

New trends in ecotourism consumption research: a systematic review

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Abstract: Ecotourism has gained prominence in global research and practice due to its environmental conservation balance capacity, social well-being and economic growth. However, to be effective, it must integrate innovative business practices, understand consumer behavior and adhere to ethical standards. This research, through a systematic review and bibliometric analysis using *Biblioshiny*, explores these ecotourism multifactorial dimensions related to consumption. Therefore, its findings highlight the growth in scientific production in recent years, as well as a wide range of knowledge areas aiming to better understand this phenomenon. Furthermore, the current evaluation identified three main categories of analysis: sustainable business practices and innovations in ecotourism, consumer behavior regarding wildlife tourism, and the influence of consumer psychology on the choice of sustainable tourism destinations. This research also emphasizes the need for sustainable policies and practices that could be adapted globally while considering the local nuances of each territory. This study contributes to the understanding of ecotourism as a complex and dynamic field, emphasizing the importance of continued exploration of the varied dimensions influencing its success and sustainability.

Keywords: Consumption; Environmental education; Innovation; Sustainability; Ecotourism.

Nuevas tendencias en la investigación del consumo de ecoturismo: una revisión sistemática

Resumen: El ecoturismo ha ganado relevancia en la investigación y en las prácticas globales debido a su capacidad de equilibrar la conservación ambiental, el bienestar social y el crecimiento económico. Sin embargo, para que esto sea efectivo, se deben integrar prácticas empresariales innovadoras, entender el comportamiento del consumidor y adherir a ciertos estándares éticos. Esta investigación, a través de una revisión sistemática y análisis bibliométrico, utilizando *Biblioshiny*, explora las dimensiones multifacéticas del ecoturismo enfocadas en el consumo. Los resultados evidenciaron crecimiento de la producción científica en los últimos años, así como una amplia variedad de áreas del conocimiento que buscan comprender mejor este fenómeno. Además, se observaron tres principales categorías de análisis: prácticas empresariales sostenibles e innovaciones en ecoturismo, comportamiento del consumidor en relación con el turismo de vida silvestre, y la influencia de la psicología del consumidor en la elección de destinos turísticos sostenibles. La investigación también subraya la necesidad de políticas y prácticas sostenibles que puedan ser adaptadas globalmente, considerando las particularidades locales de cada territorio. El estudio contribuye a la comprensión del ecoturismo como un campo complejo y dinámico, enfatizando la importancia de continuar explorando las diversas dimensiones que influyen en su éxito y sostenibilidad.

Palabras clave: Consumo; Educación ambiental; Innovación; Sostenibilidad; Ecoturismo.

1. Introduction

Ecotourism, as a phenomenon, represents a form of tourism that seeks responsible and sustainable interaction between visitors and natural environments, promoting conservation, education and

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environmental awareness (Goodwin, 1996; The International Ecotourism Society [TIES], 2015). This approach preserves ecosystems' integrity; valorize biological and cultural diversity, while providing enriching experiences for tourists.

The World Tourism Organization of the United Nations (UNWTO, 2011; 2023a) points that, in recent decades, ecotourism has been recognized as one of the fastest-growing tourism market segments in various countries around the world. Lock (2021) adds that global ecotourism activity was valued at USD 181.1 billion in 2019, with favorable growth estimates for the sector in the coming years. The author believes that by 2027, this activity will reach USD 333.8 billion.

Fennell (2008) observes ecotourism as a better strategy for local communities' development and management, because it owns the potential to alleviate negative effects originated by mass tourism. In this sense, ecotourism has been considered an important tool for economic diversification, as it can reduce the rural population dependence of agriculture and develop other profitable ventures, such as community-owned animal farming or sustainable forest resource harvesting, which can provide greater outreach in their consumption.

Considering tourism services peculiarities offered and consumers behavioral changes in consumption, it is important to understand every variable that might influence tourists' intentions to consume ecotourism. Because, through this understanding it is possible to assist in strategic decision-making for tourism activity, as well as the development of policies that encourage and attract tourists.

An alternative to identify these variables is the Theory of Planned Behavior (TPB) (Ajzen, 1991). Based on TPB, it is assumed that intentions can capture some motivational factors that influence any behavior; they are indicators of how many people are willing to try, how much effort they plan to make to perform this specific behavior. As a rule, the stronger the intention to engage a specific behavior, the more likely its performance should be.

However, it should be clear that a behavioral intention may limit the expression of the behavior only if it is under volitional control; this is when the person can decide to perform, or not, the behavior. Ajzen (1985) believes that although some behaviors may indeed meet this requirement very well, the performance of most depends, at least to some extent, on non-motivational factors such as the availability of opportunities and necessary resources (e.g., time, money, skills, and cooperation of others). Collectively, these factors represent people's actual control over the behavior. When a person has the necessary opportunities and resources; and therefore, intends to perform the behavior, they should be able to do so.

It is emphasized that TPB is one of the most influential and commonly used psychological theories to explain behaviors. According to TPB, most human behaviors are goal-directed (Ajzen, 1985); therefore, a person would behave in a certain way because they have the "intention" to do so. This "intention" is influenced by the person's "attitude", "subjective rules" and "perceived behavioral control (PBC)", similar to the theoretical model of Stern et al. (1999) called Values-Beliefs-Norms (VBN).

