their design can be altered.

The results indicate that the students who carried out the didactic experience differentiated the products more than the control group, with a difference between both means of 0.8 points; likewise, the t Stat and the p obtained a value of 1.9 and 0.063, respectively. Similar data is reflected in the ANOVA analysis with an  $F(1, 54) = 3.616$ . Although, as can be observed, it does not reach a level of statistical significance below the conventional threshold of 0.05, this difference can be considered relevant since it is a simple question such as the similarity or not of one product compared to another.

On the other hand, other variables such as the perception of the product as a luxury item were not as significant as the previous variables mentioned, with p-values greater than 0.5. These differences may suggest that the group of students in both the control group and the experimental group, given their age or socioeconomic level, may not value or observe luxury patterns in this type of products, and therefore, there are no significant differences to highlight in the results.

## 6.5 Discussion

This study aims to give value to the GBL methodology in a context linked to marketing and how the perception of an object in its relationship with art can be influenced by this didactic methodology. For this purpose, a project has been developed similar to the study provided by Hagtvedt and Patrick [35] on the “Art Infusion” where two products similar in content have been modified with their cover having one of them a recognized work of art (“The Starry Night” by Vincent van Gogh). The aim is therefore to test whether the perception of the value of the object is modified with active didactic tools.

The results achieved in this analysis show significant differences in the perception of value between the control group and the group that participated in the gamified experience, showing the potential of GBL as a didactic tool. However, there were no relevant differences between the standard product and the one that incorporated the artistic work on its cover, which shows that the active methodology does not modify the perception of value of all products, but only of those, that are linked to the experience thanks to the knowledge of artistic works.

It further suggests that the educational experience not only increases students’ motivation and their interest in acquiring content [50] but also influences their perception of the value of artistic objects by including cultural patterns and critical judgment before a work of art in their knowledge.

These results suggest reflecting on the increase of content in the incorporation in the educational curriculum related to art given its great potential and multidisciplinary capacity. The application of an active didactic methodology with artistic content to evaluate a product has proven to be useful not only as an attractive and as motivating educational experience but also as a contribution to critical thinking and cultural enrichment. This research reinforces the idea that GBL combined with other elements and contents such as art or marketing enriches the educational experience and enhances the perception and valuation of products.

## 6.6 Limitations and Future Lines of Research

Although the results of this study are promising, it is necessary to recognize its limitations. First, the sample was composed exclusively of students in compulsory secondary education and located in the same educational center, which prevented the generalization of the results to other groups or educational contexts. On the other hand, the design of the study precluded establishing a cause-effect relationship, but only established associations between the GBL methodology and the perception of the product. It is recommended that other studies with more randomized samples and different groups of GBL or “Art Infusion” application be carried out to evaluate the long-term effects of these educational interventions and confirm their relationships. Another significant limitation is the focus on a single type of artistic



expression (painting), which suggests the need to investigate whether the findings persist with other art forms, such as sculpture, music, or theater.

In terms of future lines of research, it would be useful to analyze how different cultural and educational contexts influence the effectiveness of GBL methodology in teaching art and product perception in the future line of research.

## 6.7 Conclusions

The impact of an active didactic methodology, specifically, GBL on students' perception of the value, aesthetics, or luxury of a product, has been the focus of analysis of this research. The differences registered between a group of students who followed a GBL dynamic and a control group that only registered the data in the survey without any kind of active educational experience, comparing in certain aspects and criteria two similar products where one of them contained a recognized work of art ("The Starry Night" by Vincent van Gogh) on the cover have been revealing, highlighting the following key points:

**Increased Value Perception** There is a significantly higher appreciation of the product with the artwork compared to the standard product in those students who performed the gamified didactic activity. This reflects that the GBL methodology encourages a reflection of art and a greater aesthetic sensitivity in its value, enriching the perception of value of objects if they integrate aesthetic aspects of known works of art.

**Improvement in Critical Thinking** The GBL methodology, as well as fostering students' motivation, shows an increase in the capacity to observe and value artistic details by distinguishing more clearly similar products with small artistic details that differentiate them from each other.

**Increased Ability to Differentiate Products** It has been demonstrated how, thanks to the application of GBL, the perception of a product can be increased in terms of its differentiation with respect to other similar products. These findings are not only interesting for the field of marketing, advertising, or packaging but also for the educational field, where the inclusion of art can be an effective strategy to achieve certain objectives.

On the other hand, the perception of luxury has not been modified after the dynamics, not significantly altering the perception between products under this criterion. This premise may reflect that the conception of luxury of the sample studied is not clearly defined or marked in their cognitive development given their current socioeconomic situation or that this concept is linked to multiple factors and not only to the inclusion of artistic elements.

This study provides evidence after conducting a classroom experiment with a random group of students where, by applying an active teaching methodology such

as GBL, significant differences in the perception of the value of a product compared to another practically similar one have been produced. These findings reinforce the idea of giving greater importance to art in the educational curriculum by applying innovative methodologies that foster a deeper appreciation of art and its value in society. This research opens up a wide range of future research on how art education and active teaching methodologies can influence other aspects of the product.

## References

1. Pons García, L., & de Soto García, I. S. (2020). Evaluación de una propuesta de aprendizaje basado en juegos de rol llevada a cabo en la asignatura de Cultura Científica de Bachillerato. *Revista de estudios y experiencias en educación*, 19(39), 123–144.
2. Pérez, D. R., Rassetto, M. J., & Farina, J. (2021). Relationships between ecological restoration and environmental education: A critical view from Enrique Leff's conceptual framework. *Desenvolvimento e Meio Ambiente*, 58.
3. Cornellà, P., Estebanell, M., & Brusi. (2020). Gamificación y aprendizaje basado en juegos: Consideraciones generales y algunos ejemplos para la Enseñanza de la Geología. *Enseñanza de las ciencias de la tierra: Revista de la Asociación Española para la Enseñanza de las Ciencias de la Tierra*, 28(1), 5–19.
4. Foster, A., & Shah, M. (2015). The play curricular activity reflection discussion model for game-based learning. *Journal of Research on Technology in Education*, 47(2), 71–88. <https://doi.org/10.1080/15391523.2015.967551>
5. Moral, M. E., Fernández, L. C., & Guzmán, A. P. (2016). Proyecto Game to Learn: aprendizaje basado en juegos para potenciar las inteligencias lógico-matemática, naturalista y lingüística en primaria. *Píxel-Bit. Revista de Medios y Educación*, 49.
6. Muntaner Guasp, J. J., Pinya Medina, C., & Mut Amengual, B. (2020). El impacto de las metodologías activas en los resultados académicos. *Profesorado: revista de curriculum y formación del profesorado*.
7. Cáceres, M. V., & Gómez, D. (2022). Actitudes del profesorado hacia la gamificación. *Análisis y modificación de conducta*, 48(177), 145–157.
8. Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). *From game design elements to gamefulness: Defining gamification*. In: Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments (pp. 9–15).
9. Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: A systematic mapping study. *Educational Technology & Society*, 18(3), 75–88. <https://doi.org/10.1109/LaTiCE.2014.10>
10. D'Santiago García, J. A. (2023). Gamificación y aprendizaje basado en juegos como estrategias para la enseñanza. *Revista Honoris Causa*, 15(2), 94–103.
11. Prieto Andreu, J. M. (2020). Una revisión sistemática sobre gamificación, motivación y aprendizaje en universitarios. Una revisión sistemática sobre gamificación, motivación y aprendizaje en Universitarios, pp. 73–99.
12. Gee, J. (2004). *Lo que nos enseñan los videojuegos sobre el aprendizaje y el alfabetismo*. Aljibe.
13. Llorente, E. (2000). Imágenes en la enseñanza. *Revista de Psicodidáctica*, 9, 119–135.
14. Levie, H., & Lentz, R. (1982). Effects of text illustrations: A review of research. *Educational Communication and Technology Journal*, 30(4), 195–232.
15. Baillie, C., & Fitzgerald, G. (2000). Motivation and attrition in engineering students. *European Journal of Engineering Education*, 25(2), 145–155. <https://doi.org/10.1080/030437900308544>

16. Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, *111*(23), 8410–8415.
17. Yueh-Chiao, L., Jui-Mei, Y., Chun-Ming, H., & Hwang, G.-J. (2011). A game-based learning approach to improving students' learning achievements in a nutrition course. *Turkish Online Journal of Educational Technology*, *10*(2), 1–10.
18. Steiner, C. M., Kickmeier-Rust, M. D., & Albert, D. (2009). Little big difference: Gender aspects and gender-based adaptation in educational games. In *Learning by playing. Game-based education system design and development* (pp. 150–161). Springer.
19. Chen, M. P., & Wang, L. C. (2009). The effects of type of interactivity in experiential game-based learning. In *Learning by playing. Game-based education system design and development* (1st ed., pp. 273–282). Springer.
20. Lee, J. J., Ceyhan, P., Jordan-Coolley, W., & Sung, W. (2013). Greenify: A real-world action game for climate change education. *Simulation & Gaming*.
21. Jeres, O. (2015). *Aprendizaje activo, diversidad e inclusión, enfoque y metodología*. Universidad de Chile, primera edición.
22. Gros, B. (2009). Certezas e interrogantes acerca del uso de los videojuegos para el aprendizaje. *Comunicación: revista Internacional de Comunicación Audiovisual, Publicidad y Estudios Culturales*, *7*, 251–264.
23. Kapp, K. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education* (1st ed., p. 336). Wiley.
24. Gómez-Martín, M. A., Gómez-Martín, P. P., & González-Calero, P. A. (2004). Aprendizaje basado en juegos. *Revista Icono*, *14*(4), ISSN 1697-8293.
25. Gros, B. (2007). Digital games in education: The design of games-based learning environments. *Journal of Research on Technology in Education*, *40*(1), 23–38.
26. Huang, W. D., Johnson, T. E., & Han, S.-H. C. (2013). Impact of online instructional game features on college students' perceived motivational support and cognitive investment: A structural equation modeling study. *The Internet and Higher Education*, *17*, 58–68. <https://doi.org/10.1016/j.iheduc.2012.11.004>
27. Vélez, O., Palacio, S. M., Hernández, Y. L., Ortiz, P. A., & Gaviria, L. F. (2019). Aprendizaje basado en juegos formativos: caso Universidad en Colombia. *Revista Electrónica de Investigación Educativa*, *21*(e12), 1–10. <https://doi.org/10.24320/redie.2019.21.e12.2024>
28. Santesmases, M., Merino, M., Sánchez, J., & Pintado, T. (2009). *Fundamentos de Marketing*. Ediciones Pirámide.
29. Kotler, P., & Keller, K. L. (2006). *Dirección de marketing*. Pearson Educación.
30. Winston, A. S., & Cupchik, G. C. (1992). The evaluation of high art and popular art by naive and experienced viewers. *Visual Arts Research*, *18*, 1–14.
31. Walzer, A. (2010). Arte y Publicidad. Elementos para debate. *AISTHESIS* (47), 296–306.
32. Kotler, P., & Armstrong, G. (2003). *Fundamentos de marketing* (pp. 470–507). Pearson Prentice Hall.
33. Bassat, L. (2006). *El libro rojo de las marcas: cómo construir marcas de éxito*. Debolsillo.
34. Cavalli, P. (2007). *El encuentro de dos mundos*. Para diferenciarse las marcas recurren al arte.
35. Hagtvedt, H., & Patrick, V. M. (2008). Art infusion: The influence of visual art on the perception and evaluation of consumer products. *Journal of Marketing Research*, *45*(3), 379–389. <https://doi.org/10.1509/jmkr.45.3.379>
36. Gimbutas, M. (1991). *Diosas y dioses de la Vieja Europa 7000–3500 a.C.: mitos, leyendas e imaginaria* (p. 32). Istmo.
37. Schroeder, J. E. (2005). The artist and the brand. *European Journal of Marketing*, *39*(11–12), 1291–1305.
38. Pérez, J. C. (1998). La publicidad como arte y el arte como publicidad. *Arte, Individuo y Sociedad*, *10*.

39. Petty, R. E., & Wegener, D. T. (1998). Matching versus mismatching attitude functions: Implications for scrutiny of persuasive messages. *Personality and Social Psychology Bulletin*, 24(3), 227–240.
40. Hetsroni, A., & Tukachinsky, R. H. (2005). The use of fine art in advertising: A survey of creatives and content analysis of advertisements. *Journal of Current Issues & Research in Advertising*, 27(1), 93–107.
41. Vermehren, C. (1998). Cultural capital economy of U.S. advertising. In K. T. Frith (Ed.), *Undressing the ad: Reading culture in advertising* (pp. 197–244). Peter Lang. ISBN 978-0-8204-3755-2.
42. Bezrucko, N., & Schroeder, D. H. (1994). Differences in visual preferences and cognitive aptitudes of professional artists and non-artists. *Empirical Studies of Arts*, 12(2), 19–39.
43. Loucher, P. L. (1995). A measure of information content of visual art stimuli for studies in experimental aesthetics. *Empirical Studies of Arts*, 13(2), 183–191.
44. Joy, A., & Sherry, J. F., Jr. (2003). Speaking of art as embodied imagination: A multisensory approach to understanding aesthetic experience. *Journal of Consumer Research*, 30(2), 259–282. <https://doi.org/10.1086/376802>
45. Flavell, J. H. (1963). *The developmental psychology of Jean Piaget*. <https://psycnet.apa.org/doi/10.1037/11449-000>
46. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334.
47. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (5th ed., pp. 207–219).
48. Montgomery, D. C. (2017). *Design and analysis of experiments*. Wiley.
49. Student. (1908). The probable error of a mean. *Biometrika*, 6(1), 1–25.
50. Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management*, 45, 191–210. <https://doi.org/10.1016/j.ijinfomgt.2018.10.013>

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# Chapter 7

## Unveiling the Collaborative Dynamics of Clusters in Enhancing Cooperation for Green Marketing Initiatives: A Conceptual Model



Mohammad Reza Mazandarani  and Marcelo Royo-Vela 

**Abstract** In the current business landscape, where prioritizing sustainability has become imperative, cooperation in developing green marketing takes center stage. Companies are urged to adopt innovative approaches, transcending individual interests in favor of a collective commitment to the greater good. In this transformative journey, cluster organizations emerge as facilitators, leveraging their inherent advantages to propel and support such innovative endeavors. However, despite the growing scholarly attention toward green marketing and the diminishing significance of geographical proximity in communication, there remains a need for further investigation into the effectiveness of clusters for green marketing initiatives. Accordingly, this paper aims to conceptualize how clusters, leveraging their non-spatial proximity advantages, can foster cooperation for green marketing initiatives.

Clusters are influenced by firm relationships such as affiliation, coordination, collaboration, and strategic networks. These relationships influence the degree of non-spatial proximities such as social, cognitive, institutional, and organizational dimensions. Moreover, each facet of non-spatial proximity serves as a foundation for distinct forms of cooperation in green marketing. This framework posits that social proximity fosters research collaboration and knowledge sharing, cognitive proximity facilitates the exchange of resources and expertise, institutional proximity supports advocacy for policy initiatives, and at the apex of cooperative endeavors, organizational proximity drives joint marketing initiatives and innovation. This conceptual model offers practical guidance and paves the way for more in-depth examinations in subsequent studies.

**Keywords** Sustainability · Green Marketing Cooperation · Proximity · Business relationships · Business networks · Clusters

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## 7.1 Introduction

Establishing green marketing initiatives and promoting corporate engagement are critical prerequisites for fostering economic, social, and environmental sustainability performance [1]. In analogous contexts, scholarly investigations have examined interfirm proximity [2] and cooperation [3] as antecedents to collaborative innovation. However, despite the inherently competitive nature of marketing [2], where firms often compete, marketing cooperation has been recognized as an innovative solution for fostering collective performance [4]. Simultaneously, the emerging innovation of green marketing [1] adds complexity to the landscape. Hence, a nuanced study becomes imperative to unravel how firms' relationships and proximity may significantly impact the dynamics of Green Marketing Cooperation (GMC).

Several reasons underscore the significance of firms' proximity as a decisive factor. Firstly, the relationship between proximity and innovation has been subject to systematic research, as evidenced by extensive studies [2, 5, 6]. Before the advent of contemporary information and communication technologies, geographical proximity played a pivotal role in clusters [7] and was a pertinent precursor for collaboration [8]. Consequently, delving into the literature on regional economics becomes imperative to elucidate how clusters continue to form the foundation for successful development and performance in regions, even amid the diminishing role of geographical proximity [9]. Boschma [2] notably underscores the role of firms' proximity in innovation in a context closely aligned with our discussion, acknowledging geographical proximity as a foundational factor that fortifies other dimensions of proximity, such as cognitive, organizational, social, and institutional.

However, a judicious balance is essential, as an excess or deficiency of proximity can pose challenges. Firms engaged in collective innovation must navigate the intricacies of non-spatial proximity dimensions that underscore the importance of regional clusters [2]. According to Porter [3], the coexistence of cooperation and competition within a location is the prevailing condition for forming a cluster. Nevertheless, more than proximity is needed, and effective communication among actors is imperative for fostering cooperation, particularly in marketing [10].

Nevertheless, the nexus between proximity, cooperation, and green marketing, acknowledged as a nascent area, warrants further research [11]. In addition, the existing theories need to be fundamentally revised. The outcomes of theoretical models scrutinizing the correlation between proximity and innovation diverge from some conceptual frameworks. For instance, despite Boschma's [2] proposition that all dimensions of proximity are pivotal precursors of innovation, research findings by Geldes et al. [9, 12] reveal that only social proximity impacts innovation. Furthermore, recent studies indicate that the various non-spatial dimensions of proximity may not necessarily influence each other [13]. Consequently, despite the heightened attention to the significance of collaboration with competitors, there remains a need for additional theoretical investigations to grasp this subject comprehensively [6].

In this context, conflicts arise due to the inherent coexistence of competitive and cooperative behaviors [14], influencing how firms engage with their rivals [15]. Consequently, the nature and impact of firms' proximity on Green Marketing Cooperation (GMC) may vary, contingent on the quality of this factor, with the level of relationship playing a pivotal role in marketing cooperation [10, 16], an aspect that has received relatively scant attention in research. Notably, this research adopts a comprehensive definition of green marketing, encompassing social and cultural aspects and the environmental responsibilities of both customers and businesses [1]. It further expands this framework by incorporating cooperation marketing [10]. In essence, the objective of green marketing should encompass all facets of economic, environmental, and social sustainability [17]. Thus, green marketing is expansive [1], allowing actors to collaborate in pursuit of shared environmental and social objectives while safeguarding their competitive advantage. Consequently, cooperation could exert a more pronounced influence on the efficacy of green marketing [18].

Consequently, although cooperation with competitors is inherently risky, creating shared values and cooperation requires individual commitment [10]. Cooperation could exert a more pronounced influence on the efficacy of green marketing [18]. Sharing knowledge and experiences with competitors to attain shared objectives underscores the significance of cooperativeness within the interplay of cooperation and competition [6]. The effectiveness of such cooperative endeavors is contingent upon the depth of interfirm relationships [10]. Despite the inherent risks associated with collaborative efforts in sales and marketing activities [19], the exchange of marketing knowledge holds the potential for considerable success, particularly for firms with aligned goals, such as those centered on environmental and social sustainability [1].

Moreover, interfirm relationships, encompassing affiliation, coordination, collaboration, and strategic networks, are identified as determinants [10] of non-spatial proximity dimensions, such as social, cognitive, institutional, and organizational proximity [2]. The outcomes of these interfirm relationships assume a controlling role in influencing Green Marketing Cooperation [4].

This study raises two primary questions that lay the groundwork for future research into the influence of varying cooperation levels and the impact of different closeness dimensions on cooperative efforts within Sabzer recovery initiatives.

Research Question 1: How important is the quality of interfirm relationships in shaping and enhancing the effectiveness of non-spatial proximities?

Research Question 2: Do different proximity dimensions similarly influence cooperation in green marketing?

This research notably highlights the need to identify which proximity dimensions—cognitive, organizational, social, and institutional—are essential for successful cooperation in green marketing. It also seeks to understand the conditions that likely govern the relationship between these non-spatial proximity dimensions and green marketing cooperation. This research establishes a comprehensive framework for future studies to explore these questions thoroughly. Furthermore, this

conceptual model serves as a valuable tool for assessing the significance of business networks or clusters in the context of green marketing and sustainability performance.

## 7.2 Literature Review

Subsequently, this paper builds upon existing models and elucidates the primary components constituting this conceptual framework. This section begins by defining Green Marketing Cooperation (GMC). It then examines its correlation with firms' proximity across varied scenarios, presenting corresponding hypotheses.

### 7.2.1 *Green Marketing Cooperation (GMC)*

Examining existing research on business cooperation reveals a prevalent focus on technological innovation, with comparatively less attention given to non-technological aspects, notably marketing cooperation [9]. Literature on clusters generally highlights firms' collaborative efforts in various marketing activities, encompassing market research, distribution strategies, product development, promotions, and communications [20]. Recognizing the competitive nature of these activities, the OECD [4] characterizes interfirm marketing cooperation as a form of non-technological innovation. Consequently, this study acknowledges marketing cooperation as a non-technological innovation, as articulated by Geldes et al. [9], and extends this concept to encompass green marketing [1], elucidating the notion of Green Innovations [21].

Nevertheless, the structure of green marketing markedly diverges from traditional marketing concepts, undergoing continual evolution with technological advancements [1]. In the contemporary landscape, the imperative of addressing climate change and prioritizing environmental sustainability has prompted a reevaluation of business activities, particularly in production and marketing [22]. Initially, green marketing was conceptualized to play a significant role in aligning marketing strategies with environmental considerations [1]. However, this definition evolved with shifting marketing perspectives, assigning a distinct place to consumer needs. Fuller [23] refined the definition, characterizing green marketing as the "process of planning, implementing, and controlling the development, pricing, promotion, and distribution of products" while satisfying three criteria: meeting customer needs, achieving organizational goals, and ensuring compatibility with ecosystems [23, p. 4]. This definition underscores the integration of environmental sustainability into marketing and the centrality of green marketing to cleaner production and corporate sustainability [1, p. 1264].

Accordingly, the general definition of green marketing is the link between the sustainability of society, the environment, and consumers and the sustainable



development of a company with a focus on the impact of social and cultural concepts [24]. Companies can take the first step by collaborating in developing market research to identify green needs [25]. Also, they can reach sustainable supply methods by sharing the acquired knowledge and cooperation in using primary resources. Collaborative efforts among various stakeholders can facilitate the fair distribution of costs and benefits, promoting green initiatives like recycling programs [26] and renewable energy projects [27]. However, companies must partner with regulatory authorities to ensure compliance with environmental regulations and pursue elevated standards for sustainability [28]. Establishing essential criteria [29] and certifications [30] for green products is achievable through collaboration between businesses and relevant industry associations, allowing consumers to discern environmentally friendly options with standardized criteria easily and maintaining consistent messaging across the industry. The growing trend of companies obtaining eco-labels or third-party certifications for their green products contributes to the increasing prevalence of environmentally friendly products [31]. Finally, collaboration among research, development, marketing, and sustainability teams can foster the creation of eco-friendly products. To develop environmentally friendly solutions, companies need to share their knowledge and resources [32]. Ultimately, the synergy among research, development, marketing, and sustainability teams can facilitate the development of environmentally conscious products [33]. To formulate eco-friendly solutions, companies must exchange knowledge and resources [32].

Based on the preceding discourse, collaborative efforts within green marketing encompass research cooperation and knowledge dissemination. Interorganizational alliances may encompass shared resources and knowledge, advocacy for policy measures, and joint marketing endeavors. Such cooperation encompasses joint activities aimed at fostering a culture of environmental sustainability [1], participation in trade missions and fairs with a focus on green destination marketing, the generation and dissemination of market intelligence [34], and collaborative research and development endeavors to manage the costs associated with innovating green products [35].

### **7.2.2 Geographical Proximity (Spatial Dimension of Proximity)**

The investigation into regional economics has reexamined the conventional understanding of geographical proximity, acknowledging it as the most widely recognized form of proximity [2, 5]. Concentrated activities are crucial, offering collaboration while preserving competitive advantages [36]. Notably, outcomes like experiential learning, skill acquisition, and replicating successes under tacit knowledge are contingent upon geographical proximity [2]. Furthermore, geographical proximity is a primary complement to other dimensions of proximity and competition [6].

The diminishing importance of geographic proximity for businesses is primarily attributed to technological advancements [9, 12]. Despite suggestions highlighting the facilitative role of geographical proximity [2, 5, 6], recent findings indicate that physical distance does not significantly impact a firm's competitive or cooperative behaviors. Newer research advocates reconsidering this factor, departing from previous perspectives [9, 12]. Boschma [2], however, contends that a cluster situation inherently balances the levels of other dimensions of proximity. He introduces the concepts of "absolute distance" and "relative distance," where absolute distance pertains to whether or not firms are in the same geographical area, and relative geographic proximity signifies the distance between firms [2, p. 68]. Geographical economists firmly believe that this proximity dimension facilitates non-spatial proximity measurements [2, 6]. Consequently, we propose this factor as the foundational basis for balancing non-spatial proximities.

### ***7.2.3 Non-spatial Proximity and Green Marketing Cooperation (GMC)***

In the last two decades, many investigations have indicated the importance of firms' proximity to innovative performances [6]. For instance, Boschma [2] highlighted the role of firms' proximity in innovation and added non-spatial dimensions to the geographical proximity. Others use proximity to refer to the similarities that facilitate innovation networks [5]. With this regard, Geldes et al. [9] applied the non-spatial proximities concept to cooperation marketing and tested it in an agricultural cluster in Chile. Boschma [2] explained that the non-spatial proximity among the firms exists in different forms with different levels. These alternatives include social, cognitive, institutional, and organizational dimensions. As we know, sources have yet to discuss the order of emergence of these dimensions of proximity. The following is a discussion of the definition of the four forms of non-spatial proximity.

#### **Social Proximity**

Social proximity plays a significant role as firms frequently rely on microlevel social relations to exchange general information, bypassing the need for macro-level relationships [10]. Defined by Boschma [2] as socially embedded relationships at the microlevel, social proximity is characterized by friendships based on trust, kindness, and shared experiences. This informal aspect of interfirm interactions influences cooperative and competitive behaviors [6, 15]. Social similarities often indicate a fundamental level of trust and commitment among actors [2], positively impacting cognitive proximity [13]. Additionally, literature on cooperation underscores social interaction as a precursor to cooperativeness [15, 27]. Geldes et al. [9] specifically emphasized social proximity as the primary driver of marketing cooperation. Therefore, social proximity, facilitated by informal relationships, emerges as the initial and pivotal catalyst for cooperation in green marketing at fundamental levels while concurrently fostering firms' cognitive proximity.

### **Cognitive Proximity**

Referring to Boschma [2], cognitive proximity is the similarity of the level of learning or cognition between organizations. In cognitive terms, businesses must be close to each other to use shared knowledge [36]. Cognitive similarities allow firms to gain the collective knowledge necessary for innovative cooperation [5]. In other words, this type of proximity facilitates sharing “the same references and knowledge” and is essential for “processing new information and understanding changes in the environment” [9, p. 256].

However, distinguishing cognitive proximity from the organizational dimension is challenging, and more general interpretations of such proximity exist. For instance, Molina-Morales et al. [37] have defined it as cultural and organizational similarities, including shared values, language, and norms. In other cases, researchers dubbed it “cognitive–organizational proximity” [9, 12]. In response to these doubts, [13] have examined the relationship between non-spatial proximities in more than 90 cluster organizations and found that cognitive and organizational proximities are entirely separate.

Generally, researchers situate cognitive proximity as an antecedent to mutual understanding in a cluster, as companies’ competitive interaction is affected by their knowledge limitations [2, 26]. For this reason, this work expects cognitive proximity to be vital for cooperation in green marketing because paying attention to the marketing discussion from a green perspective requires high knowledge in all aspects [1]. In addition, cognitive proximity sometimes leads to the unwanted disclosure of confidential information due to a lack of awareness of maintaining the appropriate distance in collaboration with competitors, which lowers the number of actors willing to share their knowledge [2, 27]. Nevertheless, green marketing is vast enough to provide sufficient space for simultaneous cooperation with competitors [1]. In short, cognitive proximity could be the reason for GMC if members coordinate on environmental problems.

### **Institutional Proximity**

This proximity dimension, defined by similarities in institutional arrangements such as norms and rules in large-scale exchanges, is acknowledged as a determinant [2]. Firms, as an alternative to simple cooperation, can adhere to established rules to mitigate conflicts [14]. Adopting a macro-perspective provides a systematic approach to cultivating win-win situations [10]. In regional activities, the lack of control over rules can hinder cooperation [36], whereas adherence to established guidelines enhances the coherence of firms’ interactions and reduces transaction costs [2]. Regulatory bodies and institutions are crucial in overseeing and resolving problems [38]. Consequently, this model posits that institutional proximity could influence Green Marketing Cooperation (GMC) when firms operate at a collaborative relationship level.

### **Organizational Proximity**

Organizational proximity, encompassing the shared space of relations and reference and knowledge spaces among actors [2, p. 63], is often influenced by institutional proximity [13]. Excessive organizational proximity can initially facilitate

cooperation and performance, including knowledge transfer or sharing, but over time, it may contribute to firms' lock-in [2]. From a managerial perspective, an interfirm relationship attains maturity when cooperative and competitive behaviors are balanced and integrated into the organization's strategy [39]. However, considering non-spatial dimensions of proximity, each independently and collectively impacts various behaviors and performances, such as competition, cooperation, learning processes, competencies, organizational structures, beliefs, goals, communication processes, exchanges, governing institutions, and rules (Boschma). Organizational proximity is placed last in the non-spatial proximity linear relationship, with the social dimension considered the initial factor [13]. As highlighted by Davids and Frenken [40, p. 24], "Organizational, social, institutional, and geographical proximity may, each in their way, but most likely in combination, provide solutions to that fundamental coordination problem." Their qualitative approach underscores a robust connection between proximity and competition.

Therefore, in a cluster organization, members are ready to join strategic networks to share strategic knowledge, which means they are prepared to cooperate at the highest level. In this level of cooperation, all members are involved with a shared target and cooperate to achieve their common goals "through consistent strategy and concerted efforts" [10, p. 138]. This type of relationship has more formal structures that can integrate the shared vision of cluster members and lead them to destination marketing [41]. Accordingly, organizational proximity is affected by institutional similarities and positively impacts GMC. This impact will be maximized if all members are ready to join strategic networks.

#### ***7.2.4 The Function, Classification, and Intensity of Interfirm Relationships***

While various dimensions of proximity may, to some extent, serve as catalysts for cooperation [42], they may only sometimes suffice to attain shared objectives. The significance attributed to proximity by specific authors lacks universal support, as evidenced by the findings of researchers exploring the correlation between proximity and cooperation. For instance, Geldes et al. [9] examined various proximity types in marketing cooperation, identifying only social proximity as a significant influencing factor. Their results raise two possible perspectives: either solely social proximity shapes firms' cooperation, or the impact of other dimensions of closeness may vary under specific conditions.

To successfully engage in collaborative green marketing, it is imperative to comprehend and delineate the relationships among the involved actors [10, 43]. Hence, this research aims to bridge this gap by incorporating the concept of relationship type into characterizing the actor's level of proximity.

As it interacts with other members, the communication within an organization spans a spectrum from informal to more integrated relationships [16]. Notably, Wang and Krakover [10] have categorized relationships into four types and levels:

1. **Affiliation:** The most informal links among members are formed based on initial trust and commitment.
2. **Coordination:** The second level of interfirm relationship.
3. **Collaboration:** Involving a set of practices.
4. **Strategic Networks:** When members are fully prepared to participate in strategic networks in every possible way.

Consequently, this research explores four scenarios to elucidate how the level of interfirm relationship may moderate the association between non-spatial dimensions of proximity and Joint Green Marketing Cooperation.

### **Affiliation**

The cluster development process among firms unfolds through several stages, with the initial phase being affiliation [41]. The relationship between firms starts with building trust, commitment, and a shared goal and moves forward through affiliation [2]. At this initial stage, actors explore common objectives, laying the groundwork for knowledge sharing and collaboration in innovation [14, 44]. Informal affiliation at this level is characterized by the emergence of common interests and mutual support, serving as a precursor to cooperation [16].

In a qualitative investigation conducted by Wang and Krakover [10] within tourism organizations, the link between marketing cooperation and the level of interfirm relationships was examined. The findings indicated that affiliation represents the most informal connection between organizations. Affiliation is portrayed as a product of trust and commitment, emphasizing a “person-to-person rather than organization-to-organization” nature [10, p. 132].

Behavioral researchers have delineated multiple factors underscoring the significance of trust and perseverance in collaborative endeavors [14]. Initially, social relations grounded in trust can serve as the catalyst for establishing affiliations among firms in industrial settings [45]. Furthermore, associations built on trust and commitment enhance cooperation, thereby facilitating the exchange of knowledge [44]. Higher levels of trust among participants correlate with a reduced risk of opportunistic behavior, underscoring that cultivating stable, committed relationships can mitigate differences and challenges for firms [2, 6].

Under this perspective, affiliation may serve as the underlying factor for social proximity. Subsequently, this level of proximity serves as the foundation for collaborative engagement in research endeavors and the exchange of knowledge, particularly within the marketing domain.

### **Coordination**

Coordination is the second level of the working relationships among and between firms [10]. This relationship refers to the established decisions and basic rules that help firms cooperate with their partners [46]. To align minimal activities to support each other in specific tasks, cluster organizations at least need a coordination level

of relationship. In addition, coordination allows cluster organizations to align self-interest with different interests and better participate in activities such as fairs and events and joint learning. However, the policies and strategies remain relatively informal [10].

Amidst the challenges posed by global warming, the imperative for corporate sustainability becomes evident through adopting environmentally conscious strategies. Consequently, enterprises must adopt a green-oriented paradigm in resource procurement and utilization [1]. Furthermore, at this juncture, achieving parity among companies is crucial regarding their capacity to assimilate knowledge for collaborative planning toward shared objectives through collective learning [2]. Consequently, establishing cognitive proximity necessitates closer relationships, emphasizing coordination over mere affiliation.

Hence, this degree of relational closeness can catalyze Cognitive proximity, creating a conducive environment for exchanging resources and information essential for pursuing green marketing initiatives.

### **Collaboration**

Collaboration is born from coordination [47], a sign of development in clusters organizations [7]. Collaboration begins when the clusters form initiative groups and enter into joint meetings and collective decisions [41]. At this point, many researchers recognize the interaction of cluster members with institutions as the main factor of cooperation. For example, Calignano et al. [41] mentioned that cluster organizations foster collaborative innovations through coordination in research activities.

However, higher levels of cooperation usually require regulation and control [41]. Researchers use collaboration to explain more formal interfirm working relationships as a higher grade for coordination [10]. Collaboration is “when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structure, to act or decide on issues related to that domain.” [47, p. 146]. In addition, actors must develop a collaborative formal agreement plan for working as a cluster. At this level, organizations face each other to interact directly, facilitating mutual support and achieving common goals [10].

Consequently, it is anticipated that collaborative endeavors among members will result in institutional proximity, with the resultant output manifesting as policy advocacy.

### **Strategic Networks**

However, strategic networks can be divided into vertical and horizontal structures [10]. If the design of relations is vertical, it can hinder progress and innovation, but formal horizontal systems are precisely what centralized economies need for development [2]. On the other hand, competing companies that cooperate outside the framework can also prompt the misuse of cooperation “as partner’s opportunism” [14, p. 205]. As mentioned above, organizational proximity refers to a cognitive likeness and the similarity of interactions [2]. According to this definition, if the cluster members are ready to join strategic networks, this level of relationship may moderate the impact of all dimensions of non-spatial proximities on GMC.

Hence, this conceptual model incorporates horizontal strategic networks within cluster organizations, utilizing it as a regulator for the uppermost tier of the relationship between non-spatial dimensions of proximity and cooperation in green marketing. Consequently, achieving Joint Marketing Initiatives and Economies of Scale requires the establishment of organizational proximity among firms. This particular proximity facet can be cultivated through the influence exerted by strategic networks.

### 7.3 Conceptual Model

Indeed, geographical [33] or other dimensions of proximity such as social, cognitive, institutional, and organizational [2] are not automatically reasons to achieve common goals. Moreover, even the linear relationship between non-spatial proximity [13] reinforces the hypothesis that these dimensions do not create simultaneously. So even if all these dimensions are a reason for innovation, depending on the type and level of relationships [10], non-spatial dimensions of proximity became important one after the other [13]. Thus, various dimensions of proximity exert disparate influences on diverse forms of collaboration, particularly evident in multidisciplinary domains such as marketing.

This challenge prompts researchers to gauge the correlation between distinct dimensions of proximity and marketing cooperation to confront two ambiguous issues. Firstly, determining the primary factor contributing to the emergence of various dimensions of closeness is imperative. Secondly, discerning the specific type of marketing cooperation influenced by each proximity dimension becomes a pivotal consideration. Furthermore, while countless investigations study the different dimensions of proximity, no conceptual or theoretical models draw down the relationships between proximity and green marketing cooperation. For example, Geldes et al. [9] only test the relationship between proximity and cooperation marketing. Therefore, considering the critical role of cooperation and green marketing for global sustainability [1], this research referenced Boschma's [2] theory of proximities to conceptualize the connection between firms' proximity and GMC.

In response to the first question, this research highlights several key points about the impact of interfirm relationships on various dimensions of non-spatial proximity. First, interfirm relationships, such as affiliation, coordination, collaboration, and strategic networks, significantly influence non-spatial proximity dimensions such as social, cognitive, institutional, and organizational proximity. In other words, social proximity, which arises from informal relationships between companies, encourages research collaboration and knowledge sharing. Cognitive proximity facilitates sharing resources and expertise, institutional proximity supports policy advocacy, and organizational proximity drives innovation and co-marketing. Furthermore, the quality of these relationships is essential to manage the inherent competitive and cooperative dynamics within clusters. Effective relationships help balance these dynamics, improving the cluster's overall cooperative effectiveness and innovative outcomes.

Consequently, this research shows that the interaction between the quality of interfirm relationships and non-spatial proximities could determine the success of cooperative firms in green marketing. This hypothesis indicates that fostering high-quality relationships can significantly improve the effectiveness of these non-spatial proximity dimensions, leading to better outcomes in sustainability-oriented marketing practices. Solid and well-managed relationships can also lead to more successful cooperation and innovation in green marketing efforts. The themes and theories mentioned above should be tested in future research. In response to the second research question, the content of this research reveals that the influence of non-spatial dimensions of proximity on cooperation in green marketing may vary, each contributing differently based on the context and specific requirements of the initiatives:

- Informal, trust-based relationships within firms primarily drive social proximity. This proximity can foster cooperation by enabling research collaboration and knowledge sharing, which is essential for initiating cooperative interactions within green marketing.
- Cognitive proximity involves the similarity in knowledge and understanding between firms. Cognitive proximity is essential for sharing technical expertise and resources, which are necessary for successful collaborative efforts in green marketing. It helps understand new information and adapt to environmental changes, especially regarding sustainable practices.
- Shared formal rules and norms define institutional proximity. Institutional proximity facilitates cooperation by providing a framework for policy advocacy and ensuring compliance with standards and regulations, which is crucial for large-scale environmental initiatives.
- Organizational proximity relates to the structural connections between firms, such as shared goals and strategic alignment. Organizational proximity is essential for successful joint marketing initiatives and for integrating sustainable practices into the core strategies of collaborating companies.

Consequently, this research clarifies that while all these dimensions are essential, their specific impact on cooperation may vary significantly, indicating that they do not influence cooperation similarly. Instead, each dimension plays a unique role in facilitating different aspects of cooperation within green marketing. The assumptions articulated in this research delineate the sequential relationship among diverse dimensions of non-spatial proximity, influenced by the nature of interfirm relationships. In the subsequent section, the assumptions posit that each non-spatial dimension can influence a specific type of cooperation in green marketing (Fig. 7.1).

H1—The development of interfirm relationships progresses sequentially, beginning with affiliation, advancing to coordination, followed by collaboration, and culminating in the formation of strategic networks.

H2—Interfirm relationships govern the dimensions of non-spatial proximity.

H3—In cases where interfirm relationships involve affiliation, social proximity positively affects research cooperation and knowledge exchange.



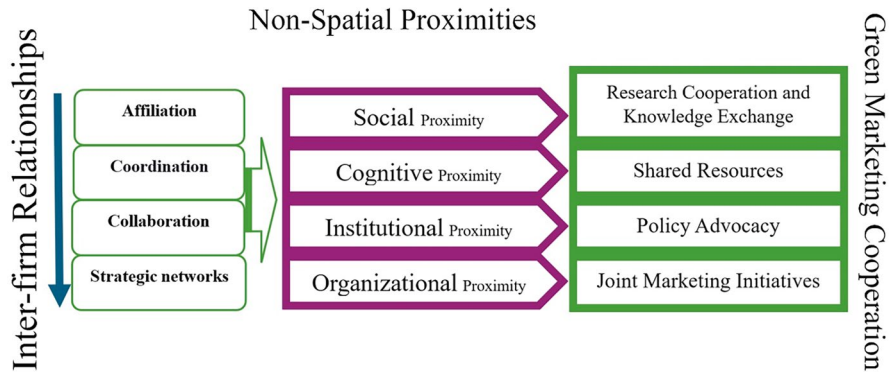


Fig. 7.1 Graphic descriptions of the conceptual model and hypotheses

H4—In cases where interfirm relationships involve coordination, cognitive proximity positively affects shared resources and knowledge.

H5—In cases where interfirm relationships involve collaboration, institutional proximity positively affects policy advocacy.

H66—In cases where interfirm relationships involve strategic networks, organizational proximity positively affects joint marketing initiatives.

## 7.4 Implications, Considerations, and Directions for Future Research

This paper introduces a conceptual approach to determine a practical framework for evaluating the non-spatial dimensions of proximity about varying degrees of green marketing cooperation. The hypotheses advanced in this study serve as a foundational basis for addressing two critical inquiries in prospective research.

First, future research could examine how the quality of interfirm relationships shapes and enhances the effectiveness of nonspatial proximities, such as social, cognitive, institutional, and organizational dimensions. This gap includes understanding the role of these relationships in fostering cooperation in green marketing.

Second, further examine whether different dimensions of proximity (cognitive, organizational, social, and institutional) similarly affect cooperation in green marketing. This gap includes identifying dimensions of proximity for successful collaboration and under what conditions these relationships influence green marketing collaboration.

The suggested approach paves the way for future investigations into the relationship between proximity and various subtopics within Green Marketing Cooperation. A quantitative or qualitative scrutiny of this model in subsequent research endeavors holds potential value. Empirical validation of this conceptual model within cluster organizations would elucidate the interconnections between non-spatial

proximities among members and their modes of relationship. Subsequent testing of this conceptual model is poised to provide theoretical insights into Green Marketing Cooperation (GMC) and furnish pertinent information conducive to the sustainable functioning of cluster organizations. Furthermore, the model can be applied to scrutinize different industries individually or collectively.

Additionally, empirical validation of these models within two distinct contexts—clustered versus non-clustered environments—would yield insightful distinctions concerning the role of geographical proximity. Such comparative analysis could significantly enhance our understanding of the models' applicability and the impact of geographical closeness on cooperation dynamics.

Following Banerjee and Chaudhury's recommendation [39], the proposed strategy for future testing of comparable models involves selecting a population comprising a comprehensive array of business activities characterized by specialized features, such as regional clusters. Accordingly, researchers could target a subset of this population for future investigations.

However, preceding research recommends six criteria for selecting respondents, including their explicit willingness to cooperate with competitors (assessed through an exit yes-or-no question), business size, respondent age, respondent gender, respondent level of authority, and business location [13]. In the quantitative approach, several researchers advocate dividing the questionnaire into four sections: screening, leading questions, business profile, and respondent demographic information. Parallel studies have designed central questions to gauge the four dimensions of proximity (cognitive, organizational, institutional, and social) [2, 9, 11]. To measure Green Marketing Cooperation (GMC), researchers may enhance existing marketing cooperation scales e.g., [7] with a green marketing perspective [1]. In alignment with referenced studies, all questions in this section can be assessed using a seven- or five-point Likert scale, and prior research recommends the utilization of structural equation modeling (SEM) for analysis.