Academic research on ecotourism has investigated its different aspects related to travel behavior and behavioral intention (Kerstetter et al., 2004; Tangeland, 2011; Chiu et al., 2014; Hultman et al., 2015; Lin & Huang, 2021; Karimi & Saghaleini, 2021) being crucial the application of TPB in ecotourism studies, due to its ability to provide solid analytical frameworks for exploring human behavior determinants.

Kerstetter et al. (2004), for example, evaluated tourists' motivations that typically lead to decide an ecotourism destination. In their study, they identified three dimensions of motivation: those related to adventure, education and holistic experience. Similarly, Tangeland (2011) when evaluating the factors that motivate consumption and with the intention of segmented consumers, the authors identified four motivational factors (quality improvement, skill development, new activity and social) and five segments (want-it-all, try new activity, social, performer and unexplained). Chiu et al. (2014), as well, concluded that perceived value, satisfaction and involvement in activities can promote environmentally responsible behavior among tourists.

Using TPB, Hultman et al. (2015) concluded that environmental attitudes and beliefs are positively linked to the intention of paying a premium price. In the same context, Lin and Huang (2021) showed that the three psychological factors related to TPB (attitudes, subjective norms, and perceived behavioral control) positively and significantly influenced tourists' ecological intentions. Like Lin and Huang (2021), Karimi and Saghaleini (2021) identified that the three TPB factors are relevant also showing that moral directives (such as internal rules and values that people should follow) significantly influence human behavior.

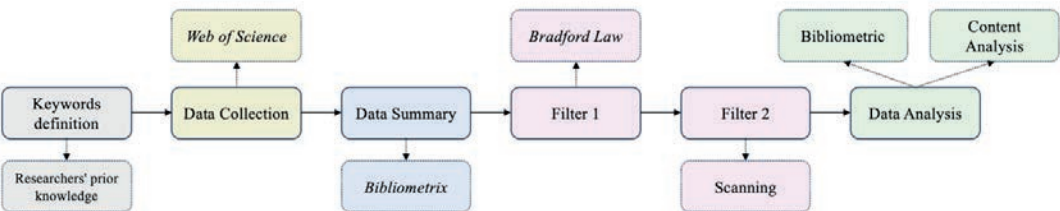
Hence, the complexity of tourists' behavioral choices in ecologically sensitive environments requires an in-depth understanding of the underlying motivations, social influences, and perceived barriers. It must

be pointed out that by employing TPB, researchers seek to understand some psychological mechanisms that guide tourists' decisions in natural environments, contributing to sustainable practices promotion and environmental conservation. In this context, by focusing on TPB, this research aims to uncover new issues that may influence the intention to consume ecotourism through a systematic literature review.

2. Methodological procedures

The current research was based on scientific databases, and was conducted to retrieve as many, relevant, documents as possible to develop a literature review. The process involved collecting, summarizing, classifying and analyzing lietarute data as presented in Figure 1.

Figure 1: Development process for a systematic review



At the first stage of the process, key terms were selected to best encompass the research objectives. This selection was based on researchers' prior ecotourism knowledge, as well as other synonyms linked to this touristic activity, as proposed by Eriksson and Lidström (2013). Additionally, aiming to understand relationship between the Theory of Planned Behavior (TPB) and ecotourism, the latter was also considered. Consequently, the composition of key terms adopted for the primary data collection was as follows: "ecotourism" OR "eco-friendly tourism" OR "green tourism" OR "nature tourism" AND "theory of planned behavior" OR "theory of planned behaviour" OR "TPB".

Therefore, database selection was developed. Thus, Web of Science was chosen for several reasons, notably because its extensive indexing over 15,000 journals, the availability of filtering tools, ease of data mining and its relevance for applied social sciences research, as specified by Zhu and Liu (2020), Forliano et al. (2021), and Castrillon-Junior et al. (2022).

Once key terms and the database were defined, bibliographic search was conducted on October 17, 2023, using descriptors in titles, abstracts, and keywords from the database. There had no temporal limitation, as the goal was to understand, comprehensively and thoroughly, the links between TPB and ecotourism. Furthermore, no linguistic or field restrictions were applied. As a result, 239 peer-reviewed full articles were obtained.

These articles were exported as plain text, in ".txt" format, and processed in R software aimed by *Bibliometrix* package (*Biblioshiny* interface). This software was chosen for its ability to facilitate summarization and data structuring for panel format presentation. According to Aria and Cuccurullo (2017), *Bibliometrix* offers three levels of metrics (source, authors, and articles) and three structures of knowledge: (1) conceptual co-occurrence, factor analysis, thematic map and evolution; (2) intellectual structure of articles, authors and references including co-citation network and historiography, and (3) social structure representing interactions between authors, institutions and countries.

Based on *Biblioshiny* analyses; Bradford's Law of Dispersion (BLD), a mathematical formula used to classify documents from various databases including the Web of Science, was employed. Nash-Stewart et al. (2012) inform that BLD categorizes documents into three layers, based on citation frequency. Hence, Layer 1 contains the most current and highly cited articles, Layer 2 includes less relevant articles with moderate quantity of citations and, finally, Layer 3 includes the least relevant articles with the fewest citations. For the present research, only documents included in Layer 1 were considered, then 159 records were deleted (Filter 1).