## References

1. Dangelico, R. M., & Vocellelli, D. (2017). "Green marketing": An analysis of definitions, strategy steps, and tools through a systematic literature review. *Journal of Cleaner Production*, 165, 1263–1279. <https://doi.org/10.1016/j.jclepro.2017.07.184>
2. Boschma, R. (2005). Proximity and innovation: A critical assessment. *Regional Studies*, 39(1), 61–74. <https://doi.org/10.1080/0034340052000320887>
3. Porter, M. (2000). Location, competition, and economic development: Local clusters in a global economy. *Economic Development Quarterly*, 14(1), 15–34. <https://doi.org/10.1177/089124240001400105>
4. OECD. (2005). *Oslo manual (guidelines for collecting and interpreting innovation data)* (3rd ed.). Organisation for economic co-operation and development. OECD/Eurostat. <https://www.conicyt.cl/wp-content/uploads/2014/07/Manual-de-Oslo.pdf>
5. Lazzaretti, L., & Capone, F. (2016). How proximity matters in innovation networks dynamics along the cluster evolution. A study of the high technology applied to cultural goods. *Journal of Business Research*, 69(12), 5855–5865. <https://doi.org/10.1016/j.jbusres.2016.04.068>

6. Albert-Cromarias, A., & Dos Santos, C. (2020). Coopetition between French healthcare providers: An analysis in terms of proximity. *Supply Chain Forum: An International Journal*, 1–10. <https://doi.org/10.1080/16258312.2020.1718547>
7. Porter, M. E. (1998). *Clusters and the new economics of competition* (76 vols). Harvard Business Review. [https://www.biblioteca.fundacioncibc.edu.ar/images/d/de/Clusters\\_1.pdf](https://www.biblioteca.fundacioncibc.edu.ar/images/d/de/Clusters_1.pdf)
8. Katz, J. (1994). Geographical proximity and scientific collaboration. *Scientometrics*, 31(1), 31–43. <https://doi.org/10.1007/bf02018100>.
9. Geldes, C., et al. (2015). How does proximity affect interfirm marketing cooperation? A study of an agribusiness cluster. *Journal of Business Research*, 68(2), 263–272. <https://doi.org/10.1016/j.jbusres.2014.09.034>
10. Wang, Y., & Krakover, S. (2008). Destination marketing: Competition, cooperation or coope-tition? *International Journal of Contemporary Hospitality Management*, 20(2), 126–141. <https://doi.org/10.1108/09596110810852122>
11. Anonymous 1.
12. Geldes, C., et al. (2017). Proximity as determinant of business cooperation for technological and non-technological innovations: A study of an agribusiness cluster. *Journal of Business & Industrial Marketing*, 32(1), 168–179. <https://doi.org/10.1108/JBIM-01-2016-0003>
13. Anonymous 2.
14. Tiessen, J. H., & Linton, J. D. (2000). The JV dilemma: Cooperating and competing in joint ventures. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 17(3), 203–216. <https://doi.org/10.1111/j.1936-4490.2000.tb00221.x>
15. Baruch, Y., & Lin, C. (2012). All for one, one for all: Coopetition and virtual team performance. *Technological Forecasting and Social Change*, 79(6), 1155–1168. <https://doi.org/10.1016/j.techfore.2012.01.008>
16. Bailey, D., & Koney, K. M. (2000). *Strategic alliances among health and human services organizations: From affiliations to consolidations* (Vol. 41). Sage.
17. Kumar, V., Rahman, Z., & Kazmi, A. A. (2013). Sustainability marketing strategy: An analysis of recent literature. *Global Business Review*, 14(4), 601–625. <https://doi.org/10.1177/0972150913501598>
18. Sellitto, M. A., Camfield, C. G., & Buzuku, S. (2020). Green innovation and competitive advantages in a furniture industrial cluster: A survey and structural model. *Sustainable Production and Consumption*, 23, 94–104. <https://doi.org/10.1016/j.spc.2020.04.007>
19. Cygler, J., & Sroka, W. (2017). Coopetition disadvantages: The case of the high tech compa-nies. *Engineering Economics*, 28(5), 494–504. <https://doi.org/10.5755/j01.ee.28.5.16421>
20. Felzensztein, C., Gimmon, E., & Carter, S. (2010). Geographical co-location, social networks, and interfirm marketing co-operation: The case of the salmon industry. *Long Range Planning*, 43(5–6), 675–690. <https://doi.org/10.1016/j.lrp.2010.02.006>
21. Belso, J. A., Diez-Vial, I., Martín-de Castro, G., & Hervás-Oliver, J. L. (2024). How much do cluster institutions drive a firm's green innovation? A multi-level analysis. *Regional Studies*, 1, 10.00343404.2023.2298317–12.
22. Foster, C., & Green, K. (2000). Greening the innovation process. *Business Strategy and the Environment*, 9(5), 287–303. [https://doi.org/10.1002/1099-0836\(200009/10\)9:5<287::AID-BSE256>3.0.CO;2-7](https://doi.org/10.1002/1099-0836(200009/10)9:5<287::AID-BSE256>3.0.CO;2-7)
23. Fuller, D. A. (1999). *Sustainable marketing: Managerial-ecological issues*. Sage.
24. Tian, Y., & Kamran, Q. (2023). Mapping the intellectual linkage of sustainability in marketing. *Business and Society Review*.
25. Esmaelnezhad, D., Lagzi, M. D., Antucheviciene, J., Hashemi, S. S., & Khorshidi, S. (2023). Evaluation of green marketing strategies by considering sustainability criteria. *Sustainability*, 15(10), 7874. <https://doi.org/10.3390/su15107874>
26. Mandal, A., & Pal, B. (2023). Investigating dual-channel green supply chain consider-ing refurbishing process and product recycling with environmental awareness effort. *Mathematics and Computers in Simulation*, 204, 695–726. <https://doi.org/10.1002/10.1016/j.matcom.2022.09.009>

27. Liu, H., Huang, F., & Huang, J. (2022). Measuring the coordination decision of renewable energy as a natural resource contracts based on rights structure and corporate social responsibility from economic recovery. *Resources Policy*, 78. <https://doi.org/10.1016/j.resourpol.2022.102915>
28. Miao, J., Liu, A., Li, Z., & Yuan, S. (2022). Green product pricing and purchasing strategies in a two-period supply chain considering altruistic preferences. *Discrete Dynamics in Nature and Society*. <https://doi.org/10.1155/2022/6324074>
29. He, Q. R., & Chen, P. K. (2022). Developing a green supplier evaluation system for the Chinese electric vehicle battery manufacturing industry based on supplier willingness to participate in green collaboration. *IEEE Transactions on Engineering Management*, 1–19. <https://doi.org/10.1109/TEM.2022.3205155>
30. Hyytia, A. (2022). Sustainable development – International framework – Overview and analysis in the context of forests and forest products – Competitiveness and policy. *Forest Products Journal*, 72(S1), 1–4. <https://doi.org/10.13073/FPJ-D-20-00053>
31. Dangelico, R. M., Pontrandolfo, P., & Pujari, D. (2013). Developing sustainable new products in the textile and upholstered furniture industries: Role of external integrative capabilities. *Journal of Product Innovation Management*, 30(4), 642–658. <https://doi.org/10.1111/jpim.12013>
32. Salim, N., Ab Rahman, M. N., Abd Wahab, D., & Muhamed, A. A. (2020). Influence of social media usage on the green product innovation of manufacturing firms through environmental collaboration. *Sustainability*, 10(20), 8685. <https://doi.org/10.3390/su12208685>
33. Batwara, A., Sharma, V., Makkar, M., & Giallanza, A. (2022). An empirical investigation of green product design and development strategies for eco-industries using Kano model and fuzzy AHP. *Sustainability*, 14(14). <https://doi.org/10.3390/su14148735>
34. Hendar, H., et al. (2020). Market intelligence on business performance: The mediating role of specialized marketing capabilities. *Journal of Intelligence Studies in Business*, 10(1), 42–58. <https://ojs.hh.se/index.php/JISIB/article/view/519>
35. Duarte, L. O., et al. (2022). From fashion to farm: Green marketing innovation strategies in the Brazilian organic cotton ecosystem. *Journal of Cleaner Production*, 360. <https://doi.org/10.1016/j.jclepro.2022.132196>
36. Nowaczyk, P. (2019). Tourism cluster in the sailing operations of small sea ports in Poland. *Acta Scientiarum Polonorum Oeconomia*, 18(2), 69–77. <https://doi.org/10.22630/ASPE.2019.18.2.20>
37. Molina-Morales, F. X., García-Villaverde, P. M., & Parra-Requena, G. (2014). Geographical and cognitive proximity effects on innovation performance in SMEs: A way through knowledge acquisition. *International Entrepreneurship and Management Journal*, 10(2), 231–251. <https://doi.org/10.1007/s11365-011-0214-z>
38. Aldebert, B., Dang, R. J., & Longhi, C. (2011). Innovation in the tourism industry: The case of tourism. *Tourism Management*, 35(5), 1204–1213. <https://doi.org/10.1016/j.tourman.2010.08.010>
39. Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial Psychiatry Journal*, 19(1), 60–65. <https://doi.org/10.4103/0972-6748.77642>
40. Davids, M., & Frenken, K. (2018). Proximity, knowledge base and the innovation process: Towards an integrated framework. *Regional Studies*, 52(1), 23–34. <https://doi.org/10.1080/00343404.2017.1287349>
41. Ungur, C. (2017). Principles of initiating and organizing cluster activity. 8(2), 89–97. [https://ibn.idsi.md/vizualizare\\_articol/58089](https://ibn.idsi.md/vizualizare_articol/58089)
42. Calignano, G., Fitjar, R. D., & Kogler, D. F. (2018). The core in the periphery? The cluster organization is the central node in the Apulian aerospace district. *Regional Studies*, 52(11), 1490–1501. <https://doi.org/10.1080/00343404.2017.1420155>
43. Terpstra, V., & Simonin, B. L. (1993). Strategic alliances in the triad: An exploratory study. 1(1), 4–25. <https://www.jstor.org/stable/25048481>.

44. Lin, C. P., et al. (2010). Perceived job effectiveness in cooperation: A survey of virtual teams within business organizations. *Computers in Human Behavior*, 26(6), 1598–1606. <https://doi.org/10.1016/j.chb.2010.06.007>
45. Casper, S., & Murray, F. (2005). Careers and clusters: Analyzing the career network dynamic of biotechnology clusters. *Journal of Engineering and Technology Management*, 22(1–2), 51–74. <https://doi.org/10.1016/j.jengtecman.2004.11.009>
46. Fyall, A., & Garrod, B. (2005). *Tourism marketing: A collaborative approach* (Vol. 18). Channel View Publications.
47. Wood, D. J., & Gray, B. (1991). Toward a comprehensive theory of collaboration. *The Journal of Applied Behavioural Science*, 27(2), 139–162. <https://doi.org/10.1177/0021886391272001>

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# Chapter 8

## Nurturing Sustainability in Agricultural Firms: The Role of Relational Marketing with Stakeholders and the Moderating Influence of Firm's Attitudes Toward Sustainability



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**Abstract** This study delves into the strategic intersection of sustainability practices, relational marketing, and firm attitudes in the agricultural sector, emphasizing the imperative of balancing economic viability with environmental responsibility. As global concerns over climate change, resource depletion, and ethical sourcing escalate, the agricultural industry faces unprecedented challenges that necessitate innovative and enduring solutions. Drawing on stakeholder theory, the study proposes a conceptual framework that integrates a firm's relational marketing with stakeholders and the implementation of sustainable practices while considering the moderating influence of firm attitudes toward sustainability. The research underscores the pivotal role of stakeholders in driving agricultural firms toward sustainable initiatives, highlighting the positive impact of strong relationships on the adoption of sustainable practices. By fostering collaborative partnerships and demonstrating a firm commitment to sustainability, companies can enhance their social and environmental responsibility while strengthening their competitive advantage. The study also explores the moderating effect of firm attitudes towards sustainability, emphasizing

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the importance of proactive organizational attitudes in facilitating the relationship between relational marketing and sustainable practices implementation.

**Keywords** Sustainability practices · Relational marketing · Agricultural companies · Stakeholder theory · Firm attitudes

## 8.1 Introduction

In the contemporary landscape of agriculture, the call for sustainability resonates louder than ever, based on the sector's pivotal role in global food production and the environmental challenges posed by conventional farming practices [1]. With mounting concerns over environmental degradation, resource scarcity, and ethical considerations, the imperative for agricultural firms to embrace sustainable practices has become paramount [2]. Amidst this backdrop, we propose that the role of strategic marketing, particularly relational marketing, emerges as a pivotal factor in shaping the sustainability agenda of these firms. Relational marketing addresses the relationship and interaction between a variety of dispersed actors. Indeed, in relational marketing, the unit of analysis is the relationship between two parties that have an economic or social link, and it lies in the fact that these factors aim to produce mutual benefits [3].

While the existing literature recognizes the importance of sustainability and marketing in the agricultural sector, few studies address the interaction and relationship between them [4]. By investigating the practical implications of relational marketing with stakeholder engagement, this investigation aims to provide actionable insights for agricultural firms striving to navigate the complexities of sustainable development, as well as contributing to the scientific literature on the relationship between marketing and sustainability. Drawing upon stakeholder theory as our guiding framework, we delve into the nuanced dynamics of how relational marketing strategies with stakeholders can catalyze the adoption and implementation of sustainable practices within agricultural enterprises. Additionally, we probe the moderating influence of firms' attitudes toward sustainability, recognizing the significance of internal organizational mindset in driving sustainable outcomes [5].

Following this first section, in the second section, we present the theoretical framework of this research by linking stakeholder theory with relational marketing and its application to agricultural firms. In the third section, a literature review is conducted on sustainability in agricultural firms, sustainable practices implementation, relational marketing with stakeholders, and firm's attitudes toward sustainability, establishing the propositions and the conceptual model of this study. Finally, in the fourth section, the conclusions, limitations, and future research lines derived from this study are established.

## 8.2 Theoretical Framework

The agricultural sector is presently confronted with exceptional challenges, necessitating the adoption of creative and enduring solutions. Pressing issues like environmental degradation, waste management, limitations in resources, and the impact of climate change have underscored the need for a fundamental transformation of conventional farming methods, emphasizing sustainability. The European Commission [6] points out that “In Europe, approximately 9 billion euros are needed for annual losses due to drought, which occur mainly in agriculture, the energy sector and public water supply. Extreme droughts are becoming more frequent in Europe and the damage they cause is also increasing.” As these types of extreme events increase, agricultural crops face a reduction in their yield due to soil deterioration, scarcity of water for irrigation and increasingly extreme and unpredictable weather conditions [7, 8]. In the first months of 2024, there has been a wave of protests in various European cities by the agricultural productive sector led mainly by small farmers, which has led to the need to reevaluate the subsidy systems while trying to persuade toward more ecological practices that reduce the negative impact on the environment, giving priority to new, more resilient regenerative practices [8].

Recently, it has been suggested that stakeholders may influence the decision-making of agricultural firms regarding the implementation of sustainable practices, in the sense that stakeholders may push agricultural companies to adopt new sustainable practices in their supply chain process [9]. For [10, 11] the sustainable dialogue with stakeholders may benefit them to develop complex intangible assets, i.e., stakeholders may help to develop competitive sustainable advantages, as could be the adoption of sustainable practices. However, as mentioned by [12], it is necessary for companies to be able to manage their relationships with stakeholders to the point of building collaborative relationships with the various stakeholders.

### 8.2.1 Stakeholder Theory

The study of the evolution of business management theories over recent decades reflects a growing recognition among companies that their success is closely linked to the dynamic interaction of internal and external factors [13, 14]. This paradigm shift has caused a reevaluation of organizational planning strategies, placing greater emphasis on stakeholders [13]. Stakeholder theory, as emphasized by [15], posits that companies should strategically formulate their business plans considering the interests of the various stakeholders that influence the organization. This strategic management approach is supported by various authors over the years and recognizes that stakeholders, including employees, customers, suppliers, and the community at large, play a fundamental role in shaping the trajectory of a company [16–18].



As we move into the twenty-first century, there has been a notable expansion of this stakeholder-oriented perspective to include business considerations of the impact on the physical environment [13, 19]. [20] observed a growing awareness among companies about their responsibility toward environmental sustainability. This broader recognition suggests that stakeholder interests extend beyond traditional business boundaries to encompass environmental concerns. [21] further advanced stakeholder theory by emphasizing the key role of identifying connections between stakeholder management and the achievement of traditional corporate objectives. This perspective underscores the idea that effective stakeholder engagement is not only a matter of ethical responsibility but also a strategic imperative for achieving long-term business success [22, 23].

### **8.2.2 Stakeholder Theory in Agriculture**

[24] point out that “stakeholder theory highlights the interactions among different groups within a specific context that directly influences the achievements of organizational goals.” Collaboration between stakeholders is driven by a shared pursuit of common goals, as highlighted by [25]. Trust among stakeholders emerges as a key factor, particularly in motivating companies to integrate sustainable practices into their operations, according to the findings of [26]. This trust becomes a driving force compelling stakeholders to collectively embrace sustainability through collaboration, signaling a move away from traditional command and control models toward more progressive and collaborative approaches [27].

The global agricultural sector faces pressure from a wide range of stakeholders such as society, regulators, consumers, and suppliers illustrating the complexity of stakeholder dynamics [28]. [29] show how stakeholders influence the agricultural sector through various barriers rooted in ethical, religious, social, and economic dimensions. [30] recognize the multifaceted nature of stakeholders in sustainable agriculture, each with distinct interests, from profit-driven objectives to missions focused on promoting healthy foods and ensuring farmer well-being.

The analysis of sustainability commitments by [31] points out that companies in this sector are obliged to adopt sustainability measures, responding to demands such as the European Commission regulations on the use of plastic in the organic farming and strict control of pesticides and fertilizers. [32] highlight the growing social awareness towards sustainability, which adds to the imperative for companies to implement strong risk management practices, often through standards and certifications. These measures have the dual purpose of monitoring environmental and social impacts, and at the same, time avoiding possible sanctions and disapproval from stakeholders, as noted by [33].

Furthermore, the existing literature provides several examples of scientific research on the impact of stakeholders in different domains. For example, [34] explores stakeholders in the formulation of conservation policies for natural spaces, [35] examine stakeholders affecting barriers to healthcare across language regions,

[36] examine healthcare sector stakeholders in relation to wastewater treatment with pharmaceutical residues, and [24] discuss the stakeholder management approach in corporate environmental sustainability. [19] contribution lies in elucidating the nexus between stakeholders' influence strategies and the collective goal of sustainability. There are few studies linking stakeholders and sustainability in agriculture, and we can cite related studies, such as [34] which highlights the need for a thorough understanding of the diversity of farmers' environments and their impact on agricultural emission reduction policies, emphasizing the importance of a comprehensive assessment for the formulation of appropriate policies. Also noteworthy is the article by [35], which, using evolutionary game theory, analyzes strategies of agribusiness, government, and farmers, concluding that subsidies and taxes can increase participation in sustainable agriculture. And finally, the recent chapter by [6] focuses on exploring the role of stakeholders in the adoption of sustainable practices in Spanish agricultural companies, highlighting the influence of leaders, wholesalers, government, and regulations.

### ***8.2.3 Relational Marketing and Stakeholder Theory***

In the pursuit of sustainability, businesses can wield substantial influence by fostering robust relationships with a spectrum of stakeholders, as noted by [37]. This approach not only fortifies their social impact but also bolsters their capacity to endure and expand. Central to this concept is the understanding that a company's reputation isn't solely shaped by its environmental performance but is also contingent upon stakeholders' perceptions and the company's proactive acknowledgment and recognition of its positive endeavors. Scholars such as [12, 38] accentuate the pivotal skill set requisite for stakeholder management, which necessitates forging collaborative alliances founded on trust with a broad array of vested parties.

The framework delineated by [12] for stakeholder management closely aligns with the tenets of relational marketing as expounded by [39]. While conventional definitions of relational marketing tend to revolve around customers, the interpretation offered by [39] broadens the vista to encompass diverse stakeholders. Within this paradigm, relational marketing entails a suite of actions and initiatives tailored to various audiences, spanning customers, suppliers, shareholders, and employees. The overarching aim is to ensure enduring satisfaction by tailoring products and services to meet stakeholders' exigencies, fostering stable lines of communication, and engendering value. At its core, the objective is to cultivate an atmosphere of trust, acceptance, and synergy, thereby precluding stakeholders from seeking alternatives with competitors [40].

Recognizing the inherent value of relationships, some scholars [12, 37] underscore the significance of companies in maintaining positive rapport with a diverse spectrum of stakeholders. This entails cultivating trust, fulfilling stakeholders' needs and expectations, and fostering an ecosystem where mutual benefits accrue, thereby averting stakeholders from resorting to competitive alternatives [41].

## 8.3 Literature Review and Propositions Development

### 8.3.1 *Sustainability in Agricultural Firms*

After reviewing the existing literature on sustainability in agricultural businesses, some influential authors and researchers can be mentioned who have recently contributed significantly to the discourse on sustainability in agricultural businesses and allow us a better understanding of the recent changes in the general trends in this field [42, 43]. [44] shows the implications of the advances in agricultural competitiveness highlighting the scientific importance of the growing recognition of environmental factors within the competitiveness equation, which supports the urgency of sustainability in the agriculture.

The agricultural productive sector deals closely with the uncertainty generated by a strong dependence on scarce natural resources, such as land, water, or adequate climatic conditions [45]. Since agriculture is one of the main pillars that provide food to society, its sustainable development is crucial to protect natural resources and at the same time improve productivity [46]. Companies have undertaken various initiatives to achieve sustainable development applicable in all production processes, and among them, we can find digital transformation, massive data analysis, or the treatment of agricultural waste, which is an issue of growing concern for agricultural production companies. All these measures are emerging as a crucial solution on the road to sustainability [47]. [48] points out that “the agri-food company, as an institution that operates in a highly integrated scenario and with direct responsibility towards the environment, acquires a reinforced role in the construction of a more sustainable, fair and competitive system and in the relaunch and preservation of biodiversity” toward the sustainability of resources.

### 8.3.2 *Sustainable Practices Implementation*

Business sustainability encompasses a company’s commitment to broaden its focus beyond increased profitability, incorporating business strategies and practices to effectively manage its environmental, social, and economic effects on both the market and society at large [49].

The exploration of corporate sustainability began in the 1970s [50–52], initially focusing on understanding the “what” and the “why.” Over time, attention focused on the “how” of sustainability within companies, examining the driving forces behind the adoption of corporate sustainability strategies and identifying effective practices [53]. [54] defines corporate sustainability as “meeting the needs of a company’s direct and indirect stakeholders (...), without also compromising its ability to meet the needs of future stakeholders.” On the other hand, [55] state that corporate sustainability is “a strategic, for-profit corporate response to environmental and social problems caused through the organization’s primary and secondary

activities.” However, some companies still lack a strategic approach regarding corporate sustainability and therefore find the integration of corporate sustainability into strategic management somewhat worrying [56].

According to [57], literature on the implementation of corporate sustainability strategies is still scarce, and there is a growing demand from academics to conduct more empirical research. On the other hand, [58, 59] state that companies recognize the need to make transformative changes to their business models in response to addressing ecological, social, and economic challenges. [60] emphasize that sustainable practices imply behavioral changes towards rational management of resources and waste, reducing environmental impact. In agriculture, there is growing recognition of the need to adopt sustainable practices, ensuring the responsible use of resources and food security [61].

Agricultural companies are moving from fully consumer-centric approaches to incorporating sustainable practices into those approaches [62]. Legislative requirements and societal expectations are driving innovations in products, services, and business models to promote responsible and sustainable development [63]. These efforts are aligned with the standards of the Global Reporting Initiative (GRI) [64], emphasizing the reduction of the carbon footprint, the management of emissions, the optimization of energy consumption, recycling, the reduction of water use, and the contribution to environmental conservation [64, 65].

Despite progress, ambiguity persists about what agricultural producers consider sustainable practices. [66] found diverse practices among farmers, which do not strictly adhere to comprehensive principles. These principles emphasize productivity, stability, resilience, and sustainability to maintain consistent production levels [67]. Stakeholders influence natural resource management in agriculture, but private sector interests and societal interests may not always coincide [66].

### ***8.3.3 Relational Marketing (with Stakeholders) and Sustainable Practices Implementation***

Among the few existing publications that relate the two aspects of relational marketing and stakeholders, [12] highlight the ability that companies must have to manage stakeholders, because “they have to build collaborative relationships based on trust with a large number of different interested parties.” In general, relational marketing has received several definitions focused on the relationship between companies and customers, but these authors propose a broader definition. [39] explain in greater detail that relational marketing as “the different actions and initiatives undertaken by a company targeted at its different public (customers, suppliers, shareholders, employees or otherwise), or at particular group or segment thereof, aiming towards achieving their satisfaction in time, through a range of products and services tailored to their needs and expectations, including the creation of stable communication exchange and added-value channels, to ensure a trust, acceptance

and contribution to competitive advantages atmosphere to prevent their escape to other competitors.”

Considering the information presented earlier and in alignment with the works of [3, 11], the concept of relational marketing has been selected in this study to symbolize a company’s capacity to foster a close and cooperative connection with a diverse array of stakeholders, including but not limited to customers, suppliers, employees, owners, and the community.

Relational marketing principles include trust-building, two-way communication, and mutual value creation [68]. Research indicates that trust is a central element in the effectiveness of collaborative efforts in agriculture [4]. Relational marketing’s emphasis on trust aligns with studies showing that trust among stakeholders, such as farmers, consumers, and agribusinesses, can foster cooperation and the adoption of sustainable practices [69]. Two-way communication, another core principle of relational marketing, is crucial for building and maintaining relationships with stakeholders [38]. Effective communication allows for the exchange of information, feedback, and expectations. In the context of sustainability, communication between stakeholders can lead to a shared understanding of goals and facilitate the implementation of sustainable practices [70]. Mutual value creation focuses on creating win-win situations for all parties involved. This concept aligns with the idea that sustainability initiatives must offer benefits to all stakeholders to be successful [71]. For example, farmers may adopt sustainable practices when they perceive economic benefits, consumers may choose sustainably produced products when they align with their values, and agribusinesses may see value in sustainability through market access and brand enhancement [72].

More concrete examples of how a good relational marketing with stakeholders can drive agribusiness and agri-food companies to implement sustainable practices are the next ones:

- *Consumer Demand and Preference:* Agribusinesses that prioritize stakeholder relations marketing can engage with consumers effectively to understand their preferences and demands regarding sustainable practices. By actively listening to consumers through various channels such as surveys, social media, and feedback forms, companies can tailor their production processes to align with consumer expectations for sustainability. For instance, if consumers express a preference for organic produce or ethically sourced products, companies can adjust their farming methods and supply chain practices accordingly to meet these demands.
- *Supplier Relationships:* By implementing stakeholder relations marketing strategies, companies can work closely with suppliers to encourage sustainable farming practices, such as reducing water usage, minimizing chemical inputs, and promoting biodiversity. These collaborative efforts can lead to a more resilient and environmentally friendly supply chain while also fostering goodwill and loyalty among suppliers.
- *Government and Regulatory Compliance:* By proactively engaging with government agencies and regulatory bodies through effective stakeholder relations marketing, companies can stay informed about upcoming regulations, provide input during the policy-making process, and demonstrate their commitment to

compliance. Building strong relationships with regulators can also help companies navigate complex regulatory landscapes more effectively and avoid costly penalties or reputational damage.

- *Community Engagement and Social Responsibility*: By engaging in stakeholder relations marketing efforts, companies can actively involve local communities in decision-making processes, seek their input on sustainable initiatives, and address any environmental or social issues that may arise. For example, companies can organize community events, sponsor educational programs on sustainable agriculture, or support local environmental conservation projects. By demonstrating a genuine commitment to social responsibility, companies can enhance their reputation and foster positive relationships with local stakeholders.
- *Investor Confidence and Financial Performance*: Agribusinesses that prioritize sustainability and effectively communicate their efforts to investors through stakeholder relations marketing can attract more investment capital and enjoy higher valuations. By transparently reporting on key sustainability metrics, such as carbon footprint reduction, water usage efficiency, and waste management practices, companies can instill confidence in investors and demonstrate their long-term viability and resilience in the face of environmental challenges.

Based on previous theorizing and literature review and these practical examples, we propose that relational marketing with different stakeholders significantly impacts the adoption and implementation of sustainable practices in agricultural enterprises. Formally stated:

**Proposition 1** Firm’s relational marketing with stakeholders has a positive influence on the firm’s sustainable practices implementation.

This study not only proposes the direct effect between the mentioned variables but also sheds light on the existence of a possible mechanism that contributes to strengthen or diminish such relationship. Recently it has been mentioned that “the company’s attitudes” can influence its adoption of sustainable practices [5]. Thus, in this research we include attitudes towards sustainability of the company as a variable that can moderate the relationship described above.

### 8.3.4 Firm’s Attitudes Toward Sustainability

Firm’s attitudes toward sustainability refer to organizational culture, principles, and behaviors that promote awareness and action on various stakeholders and sustainability-related issues within their operations [5]. This organizational attitude represents a company’s long-term commitment to align the principles of economic, social, and environmental sustainability in its strategic decisions [73]. Various studies on sustainable development have attempted to address related questions on how companies can balance future and present demands, find technologies and resources to meet the demands, and balance their responsibilities toward various stakeholders [74–76].

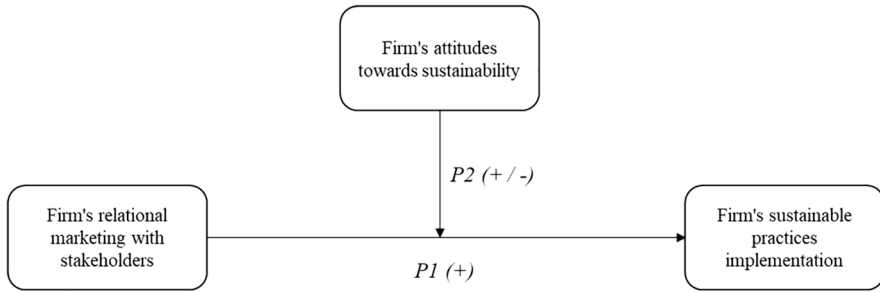
Developments in the business environment since recent decades indicate that simply pursuing economic motives is not a good decision alternative for an organization from the point of view of sustainability and long-term profitability, if the organization's actions cause irreversible damage to the environment [76]. One of the main predictors of environmental sustainability is the organization itself. The internal factors (e.g., attitudes) of the organization are crucial to understand to what extent a company meets its objectives [77]. Among the elements, they could be considered strengths if they have favorable impacts on the company's production and weaknesses if they negatively affect the business [78]. As mentioned above, the main elements of companies in relation to environmental sustainability include leadership style [77, 79], top management attitude [80], or corporate culture [81].

### ***8.3.5 The Moderating Role of Firm's Attitudes Toward Sustainability in the Relationship Between Relational Marketing and Sustainable Practices Implementation***

The moderating role of a firm's attitudes toward sustainability in the relationship between relational marketing and the implementation of sustainable practices is a critical aspect to consider in understanding how companies integrate environmental concerns into their business strategies. Therefore, it is essential to understand that a company's attitudes toward sustainability act as a moderator in this relationship. This implies that the way a company perceives, values, and prioritizes sustainability can influence the strength and direction of the relationship between its relational marketing and the implementation of sustainable practices.

This proposal is based on the following arguments. The firm's attitudes toward sustainability can influence stakeholders' perception of commitment. If the company demonstrates a proactive and strong attitude towards sustainability, stakeholders may perceive a greater commitment from the company to implement sustainable practices [82]. This can strengthen the relationship and encourage greater stakeholder support. Furthermore, the company's attitudes toward sustainability can build trust and credibility in the minds of stakeholders. If the company demonstrates a strong commitment to sustainability, this can mitigate the perception of risks and concerns that stakeholders may have regarding the implementation of sustainable practices, which, in turn, facilitates the relationship and collaboration [75]. Besides, positive company attitudes towards sustainability can encourage reciprocity from stakeholders. If the company shows its commitment, stakeholders may be more inclined to offer their support and resources in implementing sustainable practices [83]. Based on this theorization, we develop the following proposition:

**Proposition 2** Firm's attitudes toward sustainability will moderate the relationship between the firm's relational marketing with stakeholders and firm's sustainable practices implementation.



**Fig. 8.1** Conceptual model

More specifically, we propose that firms that have a more positive attitude toward sustainability will be more likely to implement sustainable practices derived from relational marketing with their stakeholders and vice versa.

Figure 8.1 shows the proposed conceptual model in this study.

### 8.4 Conclusion, Limitations, and Future Research

This study sheds light on the critical interplay between sustainability, relational marketing, and firm attitudes in the context of agricultural businesses. By emphasizing the need for transformative changes in business models to address ecological, social, and economic challenges, the research underscores the growing recognition of sustainable practices in agriculture. Relational marketing with stakeholders plays a pivotal role in influencing the adoption of sustainable practices, with firm attitudes toward sustainability serving as a key moderating factor.

The changing landscape of management theories underscores the growing alignment between a company’s interests and its broader environment. Stakeholder theory, with its emphasis on considering the interests of diverse stakeholders, has become a strategic framework for organizations seeking to navigate the complex interplay of internal and external dynamics in the pursuit of sustainable and responsible business practices. Based on these premises, the study’s theoretical framework highlights the positive impact of relational marketing with stakeholders on sustainable practices adoption in the agri-food sector, emphasizing the importance of stakeholder engagement and trust-building. By aligning company interests with broader environmental concerns and demonstrating a firm commitment to sustainability, organizations can enhance their social and environmental responsibility.

While the study provides valuable insights into the nexus between sustainability, relational marketing, and stakeholder dynamics in agriculture, it also acknowledges certain limitations. Future research directions could include qualitative studies with representative samples of agricultural companies, the incorporation of additional variables such as the economic impact of sustainable practices, and exploring variations in stakeholder dynamics across different agricultural regions.



Overall, this investigation contributes to the evolving discourse on sustainability in agricultural firms, highlighting the significance of proactive attitudes, stakeholder engagement, and relational marketing strategies in driving the adoption of sustainable practices. By embracing sustainability as a core value and fostering collaborative relationships with stakeholders, agricultural businesses can pave the way for a more sustainable and responsible future.

## References

1. Castillo-Díaz, F. J., Belmonte-Ureña, L. J., Batlles-delaFuente, A., & Camacho-Ferre, F. (2023). Strategic evaluation of the sustainability of the Spanish primary sector within the framework of the circular economy. *Sustainable Development*. <https://doi.org/10.1002/SD.2837>
2. Nugroho, A. D., Prasada, I. Y., & Lakner, Z. (2023). Comparing the effect of climate change on agricultural competitiveness in developing and developed countries. *Journal of Cleaner Production*, 406, 137139. <https://doi.org/10.1016/j.jclepro.2023.137139>
3. Larrán Jorge, M., Herrera Madue, J., Martínez-Martínez, D., & Lechuga-Sancho, M. (2015). Competitiveness and environmental performance in Spanish small and medium enterprises: Is there a direct link? *Journal of Cleaner Production*, 101, 26–37. <https://doi.org/10.1016/j.jclepro.2015.04.016>
4. Ogawa, K., Garrod, G., & Yagi, H. (2023). Sustainability strategies and stakeholder management for upland farming. *Land Use Policy*, 131. <https://doi.org/10.1016/j.landusepol.2023.106707>
5. Yu, K., Hou, S., Qian, C., & Zhang, L. (2024). CEO attention and sustainable development: An analysis of its influence on firm's sustainability orientation. *Sustainable Development*. <https://doi.org/10.1002/SD.2890>
6. European Commission. (2024). *Consequences climate change*. [https://climate.ec.europa.eu/climate-change/consequences-climate-change\\_es](https://climate.ec.europa.eu/climate-change/consequences-climate-change_es). Last accessed 2024/04/11.
7. Lowder, S., Sanchez, M., & Bertini, R. (2021). Which farms feed the world and has farmland become more concentrated? *World Development*, 142. <https://doi.org/10.1016/j.worlddev.2021.105455>
8. Farmer protest: a request for urgent action. (2024). <https://www.crowdfarming.com/blog/es/protestas-de-agricultores-una-peticion-de-accion-urgente/>. Last accessed 2024/04/11.
9. García-Agüero, A. I., Terán-Yépez, E., Belmonte-Ureña, L. J., & Camacho-Ferre, F. (2024). The role of stakeholders on the intention to implement sustainable practices: An exploratory research in the agri-business Spanish sector. In M. D. C. Valls-Martínez & J. M. Santos-Jaén (Eds.), *Environmentally sustainable production*. Springer. [https://doi.org/10.1007/978-3-031-52656-5\\_5](https://doi.org/10.1007/978-3-031-52656-5_5)
10. Cillero, M. M., & Reaños, M. T. (2023). Farm technical and environmental efficiency and subsidy redistribution in Ireland: A simulation approach of possible performance and equity effects. *Journal of Agricultural Economics*, 74, 394–412. <https://doi.org/10.1111/1477-9552.12509>
11. Martínez-Martínez, D., Madueño, J. H., Jorge, M. L., & Sancho, M. P. L. (2017). The strategic nature of corporate social responsibility in SMEs: A multiple mediator analysis. *Industrial Management and Data Systems*, 117, 2–31. <https://doi.org/10.1108/IMDS-07-2015-0315>
12. Sharma, S., & Vredenburg, H. (1998). Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. *Strategic Management Journal*, 19, 729–753. [https://doi.org/10.1002/\(sici\)1097-0266\(199808\)19:8<729::aid-smj967>3.0.co;2-4](https://doi.org/10.1002/(sici)1097-0266(199808)19:8<729::aid-smj967>3.0.co;2-4)
13. Kumar, V., & Ramachandran, D. (2021). Developing firms' growth approaches as a multidimensional decision to enhance key stakeholders' wellbeing. *International Journal of Research in Marketing*, 38, 402–424. <https://doi.org/10.1016/j.ijresmar.2020.09.004>

14. Fernández, J. L., & Bajo, A. (2012). The stakeholder on interest groups theory, a key to CSR, business success and sustainability. *adResearch International Journal of Communication Research*, 6, 130–143. <https://doi.org/10.7263/adr.rsc.006.07>
15. Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Cambridge University Press.
16. Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *The Academy of Management Review*, 22, 853–886. <https://doi.org/10.2307/259247>
17. Aragonés-Beltrán, P., García-Melón, M., & Montesinos-Valera, J. (2017). How to assess stakeholders' influence in project management? A proposal based on the analytic network process. *International Journal of Project Management*, 35, 451–462. <https://doi.org/10.1016/j.ijproman.2017.01.001>
18. Aaltonen, K. (2011). Project stakeholder analysis as an environmental interpretation process. *International Journal of Project Management*, 29, 165–183. <https://doi.org/10.1016/j.ijproman.2010.02.001>
19. Walker, K., & Laplume, A. (2014). Sustainability fellowships: The potential for collective stakeholder influence. *European Business Review*, 26, 149–168.
20. White, P. (2009). Building a sustainability strategy into the business. *Corporate Governance: The international journal of business in society*, 9, 386–394.
21. Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporations: Concepts, evidence, and implications. *The Academy of Management Review*, 20, 65–91.
22. Ferraz, S., De Tommaso, N., & Mendes Borini, F. (2023). *Stakeholder value creation system: Understanding the process*. <https://doi.org/10.1108/SAMPJ-09-2023-0701>.
23. Harrison, J. S., Bosse, D. A., & Phillips, R. A. (2010). Managing for stakeholders, stakeholder utility functions, and competitive advantage. *Strategic Management Journal*, 31, 58–74. <https://doi.org/10.1002/smj>
24. Góes, H. A. D. A., Fatima, G., Santos Jhunior, R. D. O., & Boaventura, J. M. G. (2023). Managing for stakeholders towards corporate environmental sustainability. *Corporate Social Responsibility and Environmental Management*, 30(4), 1561–1572. <https://doi.org/10.1002/csr.2448>
25. Valentinov, V., & Chia, R. (2022). Stakeholder theory: A process-ontological perspective. *Business Ethics, Environment and Responsibility*, 31, 762–776. <https://doi.org/10.1111/BEER.12441>
26. Gupta, A. K., & Gupta, N. (2020). Effect of corporate environmental sustainability on dimensions of firm performance—Towards sustainable development: Evidence from India. *Journal of Cleaner Production*, 253. <https://doi.org/10.1016/j.jclepro.2019.119948>
27. Svensson, G., Ferro, C., Høgevold, N., Padin, C., & Sosa Varela, J. C. (2018). Developing a theory of focal company business sustainability efforts in connection with supply chain stakeholders. *Supply Chain Management*, 23, 16–32. <https://doi.org/10.1108/SCM-12-2015-0461>
28. Mohammadi-Nasrabadi, F., Salmani, Y., Banihashemi, S. M., Haghighian Roudsari, A., Zargaraan, A., & Esfarjani, F. (2020). Policy challenges of food advertisements from the viewpoints of stakeholders: A qualitative study. *Food Science & Nutrition*, 8, 1949–1956. <https://doi.org/10.1002/FSN3.1482>
29. Massoud, M. A., Terkawi, M., & Nakkashz, R. (2019). Water reuse as an incentive to promote sustainable agriculture in Lebanon: Stakeholders' perspectives. *Environmental Management* <https://doi.org/10.1002/ieam.4131>.
30. Van Gorp, B., & Van Der Goot, M. J. (2012). Sustainable food and agriculture: Stakeholder's frames. *Communication Culture & Critique*, 127–148. <https://doi.org/10.1111/j.1753-9137.2012.01135.x>
31. Belmonte-Ureña, L. J., Plaza-Úbeda, J. A., Vazquez-Brust, D., & Yakovleva, N. (2021). Circular economy, degrowth and green growth as pathways for research on sustainable development goals: A global analysis and future agenda. *Ecological Economics*, 185. <https://doi.org/10.1016/j.ecolecon.2021.107050>

32. Knaggård, Å., Slunge, D., Ekblom, A., Göthberg, M., & Sahlin, U. (2019). *Researchers' approaches to stakeholders: Interaction or transfer of knowledge?* <https://doi.org/10.1016/j.envsci.2019.03.008>.
33. Seuring, S., & Mü Ller, M. (2008). *From a literature review to a conceptual framework for sustainable supply chain management.* <https://doi.org/10.1016/j.jclepro.2008.04.020>.
34. van den Broek, K. L. (2019). Stakeholders' perceptions of the socio-economic and environmental challenges at Lake Victoria. *Science, Policy, and Management for Sustainable Use*, 24, 239–245. <https://doi.org/10.1111/LRE.12275>
35. Rawlinson, C., Lesage, S., Gilles, I., & Peytremann-Bridevaux, I. (2022). Healthcare stakeholders' perspective on barriers to integrated care in Switzerland: Results from the open-ended question of a Nationwide survey. *Journal of Evaluation in Clinical Practice*, 28, 129–134. <https://doi.org/10.1111/JEP.13605>
36. Moermond, C. T. A., & de Rooy, M. (2022). The Dutch chain approach on pharmaceuticals in water: Stakeholders acting together to reduce the environmental impact of pharmaceuticals. *British Journal of Clinical Pharmacology*, 88, 5074–5082. <https://doi.org/10.1111/BCP.15509>
37. Lehner, P. H., Rosenberg, N. A., & Stucki, B. W. (2022). The stakeholders in agricultural policy. *The Environmental Forum*, 39(4), 42–53. Available at SSRN: <https://ssrn.com/abstract=4267345>
38. Liu, L., Zhu, Y., & Guo, S. (2020). The evolutionary game analysis of multiple stakeholders in the low-carbon agricultural innovation diffusion. *Hindawi*, 1–12. <https://doi.org/10.1155/2020/6309545>
39. Cowe, R. (2003). *Developing value: The business case for sustainability in emerging markets* (Vol. 44, pp. 17–32). Sustainability. <http://hdl.handle.net/10986/21784>.
40. De Oliveira, G. F., & Rabechini, R. (2019). Stakeholder management influence on trust in a project: A quantitative study. *International Journal of Project Management*, 37, 131–144. <https://doi.org/10.1016/j.ijproman.2018.11.001>
41. Reinares, P. J., & Ponzoa, J. M. (2002). Relational marketing. A new approach to customer seduction and loyalty (marketing relational). In *Un Nuevo Enfoque Para La Seducción y Fidelización Del Cliente; Financial Time-Prentice*. Hall.
42. Pfajfar, G., Shoham, A., Małecka, A., & Zalaznik, M. (2022). Value of corporate social responsibility for multiple stakeholders and social impact – Relationship marketing perspective. *Journal of Business Research*, 143, 46–61. <https://doi.org/10.1016/j.jbusres.2022.01.051>
43. Shin, Y., & Thai, V. V. (2015). The impact of corporate social responsibility on customer satisfaction, relationship maintenance and loyalty in the shipping industry. *Corporate Social Responsibility Environmental Management*, 22, 381–392. <https://doi.org/10.1002/CSR.1352>
44. Ariga, J., Mabaya, E., Waithaka, M., & Wanzala-Mlobela, M. (2019). Can improved agricultural technologies spur a green revolution in Africa? A multicountry analysis of seed and fertilizer delivery systems. *Agricultural Economics (United Kingdom)*, 50, 63–74. <https://doi.org/10.1111/agec.12533>
45. Pegels, A., & Altenburg, T. (2020). Latecomer development in a “greening” world: Introduction to the special issue. *World Development*, 135. <https://doi.org/10.1016/j.worlddev.2020.105084>
46. García-Agüero, A.-I., Teran-Yepez, E., Battles-delaFuente, A., Belmonte-Ureña, L. J., & Camacho-Ferre, F. (2023). Intellectual and cognitive structures of the agricultural competitiveness research under climate change and structural transformation. *Oeconomia Copernicana*, 14, 1175–1209. <https://doi.org/10.24136/oc.2023.035>
47. Dias, C., Gouveira-Rodrigues, R., & Ferreira, J. (2021). Linking natural resources and performance of small agricultural businesses: Do entrepreneurial orientation and environmental sustainability orientation matter? *Sustainable Development*, 30(4), 713–725. <https://doi.org/10.1002/sd.2268>
48. Santiteerakul, S., Sopadang, A., Tippayawong, K. Y., & Tamvimol, K. (2020). The role of smart technology in sustainable agriculture: A case study of Wangree plant factory. *Sustainability (Switzerland)*, 12. <https://doi.org/10.3390/SU12114640>
49. Ha, L. T., Huong, T. T. L., & Thanh, T. T. (2022). Is digitalization a driver to enhance environmental performance? An empirical investigation of European countries. *Sustainable Production and Consumption*, 32, 230–247. <https://doi.org/10.1016/J.SPC.2022.04.002>

50. Malorgio, G., & Marangon, F. (2021). Agricultural business economics: The challenge of sustainability agricultural and food. *Economics*, 9, 6. <https://doi.org/10.1186/s40100-021-00179-3>
51. Andersson, S., Svensson, G., Molina-Castillo, F.-J., Otero-Neira, C., Lindgren, J., Karlsson, N., & Laurell, H. (2022). Sustainable development-direct and indirect effects between economic, social, and environmental dimensions in business practices. *Corporate Social and Environmental Management*. <https://doi.org/10.1002/csr.2261>
52. Johnson, H. L. (1971). *Business in contemporary society: Framework and issues*. Wadsworth.
53. Manne, H. G., & Wallich, H. C. (1972). *The modern corporation and social responsibility*. American Enterprise Institute for Public Policy Research.
54. Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. *Business & Society*, 38, 268–295.
55. Engert, S., & Baumgartner, R. J. (2015). *Corporate sustainability Strategy e bridging the gap between formulation and implementation*. <https://doi.org/10.1016/j.jclepro.2015.11.094>.
56. Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business Strategy and the Environment*, 11, 130–141. <https://doi.org/10.1002/bse.323>
57. Salzmann, O., Ionescu-somers, A., & Steger, U. (2005). The business case for corporate sustainability: Literature review and research options. *European Management Journal*, 23, 27–36. <https://doi.org/10.1016/j.emj.2004.12.007>
58. Galbreath, J. (2009). Building corporate social responsibility into strategy. *European Business Review*, 21. <https://doi.org/10.1108/09555340910940123>
59. Engert, S., & Baumgartner, R. J. (2016). Corporate sustainability strategy – Bridging the gap between formulation and implementation. *Journal of Cleaner Production*, 113, 822–834. <https://doi.org/10.1016/j.jclepro.2015.11.094>
60. Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S. (2020). A stakeholder theory perspective on business models: Value creation for sustainability. *Journal of Business Ethics*, 166, 3–18. <https://doi.org/10.1007/s10551-019-04112-z>
61. Alonso-Martinez, D., De Marchi, V., & Di Maria, E. (2021). The sustainability performances of sustainable business models. *Journal of Cleaner Production*, 323, 129–145. <https://doi.org/10.1016/j.jclepro.2021.129145>
62. Avila, L. V., Germann Avila, A., Kieling, D. L., Cavalcante, D. M., Dos, C., & Lima, S. (2023). Sustainable recovery in small businesses: Analysis of sustainable practices and the goals for sustainable development. *Environmental Quality Management*. <https://doi.org/10.1002/tqem.22070>
63. European Commission Horizon Europe-Work Programme 2023–2024. (2023). Food, Bioeconomy, Natural Resources, Agriculture and Environment.
64. Damke, L. I., Gomes, C. M., Kneipp, J. M., Godoy, T. P., & Motke, F. D. (2021). Sustainable management practices and innovation capacity in family agribusinesses. *Environmental Quality Management*. <https://doi.org/10.1002/tqem.21724>
65. Kneipp, J. M., Gomes, C. M., Bichueti, R. S., Müller, L. D. O., & Motke, F. D. (2018). Strategic management of sustainable: A case study in Brazilian industrial enterprises. *Organizations in Context Magazine*, 14, 131–185.
66. Global Reporting Initiative GRI 13: Agriculture, Aquaculture and Fishing Sectors (2022).
67. Spanish Ministry of Agriculture, F., and F. Environmental Module for the Agricultural Sector (2023).
68. Jaworski, C. C., Krzywoszynska, A., Leake, J. R., & Dicks, L. V. (2023). Sustainable soil Management in the United Kingdom: A survey of current practices and how they relate to the principles of regenerative agriculture. *Soil Use and Management*. <https://doi.org/10.1111/SUM.12908>
69. Fereres, E., & Villalobos, F. J. (2016). *Principles of agronomy for sustainable agriculture*. Springer. <https://doi.org/10.1007/978-3-319-46116-8>
70. Grönroos, C. (2004). The relationship marketing process: Communication, interaction, dialogue, value. *Journal of Business and Industrial Marketing*, 19, 99–113. <https://doi.org/10.1108/08858620410523981>
71. Darnhofer, I. (2010). Strategies of family farms to strengthen their resilience. *Environmental Policy and Governance*, 20, 212–222. <https://doi.org/10.1002/eet.547>