After applying Filter 1; titles, abstracts and keywords of the remaining documents (80) were read identifying if they were aligned with the research's scope (Filter 2). In this context, inclusion documents

criteria met the following criteria: (1) explore specific aspects of TCP application for understanding individual behavior in contexts related to ecotourism; (2) identify the determining factors for ecotourism consumption; (3) address environmental commitment in behavioral influence. The application of Filter 2 excluded 37 records, resulting in only 43 scientific papers for analysis.

3. Results and discussions

3.1. Bibliometric characteristics of the data

The main peculiarities of the gathered data are shown in Table 1. Since no temporal cut was made, the publications began in 1993 and the latest in 2023, the current year. It is important to notice that considerable growth in publications over the past 20 years has been observed.

After the initial publication in 1993, the only one from 1990's, it was not until 2007 that new publications on the topic were made (2). Table 2 shows the evolution of scientific production over the years.

Table 1: Brief information of research data

Key data information			
Period	1993:2023	Authors	130
Journal	20	International Co-authorships	9,30%
Documents	43	Single-author text	9
Average of citations per document	13,14%	Documents by author	0,331
Annual growth rate	2,34%	Co-authorship per document	3,05
References	118		
Documents type			
Articles		43	
Documentos content			
Author keywords		167	

Table 2: Evolution of Scientific Production

Year	Frequency	Variation
1993	1	-
2007	2	100%
2012	1	-50%
2015	3	200%
2017	1	-67%
2018	3	200%
2019	8	167%
2020	5	-38%
2021	7	40%
2022	10	43%
2023	2	-80%
Total	43	-

As observed, scientific production follows a growth pattern, characterized by alternate periods of increase and decrease in publication frequency over the years. This fluctuation might be related to the dynamism of consumption practices, which is aligned with sustainable values as well as with external factors such environmental awareness campaigns, government incentives for eco-friendly products and regulatory changes, favoring responsible consumption practices (Axon et al., 2023; Fischer et al., 2023; Pinho & Gomes, 2023), resulting in positive environmental impact. On the other hand, these oscillation could be associated to uncontrollable phenomena, such as economic (Khalid et al., 2020) and health crises (Xiong & Tang, 2023), reinforcing other research areas.

Notable peaks in scientific production occurred between 2019 and 2022, which can be linked to increasing environmental awareness and the expansion of sustainable tourism, respectively. The rise in 2019 may have been driven by global recognition of sustainable tourism practices need (Ranjan, 2019; Hamid & Isa, 2020; Vaugeois et al., 2022), while the resurgence in 2022 could be related to the global tourism activities resumption following COVID-19 pandemic restrictions; with pent-up demand for tourism experiences especially those oriented to respect the environment and promoting conservation (Cherkaoui et al., 2020; Borysova et al., 2021; Jovanovic et al., 2021).

However, significant decline of 80% of papers publication in specific years, such as 2020 and 2023, may be explained by extraordinary global-impact events suggesting the potential redefinition of research priorities, answering new global challenges (Bilas et al., 2022; Azmi et al., 2023; Pan, 2023; Rinn et al., 2023).

Despite the scientific production variation over time, the overall trend is one of growing scientific production, increasing from one publication in 1993 to 43 at the end of the study period. The year-to-year percentage variation reveals field volatility, with fluctuation rates indicating periods of potentially accelerated development, possibly driven by innovations or new methodologies.

Considering the countries responsible for scientific production, China leads with the highest number of publications (21), followed by the United States (5), Russia (4), Spain (4), India (3) and Malaysia (3). In terms of continents, the publications are distributed in Asia with 23 publications; Europe with 14 publications; North America with 5 publications; Oceania with 3 publications and Africa and South America with 1 publication each.

The limited number of publications from Africa and South America is concerning, because these regions possess a rich diversity of natural areas with substantial potential for promoting ecotourism practices. This gap suggests the need for investment in research and scientific dissemination aiming to foster ecotourism development, thereby enhancing environmental conservation and sustainable socioeconomic progress.

However, it is important to emphasize that, although the regions mentioned (Africa and South America) possess significant ecotourism potential, other actions must be taken to develop ecotourism respecting the cultural, socioeconomic and environmental specificities of each location. In this context, implement new sustainable practices should be considered with active participation of local communities, ensuring that economic and social benefits are equitably distributed, as well as all natural resources should be preserved for future generations. Hence, ecotourism can be consolidated as effective tool for sustainable development, promoting biodiversity conservation and the well-being of local populations.

South America, especially Brazil, besides its abundant natural territories and high ecotourism potential, has been experiencing numerous environmental problems. This country has faced varied setbacks regarding environmental care, and as result was evidenced inadequate governmental actions, such as reducing requirements for environmental licensing and suspending indigenous lands (Rochedo et al., 2018). Following these governmental actions, major biomes in the country have been devastated, such as Pantanal. Alho et al. (2019) highlighted that Pantanal biome has been threatened by different factors, including habitat alteration, artificial firing, wildlife hunting and trafficking as well as unregulated tourism practices.

In the same context, Darkoh (2009) and Abernethy et al. (2016) state that environmental degradation in Africa has increased, particularly in Central and Southern regions, experiencing problems related to deforestation, waste accumulation, pollution and poverty. This situation can be mitigated by implementing ecotourism but in the same time, can contribute to these degrading processes, if there is no commitment and co-participation from both public and private sectors for effective implementation of ecotourism.

It is important to point out that ecotourism by itself should not be seen as the main tool to change the world's vision of ecological tourism, but rather as a possibility for maintaining, caring for and improving the environmental, cultural, and economic heritage of a territory.

Correspondence analysis between authors and the origin countries of the publications was applied, considering the internal collaboration index (SCP intra-countries) and the international collaboration index (MCP inter-countries), as outlined by Aria and Cuccurullo (2017). Regarding the authors nationalities, the majority are Chinese (19), followed by Malaysians (3), Americans (3), Australians (2) and Indians (2). It was also observed that among contributions, China stands out with approximately 45.24% of the scientific production, all categorized as SCP, denoting robust internal scientific production without external collaboration. On the other hand, India has 2.38% of its publications as SCP and the same measure (2.38%) characterized as MCP, reflecting engagement for international collaborations. This result indicates the pursuit of restricted research to the national territory for the nation's development and understanding of regional consumption patterns.

Furthermore, these findings shown strong contradiction between the development of scientific research and actions in the territories. In China for example, because of rapid industrialization and urbanization, there is severe air pollution, soil degradation and water contamination (Lu et al., 2020). Moreover, the extensive use of fossil fuels and massive industrial production aggravate these problems and represent significant threats to the country's environmental health, as China is the largest emitter of CO², for example (Crippa et al., 2022). Similarly, Malaysia faces deforestation, biodiversity loss and water pollution, driven mainly by agricultural expansion, especially palm oil cultivation (Hasnu & Muhammad, 2022; Sahani et al., 2022), frightening the country's rich natural heritage.

In this context, the high quantity of publications from Asian countries suggests two main issues. The first one indicates that authors from these countries believe that through the research development and, consequently, the ecotourism implementation, there may be various viable solutions to help reducing some problems faced. This is because, by promoting sustainable tourism practices, they can encourage natural areas conservation and carbon footprint reduction. However, Xu et al. (2017) stated that effective ecotourism implementation requires strict regulations and greater environmental awareness among tourists and local communities, highlighting that well-planned ecotourism initiatives can generate income while promoting regional biodiversity conservation.

The second hypothesis is that it might be a case of greenwashing, as clear results of reductions in environmental impacts have not been observed, as seen in the study by Crippa et al. (2022). This situation is particularly problematic because it undermines trust in sustainability initiatives. When those responsible for disseminating serious information invest more in green marketing than in truly sustainable practices, the risk is twofold: first, there is direct deception of the public, who may make decisions based on false or exaggerated information; second, it weakens the global movement for a more sustainable economy, as effective practices are overshadowed by empty claims.

Regarding the analysis of the most frequent words in the scientific production, Table 3 shows the main findings of this research. Therefore, the most frequent words in authors' keywords, keywords plus and abstracts were registered. Additionally, the most frequent Web of Science (WoS) categories were identified (Table 4).

Table 3: Most frequent words in the analyzed scientific production

Authors Keywords	Frequency	Keywords plus	Frequency	Abstract	Frequency
ecotourism	14	ecotourism	12	tourism	16
sustainable development	3	tourism	8	ecological	9
sustainable tourism	3	conservation	5	development	7
ecological footprint	2	intention	5	environment	7
ecological protection	2	antecedents	3	attention	5

Source: Research data.

Table 4: Web of Science (WoS) more frequent categories

WoS Categories	Frequency	WoS Categories	Frequency
environmental sciences	18	management	5
hospitality leisure sport & tourism	13	geography physical	2
ecology	8	geosciences multidisciplinary	2
environmental studies	7	oceanography	2
green & sustainable science & technology	6	social sciences interdisciplinary	2

Source: Research data.

As shown in Table 3, it is evident that the term “ecotourism” is predominant, as the most frequently word in both the authors’ keywords (14 citations) and the keywords plus (12 citations), with significant occurrence in abstracts (16 citations referring to “tourism”), directly linked to research keywords. The terms “sustainable development” and “sustainable tourism,” each with three citations in the authors’ keywords, indicate emphasis on sustainability as the central pillar of ecotourism research. Additionally, both terms “ecological footprint” and “ecological protection,” cited twice, highlight the concern about tourism environmental impact and the need to protect vulnerable ecosystems.

The keywords plus include “tourism” and “conservation,” with eight and five citations, respectively; suggesting the integration of terms related to environmental conservation and tourism practice. The words “intention” and “antecedents,” with five and three citations each one, may indicate that research about factors influencing the intention to practice ecotourism or the historical antecedents of certain ecotourism practices.