72. Klerkx, L., Schut, M., Leeuwis, C., & Kilelu, C. (2012). Advances in knowledge brokering in the agricultural sector: Towards innovation system facilitation. *IDS Bulletin*, *43*, 53–60. <https://doi.org/10.1111/j.1759-5436.2012.00363.x>
73. Vanclay, F. (2004). Social principles for agricultural extension to assist in the promotion of natural resource management. *Australian Journal of Experimental Agriculture*, *44*, 213–222. <https://doi.org/10.1071/EA02139>
74. Aldrich, D. P. (2012). Social capital in post disaster recovery: Towards a resilient and compassionate east Asian community. In Y. Sawada & S. Oum (Eds.), *Economic and welfare impacts of disasters in East Asia and policy responses* (pp. 157–178).
75. Shou, Y., Shao, J., Lai, K. h., Kang, M., & Park, Y. (2019). The impact of sustainability and operations orientations on sustainable supply management and the triple bottom line. *Journal of Cleaner Production*, *240*, 118280. <https://doi.org/10.1016/J.JCLEPRO.2019.118280>
76. Guo, X., Xia, W., Feng, T., & Sheng, H. (2022). Sustainable supply chain finance adoption and firm performance: Is green supply chain integration a missing link? *Sustainable Development*, *30*, 1135–1154. <https://doi.org/10.1002/SD.2307>
77. Camilleri, M. A., Troise, C., Strazzullo, S., & Bresciani, S. (2023). Creating shared value through open innovation approaches: Opportunities and challenges for corporate sustainability. *Business Strategy and the Environment*, *32*, 4485–4502. <https://doi.org/10.1002/BSE.3377>
78. Das, D. (2017). Development and validation of a scale for measuring sustainable supply chain management practices and performance. *Journal of Cleaner Production*, *164*, 1344–1362. <https://doi.org/10.1016/j.jclepro.2017.07.006>
79. Wiengarten, F., Lo, C. K. Y., & Lam, J. Y. K. (2017). How does sustainability leadership affect firm performance? The choices associated with appointing a chief officer of corporate social responsibility. *Journal of Business Ethics*, *140*, 477–493. <https://doi.org/10.1007/s10551-015-2666-5>
80. Baumgartner, R. J., & Rauter, R. (2016). *Strategic perspectives of corporate sustainability management to develop a sustainable organization*. <https://doi.org/10.1016/j.jclepro.2016.04.146>
81. Mountfield, A., Gardner, M., Kasemir, B., & Lienin, S. (2019). Integrated management for capital markets and strategy: The challenges of “value” versus “values” sustainability investment, smart Beta, and their consequences for corporate leadership. *CSR, Sustainability, Ethics and Governance*, 105–128. [https://doi.org/10.1007/978-3-030-06014-5\\_6](https://doi.org/10.1007/978-3-030-06014-5_6)
82. Todaro, N. M., Daddi, T., Testa, F., & Iraldo, F. (2020). Organization and management theories in environmental management systems research: A systematic literature review. *Business Strategy and Development*, *3*, 39–54. <https://doi.org/10.1002/BSD2.77>
83. Evangelista, P., Colicchia, C., & Creazza, A. (2017). Is environmental sustainability a strategic priority for logistics service providers? *Journal of Environmental Management*, *198*, 353–362. <https://doi.org/10.1016/j.jenvman.2017.04.096>

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# Chapter 9

## Why Do We Play Golf? An Exploratory Research



María del Mar Martín-García , Jose Luis Ruiz-Real ,  
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**Abstract** In recent years, golf tourism, as a form of sports tourism, has experienced significant growth. Knowing the behavior of golf players helps managers of sports facilities establish new marketing strategies and increases opportunities for golf tourism destinations. This article explores the factors that influence the intention to play golf through an exploratory-sequential design. The value attributed to the environment where the sport is played is the variable with the greatest impact on participation. Golfers also perceive golf courses to be responsible in their environmental management, which has a direct impact on their intention to play. Furthermore, a relationship of considerable magnitude is found between experiential consumption and the perception of golf as a healthy sport. When analyzing the influence of the variables as a whole, it can be concluded that in the current post-pandemic era, the golf course experience or the health factor is less important for practicing this sport than the natural surroundings or the environmental factor. This research makes an important breakthrough by finding that golfers' intentions to participate are influenced by their perception of the environmentally responsible behavior of golf courses and the value they place on the playing environment.

Golf course managers are encouraged to communicate their environmental practices to the rest of society. This marketing strategy can be effective in positioning golf as an environmentally friendly sport, thus changing its image, which can undoubtedly attract new players.

**Keywords** Golf course management · Sports marketing · Environmental behavior · Experiential consumption · Golf tourism

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## 9.1 Introduction

Golf is not only a sport played on five continents, it is a worldwide industry with nearly 40,000 facilities in 206 countries and around 66 million golfers worldwide (Royal and Ancient [R&A] [41]). The largest share of golfers is in North America, Australia, and Europe (R&A [39]). Its impact on the world economy is reflected in the turnover of all golf-related activities, estimated to be about 1.5 billion dollars in the USA alone (facilities, tourism, etc.). The USA also has the greatest number of players and 42% of the globe's golf facilities (National Golf Foundation [NGF] [37]).

Given the economic impact of the sport and its implications on the tourism industry, this study attempts to gain a deeper understanding of golfers' behavior and the factors that influence their participation.

Research to date has explored different factors that influence the intention to participate in golf (e.g., [1, 2, 4, 24]). However, most of this previous research focused on investigating these dimensions in isolation. This article aims to study these dimensions as a group, examining how they relate to each other to understand its influence on golf participation. Therefore, several influencing factors on future intentions to play golf, the interdependence between them, and their relative levels of impact on the consumption of golf products are explored.

The results represent important contributions to knowledge about golfers' future behavioral intentions. From a management perspective, the findings are beneficial for establishing new long-term marketing strategies in the golf industry. The following section provides a review of the existing literature on factors influencing participation in golf. We continue with a description of the methodology, results, discussion, and conclusions. We end with the management implications for golf facilities, establishing some marketing recommendations based on the results of this research.

## 9.2 Literature Review

The present literature review focuses on several variables that may influence intentions to play golf. Health and physical well-being are reviewed along with experiential consumption, two factors that have been extensively related to sports participation in the literature. In addition, the environmental management of golf courses and the perceived value of golf as an economic activity and as a sport played in a natural environment are analyzed.

### 9.2.1 *Experimental Consumption and Its Role in the Intention to Play Golf*

Fun and enjoyment are one of the main reasons to participate in sport. Participation to feel happiness and positive feelings capable of changing the mood [24]. Like other leisure and tourism activities, golf has largely been viewed as experiential

consumption [51]. What golfers perceive is more closely associated with their experiences during the golf process than with the services provided by golf courses [25]. For example, Funk et al. [16] show that golfers with different histories of experience use differed in their motivations for playing golf.

Several studies relate the emotional factor to the continued intention to participate in golf. Jeon and Casper's [28] findings link psychological connectedness to behavior and continued participation in golf. Chen et al. [10] showed a more robust relationship between positive emotions and satisfaction in golfers compared to other sports. In the context of alternative golf (see Topgolf or Drive Shack), two recent investigations conclude that satisfaction is a key element in the intention to participate in alternative golf and also in real golf [6, 29]. The satisfaction and enjoyment generated by the personal challenge, the competition, and the feeling of being part of a community are among the most important reasons for participation in golf [46].

Therefore, emotions experienced during the game are found to influence intentions to continue playing golf.

### ***9.2.2 The Role of Health***

Breitbart and Huth's [3] research supports that showing the healthy side of golf would help to change the image of the sport, improving its market positioning. This study postulates that this may be a new marketing strategy to attract new players.

Previous research has already highlighted the health motivation to practice golf. The study by Shim et al. [42] concludes that, in order to improve the satisfaction and intention to continue playing golf, it is necessary to induce health-oriented motivation. Berlin and Klenosky [2] also find relationships between intention to participate in golf and perceived health benefits. Stenner et al. [44] explore the reasons for golf participation in the older population. Several reasons are considered unique to golf, including physical, cognitive, and mental health benefits. In subsequent research in 2020, these authors conclude that although health-related factors were identified as relevant reasons for participation, non-health-related factors were deemed even more important.

Therefore, although the health factor has been linked to the intention to continue playing golf, there is not enough research to support that showing the health side of the sport can be an effective marketing strategy to reposition the sport in the market.

### ***9.2.3 Golfers' Perceptions of Environmental Management of Golf Courses***

The literature has already pointed out the importance of the responsibility of golf courses in environmental management and their role in the conservation of biodiversity [18]. However, although relationships between attitude toward green



behaviors and visitation intention have been proven in non-sport settings [21], few studies relate responsible environmental management of golf courses to intentions to play golf.

The study by Lopez-Bonilla et al. [33] links environmental attitudes to golfers' behavior. It shows that golf tourists' concern for the environment influences their ecological orientation by choosing golf courses that are environmentally friendly. In the same vein, Minoli et al. [35] note that eco-labels can affect the decision-making process of golfers subjected to a green marketing strategy.

In the context of screen golf, an impact of environmental awareness on golfers' behavior has been found, but this variable did not predict behavior in the context of traditional golf [22]. However, Han and Hwang [20] found that one of the benefits of virtual golf, such as less impact on the environment, influences participation in real golf, decreasing intentions to play on a golf course.

However, none of these studies investigate golfers' perceptions of responsible environmental management of golf courses.

Therefore, this paper continues to explore the environmental factor, what the player's perception is, and how it influences their intention to continue playing golf.

#### ***9.2.4 The Role of Value***

In the vast majority of previous studies on golfers' behavior, the construct of perceived value was measured following the approach proposed by Eggert and Ulaga [13] as in the study by Mason and Motetti [34] or the utilitarian, hedonic, social, and quality dimension approach as in the study by Akinci et al. [1]. However, it is important that another approach to perceived value is now explored. In this paper, perceived value focuses on players' valuation of golf as a sport in a natural and safe environment and as an economic activity. This study takes into account that in the current post-pandemic era, players value aspects that they did not value before, such as the characteristics of the natural environment or the fact that golf reactivates tourism and the local economy. Therefore, this research considers it important to explore these attributes and their relationship with consumption intentions.

Participation in a sport can be related to the environment it is practiced. Research by Stenner et al. [44] identified that playing in a natural and pleasant environment was an important factor for golf participation. Golf is an outdoor sport, in contact with nature, where the environment can become more important than in other sports. The individual's quest to get away from pollution or stress has meant that sports in contact with nature have become more important [31]. In addition, the pandemic has changed the way leisure time is consumed and golf is one of the few sports that can be considered a sport in an environment with minimal risk of COVID-19 (Waite [49]). The features of golf courses, such as their design, are also influential factors in consumption intentions (Brey & Meitner [4]).

Regarding the value that players attribute to golf as an economic activity, various studies show the social and economic impacts of golf courses and the views of

proponents and opponents of golf development [5]. Huertas et al. [23] find that players and golf course managers have a more positive judge about this impact than the general population. Neo [38] considers since the 2000s, courses have been pursuing a more consensual policy to circumvent opposition to golf courses. However, this analysis does not explore the relationships with intentions to participate. In addition, although there has been research on the economic impact of golf (e.g., [26]), to our knowledge there is no study that relates players' perceptions of the sport's contribution to the economy and tourism and its influence on their intentions to play golf. This is therefore one of the first studies to explore this aspect and how it influences participation.

## 9.3 Method

### 9.3.1 *Measuring Instrument*

Data for this research was collected through an online survey. The items were developed based on a literature review and extensive research with industry professionals. The purpose of the qualitative research was to provide information to develop a questionnaire to be used as a measuring instrument in the quantitative research. The findings from the qualitative research allowed for better exploration, provided greater fidelity to the measurement instrument, and aided in the interpretation of the quantitative results. This research adopts an exploratory-sequential design, drawing on the merits of qualitative and quantitative inquiries [17].

In the first stage, semi-structured interviews were conducted with five golf course managers located in Andalusia (Spain). Andalusia was chosen because it is one of the main golf tourism destinations in Southern Europe, with 105 golf courses. All interviews were conducted in person and audio-recorded. Transcription was carried out manually. Contact with the managers of the golf courses was established through the Royal Andalusian Golf Federation, the organization responsible for the sport in Andalusia, and they were informed of the purpose of the study. Through qualitative analysis, this research develops a measurement instrument that illustrates the dimensions influencing golf clients. These dimensions are taken as variables and the phrases are adapted as questionnaire items. Alternatively, some of these items have been adapted from already available questionnaires [3, 45]. Finally, a pilot study was conducted with 20 respondents, to assess the questions' clarity and the items' reliability. Based on the comments from the pilot study, a final version of the questionnaire was prepared.

Facility managers were asked about the factors influencing golf participation and the needs and requirements of golfers. Four dimensions emerged: value, experiential consumption, health, and environment.

#### **Value Dimension**

All course managers agreed that the most important factor influencing participation was that it is an outdoor sport, which can be played alone, with minimal risk of

COVID-19. The natural environment in which it is practiced is the reason most repeated by the professionals of the sector as being responsible for the increase in golf participation.

The different characteristics of each course were also pointed out., "...golf is not always played on the same course as in most other sports, in this case, you have an infinite number of scenarios to play with all kinds of designs and this encourages golf tourism." Some added that golf is a sport that helps the local economy, attracting tourism in the off-season for the rest of the sector, as is the case in other regions [8]. "After the pandemic, aspects that previously went unnoticed are valued, mainly that it is an outdoor sport and helps tourism and economy."

### **Experiential Dimension**

Most of the interviewees emphasized that the most important thing for a player is his or her playing experience. The course conditions must be right to generate an exciting, enjoyable, or relaxing experience for the player. "At the end of the round, it is the emotions that it has generated in the customer that are important." "Golfers want the condition of the course and the services to be excellent, but they want to get a good result and have fun."

### **Health Dimension**

Almost all managers point out as one of the main factors the disconnection capacity it generates in the player and the perceived benefits for his or her health. "The time spent disconnected from the world, four or five hours without a telephone and the reconnection with nature."

### **Environment Dimension**

Those interviewed also stated that golfers now value the environmental management carried out at golf courses more than before and are concerned about the work being done to reduce environmental impacts. "There is now more awareness of the environment and we have noticed that the player values it." One of the interviewees highlighted the good reception that the latest environmental actions have had among their clients.

We have changed the grass on the greens for a more sustainable species, which needs less water and less maintenance, which has pleased the local players, but above all the tourists. They appreciate the actions to protect the environment.

In the second stage, quantitative research was carried out, in which data was collected from golfers.

## ***9.3.2 Participants and Procedure***

As research subjects, this study selected players from golf courses located in Andalusia (Spain). The questionnaires were sent by e-mail through the Royal Andalusian Golf Federation, the organization responsible for the sport in the region.

**Table 9.1** Frequencies of sample characteristics

Gender	n	%
Man	377	81.96
Woman	83	18.04
<i>Age</i>		
Under 25	9	1.96
25–34	17	3.70
35–44	56	12.17
45–54	140	30.43
55–64	127	27.61
65–74	98	21.30
Over 75	12	2.61
Lost	1	
<i>Level of education</i>		
No education	8	1.74
Elementary studies	12	2.61
Secondary studies	45	9.78
Bachiller/FP	89	19.35
University studies	306	66.52
<i>Employed</i>		
Employed	298	64.78
Unemployed	10	2.17
Student	7	1.52
Retired/pensioner	145	31.52

Data were collected between November 2021 and January 2022. Participants were informed about the content of the study and data protection and gave their written consent.

### 9.3.3 *Sample*

A total of 460 responses were collected and used in the data analysis. Table 9.1 shows the demographic profile of the participants.

### 9.3.4 *Variables*

For this study, a set of variables has been used whose measurement was carried out, whenever possible, with multi-item measures (at least three items per variable) in order to verify that all of them were composed of an adequate percentage of reliable variance and to be able to identify the error variance of these variables. In addition, an *activity value* variable was included, which was recorded as a single item.

### **Experiential Dimension**

The measurement of this variable was carried out by asking participants their level of agreement about their experience on the golf course. It consists of six items, four of which were adapted from Stenner's questionnaire, "I enjoy it when I get a good result," "I am excited about the opportunity to improve my ability," "It is good fun, as each round is different," and "I enjoy the company of my playing partners" [45]. Two other items were elaborated from the qualitative research, "I enjoy when golf course is in good playing condition" and "Receiving good service is important to have a good day of golf." Its score was obtained by averaging the responses of all items. Reliability was estimated employing Cronbach's alpha procedure showing a coefficient of 0.87.

### **Health Dimension**

The variable *Health Benefits* was measured by asking the participants their level of agreement regarding their perception of golf as a healthy sport. It consists of three items, "It helps me manage an existing injury or illness," adapted from the research of Stenner et al. [45]. "I perceive golf as a health sport" and "golf has psychological benefits" were taken from the questionnaire developed by Breitbarth and Huth [3]. Its score was obtained by averaging the responses of all items. The higher the score, the greater the perception of golf as a health sport. In this study, its reliability was estimated utilizing Cronbach's alpha, showing a coefficient of 0.77.

### **Environment Dimension**

The measurement of this variable was carried out by asking participants their level of agreement with the responsible environmental behavior of golf courses. For example, they were asked their level of agreement with the statement "golf courses are managed to reduce negative environmental impacts." Its score was obtained by averaging the responses of all items. The higher the score, the greater the perception of responsible environmental management of golf courses. Reliability was estimated using Cronbach's alpha procedure showing a coefficient of 0.87.

### **Value Dimension**

The role of value was measured using two variables: *value dimension* and *activity value*. The variable value dimension was measured by asking participants about their level of agreement with statements about the value of golf as a sport in a natural environment. Respondents were asked to indicate their level of agreement with statements such as "I play golf because I enjoy the natural beauty and features of the course" and "I play golf because I enjoy the pleasant, natural surroundings." These two items were taken from the Stenner et al. [45] questionnaire. The third item was taken from qualitative research, "I enjoy because I play in a safe environment with minimal risk of COVID-19." Its score was obtained by averaging the responses of all items. Reliability was estimated using Cronbach's alpha procedure showing a coefficient of 0.66.

The variable, activity value, was recorded by a single item and measured by asking the level of agreement with the statement "golf favors tourism and the region's economy." The higher the score, the greater the value each participant attributes to golf as an economic activity.

**Intentions Dimension**

Four items, adapted from previous research [30], measured golfers’ future intentions to continue playing golf. The items used are, “I intend to continue playing golf,” “I intend to go to the golf course more often,” “I will recommend my friends and family to take up the sport, and “Playing golf is my first choice of leisure time.” The higher the score, the greater the participants’ intention to continue playing golf. In this study, its reliability was estimated using Cronbach’s alpha, showing a coefficient of 0.84.

For all variables, respondents indicated their level of agreement on a five-point Likert-type scale from (1) “strongly disagree” to (5) “strongly agree.”

**9.4 Results**

All analyses in this study were performed with the JASP program [27]. The handling of missing data to estimate the total scores of the variables was carried out using the available cases procedure. Table 9.2 shows the descriptive statistics of the variables used in this study.

This paper employs empirical network models (*Gaussian Graphical Models*; [11, 14, 32]) to study which, of all the variables of interest, are more determinant for the maintenance of future intentions to play golf. The advantages of these estimation and analysis models are evident in cross-sectional studies such as the present study. Specifically, network models can estimate the partial correlations between all the variables and determine the unique relationship between each pair of variables, controlling for the effect of the others (it allows the relationship between the predictors to be statistically controlled). In addition, these techniques allow a graphical representation that implies greater clarity while offering an optimal solution when selecting the models (choosing the model that best represents the connections between all the variables) and estimating the parameters while ensuring maximization of generalizability because the decisions are based on cross-validation techniques [9], Epskamp et al. [14].

**Table 9.2** Descriptive statistics of the study variables

	n (460)	M	SD	A	K	Min.	Max.
Activity value	451	4.29	0.75	-1.13	2.1	1	5
Experiential c.	454	4.08	0.78	-2.25	6.03	1	5
Health benefits	460	4.25	0.79	-1.52	3.63	1	5
Value dimension	443	4.51	0.48	-1.34	5.38	1	5
Environmental d.	424	4.24	0.71	-1.07	1.97	1	5
Intentions	460	4.38	0.66	-1.66	5.41	1	5

*Note.* n = absolute frequency; M mean, SD standard deviation, A asymmetry, K kurtosis, min minimum, max maximum

**Table 9.3** Zero-order correlations between the variables of interest (below the diagonal) and adjacency matrix or partial correlations (above the diagonal)

Variable	1	2	3	4	5	6
1. Activity value	–	0.12	0.13	0.13	0.12	0.13
2. Experiential consumption	0.32	–	0.31	0.07	0.12	0.17
3. Health benefits	0.33	0.57	–	0.03	0.19	0.07
4. Value dimension	0.39	0.31	0.33	–	0.28	0.29
5. Environmental dimension	0.39	0.33	0.41	0.53	–	0.19
6. Intentions	0.38	0.40	0.44	0.58	0.49	–

Given that the set of variables included in the networks (see Table 9.3) presented multivariate non-normality ( $W = 0.86$ ,  $p < 0.01$ ), the network estimation was done using *huge* (using the non-paranormal transformation of the data to avoid the use of tetrachoric correlations and EBIC—*Extended Bayesian Information Criterion*—through the *glasso* algorithm for model selection: [15]). The zero-order correlations and partial correlations (resulting from the estimation of empirical networks) can be seen in Table 9.3, wherein the difference between the magnitudes of the relationships between each pair of variables is observed when both types of correlations are compared. The most marked effect can be seen in the relationship between Health Benefits and Intentions. While in the zero-order correlations, it was the third most related variable to Intentions, it is the one that shows the smallest relationship in the network. This is because the variance it shares with the variable future intentions to play golf is explained to a greater extent by other variables such as experiential dimension. For the purposes of clarification and to improve an understanding of the results, it should be noted that the interpretation between the relationships of the Intentions variables with the rest of the variables is similar to the results of multiple regression. That is, instead of presenting semi-partial correlations (the overlap between predictors is not controlled), partial correlations are presented (the effects of third variables on all the variables included in the network are controlled). The final network is shown in Fig. 9.1. This graph represents each variable within a circle and how they relate to each other by employing edges. Blue edges indicate a positive relationship. Furthermore, the greater the thickness of each edge, the greater the magnitude of the relationship.

The results of the empirical network analysis show how future intentions to play golf are positively related to all variables. In order of magnitude, the variables with the highest level of relationship are the value dimension, the environment dimension, and experiential dimension. The only variable that showed a non-significant impact was health benefits. In addition, a relationship of considerable magnitude is observed between the experiential dimension and health benefits and between the value and environment dimensions. The activity value variable showed a relationship of similar magnitude with all variables. Although the value dimension can be attributed to a stronger relationship with the intention to play golf, the results show how this variable is affected by diverse factors that are widely related to each other.

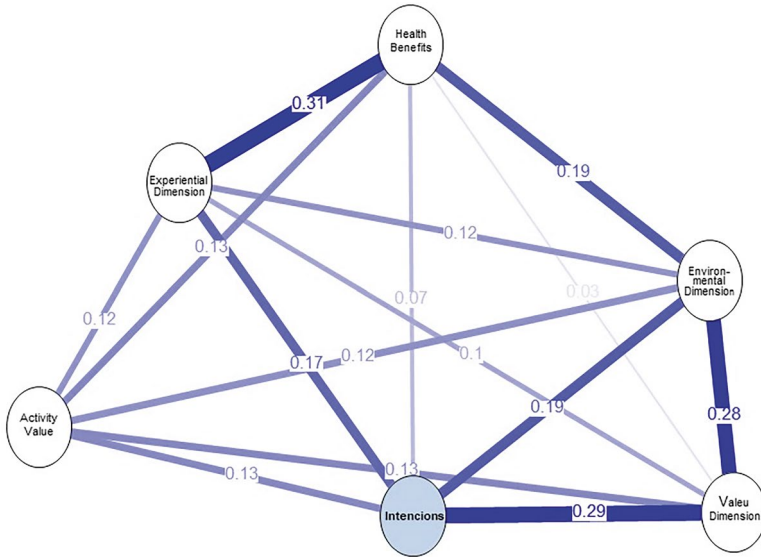


Fig. 9.1 Empirical network

## 9.5 Discussion

The results revealed different aspects of the variables examined in this paper, their influence on golf consumers' behavior, and the interdependent relationships between them. The value that golfers attribute to the natural environment and its features is the factor that most influences playing intentions. Although this variable is strongly influenced by the environmental dimension, the positive impact on intentions remains the most relevant even without the existence of the cooperation between the two variables. The value attributed to golf as a sport played in a natural environment and with minimal risk of COVID-19, suggests that the pandemic has highlighted these characteristics of golf. This may be the main reason for the sector's resurgence in major markets in 2021 and 2022. In Europe, the number of golfers has increased by more than 190,000 players, an increase of 4.6% compared to the previous 2 years. From 2020 to 2022, almost 75% of European markets grew (R&A [40]). In the United States, the 500,000 new golfers in 2020 represent an increase over the previous year of 5.37%, the most significant increase in 17 years, bringing the total number of golfers to 24.8 million players [36].