In the abstracts, besides “tourism” words such as “ecological” “development” and “environment”; with nine, seven, and seven citations respectively, demonstrate the relevance of ecological issues and sustainable development. The word “attention,” cited five times may reflect the focus on directing the attention of both tourists and researchers to ecological and sustainability issues in tourism.

In Table 4 is listed the most frequent Web of Science categories, with predominance of “environmental sciences” category (18) that signals robust focus on scientific characteristics of the environment in the analyzed studies. The second most mentioned category was “hospitality leisure sport & tourism” (13), this reflects the importance of tourism and leisure in current research, especially on sustainability and environmental impact contexts.

The categories “ecology” (8) and “environmental studies” (7) reinforce the interest in the interactions between organisms and their environments, as well as in interdisciplinary studies addressing the complexity of the relationships between humans and environment, complemented by the category “green & sustainable science & technology” (6), indicating focus on innovations and technologies promoting sustainability.

Other categories with lower frequencies such as “management” (5), “geography physical”, “geosciences multidisciplinary”, “oceanography” and “social sciences interdisciplinary” (each with 2 occurrences), emphasize the diversity of approaches about environmental research, ranging from management and administrative practices to geographical and social sciences. These mentions suggest a broad range of themes and a multidisciplinary approaches in the studied articles, aligning environmental issues with disciplines beyond natural sciences, such as management and social area of study.

3.2. Content analysis and clustering based on article readings

After evaluating the selected articles, three potential categories of analysis were identified, defined as clusters. For clusters definition, article thematic content affinity was considered, using a qualitative approach that involved manual coding and content analysis. Initially, the scientific papers were read and were identified, and registered, the recurring themes and specific subthemes. Subsequently, these themes were grouped according to their relevance and similarity, allowing clusters formation reflecting the main areas of interest and research of the analyzed studies. Therefore, Cluster 1 addresses the integration of sustainable business practices with innovations in ecotourism; Cluster 2 connects consumer behavior to wildlife tourism, emphasizing ethical practices and environmental policies; and Cluster 3

focuses on consumer psychology and its role in promoting pro-environmental behaviors, and the choice of sustainable tourism destinations. These categories are further discussed in the following sections.

3.2.1. Cluster 1: Innovation in sustainable business (16 articles)

The increase of sustainable businesses, aligned with innovations in ecotourism, represents a multifaceted response to contemporary environmental challenges. This category, identified as Cluster 1, enhance business practices that not only seeks profits, but also commits environmental and social ethics (Hunter & Shaw, 2007; Dedeke, 2017; Zhang & Wang, 2020; Coghlan, 2022). The integration linking these practices reflects the balance between profit and preservation, where sustainability becomes the central axis (Cengiz, 2007; Dedeke, 2017; Lin et al., 2022).

Innovation in ecotourism, the main part of Cluster 1, appeared not only as a commercial strategy but also as the need for vulnerable ecosystems survivability (Klimenko et al., 2018; Wang et al., 2021; Bo & Yuan, 2022). The adoption of business models promoting low environmental impact of tourism, demonstrates increased recognition of the nature intrinsic value. These models propose a new narrative for tourism, where authentic and conscious experiences are valued (Lorenzo-Romero et al., 2019; Hao et al., 2021).

In this context, it is essential to verify the role of innovation in ecotourism as a mechanism for social and environmental transformation. Promoting sustainable practices not only mitigates the negative impacts of tourism but also, empowers local communities, providing them with economic opportunities and reinforcing cultural identity. Furthermore, by emphasizing natural resources conservation, ecotourism can serve as an educational platform, raising awareness among tourists about the relevance of environmental preservation.

It is important to note that this educational role on ecotourism should be aligned with the pillars of sustainability, and actively engage in all interactions between tourists and tourism markets, which can be challenging. Some of the main challenges faced by tourism markets are raising environmental awareness among tourists, continuous training of involved professionals and proper natural resources management. This is because the increasing demand for ecotourism reached population segments that are not willing to engage activities caring and respecting the environment, using it in depreciative ways.

For example, regarding the increasing environmental awareness among tourists who often lack knowledge about sustainable practices, or do not understand the importance of their contribution to environmental preservation; represents a big challenge. It is essential for the local tourism market to develop educational programs and awareness campaigns informing and engaging tourists about ecological practices, from educating about waste reduction to promoting activities that minimize environmental impact. Regarding the continuous training of professionals involved in tourism market, it is necessary for professionals to stay updated on best sustainability practices and environmental regulations that might affect this economic sector. This involves conducting regular training sessions and earning certifications to ensure their qualification to promote and implement sustainable tourism practices.

In addition, proper management of natural resources, crucial characteristic of the ecotourism, is essential to ensure its long-term sustainability. This involves implementing conservation policies, constantly monitoring the impact of tourism activities and adopting practices enabling ecosystem regeneration. In this sense, partnerships with environmental organizations should be established, implementing technologies for environmental monitoring and adopting regenerative tourism practices.

Concerning the concept of “added value” for consumers, it must be noted that it evolves from its basic characteristics to incorporate ethical and environmental values, reconfiguring the perception of quality and customer satisfaction (Cruz-Modino & Cosentino, 2022; Nie & Tang, 2022; Zhu et al., 2022). For example, the research by Nie and Tang (2022) highlights that ecotourism consumers demand, not only quality services but also, guarantees that their choices will not harm the environment, resulting in an environmentally and socially responsible value chain.