The findings also reveal the importance for the golfer of the different characteristics of the environment. This differentiating aspect with respect to other sports connects this variable with the experiential factor. As one of the interviewees points out, unlike other sports, golf can be played in different settings. Playing on a different course provides a different experience every time. Products that generate



experiences are more valued by consumers than material purchases and are less subject to comparisons with other products (Yang et al. [52]).

The results also show a very high level of agreement that golf courses are managing the environment in a responsible way. This perception is the second factor that directly impacts on the intention to play golf. This finding adds to other research highlighting that organic products are increasingly in demand, also in leisure activities. This shows consumer concern for environmental sustainability [19], indicating the environmental awareness of golfers. However, several studies show opposition to golf course development for environmental reasons [5, 50]. Some of these studies point to a more positive opinion of golfers compared to non-golfers [23, 38]. Butler [7] points out that while golf courses are an attractive green landscape for players, for another sector of the population golf courses are unsustainable, due to excessive consumption of water and fertilizers. This paper therefore confirms a more favorable perception among those who consume golf. It is necessary to point out environmental impacts of these facilities. Some golf tourism destinations in southern Europe, such as Portugal, can be sustainable from a social and economic point of view but need to improve their environmental management to be sustainable tourism destinations (Videira et al. [48]). This demand for controlled and effective environmental management is also evident in a recent study on golf courses in North America and their corporate environmental responsibility. The study points out the need for more operational management in planning the environmental actions of these facilities [53].

This research also found that experiential consumption is the third variable that positively influences intentions for continued participation, thus confirming previous research on participation in this sport based on the experiential factor [25, 46, 51]. The findings thus add to the knowledge about emotional influences on consumer behavior. This variable has a positive impact on golf consumption intentions mainly due to the influence of the Health Benefits variable. Thus, a significant finding is the close relationship between the experiential variable and the players' perception of golf as a healthy sport. This relationship is not surprising as the feeling that the act of playing is exciting, fun, or relaxing suggests that this sport, as previous research has shown [3, 43], can engage the cognitive side of the brain.

The results also reveal that players' perceived health has a low impact on the intention compared to the rest of the variables. Therefore, this research does not support the findings of Breitbarth and Huth [3] that showing the healthy side of golf is an effective marketing strategy, at least in the player group. Future research in the non-player group should confirm that positioning golf as a healthy sport can attract new players. Finally, this is the first research that explores the value attributed by golfers to golf as an economic activity and its relationship with consumption intentions. The results show that golfers perceive golf as an activity that contributes to tourism and local economy, although this variable hardly influences their intentions to play golf.

## 9.6 Conclusions

This study adds value to the knowledge about golfers' behavior and their future intentions to play golf. The first factor influencing consumption intentions is the value of the natural environment. It can be concluded that, in the current post-pandemic era, the environment in which golf is played becomes more important to golfers.

This paper contributes to the understanding of how environmental perception of the golf product influences participation. This factor has been poorly related to intentions to play in research to date. This variable would still be the second most important factor impacting consumption intentions without the interdependence of the other variables. These results suggest what could be termed players' "environmental awareness," although this construct is difficult to determine, as previous research has already pointed out [12]. This research makes an important breakthrough by finding that golfers intentions to participate are influenced by their perception of the environmentally responsible behavior of golf courses. However, the demand for sustainability practices by golfers has not been explored in depth. It would be interesting for future research to explore this aspect. As Tasci et al. [47] point out, identifying sustainable consumers and predicting their behavior is necessary to advance sustainable practices in the tourism industry.

Experience on the course is a factor impacting on intentions to play golf, although the results show that it is currently less important than the natural surroundings or the environmental factor. This research also contributes to knowledge about the experiential factor in participation, pointing out a differentiating aspect of golf, such as the different playing experiences derived from the characteristics of the playing environment. Finally, knowledge about the health factor in participation behavior is added. When analyzing the influence of the variables as a whole, it can be concluded that health benefits have a negligible relationship with intentions to play golf.

### 9.6.1 Management Implications

- One of the key findings is the value that golfers place on the playing environment. It is recommended to establish marketing strategies based on this aspect of the sport. This strategy could also attract new players, helping to change the image of golf among non-players, highlighting:
  - Golf is an outdoor sport, with minimal risk of COVID-19.
  - Golf is a sport based on nature, you can live different experiences in a variety of scenarios.
- The findings have also highlighted the role of the environment and its influence on participation. Thus, this research considers it essential for golf courses to communicate their environmental practices to the rest of society, thus increasing

their chances of increasing the number of rounds played. In addition, this marketing strategy can be very effective for positioning golf as a sport that respects the environment, thus changing its image, which can undoubtedly attract new players.

- Regarding the experience factor, it is recommended to take into account the needs of golfers to offer them a positive experience:
  - The condition of the golf course so that players enjoy the experience and achieve good results (e.g., forward tees or easy flag positions).
  - A quality service both on the golf course and in the clubhouse.
  - Promotion and support of club activities giving players a sense of belonging to a community.
- The findings show a low impact of the health factor on intentions to play golf, suggesting that at the present time, marketing based on health may be less effective among players than other marketing strategies based on the attributes presented above. However, the strong relationship found between the health and experiential factors indicates that perhaps marketing based on the well-being generated by this sport can be an effective sales tool.

## 9.7 Limitations

This study is not without limitations. It may be that players in a different context would attribute different roles to each of the attributes analyzed in the present study.

## 9.8 Future Lines of Research

First, the research sample is limited to golf players. It would be necessary to extend the sample to non-players to know what variables influence the entry of players to this sport.

Exploring how golfers and non-golfers perceive the image of golf is an area for future research. By comparing both player and non-player samples, a better understanding of golf perception can be gained, thus expanding knowledge about consumer behavior in an area that has been understudied.

The significant contribution of golf tourism to established golf tourism destinations requires further research on destination branding and on social, economic and environmental sustainability. Environmental impacts are an important factor to consider in future research on golf tourism.

## References

1. Akinci, S., Kiyimalioglu, A., & Inana, E. A. (2015). How golf players' satisfaction from golf experience predicts their loyalty intentions? Mediating role of perceived value. *International Journal of Culture Tourism and Hospitality Research*, 9(2), 117–132.
2. Berlin, K. L., & Klenosky, D. B. (2014). Let me play, not exercise! A laddering study of older Women's motivations for continued engagement in sports-based versus exercise-based leisure time physical activities. *Journal of Leisure Research*, 46(2), 127–152.
3. Breitbarth, T., & Huth, C. (2019). A stakeholder marketing perspective: golf's potential to (re-) position as a health sport. *German Journal of Exercise and Sport Research*, 49(3), 351–355.
4. Brey, & Meitner. (2022). Understanding golf satisfaction: An expanded role of hospitality attributes. *Managing Sport and Leisure*, 29(3), 469–483.
5. Briassoulis, H. (2011). Opposition to golf-related tourism development: An interpretivist analysis of an online petition. *Journal of Sustainable Tourism*, 19(6), 673–693.
6. Bum, C. H., Yang, J. H., & Choi, C. (2022). Leisure benefits, flow experience, and life satisfaction comparison between players of actual and virtual golf. *Social Behavior and Personality*, 50(5).
7. Butler, R. (2006). International golf congress: The present and the future of research. *Tourism and Hospitality Research*, 6(3), 167–169.
8. Butler, R. W. (2019). Contributions of tourism to destination sustainability: Golf tourism in St Andrews, Scotland. *Tourism Review*, 74(2), 235–245.
9. Chapman, B. P., Weiss, A., & Duberstein, P. R. (2016). Statistical learning theory for high dimensional prediction: Application to criterion-keyed scale development. *Psychological Methods*, 21(4), 603–620.
10. Chen, C., Lin, S. W., Hsu, S. Y., & Wu, C. H. (2020). A study on the place attachment of golf club members. *Frontiers in Psychology*, 11, 408.
11. Costantini, G., Epskamp, S., Borsboom, D., Perugini, M., Mõttus, R., Waldorp, L. J., & Cramer, A. O. J. (2015). State of the aRt personality research: A tutorial on network analysis of personality data in R. *Journal of Research in Personality*, 54, 13–29.
12. Despotović, Rodić, & Caracciolo. (2021). Farmers' environmental awareness: Construct development, measurement, and use. *Journal of Cleaner Production*, 295.
13. Eggert, A., & Ulaga, W. (2002). Customer perceived value: A substitute for satisfaction in business markets? *The Journal of Business & Industrial Marketing*, 17(2/3), 107–118.
14. Epskamp, S., Waldorp, L. J., Mõttus, R., & Borsboom, D. (2018). The Gaussian graphical model in cross-sectional and time-series data. *Multivariate Behavioral Research*, 53(4), 453–480.
15. Friedman, J., Hastie, T., & Tibshirani, R. (2008). Sparse inverse covariance estimation with the graphical lasso. *Biostatistics*, 9(3), 432–441.
16. Funk, D. C., Beaton, A., & Pritchard, M. (2011). The stage-based development of physically active leisure: A recreational golf context. *Journal of Leisure Research*, 43(2), 268–289.
17. Ghanem, M., Elshaer, I., & Saad, S. (2022). Tourism public-private partnership (PPP) projects: An exploratory-sequential approach. *Tourism Review*, 77(2), 427–450.
18. Hammond, R. A., & Hudson, M. D. (2007). Environmental management of UK golf courses for biodiversity – Attitudes and actions. *Landscape and Urban Planning*, 83(2–3), 127–136.
19. Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: a review of theories, concepts, and latest research [Review]. *Journal of Sustainable Tourism*, 29(7), 1021–1042. <https://doi.org/10.1080/09669582.2021.1903019>
20. Han, H., & Hwang, J. (2014). Investigation of the volitional, non-volitional, emotional, motivational and automatic processes in determining golfers' intention impact of screen golf. *International Journal of Contemporary Hospitality Management*, 26(7).
21. Han, H., Hsu, L.-T., & Lee, J.-S. (2009). Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel customers' eco-friendly decision-making process. *International Journal of Hospitality Management*, 28(4), 519–528.

22. Han, Yoon, & Woods. (2016). Role of environmental consciousness in golfers' decision formation in the traditional and screen-golf industries. *Journal of Quality Assurance in Hospitality & Tourism*, 17(3), 290–310.
23. Huertas, M. A. M., Gomis, F. J. D., Lluch, D. B. L., & Torres, A. M. A. (2011). Analysis of the opinion about economic and social impacts of golf courses in a tourist destination. *World Journal of Entrepreneurship Management and Sustainable Development*, 6(1–2), 103–117.
24. Hull, R., Zaidell, L., Mileva, K., & de Oliveira, R. F. (2021). This girl can, can't she? Perspectives from physical activity providers and participants on what factors influence participation. *Psychology of Sport and Exercise*, 57.
25. Hutchinson, J., Lai, F., & Wang, Y. (2009). Understanding the relationships of quality, value, equity, satisfaction, and behavioral intentions among golf travelers. *Tourism Management*, 30(2), 298–308.
26. Jae-Sook, Ryu, H., Jae, K., & Lee, K. O. (2018). Estimating demand for and economic impact of domestic golf tourism. *International Journal of Tourism and Hospitality Research*, 32(6).
27. JASP Team. (2022). *JASP (Version 0.16.1)* [Computer software].
28. Jeon, J. H., & Casper, J. M. (2021). An examination of recreational golfers' psychological connection, participation behavior, and perceived constraints. *Journal of Leisure Research*, 52(1), 62–76.
29. Kang, J., Kwun, D. J., & Hahm, J. J. (2022). Investigating the effect of alternative golf experience on traditional golf: An integrated framework of perceived value, satisfaction, and involvement. *International Journal of Contemporary Hospitality Management*.
30. Kashyap, R., & Bojanic, D. C. (2000). A structural analysis of value, quality, and price perceptions of business and leisure travellers. *Journal of Travel Research*, 39(1), 45–51.
31. Kwon, Y.-H., Cheung, Y.-K., & Ahn, B.-W. (2021). Effect of outdoor sports participants on leisure facilitation, recreation specialization, and leisure satisfaction: Yacht and golf participants. *International Journal of Environmental Research and Public Health*, 18(15), 8128.
32. Lauritzen, S. L. (1996). *Graphical models*. Oxford University Press.
33. Lopez-Bonilla, J. M., Reyes-Rodriguez, M. D., & Lopez-Bonilla, L. M. (2018). The environmental attitudes and behaviours of European golf tourists. *Sustainability*, 10(7).
34. Mason, M. C., & Moretti, A. (2015). Antecedents and moderators of golf tourists' behavioral intentions: An empirical study in a Mediterranean destination. *EuroMed Journal of Business*, 10(3), 338–359.
35. Minoli, D. M., Goode, M. M. H., & Smith, M. T. (2015). Are eco-labels profitably employed in sustainable tourism? A case study on Audubon certified golf resorts. *Tourism Management Perspectives*, 16, 207–216.
36. National Golf Foundation. (2020). *The Graffis report 2020*. National Golf Foundation – The Graffis Report – (ngf.org). Last accessed 2023/05/04.
37. National Golf Foundation. (2023). *The Graffis report 2022*. National Golf Foundation- The Graffis Report – (ngf.org). Last accessed 2023/12/23.
38. Neo, H. (2010). Unpacking the postpolitics of golf course provision in Singapore. *Journal of Sport & Social Issues*, 34(3), 272–287.
39. Royal & Ancient Golf Club de St. Andrews (R&A). (2021). *Annual review 2021*. <https://www.randa.org/downloads-and-publications>, last accessed 2024/01/30.
40. Royal & Ancient Golf Club de St. Andrews (R&A). (2022). *Annual review 2022*. <https://www.randa.org/downloads-and-publications>. Last accessed 2023/12/29.
41. Royal & Ancient Golf Club de St. Andrews (R&A). (2023). *Golf around the world 2021*. <https://www.randa.org/downloads-and-publications>. Last accessed 2023/11/25.
42. Shim, K.-R., Paek, B.-J., Yi, H.-T., & Huh, J.-H. (2017). Relationships between golf range users' participation motivation, satisfaction, and exercise adherence intention. *Asia Pacific Journal of Innovation and Entrepreneurship*, 11(1), 50–62.
43. Shimada, H., Lee, S., Akishita, M., Kozaki, K., Iijima, K., Nagai, K., Ishii, S., Tanaka, M., Koshihara, H., Tanaka, T., & Toba, K. (2018). Effects of golf training on cognition in older

- adults: A randomised controlled trial. *Journal of Epidemiology and Community Health*, 72(10), 944–950.
44. Stenner, B. J., Mosewich, A. D., & Buckley, J. D. (2016). An exploratory investigation into the reasons why older people play golf. *Qualitative Research in Sport Exercise and Health*, 8(3), 257–272.
  45. Stenner, B. J., Buckley, J. D., & Mosewich, A. D. (2018). Development and confirmatory factor analysis of the golf participation questionnaire for older adults (GPQOA). *Cogent Psychology*, 5(1), 1450920.
  46. Stenner, B. J., Mosewich, A. D., & Buckley, J. D. (2020). Why do older adults play golf? An evaluation of factors related to golf participation by older adults. *Journal of Aging and Physical Activity*, 28(3), 399–405.
  47. Tasci, A. D. A., Fyall, A., & Woosnam, K. M. (2022). Sustainable tourism consumer: Socio-demographic, psychographic and behavioral characteristics. *Tourism Review*, 77(2), 341–375.
  48. Videira, N., Correia, A., Alves, I., Ramires, C., Subtil, R., & Martins, V. (2006). Environmental and economic tools to support sustainable golf tourism: The Algarve experience, Portugal. *Tourism and Hospitality Research*, 6(3), 204–217.
  49. Waite, C. A. (2022). Change the game: Sport and leisure responses to COVID-19. In S. D. Brunn & D. Gilbreath (Eds.), *COVID-19 and a world of ad hoc geographies*. Springer.
  50. Woodside, A. G. (2009). Applying systems thinking to sustainable golf tourism. *Journal of Travel Research*, 48(2), 205–215.
  51. Wu, H. C., & Ai, C. H. (2016). Synthesizing the effects of experiential quality, excitement, equity, experiential satisfaction on experiential loyalty for the golf industry: The case of Hainan Island. *Journal of Hospitality and Tourism Management*, 29, 41–59.
  52. Yang, Zhang, & So, F. (2021). Tourism experiences vs. material purchases: Effects of eudaimonic consumption motive on consumers' reactions to invidious comparisons. *Tourism Management*, 83.
  53. Zhang, X., & Lee, S. J. (2022). Clubs' environmentally responsible behavior: The perspectives of club managers in North America. *International Journal of Hospitality & Tourism Administration*, 23(4), 788–812.

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# Chapter 10

## Use of Online Shop Chatbots: How Trust in Seller Moderates Brand Preference and Purchase Intention



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**Abstract** This study examines the role that chatbots, an application of AI in e-commerce customer service, play in increasing online trust in brands and how, from this trust, interaction with chatbots can impact brand preference and purchase intention. A conceptual model based on the Technology Acceptance Model (TAM) and Information System Success Model (IS) is proposed to understand the relationships between the utility, ease-of-use, and responsiveness of a chatbot, online trust, brand preference, and purchase intention. Based on a sample of Spanish consumers, this study provides a better understanding of how to build trust online and how this can strengthen the relationship with the consumer and lead to a purchase. At the same time, it alerts professionals to the need to design chatbots that are useful and respond efficiently and quickly in their customer service. The results of our study aim to help brands in designing chatbots to provide e-services that consolidate customer relationships and foster sales.

**Keywords** Chatbot · Trust in seller · Purchase intention · E-commerce · Brand preference

### 10.1 Introduction

Today's world is becoming increasingly digital due to the great technological advancement of the last two decades [26]. Consequently, online consumers are increasingly predisposed to use new technologies in making purchasing decisions

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[14]. In the face of this new consumer profile, more experts in the use of new technologies, and always demanding efficient and accessible digital services, brands are forced to incorporate new technological advances such as artificial intelligence (AI) to provide higher quality customer service and differentiate themselves from the competition [54]. Thus, through the application of AI, brands can not only implement improvements in customer service management but also personalize services and product recommendations thanks to a better knowledge of customers' preferences and purchasing patterns [3] based on their previous purchases [96]. Consequently, the use of AI improves marketing strategies [19] through various digital touchpoints that companies and brands incorporate into e-commerce [37].

A growing way for brands to integrate AI to improve customer service is through the incorporation of chatbots [19]. Chatbots are virtual agents based on AI and designed to mimic natural human conversation [93] that enables communication with users through a digital interface [58] and provides support to brands in the customer relationship management [108]. Different brands, across various industries, are employing chatbots as an online touchpoint [15, 55] as these applications offer a personalized service, available anytime and anywhere [91], accurate information and timesaving [15], allowing customers to gain a better understanding of products or services [9]. Therefore, chatbots are useful for brands not only to differentiate themselves and gain a competitive advantage [98] but also to strengthen relationships with customers and keep in touch with them [36, 108].

Thus, the integration of chatbots is now an upward trend in the communication of brands and companies, such that from 2019 to 2020 the willingness to use chatbots for purchases increased from 17.1% to 41.3% [47]. By 2022 it is expected that 75–90% of queries will be handled by chatbots, which will save over 2.5 billion customer service hours by 2023 [33]. From a research perspective, chatbots are also recognized as a technology that can revolutionize e-commerce and stand out for the relevant role they play in marketing [46].

Previous studies, under a customer approach, have focused extensively on how chatbots can provide better customer experiences [9, 10, 15, 36, 55, 100] and how this, in turn, can influence customer satisfaction [9, 11, 15] or intention to use chatbots [11, 36].

Additionally, previous studies have also analyzed which dimensions related to interaction with chatbots can impact consumer behavior [10, 21, 46, 57, 85], such as customer attitude toward chatbots [21, 46], customer intention to use chatbots [10, 46, 57, 66], or customer acceptance toward chatbots [85]. However, to the best of our knowledge, there is a scarce exploration of antecedents related to the use of chatbots that improve and strengthen relationships between brands and customers [12, 84, 108].

To fill this gap, our study aims to investigate which dimensions of chatbots may impact seller trust and how this, in turn, influences brand preference and purchase intention. Specifically, our proposal, whose theoretical framework is based on the Technology Acceptance Model (TAM) [20] and the Information System Success Model (IS) [23], examines the impact of the dimensions "Usefulness," "Ease-of-use," and "Responsiveness" on "Trust in seller." Additionally, this study seeks to



ascertain whether “Trust in seller” can influence “Brand preference” and “Customer purchase intention.” To develop this research, a quantitative study was developed based on data obtained through a questionnaire completed by a sample of Spanish consumers.

Several reasons justify our study. First, given the current need for brands to establish long-term relationships with customers [70], it is necessary to explore the potential of chatbots to support brands in managing their customer relationships [108].

Second, the influence that chatbots can have on customer trust is a critical issue in understanding purchase behavior [107]. In fact, trust, especially in e-commerce, is a predictor of brand preference [12], purchase intention [49], and loyalty [49] and play a key role in customer relationship management [31]. Therefore, this dimension should be considered when designing branded chatbots [108].

Finally, previous literature has highlighted the role of the usefulness [52], ease-of-use [32, 52], and responsiveness [13] of a webpage in the e-commerce context to develop trust in seller. Since chatbots are a specific technological advance that can support customers in online shopping, a well-designed chatbot that is useful, easy to use, and responsive can foster trust in seller, an issue that, to the best of our knowledge, has been barely analyzed [84].

Our study pretends to provide some contributions. Firstly, our work aims to extend previous studies about how brands can foster and strengthen their relationships with customers with the incorporation of AI [3, 54]. Secondly, our work aims to expand the analysis of what factors allow brands to promote trust within an online context [49, 52] through the new technology.

Additionally, our study aims to highlight the key role of trust in seller in e-commerce as a factor in promoting sales and strengthening customer relationships. In practice, the results aim to help brands in designing chatbots to provide e-services that consolidate customer relationships and foster sales. While large companies have a high level of digitalization and technology proficiency, small- and medium-sized companies still have a way to go in this field [29]. Thus, this study may be especially relevant for companies that are in the process of evolution in the digital market.

## 10.2 Literature Review

### 10.2.1 *Chatbots in E-Commerce*

Previous research recognizes the role of artificial intelligence (AI) to enhance the customer experience in e-commerce [3, 55] based on its potential to strengthen customer relationships and accelerate the correct understanding of customer preferences through real-time interactions [3] with chatbots being one of the fast-rising AI technology [93] that foster this kind of interaction [107].

Chatbots are virtual agents available 24 h a day [91] that are capable of simulating human conversation [93] and enabling digital communication with consumers [58]. Chatbots can help brands in their customer relationship management [108] as chatbots help customers find information, discover new products, and make decisions while saving them time [15].

Several brands in different industries have already incorporated chatbots as an online touchpoint [15, 55] to achieve differentiation and competitive advantage [98] and to improve customer relationships [36, 108].

Previous literature has analyzed the role that chatbots can play in e-commerce predominantly under a customer approach and it has identified several antecedents of chatbots that can impact customer experiences [9, 10, 15, 36, 55, 100] and how this, in turn, can mediate the impact of the use of chatbots on the intention to use them [36], customer satisfaction [9], or brand love [100]. Additionally, previous studies established empirically the impact of interactions with chatbots on the customer attitude toward chatbots [21, 46], customer intention to use chatbots [10, 46, 57, 66], customer satisfaction [11, 15], or trust in chatbots [107].

### ***10.2.2 Trust in Seller***

Trust can be defined as a party's expectation that the other party's behavior will be ethical, socially appropriate and will not be opportunistic in social exchange, i.e., it is the willingness to believe that the other party will fulfill its commitments [32], regardless of the ability to control that party [64]. Trust is a subjective conviction of a party to trust the other party [79] believing that the counterpart will fulfill its obligations through its abilities (competence), to communicate truthfully (integrity), and to look out for the interest of the fiduciary (benevolence) [49]. Consequently, trust plays a key role in exchange-based relationships, such as relationship marketing [69], as it enhances problem-solving [82].

In a buyer-seller relationship, trust in seller can be defined as the customers' belief that the seller will behave honestly and fulfill their commitments to customers [105] by providing quality services and not taking advantage of customers [60]. This kind of interaction allows both sellers and buyers to achieve their goals and strengthen their relationships, avoiding competitive behavior between both parties, aiming at their own benefit [94].

Therefore, trust is an essential factor that facilitates relationships between buyers and sellers in contexts with high uncertainty [78], which is common in the e-commerce [87] where the coexistence of several brands and companies among which the customer can choose and the impossibility of face-to-face interaction make it necessary for sellers to promote trust in their relationship with customers by providing positive experiences through their websites and online shops [99].

Furthermore, trust in seller is a crucial factor in customer relationship management [31] and acts not only as a predictor of future consumer behavior, such as satisfaction [42] purchase intention [49], attitude, loyalty [49], and brand preference

[12] but also as a predictor of economic outcomes such as price premium [5]. Thus, how encouraging the development of online trust in seller is a challenge for brands and is a relevant topic that previous literature has extensively analyzed [49], highlighting the role of factors such as the usefulness and ease-of-use of a webpage [32, 52].

Since chatbots are a specific technological advance that can bring customers and brands together in online shopping and can facilitate communication and transactions between them, trust can be promoted through chatbot interactions. Previous literature has extensively analyzed how trust can be promoted through chatbot design [21, 22, 42, 75, 83, 107] or how to expose chatbot identity can impact on trust [71].

But as far as we know, the impact of the chatbot's usefulness, its ease-of-use, and its responsiveness on trust in seller is an issue that has hardly been analyzed.

### ***10.2.3 Antecedents of Trust***

**Usefulness and Ease-of-Use** Under the Technology Acceptance Model (TAM) [20], the most relevant model explaining technology adoption [46], the use of new technologies by consumers in e-commerce or online shopping is mainly influenced by two factors, the perceived usefulness and the perceived ease-of-use [88].

Perceived utility is defined by Lee [56] as “the degree to which an individual considers that the use of a particular system will improve performance on a task,” and it is related to the consumer's degree of belief that the new technology will improve their performance or productivity [80].

The likelihood that a consumer will return to using a new technology increases if the consumer feels it can help him or her complete a task [72]. Thus, perceived usefulness is an essential factor that positively stimulates the use of a specific form of technology in e-commerce [1].

Perceived ease-of-use refers to the consumer's degree of belief that using a particular system would be effortless [20, 80] and represents how easy the use of a technological system allows users to successfully achieve a specific goal [81]. Perceived ease-of-use positively improves users' attitudes toward technological systems, which affects their intention to use them [80].

Previous studies have widely used the TAM as theoretical support in online customer experience contexts [88], which has provided empirical evidence of the positive influence of both perceived usefulness and perceived ease-of-use on the adoption of online shopping [1, 39, 80]. TAM has also been used as theoretical support in the analysis of antecedents for the development of trust in seller in an online shopping context ([4, 52]) and previous studies confirmed that both the ease-of-use [32, 52, 89] and the perceived usefulness [4, 52] of the brand's web site can promote the trust in sellers.

Recently, previous research also has analyzed under the TAM the role of both factors in the adoption of the use of chatbots and how they can influence positively the attitude toward chatbots [46], the intention to use [36], and the online customer experience [9, 36]. Thus, both factors favorably influence the attitude toward chatbots [46] and increase their adoption as well as strengthen customer experiences [36].

Just as consumers in an offline environment look for characteristics of a salesperson that can positively influence brand trust [24], in e-commerce consumers try to find cues to develop trust in seller [65]. Under the TAM approach, perceived usefulness refers to consumers' understanding that using chatbots for shopping enhances their customer experience, whereas perceived ease-of-use is the consumer's perception that interacting with a chatbot will involve effortless online shopping.

According to Luhmann [62], trust can be fostered through the capabilities of the technological systems implemented by brands. A well-designed chatbot that is both useful and easy to use can promote trust in the brand as it shows their competence, that is, their abilities to fulfill their obligations, which is one of the three dimensions on which trust in the seller is based [49]. Additionally, the ease-of-use fosters the development of a comfortable environment for users that can favor trust in brands [27]. Since both factors can stimulate the improvement of trust in the seller, we postulate the following hypotheses:

H1: Trust in seller is positively influenced by the perceived usefulness of chatbots.

H2: Trust in seller is positively influenced by the perceived ease-of-use of chatbots.

**Responsiveness** The Information System Success Model (IS) provides a theoretical framework for measuring the performance of e-commerce systems employed by users or customers [23]. In this context, responsiveness can be considered the most relevant attribute of service quality [106], which, in turn, in the world of electronic commerce, acquires a more relevant role than ever before, since that poor service quality can lead to both losses of customers and sales [23]. Responsiveness is defined as the ability to solve problems effectively through a given system or website [77], allowing to provide useful and immediate answers to customer queries [103]. Through the responsiveness of e-commerce systems, brands can influence customer satisfaction (Cheng & Jiang [12]) and strengthen the intention to continue using these systems [44]. Furthermore, responsiveness is a factor of the e-commerce system that allows brands to promote trust in sellers [13].

Although responsiveness was originally conceived as a service quality factor for human assistants, it is also a key attribute for chatbots as virtual assistants since they are capable to use language skills to provide customer services without delay [57]. Consequently, responsiveness is a desirable attribute to incorporate in the design of a chatbot that can improve both its interactions [18] and its system of communication to support customer [73].

Thus, in addition to their easy access by customers at anytime and anywhere [91], if chatbots can provide quick responses, companies can reduce uncertainty by

acting benevolently toward customers [35] and therefore influence the trust in seller [50]. Consequently, we set the following hypothesis:

H3: Trust in seller is positively influenced by the responsiveness of chatbots.

#### ***10.2.4 Outcomes of Trust: Brand Preference and Purchase Intention***

Trust is a key element for brands in customer relationship management [31] since it can help customers reduce uncertainty and feel less vulnerable [109]. This is especially relevant in e-commerce, where trust can encourage a comfortable feeling in consumers that enables a successful relationship [74]. Additionally, trust can significantly influence customers' propensity to act [95], and hence future consumer behavior [49].

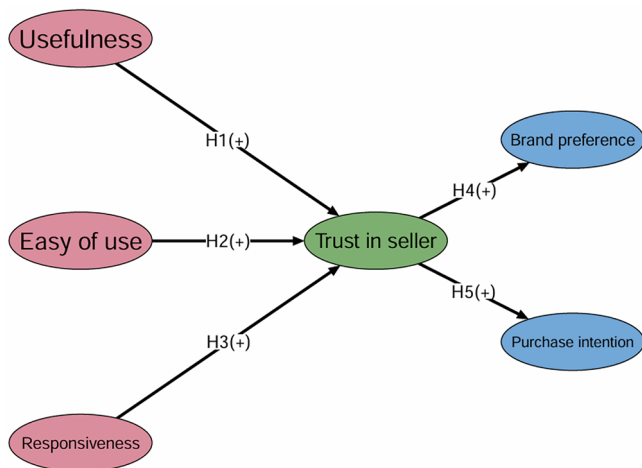
Among outcomes of trust in seller, the previous literature has identified satisfaction [42], attitude [49], intention to use a website [49], brand loyalty [49, 109], engagement [6, 104], commitment [83], and interaction with brands [6]. Additionally, previous studies have identified trust as an antecedent of brand preference [12, 74] and purchase intention [49].

Nowadays, technological advances, combined with the multitude of brands from which consumers can choose, make it difficult to differentiate brands [25] so brand preference is an important research topic that has received the attention of several authors [2, 25, 53, 74].

Brand preference is defined as a blend of consumer's memory and brand attitude [53] that reflects a consumer's propensity toward a brand [25]. Thus, brand preference can be conceived as the consumers' predisposition to support a specific brand in comparison to other brands that summarizes the processing of subjective cognitive information of the customer concerning the brand in the evaluation of the customer's decision-making [41]. Consequently, brand preference is the key factor that drives consumers to buy and repurchase the brand [25].

Concerning purchase intention, which represents the possible interests of customers in the purchase of services or products, it can be defined, according to Grewal et al. [34] as "a probability that lies in the hands of the customers who intend to purchase a particular product." Customer purchase intention is a key issue in marketing management because it is an essential component of customer behavioral intentions, and hence it can impact the decisions of customers [59] because it can act as a predictor of future sales. Thus, the effectiveness of marketing actions, such as the incorporation of chatbots in customer management [61], can support brands to achieve this goal [101].

Concerning the use of chatbots in e-commerce, previous literature has also identified outcomes of trust. Previous studies have extensively analyzed whether the trust promoted by interactions with chatbots can impact the intention to use a chatbot [21, 42, 46, 66]. To a lesser extent, previous literature also has analyzed how the



**Fig. 10.1** Conceptual model

trust generated through a chatbot can influence loyalty [84], brand preference [12], and purchase intention [12, 107]. Hence, we establish the following hypotheses:

H4: Trust in seller impacts positively brand preference.

H5: Trust in seller impacts positively purchase intention.

Figure 10.1 summarizes the conceptual model proposed.

## 10.3 Methodology

### 10.3.1 Sample, Procedures, and Data Collection

Regarding the study framework, we focused on perceptions toward chatbots as a customer service from Spanish consumers in e-commerce. This country has experienced significant growth in e-commerce users in recent years, where the upward trend in online shopping is maintained in 2021 by 55.2% compared to 53.8% in 2020 and 46.9% in 2019 [43], and it is expected that it reaches 36.9 million by 2025 [97]. Additionally, only five countries had a greater number of companies that attracted customers through chatbot interfaces in 2019 [16].

However, there are still many companies in this geographical space, namely, small and medium enterprises, that need to advance in their digitalization [63]. In Spain, 99.8% of the business environment is small and medium-sized companies [67], which have the greatest difficulties in evolving in the digital context. Even though the pandemic showed that the availability of online websites is essential to these companies only 4 out of 10 small and medium-sized businesses had a website in 2021 [30].

To develop the empirical study and test the hypotheses of the conceptual model (Fig. 10.1), an online survey was carried out using a convenience sample. The employment of convenience samples is widely considered in social science research due to its advantages over other sampling techniques [102]. We developed a structured online questionnaire, according to the previous literature with Google Forms. The questionnaire was distributed in Spanish and was announced through email, popular social media platforms, and online forums to target general e-commerce users in Spain.

Participants were notified that the purpose of the questionnaire was only academic and was provided information to explain what chatbots are and how they work, as well as real examples of chatbot services from firms to ensure that they had previously experienced with chatbots in online shopping. The time required to complete the entire questionnaire was less than 15 min which is considered acceptable to produce high-quality data [86]. The survey was approximately developed for 3 weeks to attain responses from participants. The final sample was obtained by December 2021, and we recorded 173 valid responses after the rejection of questionnaires partially filled.

Table 10.1 summarizes the participants' demographic profile. Regarding age, most of the participants were young. A little more than half of the sample was aged 18–25 years (56.1%), followed by participants aged 26–40, who accounted for 24.3% of the sample. Concerning gender, the participants were mainly women (63%). Furthermore, nearly half of the participants (49.7%) had a university degree and significant percentages of respondents graduated from high school (23.1%) or had a master's degree (19.7%).

In terms of online shopping frequency, almost half of the sample usually made a purchase a month (45.1%) and just over 20% of respondents made a purchase per week or every 3 months. Regarding chatbot use, 35.8% of respondents used a virtual agent 1 time in the last 6 months, 20.8% used it 2 times, and 16.2% used it 5 or more times. Also 16.2% of respondents, despite having previous experience, have not interacted with a chatbot in the last 6 months. Finally, among the sectors where the respondents used a virtual agent for the last time, we can highlight fashion (24.3%), technology (21.4%), and other sectors (20.2%).

### ***10.3.2 Instrument Design Procedures and Statistical Software***

We considered existing scales from previous studies that we adapted and expanded for our survey, and we measured each construct with four items. Perceived usefulness was measured with items used by Kasilingam [46]. Items from Hassanein and Head [39] study were considered for perceived ease-of-use. Responsiveness was assessed with four items used by Chen et al. [9]. The items to measure trust in seller dimension were adapted from the study conducted by Wongkitrungrueng and Assarut [104]. For brand preference, we adapted items from Kim and Hyun [48] and purchase intention dimension included items adapted from Yen and Chiang [107].

**Table 10.1** Participants' demographics

Characteristic	<i>n</i>	(%)
<b>Age (in years)</b>		
18–25	97	56.1
26–40	42	24.3
41–55	30	17.3
56+	4	2.3
<b>Gender</b>		
Male	64	37
Female	109	63
<b>Level of education</b>		
Primary school	2	1.2
High school	40	23.1
University degree	86	49.7
Master's degree	34	19.7
Doctorate	8	4.6
<b>Online shopping frequency</b>		
Less than 1 time per 6 months or less	20	11.6
1 time per 3 months	35	20.2
1 time per month	78	45.1
1 time per week	36	20.8
Every day	4	2.3
<b>Chatbot use frequency in the last 6 months</b>		
0 times	28	16.2
1 time	62	35.8
2 times	36	20.8
3 times	18	10.4
4 times	5	2.9
5 times or more	24	16.2
<b>Brand sector for last time Chatbot usage</b>		
Restaurants and takeaways	7	4
Supermarkets and hypermarkets	7	4
Fashion	42	24.3
Sport	10	5.8
Cosmetic	4	2.3
Technology	37	21.4
Tourism, travel, and lodging	14	8.1
Financial entity	13	7.5
Insurance	4	2.3
Others	35	20.2

For all constructs, we employed a five-point Likert scale [9] that ranges from 1 (strongly disagree) to 5 (strongly agree).

The data statistical analysis included a confirmatory factor analysis (CFA) to validate the measurement scale and a structural equation model (SEM) to test the



hypotheses. All statistical procedures were conducted with R software through the package lavaan [90].

## 10.4 Results

### 10.4.1 Reliability and Validity

Firstly, CFA through maximum likelihood estimation was used to empirically confirm the reliability and validity of the constructs. Table 10.2 shows factor loadings of the individual items, average factor loading for constructs, composite reliability, Cronbach's alpha values, and average variance extracted (AVE). Three items RE4, TR4, and BP4 were removed from the analysis because their factor loading was

**Table 10.2** Model measurements, discriminant validity, and HTMT ratios

Reliability measures of the scales					
Constructs and items	Standardized factor loading	Average loading	Composite reliability	Cronbach's alpha	Average variance extracted
<b>Usefulness (US)</b>		0.9014	0.9456	0.9455	0.8117
US1	0.922				
US2	0.891				
US3	0.917				
US4	0.876				
<b>Responsiveness (RE)</b>		0.8567	0.8938	0.8544	0.7287
RE1	0.905				
RE2	0.902				
RE3	0.764				
<b>Trust in seller (TR)</b>		0.8288	0.8686	0.8637	0.6866
TR1	0.783				
TR2	0.859				
TR3	0.844				
<b>Brand preference (BP)</b>		0.9383	0.9568	0.9558	0.8798
BP1	0.927				
BP2	0.958				
BP3	0.931				
<b>Purchase intention (PI)</b>		0.9445	0.9707	0.9705	0.8921
PI1	0.935				
PI2	0.958				
PI3	0.944				
PI4	0.940				

below 0.7 [38]. Additionally, due to the poor fit, the deletion of the ease-of-use dimension from the model was required to enhance the fit.

After the rejection of these items, the rest of them showed factor loadings greater than 0.7, and all average factor loadings were also greater than 0.7 [38]. Composite reliability values ranged from 0.8686 to 0.9707, hence in all cases above the recommended threshold of 0.70 [28] and Cronbach's alpha values also exceeded 0.7, confirming that the measurement was reliable [76]. The AVE values varied from 0.6866 to 0.8921 exceeding the threshold of 0.5 [28]. Consequently, the measurement model fulfilled reliability and convergent validity conditions.

### Discriminant Validity

	US	RE	TR	BP	PI
US	<b>0.901</b>				
RE	0.443	<b>0.854</b>			
TR	0.781	0.672	<b>0.829</b>		
BP	0.358	0.308	0.458	<b>0.938</b>	
PI	0.424	0.365	0.543	0.783	<b>0.945</b>

Elements on the diagonal in bold indicate ( $\sqrt{AVE}$ ).

Correlation coefficients are below the diagonal.

### HTMT Ratios

	US	RE	TR	BP
US				
RE	0.475			
TR	0.768	0.735		
BP	0.575	0.262	0.434	
PI	0.671	0.289	0.522	0.791

Regarding discriminant validity, Table 10.2 provides the square roots of the average variance in the diagonal and the correlation coefficients between constructs under the diagonal and heterotrait-monotrait ratios (HTMT). Following Fornell and Larcker [28], all the correlations' coefficients are below the diagonal values (Table 10.2). Additionally, Table 10.2 shows that all HTMT ratios were below 0.85 [40]. Thus, the discriminant validity of the measurement model was verified.

## 10.4.2 Structural Equation Modelling (SEM) and Hypothesis Testing

After evaluating the measurement model, we tested the hypothesis using the structural equation model (SEM). Due to the non-normality of the data (p-values from Mardia's skewness and kurtosis tests below 0.001), we considered the use of the Satorra-Bentler statistic [92], the use of the nonnormality correction [8] for the root

**Table 10.3** Structural model

Overall model fit test and measures				
Measure	Value	<i>P</i> value	Threshold	References
$\chi^2$	214.074	0.000		
<i>df</i>	113			
$\chi^2/df$	1.894		Less than 5	Jöreskog [45]
RMSEA	0.098		Less than 0.1	Cudeck and Browne [17]
CFI	0.944		Greater than 0.90	Hair et al. [38]
TLI	0.933		Greater than 0.90	Hair et al. [38]
IFI	0.962		Greater than 0.90	Hair et al. [38]
NNFI	0.933			

Parameter estimates and results of hypotheses tests (standardized)				
Hypothesis	Regression coefficient	<i>P</i> value	Result	R <sup>2</sup>
H1 US- > TR	0.602***	0.000	Supported	0.743
H2 RE- > TR	0.406***	0.000	Supported	
H4 TR- > BP	0.458***	0.000	Supported	0.210
H5 TR- > PI	0.543***	0.000	Supported	0.295

\*\*\**P* < 0.001

mean square error of approximation (RMSEA) and for the comparative fit index (CFI) and the Tucker-Lewis index (TLI) [7]. Also, we considered the non-normed fit index (NNFI) and the incremental fit index (IFI). Table 10.3 displays the overall model fit measures and the thresholds recommended. All fit indices were within the accepted standard, so the model presents a good fit.

For the analysis of the structural model, Table 10.3 provides coefficients for the research constructs in the standardized form. There were significant positive effects of the perceived usefulness ( $\beta = 0.477$ ,  $P < 0.001$ ) and responsiveness ( $\beta = 0.362$ ,  $P < 0.001$ ) of the chatbot on trust in seller and hence, H1 and H3 were supported. This result indicates that when chatbots are recognized by consumers as useful for performing a task and particularly capable of solving problems effectively, trust in the seller increases.

Furthermore, the influence of trust in seller was tested on brand preference and purchase intention. Both brand preference and purchase intention were strongly and positively affected by trust, and hypotheses H4 and H5 were accepted. This means that the more trust the consumer has in the seller, the more likely they are to prefer that brand and to intend to buy products or services from that same brand.

## 10.5 Conclusions and Discussion

Based on previous studies [9, 12, 51, 52], the model developed in this research work, carried out in the context of chatbot use, integrated the TAM and the IS model [9] to identify whether ease-of-use, usefulness, and responsiveness are antecedents of trust in the seller [52]. In this same model, it was sought to verify how trust can

strengthen relationships between consumers and brands, positively influencing both brand preference and purchase intention [12, 51].

From a sample of  $N = 173$  Spanish consumers who had previously used chatbots in online shopping, the results showed that both usefulness and responsiveness positively and significantly influence trust in the seller, supporting previous studies [13, 51, 52]. However, our research could not verify the impact of ease-of-use on trust. This result may be because the sample is mainly composed of young consumers (Table 10.1) who have had previous experience with chatbots and have greater ease-of-use of new technologies in an e-commerce context. Technology is a significant part of the daily lives of these young people, who use interactive media more intensively than other age groups [68]. Therefore, it is understandable that ease-of-use for them is not a determining factor.

Finally, supporting previous studies, the results show how trust in the brand generated by interaction with chatbots positively and significantly influences both brand preference [12] and purchase intention [12, 51].

### ***10.5.1 Theoretical and Practical Implications***

This study provides several theoretical implications for the research. Firstly, this work extends previous studies about the incorporation of AI in marketing communications and customer relationship management [3, 54].

Secondly, to the best of our knowledge, the previous studies did not consider both the antecedents and consequences of trust in the context of chatbot interactions, so this study represents a new contribution to a greater understanding of the construction of online trust and its consequences [49, 51], highlighting the role of this dimension as a factor to strengthen both relationships with customer and sales.

Thirdly, this work supposes a new contribution in the incorporation of online trust in the TAM [32], but instead of incorporating it as an antecedent, this research considers trust as a mediating variable to support brands in the customer relationship management [108].

Finally, this work, under a brand approach [12], extends the studies on the use of chatbots in e-commerce, mainly focused on a consumer perspective and whose objective is to analyze the impact of chatbots on customer satisfaction [9, 11, 15] and customer intention to use chatbots [11, 36]. Thus, this research incorporates relevant variables from TAM and IS model in the design of a chatbot to improve the relationship between brands and consumers by expanding previous results [12].

The findings also provide some implications for brand managers in designing chatbots as part of their marketing strategy and as an online point of contact for service. This work is a useful contribution, especially for small and medium enterprises that are in the process of developing their digital strategy and that proliferate in the study territory [30, 31, 63].

Thus, these brands should design their chatbots to be useful and to respond efficiently and quickly. They should identify which elements of their chatbots'

usefulness and responsiveness best suit their product or services and thus develop systems that provide useful information that supports consumers. Additionally, chatbots should respond quickly and accurately to queries made by customers to satisfy their needs. In this way, chatbots reduce the uncertainty that exists in the online context, fostering trust and becoming tools to increase preferences for brands and generate sales.

### 10.5.2 Limitations and Future Research

There are some limitations to this study. First, the sample covers only Spanish consumers; hence, future research should examine the proposed conceptual model in other cultural contexts. Second, this research is based on a sample of young consumers with previous experience in using chatbots. Future studies should examine whether the results obtained with the proposed conceptual model are different for consumer groups with no prior knowledge of chatbots and whether the results are also different when the sample does not mainly consist of young consumers. Finally, our study analyses the proposed model cross-sectionally, but further longitudinal analysis is needed to examine how the relationships established by the model may develop over time.