This new configuration of value in ecotourism raises critical questions about conscious consumption and shared responsibilities between consumers and tourism service providers. The increasing demand for ecotourism practices, challenges companies to continuous innovation, suggesting their need to find ways to minimize environmental impacts, while maximizing customer satisfaction. Ecotourism values the development of responsible tourism practices and care for natural and social environment. This dynamic, where the tourism market conduct activities considering the environment natural characteristics, can stimulate a virtuous cycle of sustainability, where consumer pressure and practices developed by the companies drive continuous environmental care improvements.

It is important to point out that environmental impact of tourism businesses is now a critical indicator of corporate performance (Mahapatra et al., 2012). Consequently, companies exhibiting these characteristics use, increasingly, environmental metrics to inform both strategic and operational decisions (Mahapatra et al., 2012). Environmental management, then, becomes the main component of their competitive advantage (Chin et al., 2018).

The fact of incorporate environmental metrics as corporate performance indicators, companies emphasize the importance of transparency and accountability on ecotourism market. This demonstrates that their activities are performed following sustainability principles not only contributing to the ecosystem's well-being, but also attracting consumers engaged in sustainable causes. As their corporate image becomes evident in tourism market, it strengthens consumer and other stakeholders' trust. This approach can result in tangible benefits, resulting in customer loyalty and attraction of investors who value sustainability.

It is important to note that sustainability is also driven by products and services innovation (Zhang & Wang, 2020; Coghlan, 2022). New approaches of ecotourism products development, *e.g.* using local resources and minimizing debris production, are becoming standard practices (Klimenko et al., 2018). This is lined up with the growing demand for authentic tourism experiences and have positive impacts on local communities (Zhu et al., 2022).

Innovating ecotourism products and services not only meets consumer expectations for authentic experiences, but also promotes economic and cultural sustainability of host communities. By incorporating unique and genuine elements of local cultures, ecotourism provides experiences beyond leisure *per se*, and contribute to tourists' education about the importance of environmental and cultural preservation. This approach enriches the tourist experience and strengthens the community cultural identity, improving both appreciation and preservation of their local traditions.

It must be remembered that using local resources is relevant to sustainable ecotourism success. Prioritizing local suppliers and labor, ecotourism initiatives stimulate regional economy, generating jobs and enhancing residents' income. Additionally, using local materials and products, carbon footprint can be reduced when associated with transporting goods, this contributes to minimize environmental negative impacts. A practical example is using locally produced food in ecotourism restaurants and accommodations, ensuring freshness and quality while supporting local farmers and producers.

Additionally, waste minimization practices are another crucial aspect of ecotourism. This could be achieved through implementing solid waste management systems, promoting recycling and composting activities, as well as raising tourist awareness about importance of reducing, reusing and recycling. Destinations adopting these practices, often establish strict policies on plastic use, encouraging biodegradable and reusable materials. Additionally, environmental education campaigns targeting tourists can encourage more sustainable behaviors during their stay.

In this context, ecotourism can be the main catalyst for sustainable development by aligning its operations with sustainability principles. This includes protecting natural ecosystems, promoting responsible local resources use and ensuring that tourism development does not compromise future generation's needs. By valuing authenticity and sustainability, ecotourism creates many significant competitive advantages for destinations that adopt these practices. Destinations that are known due their sustainable practices, often attract a more conscious tourists willing to pay for experiences that respect both environment and local cultures.

Finally, and with the same importance, cooperation among different stakeholders is vital for successful ecotourism promotion. Partnerships between businesses, local communities and governments can facilitate resources and knowledge sharing, enhancing positive impacts of ecotourism (Nie & Tang, 2022). This collaborative effort is essential to create a virtuous cycle of sustainable growth and conservation.

Such strategic partnerships represent a relevant collaborative approach to address the most important environmental and social challenges. These partnerships allow the sharing of resources, knowledge and best practices promoting innovation and resilience for tourism sector. Moreover, collaboration can amplify the positive impact of ecotourism encouraging a better, balanced and inclusive development.

For ecotourism managers, Cluster 1 offers insights about how to incorporate sustainability into business strategy. Innovation in sustainable businesses not only improves operational efficiency but also creates market opportunities. Managers can use these innovations to develop differentiated products meeting consumer demands for responsible practices and, thus, increasing destination's competitiveness.

Additionally, the emphasis on stakeholder cooperation suggests that managers should cultivate strategic partnerships to maximize the ecotourism benefits. Collaborations with local communities, NGOs and governments can grant the access to additional resources and promote the positive image

of every destination. This integrated approach can help to ensure that the economic benefits of tourism are distributed equitably, improving social and environmental justice.

The use of environmental metrics as performance indicators is also crucial for ecotourism managers. These metrics can guide strategic decisions, identifying areas to be improved and demonstrating commitment with sustainability. In addition, transparency and accountability are essential for building trust and credibility; these are fundamental elements for long-term success for ecotourism.