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## References

1. Agrebi, S., & Jallais, J. (2015). Explain the intention to use smartphones for mobile shopping. *Journal of Retailing and Consumer Services*, 22, 16–23. <https://doi.org/10.1016/j.jretconser.2014.09.003>
2. Alamro, A., & Rowley, J. (2011). Antecedents of brand preference for mobile telecommunications services. *Journal of Product and Brand Management*, 20(6), 475–486. <https://doi.org/10.1108/10610421111166621>
3. Ameen, N., Tarhini, A., Reppel, A., & Anand, A. (2021). Customer experiences in the age of artificial intelligence. *Computers in Human Behavior*, 114. <https://doi.org/10.1016/j.chb.2020.106548>
4. Amin, M., Rezaei, S., & Abolghasemi, M. (2014). User satisfaction with mobile websites: The impact of perceived usefulness (PU), perceived ease of use (PEOU) and trust. *Nankai Business Review International*, 5(3), 258–274. <https://doi.org/10.1108/NBRI-01-2014-0005>
5. Ba, S. L., & Pavlou, P. A. (2002). Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behavior. *MIS Quarterly*, 26(3), 243–268. <https://doi.org/10.2307/4132332>
6. Bart, Y., Shankar, V., Sultan, F., & Urban, G. L. (2005). Are the drivers and role of online trust the same for all web sites and consumers? A large-scale exploratory empirical study. *Journal of Marketing*, 69(4), 133–152. <https://doi.org/10.1509/jmkg.2005.69.4.133>

7. Brosseau-Liard, P. E., & Savalei, V. (2014). Adjusting incremental fit indices for nonnormality. *Multivariate Behavioral Research*, 49(5), 460–470. <https://doi.org/10.1080/00273171.2014.933697>
8. Brosseau-Liard, P. E., Savalei, V., & Li, L. (2012). An investigation of the sample performance of two nonnormality corrections for RMSEA. *Multivariate Behavioral Research*, 47(6), 904–930. <https://doi.org/10.1080/00273171.2012.715252>
9. Chen, J.-S., Le, T.-T.-Y., & Florence, D. (2021). Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing. *International Journal of Retail & Distribution Management*, 49(11), 1512–1531. <https://doi.org/10.1108/IJRDM-08-2020-0312>
10. Chen, Q., Gong, Y., Lu, Y., & Tang, J. (2022). Classifying and measuring the service quality of AI chatbot in frontline service. *Journal of Business Research*, 145, 552–568. <https://doi.org/10.1016/j.jbusres.2022.02.088>
11. Cheng, Y., & Jiang, H. (2020). How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use. *Journal of Broadcasting & Electronic Media*, 64(4), 592–614. <https://doi.org/10.1080/08838151.2020.1834296>
12. Cheng, Y., & Jiang, H. (2022). Customer-brand relationship in the era of artificial intelligence: Understanding the role of chatbot marketing efforts. *Journal of Product and Brand Management*, 31(2), 252–264. <https://doi.org/10.1108/JPBM-05-2020-2907>
13. Chiu, C.-M., Chang, C.-C., Cheng, H.-L., & Fang, Y.-H. (2009). Determinants of customer repurchase intention in online shopping. *Online Information Review*, 33(4), 761–784. <https://doi.org/10.1108/14684520910985710>
14. Chung, S., Kramer, T., & Wong, E. M. (2018). Do touch interface users feel more engaged? The impact of input device type on online shoppers' engagement, affect, and purchase decisions. *Psychology & Marketing*, 35(11), 795–806. <https://doi.org/10.1002/mar.21135>
15. Chung, M., Ko, E., Joung, H., & Kim, S. J. (2020). Chatbot e-service and customer satisfaction regarding luxury brands. *Journal of Business Research*, 117, 587–595. <https://doi.org/10.1016/j.jbusres.2018.10.004>
16. Collect.chat. (2019). *Chatbot 2019 trends and stats with insider reports*. <https://collect.chat/blog/chatbots-trends-and-stats-2019/>. Last accessed 2022/05/23.
17. Cudeck, R., & Browne, M. W. (1992). Constructing a covariance matrix that yields a specified minimizer and a specified minimum discrepancy function value. *Psychometrika*, 57, 357–369.
18. Danilava, S., Busemann, S., Schommer, C., & Ziegler, G. (2013). Why are you silent? Towards responsiveness in chatbots. In *Avec le Temps! Time, Tempo, and turns in human-computer interaction*, Workshop at CHI 2013. Paris.
19. Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), 24–42. <https://doi.org/10.1007/s11747-019-00696-0>
20. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
21. De Cicco, R., Costa e Silva, S., & Alparone, F. R. (2020). Millennials' attitude toward chatbots: An experimental study in a social relationship perspective. *International Journal of Retail & Distribution Management*, 48(11), 1213–1233. <https://doi.org/10.1108/IJRDM-12-2019-0406>
22. de Visser, E. J., Monfort, S. S., McKendrick, R., Smith, M. A. B., McKnight, P. E., Krueger, F., et al. (2016). Almost human: Anthropomorphism increases trust resilience in cognitive agents. *Journal of Experimental Psychology-Applied*, 22(3), 331–349. <https://doi.org/10.1037/xap0000092>
23. DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of Electronic Commerce*, 9(1), 31–47. <https://doi.org/10.1080/10864415.2004.11044317>

24. Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61(2), 35–51. <https://doi.org/10.1177/002224299706100203>
25. Ebrahimi, R., Ghoneim, A., Irani, Z., & Fan, Y. (2016). A brand preference and repurchase intention model: the role of consumer experience. *Journal of Marketing Management*, 32(13–14), 1230–1259. <https://doi.org/10.1080/0267257X.2016.1150322>
26. Fernandez-Rovira, C., Alvarez Valdes, J., Mollevi, G., & Nicolas-Sans, R. (2021). The digital transformation of business. Towards the datafication of the relationship with customers. *Technological Forecasting and Social Change*, 162. <https://doi.org/10.1016/j.techfore.2020.120339>
27. Flavian, C., Guinaliu, M., & Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. *Information & Management*, 43(1), 1–14. <https://doi.org/10.1016/j.im.2005.01.002>
28. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1002/j.2158-1592.2004.tb00173.x>
29. Gacelaweb. (2022). *Digitization of SMEs in Spain*. <https://www.gacelaweb.com/digitalizacion-de-pymes-en-espana/>. Last accessed 2022/05/17.
30. Galafate, C. (2021). *Digitization, a pending issue for 46% of Spanish SMEs*. <https://www.elmundo.es/tecnologia/innovacion/working-progress/2021/11/16/619380dfe4d4d8bb1f8b45d4.html>. Last accessed 2022/04/22.
31. Garbarino, E., & Johnson, M. S. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing*, 63(2), 70–87. <https://doi.org/10.1177/002224299906300205>
32. Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–90. <https://doi.org/10.2307/30036519>
33. Gould, R. (2021). *How chatbots can make your business stand out in a saturated market*. <https://www.getjenny.com/blog/how-chatbots-make-your-business-stand-out>. Last accessed 2022/02/17.
34. Grewal, D., Monroe, K. B., & Krishnan, R. (1998). The effects of price-comparison advertising on buyers' perceptions of acquisition value, transaction value, and behavioral intentions. *Journal of Marketing*, 62(2), 46–59. <https://doi.org/10.1177/002224299806200204>
35. Gummerus, J., Liljander, V., Pura, M., & Van Riel, A. (2004). Customer loyalty to content-based web sites: The case of an online health-care service. *Journal of Services Marketing*, 18(3), 175–186. <https://doi.org/10.1108/08876040410536486>
36. Gümüş, N., & Çark, Ö. (2021). The effect of customers' attitudes towards chatbots on their experience and behavioural intention in Turkey. *Interdisciplinary Description of Complex Systems: INDECS*, 19(3), 420–436. <https://doi.org/10.7906/indecs.19.3.6>
37. Hagberg, J., Sundstrom, M., & Egels-Zanden, N. (2016). The digitalization of retailing: An exploratory framework. *International Journal of Retail & Distribution Management*, 44(7), 694–712. <https://doi.org/10.1108/IJRDM-09-2015-0140>
38. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6). Pearson/Prentice Hall.
39. Hassanein, K., & Head, M. (2007). Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping. *International Journal of Human-Computer Studies*, 65(8), 689–708. <https://doi.org/10.1016/j.ijhcs.2006.11.018>
40. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
41. Howard, J. A., & Sheth, J. N. (1969). *The theory of buyer behavior*. Wiley.
42. Hsiao, K.-L., & Chen, C.-C. (2021). What drives continuance intention to use a food-ordering chatbot? An examination of trust and satisfaction. *Library Hi Tech*. <https://doi.org/10.1108/LHT-08-2021-0274>

43. INE. (2021). *Equipment and use of ICT in homes*. [https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica\\_C&cid=1254736176741&menu=ultiDatos&idp=1254735576692](https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176741&menu=ultiDatos&idp=1254735576692). Last accessed 2022/04/19.
44. Jain, N. K., Kaul, D., & Sanyal, P. (2022). What drives customers towards mobile shopping? An integrative technology continuance theory perspective. *Asia Pacific Journal of Marketing and Logistics*, 34(5), 922–943. <https://doi.org/10.1108/APJML-02-2021-0133>
45. Joreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, 34(2), 183–202. <https://doi.org/10.1007/BF02289343>
46. Kasilingam, D. L. (2020). Understanding the attitude and intention to use smartphone chatbots for shopping. *Technology in Society*, 62. <https://doi.org/10.1016/j.techsoc.2020.101280>
47. Kilens, M. (2020). *State of conversational marketing report*. <https://www.drift.com/blog/state-of-conversational-marketing/>. Last accessed 2022/03/23.
48. Kim, J.-H., & Hyun, Y. J. (2011). A model to investigate the influence of marketing-mix efforts and corporate image on brand equity in the IT software sector. *Industrial Marketing Management*, 40(3), 424–438. <https://doi.org/10.1016/j.indmarman.2010.06.024>
49. Kim, Y., & Peterson, R. A. (2017). A meta-analysis of online trust relationships in e-commerce. *Journal of Interactive Marketing*, 38, 44–54. <https://doi.org/10.1016/j.intmar.2017.01.001>
50. Konradt, U., Wandke, H., Balazs, B., & Christophersen, T. (2003). Usability in online shops: Scale construction, validation and the influence on the buyers' intention and decision. *Behaviour & Information Technology*, 22(3), 165–174. <https://doi.org/10.1080/0144929031000107072>
51. Koufaris, M., & Hampton-Sosa, W. (2002). *Customer trust online: Examining the role of the experience with the Web-site*. Working paper, Department of Statistics and Computer Information Systems, Zicklin School of Business, Baruch College.
52. Koufaris, M., & Hampton-Sosa, W. (2004). The development of initial trust in an online company by new customers. *Information & Management*, 41(3), 377–397. <https://doi.org/10.1016/j.im.2003.08.004>
53. Kronrod, A., & Huber, J. (2019). Ad wearout wearout: How time can reverse the negative effect of frequent advertising repetition on brand preference. *International Journal of Research in Marketing*, 36(2), 306–324. <https://doi.org/10.1016/j.ijresmar.2018.11.008>
54. Kumar, V., Ramachandran, D., & Kumar, B. (2021). Influence of new-age technologies on marketing: A research agenda. *Journal of Business Research*, 125, 864–877. <https://doi.org/10.1016/j.jbusres.2020.01.007>
55. Kushwaha, A. K., Kumar, P., & Kar, A. K. (2021). What impacts customer experience for B2B enterprises on using AI-enabled chatbots? Insights from big data analytics. *Industrial Marketing Management*, 98, 207–221. <https://doi.org/10.1016/j.indmarman.2021.08.011>
56. Lee, Y.-C. (2006). An empirical investigation into factors influencing the adoption of an e-learning system. *Online Information Review*, 30(5), 517–541. <https://doi.org/10.1108/14684520610706406>
57. Li, L., Lee, K. Y., Emokpae, E., & Yang, S.-B. (2021). What makes you continuously use chatbot services? Evidence from Chinese online travel agencies. *Electronic Markets*, 31(3), 575–599. <https://doi.org/10.1007/s12525-020-00454-z>
58. Ling, E. C., Tussyadiah, I., Tuomi, A., Stienmetz, J., & Ioannou, A. (2021). Factors influencing users' adoption and use of conversational agents: A systematic review. *Psychology & Marketing*, 38(7), 1031–1051. <https://doi.org/10.1002/mar.21491>
59. Lo Presti, L., Maggiore, G., & Marino, V. (2021). The role of the chatbot on customer purchase intention: Towards digital relational sales. *Italian Journal of Marketing*, 2021(3), 165–188. <https://doi.org/10.1007/s43039-021-00029-6>
60. Lu, Y., Zhao, L., & Wang, B. (2010). From virtual community members to C2C e-commerce buyers: Trust in virtual communities and its effect on consumers' purchase intention. *Electronic Commerce Research and Applications*, 9(4), 346–360. <https://doi.org/10.1016/j.elerap.2009.07.003>



61. Lu, B., Fan, W., & Zhou, M. (2016). Social presence, trust, and social commerce purchase intention: An empirical research. *Computers in Human Behavior, 56*, 225–237. <https://doi.org/10.1016/j.chb.2015.11.057>
62. Luhmann, N. (1979). *Trust and power*. Wiley.
63. Lyntia. (2022). *How is digitization in SMEs in Spain?* <https://www.lyntia.com/news/como-es-la-digitalizacion-en-las-pymes-de-espana/>. Last accessed 2022/04/04.
64. Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*(3), 709–734. <https://doi.org/10.5465/amr.1995.9508080335>
65. McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research, 13*(3), 334–359. <https://doi.org/10.1287/isre.13.3.334.81>
66. Meyer-Waarden, L., Pavone, G., Poocharoentou, T., Prayatsup, P., Ratinaud, M., Tison, A., et al. (2020). How service quality influences customer acceptance and usage of chatbots. *Journal of Service Management Research, 4*(1), 35–51.
67. Ministerio de Industria, Comercio y Turismo. (2019). *Strategic framework in SME policy 2030*. <https://industria.gob.es/es-es/Servicios/MarcoEstrategicoPYME/Marco%20Estrat%C3%A9gico%20PYME.pdf>. Last accessed 2021/06/08.
68. Moore, M. (2012). Interactive media usage among millennial consumers. *Journal of Consumer Marketing, 29*(6), 436–444. <https://doi.org/10.1108/07363761211259241>
69. Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20–38. <https://doi.org/10.1177/002224299405800302>
70. Morgan-Thomas, A., Dessart, L., & Veloutsou, C. (2020). Digital ecosystem and consumer engagement: A socio-technical perspective. *Journal of Business Research, 121*, 713–723. <https://doi.org/10.1016/j.jbusres.2020.03.042>
71. Mozafari, N., Weiger, W. H., & Hammerschmidt, M. (2022). Trust me, I'm a bot – Repercussions of chatbot disclosure in different service frontline settings. *Journal of Service Management, 33*(2), 221–245. <https://doi.org/10.1108/JOSM-10-2020-0380>
72. Muslichah, M. (2018). The effect of self-efficacy and information quality on behavioral intention with perceived usefulness as intervening variable. *Journal of Accounting, Business and Management (JABM), 25*(1), 21–34. <https://doi.org/10.31966/jabminternational.v1i25.327>
73. Nguyen, T. (2019). *Potential effects of chatbot technology on customer support: A case study*. Master's thesis, Aalto University. <http://urn.fi/URN:NBN:fi:aalto-201906233987>
74. Nguyen, M. H., & Khoa, B. T. (2019). Customer electronic loyalty towards online business: The role of online trust, perceived mental benefits and hedonic value. *Journal of Distribution Science, 17*(12), 81–93. <https://doi.org/10.15722/jds.17.12.201912.81>
75. Nunamaker, J. E., Jr., Derrick, D. C., Elkins, A. C., Burgoon, J. K., & Patton, M. W. (2011). Embodied conversational agent-based kiosk for automated interviewing. *Journal of Management Information Systems, 28*(1), 17–48. <https://doi.org/10.2753/MIS0742-1222280102>
76. Nunnally, J. C. (1994). *Psychometric theory* (3rd ed.). Tata McGraw-Hill Education.
77. Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). ES-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research, 7*(3), 213–233. <https://doi.org/10.1177/1094670504271156>
78. Pavlou, P. A., & Gefen, D. (2004). Building effective online marketplaces with institution-based trust. *Information Systems Research, 15*(1), 37–59. <https://doi.org/10.1287/isre.1040.0015>
79. Pennington, R., Wilcox, H. D., & Grover, V. (2003). The role of system trust in business-to-consumer transactions. *Journal of Management Information Systems, 20*(3), 197–226. <https://doi.org/10.1080/07421222.2003.11045777>
80. Perea y Monsuwe, T., Dellaert, B. G. C., & De Ruyter, K. (2004). What drives consumers to shop online? A literature review. *International Journal of Service Industry Management, 15*(1), 102–121. <https://doi.org/10.1108/09564230410523358>

81. Petre, M., Minocha, S., & Roberts, D. (2006). Usability beyond the website: an empirically-grounded e-commerce evaluation instrument for the total customer experience. *Behaviour & Information Technology*, 25(2), 189–203. <https://doi.org/10.1080/01449290500331198>
82. Pruitt, D. G. (1981). *Negotiation behavior*. Academic Press. <https://doi.org/10.1016/C2013-0-11331-1>
83. Rajaobelina, L., Brun, I., Tep, S. P., & Arcand, M. (2018). Towards a better understanding of mobile banking: The impact of customer experience on trust and commitment. *Journal of Financial Services Marketing*, 23(3–4), 141–152. <https://doi.org/10.1057/s41264-018-0051-z>
84. Rajaobelina, L., Tep, S. P., Arcand, M., & Ricard, L. (2021). Creepiness: Its antecedents and impact on loyalty when interacting with a chatbot. *Psychology & Marketing*, 38(12), 2339–2356. <https://doi.org/10.1002/mar.21548>
85. Rese, A., Ganster, L., & Baier, D. (2020). Chatbots in retailers' customer communication: How to measure their acceptance? *Journal of Retailing and Consumer Services*, 56. <https://doi.org/10.1016/j.jretconser.2020.102176>
86. Revilla, M., & Ochoa, C. (2017). Ideal and maximum length for a web survey. *International Journal of Market Research*, 59(5), 557–565. <https://doi.org/10.2501/IJMR-2017-039>
87. Riedl, R., Mohr, P., Kenning, P., Davis, F., & Heekeren, H. (2011). *Trusting humans and avatars: Behavioral and neural evidence*. In ICIS 2011.
88. Rose, S., Hair, N., & Clark, M. (2011). Online customer experience: A review of the business-to-consumer online purchase context. *International Journal of Management Reviews*, 13(1), 24–39. <https://doi.org/10.1111/j.1468-2370.2010.00280.x>
89. Rose, S., Clark, M., Samouel, P., & Hair, N. (2012). Online customer experience in e-retailing: An empirical model of antecedents and outcomes. *Journal of Retailing*, 88(2), 308–322. <https://doi.org/10.1016/j.jretai.2012.03.001>
90. Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2), 1–36. <https://doi.org/10.18637/jss.v048.i02>
91. Roy, S. K., Shekhar, V., Lassar, W. M., & Chen, T. (2018). Customer engagement behaviors: The role of service convenience, fairness and quality. *Journal of Retailing and Consumer Services*, 44, 293–304. <https://doi.org/10.1016/j.jretconser.2018.07.018>
92. Satorra, A., & Bentler, P. M. (1994). Corrections to test statistics and standard errors in covariance structure analysis. In A. V. E. C. C. Clogg (Ed.), *Latent variables analysis: Applications for developmental research*. Sage.
93. Schuetzler, R. M., Giboney, J. S., Grimes, G. M., & Nunamaker, J. F., Jr. (2018). The influence of conversational agent embodiment and conversational relevance on socially desirable responding. *Decision Support Systems*, 114, 94–102. <https://doi.org/10.1016/j.dss.2018.08.011>
94. Schurr, P. H., & Ozanne, J. L. (1985). Influences on exchange processes: Buyers' preconceptions of a seller's trustworthiness and bargaining toughness. *Journal of Consumer Research*, 11(4), 939–953. <https://doi.org/10.1086/209028>
95. Shankar, V., Urban, G. L., & Sultan, F. (2002). Online trust: A stakeholder perspective, concepts, implications, and future directions. *Journal of Strategic Information Systems*, 11(3–4), 325–344. [https://doi.org/10.1016/S0963-8687\(02\)00022-7](https://doi.org/10.1016/S0963-8687(02)00022-7)
96. Shankar, V., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Douglass, T., et al. (2021). How technology is changing retail. *Journal of Retailing*, 97(1), 13–27. <https://doi.org/10.1016/j.jretai.2020.10.006>
97. Statista. (2021). *Number of e-commerce users in Spain from 2017 to 2025*. <https://www.statista.com/forecasts/478093/e-commerce-users-in-spain>. Last accessed 2022/02/23.
98. Thomaz, F., Salge, C., Karahanna, E., & Hulland, J. (2020). Learning from the dark web: Leveraging conversational agents in the era of hyper-privacy to enhance marketing. *Journal of the Academy of Marketing Science*, 48(1), 43–63. <https://doi.org/10.1007/s11747-019-00704-3>
99. Toufaily, E., & Pons, F. (2017). Impact of customers' assessment of website attributes on e-relationship in the securities brokerage industry: A multichannel perspective. *Journal of Retailing and Consumer Services*, 34, 58–69. <https://doi.org/10.1016/j.jretconser.2016.09.011>

100. Trivedi, J. (2019). Examining the customer experience of using banking chatbots and its impact on brand love: The moderating role of perceived risk. *Journal of Internet Commerce*, 18(1), 91–111. <https://doi.org/10.1080/15332861.2019.1567188>
101. Tsiotsou, R. (2006). The role of perceived product quality and overall satisfaction on purchase intentions. *International Journal of Consumer Studies*, 30(2), 207–217. <https://doi.org/10.1111/j.1470-6431.2005.00477.x>
102. Winton, B. G., & Sabol, M. A. (2021). A multi-group analysis of convenience samples: Free, cheap, friendly, and fancy sources. *International Journal of Social Research Methodology*, 1–16. <https://doi.org/10.1080/13645579.2021.1961187>
103. Wolfinger, M., & Gilly, M. C. (2003). eTailQ: Dimensionalizing, measuring and predicting retail quality. *Journal of Retailing*, 79(3), 183–198. [https://doi.org/10.1016/S0022-4359\(03\)00034-4](https://doi.org/10.1016/S0022-4359(03)00034-4)
104. Wongkitrungrueng, A., & Assarut, N. (2020). The role of live streaming in building consumer trust and engagement with social commerce sellers. *Journal of Business Research*, 117, 543–556. <https://doi.org/10.1016/j.jbusres.2018.08.032>
105. Xiao, B., & Benbasat, I. (2007). E-commerce product recommendation agents: Use, characteristics, and impact. *MIS Quarterly*, 31(1), 137–209. <https://doi.org/10.2307/25148784>
106. Yang, Z. L., Jun, M. J., & Peterson, R. T. (2004). Measuring customer perceived online service quality – Scale development and managerial implications. *International Journal of Operations & Production Management*, 24(11–12), 1149–1174. <https://doi.org/10.1108/01443570410563278>
107. Yen, C., & Chiang, M.-C. (2021). Trust me, if you can: A study on the factors that influence consumers' purchase intention triggered by chatbots based on brain image evidence and self-reported assessments. *Behaviour & Information Technology*, 40(11), 1177–1194. <https://doi.org/10.1080/0144929X.2020.1743362>
108. Youn, S., & Jin, S. V. (2021). In AI we trust? The effects of parasocial interaction and technopian versus luddite ideological views on chatbot-based customer relationship management in the emerging feeling economy. *Computers in Human Behavior*, 119. <https://doi.org/10.1016/j.chb.2021.106721>
109. Zehir, C., Sahin, A., Kitapci, H., & Ozsahin, M. (2011). *The effects of brand communication and service quality in building brand loyalty through brand trust; The empirical research on global brands*. In Proceedings of 7th international strategic management conference (p. 24). <https://doi.org/10.1016/j.sbspro.2011.09.142>

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