In this sense, Cluster 1 points an emerging paradigm where environmental and social responsibility are inherent to business logic (Mahapatra et al., 2012). This paradigm redefines business success, indicating that profitability and sustainability are not mutually exclusive goals, but complementary between them. Environmental and social responsibility, integrated into business strategy can lead to significant innovations that benefit both the tourism company and society. Adopting this paradigm, ecotourism business not only contribute to environmental preservation, but also play crucial roles promoting more equitable and sustainable development globally.

3.2.2. Cluster 2: Consumption behavior and sustainable tourism (15 articles)

The Cluster 2 exploration, found in the present research, leads a domain where consumer behavior intersects with ecotourism, particularly wildlife tourism through the lens of ethical practices and environmental policies. Here, the focus is on how consumer preferences and attitudes shape the tourism experience in natural areas and interaction with wildlife (Guimarães et al., 2015; Hofman et al., 2020; Yan, 2020; Tomassini et al., 2022).

The awareness of conservation and animal welfare issues is increasing (Faustino-Dias, 2024), as reflected in consumers' leisure choices especially in the context of wildlife tourism (Forestell, 1993; Tomassini et al., 2022). Tourists are increasingly seeking experiences that not only allow them to be connected with nature, but also contributing positively to environmental preservation (Man & Ne, 2019; Zhang, 2019; Lee et al., 2021; Qiao et al., 2021; Faustino-Dias, 2024). Thus, purchasing behavior in ecotourism is influenced by various factors, including environmental responsibility personal perceptions and the destination's sustainable practices.

This trend in reflects the significant shift in consumer behavior, with ethical and sustainable factors to make travel decisions, driven either by social pressure or intrinsic desires. This phenomenon not only influences the tourism market dynamics, but challenges companies to adapt their offered products and practices to meet the consumers expectations.

Additionally, it is necessary to critically think cautiously about the role of marketing campaigns and how they communicate sustainability. There is a risk of greenwashing, where companies promote an image of sustainability without adopting original sustainable practices. Therefore, it is essential transparent communication based on concrete actions, ensuring that consumers can trust the sustainability claims made by tourist destinations.

In this process, the role of environmental policies is crucial, as they shape the image of tourist destinations, where protected areas management and regulation must be balanced with tourism promotion and development (Korneevets et al., 2018; Xu et al., 2022). Effective policies can foster an environment where wildlife tourism thrives responsibly, ensuring that negative impacts are mitigated and benefits for wildlife and environment conservation are maximized (Min, 2015; Tomassini et al., 2022).

Ecotourism managers must, consequently, be attentive to environmental policies implementation and monitoring recognizing that effective management can serve as a competitive differentiator, and as guarantee of long-term sustainability. The adoption of robust policies and their effective communication to tourists can enhance the destination's reputation attracting more conscious and engaged audience.

However, it is vital to critically consider the application of these policies. Well-intentioned policies can sometimes result in unintended negative impacts, such as local communities' exclusion or creation of economic barriers for tourists. Therefore, policy formulation should be inclusive and might consider multiple stakeholders involved, from local communities to international tourists.

Furthermore, ethics in wildlife tourism frequently come into debate, questioning how tourist interactions affect local biodiversity, as well as the moral implications of these interactions (Guimarães et al., 2015; Tomassini et al., 2022; Thomsen et al., 2023). Thus, the articles included in Cluster 2 evidenced the growing interest about interaction between human ethics and wildlife, fact that requires careful examination in tourism activities and their alignment with conservation values.

This ethical concern provides opportunities for ecotourism managers to develop clear practices and guidelines ensuring responsible and sustainable human interactions with wildlife. Create educational

and awareness programs for tourists, enable the promotion of effective ethical and responsible behavior strategies, while strengthening the destination's commitment to conservation.

However, the effectiveness and implementation of these guidelines should be evaluated carefully. Ethical policies must, not only be established but also, be rigorously monitored and periodically reviewed ensuring their relevance and effectiveness. Cooperation joining conservation organizations and wildlife experts is important to develop and implement genuinely benefit practices favoring wildlife and local communities.

The analysis of the articles also indicates that consumers are willing to change their behaviors and pay more for ethical and environmentally sustainable experiences (Guimarães et al., 2015; Lee et al., 2021). This willingness is partly driven by the growing influence of social media and the dissemination of information related to sustainable tourism practices (Sadiq & Adil, 2021).

Ecotourism managers can capitalize consumer willingness by developing and promoting attractive tourism products, emphasizing sustainability and environmental responsibility. Marketing campaigns, in this context, highlighting ethical and sustainable practices, can attract growing segments of conscious consumers aiming to invest in touristic experiences, respecting natural environments. In this case, it is necessary that developed practices by companies might be fully aligned with the campaigns to avoid future retaliation.

However, it is crucial to maintain a critical view of social media impacts on shaping consumer perceptions. While social media can, rapidly, disseminate information; this way of communication can also spread misinformation or exaggerations. Therefore, marketing campaigns must be based on accurate data and verifiable practices, ensuring that shared information is reliable and useful to consumers.

The need for new practices analyzed in Cluster 2 is also constant, as the sector seeks new ways to engage tourists in sustainable practices, including the development of educational programs, that inform visitors about conservation and promote greater respect for natural environment (Mihály et al., 2015; Sadiq & Adil, 2021).

For ecotourism managers, continuous innovation and adaptation of sustainable practices are essential to maintain their relevance and competitiveness in the market. Creating educational programs that engage tourists and foster to a deeper understanding of conservation issues, can not only enhance the visitor experience but also reinforce the destination's commitment to sustainability. However, it is necessary to critically assess the effectiveness of these educational programs. Share information about sustainability may not be enough to make deeply changes on ingrained behaviors.

3.2.3. Cluster 3: Personality and sustainable tourism choices (12 articles)

Supported by Cluster 3 analysis emerged a complex field of study where consumer psychology is analyzed through ecotourism lens. This cluster examines how personality traits, attitudes and self-identification can influence consumer decisions, particularly regarding the choice of tourist destinations promoting environmental sustainability (Ding & Cao, 2018; Adam et al., 2019; Carvache-Franco et al., 2019; Wang & Chiu, 2019; Zhou et al., 2019; Lin & Huang, 2020; Rafiq et al., 2022; Hassan et al., 2023).

The articles within this cluster highlight the relevance of understanding tourists' motivations choosing ecological experiences (Adam et al., 2019; Carvache-Franco et al., 2019). One key finding is the biospheric values, reflecting the concern for environment and wildlife are importantly related with green hotels and tourism practices preference; minimizing ecological footprint (Carvache-Franco et al., 2019).

Understanding these biospheric values is essential for ecotourism managers, as it allows for marketing strategies development that resonate with the deep motivations of consumers. Campaigns that emphasize environmental commitment and sustainable practices can attract an audience that is aligned with these concerns, resulting in higher conversion rates and customer loyalty.

Additionally, it is important to think about the need of tourism companies to adopt more authentic and transparent approach to their sustainability practices. Marketing strategies can often be perceived as superficial or as greenwashing, if they are not aligned with concrete and verifiable actions. Thus, communication integrity and sustainable practices execution is decisive for building and maintaining consumer trust.

The image of the touristic destination along with consumer value orientations, play a critical role in shaping purchase intention and in the final destination choice (Hassan et al., 2023). The brand identity of ecotourism destinations, therefore, needs to communicate not only the location attributes but also the ethical and conservation values they represent (Mo & Ren, 2020; Zhou, 2020; Yang, 2022).

In this context, tourist managers should develop a brand identity that incorporates ethical and conservation values, as this not only attracts consumers concerned with sustainability but also strengthens

the destination's position as a leader in responsible tourism. Clear and consistent communication of these values, through different marketing channels, can enhance positive perception and visitation intent.

However, critical examination is needed on how sustainable destination brands can balance tourism promotion with environmental preservation. There is an inherent risk that increased tourism, even if it is sustainable, may negatively influence local ecosystems. Therefore, creating visitor management strategies that limit environmental impact, while promoting awareness and education, is vital to keep ecotourism destinations integrity.

It is evident that adopting pro-environmental behaviors, as part of sustainable tourism, is mediated by a range of psychological and social factors, which may include the influence of subjective norms and perceived control, as discussed in the theory of planned behavior (Ajzen, 1985). The role of environmental education, in this context, is critical to reinforce the perception of personal efficacy and the importance of costumers' choices on global environmental impact (Lengienza et al., 2023; Faustino-Dias, 2024).

Thus, managers can implement educational programs that increase tourists' environmental awareness, highlighting the importance of their individual actions. Such programs can be integrated into tourism experiences offering workshops, guided tours and informational materials emphasizing sustainable practices. Enhancing the perception of personal efficacy can motivate tourists to adopt responsible behaviors during and after their trips. Additionally, a critical approach must consider the educational programs effectiveness. It is essential to assess whether the information and activities truly lead to long-term behavior change, or if tourists revert to less sustainable habits upon returning to their daily routines.

Interestingly, market segmentation methodology has been applied to identify specific niches within ecotourism, where marketing efforts can be precisely directed to positively influence consumer behavior (Mo & Ren, 2020; Zhou, 2020; Yang, 2022). Understanding the decision-making processes of consumers, especially about ecological tourism, can be demonstrated a potential actions pathway for tour operators and policymakers.

Market segmentation allows managers to identify better and cater to consumer, niches that are more likely to value and seek ecotourism experiences. Targeting marketing efforts at these segments can increase the touristic campaign efficiency and ensure that sustainability messages reach the most receptive audience. However, it is important to maintain an analytic view of segmentation practices, as poorly implemented practices can lead to the exclusion of certain groups or, in the other hand, the creation of elitist tourism. Therefore, segmentation strategies should be inclusive and should consider the tourists diversity, promoting equitable access to ecotourism experiences.

Furthermore, Cluster 3 reveals the complexity of factors exerting influence on revisit intention and consumer satisfaction with ecotourism experiences. Previous studies have indicated that visitor satisfaction is intrinsically linked to their destination perception, that at the same time is aligned with their pro-environmental values (Ding & Cao, 2018; Adam et al., 2019; Rafiq et al., 2022; Hassan et al., 2023).

For ecotourism managers, ensuring that the destination's practices are aligned with tourists' pro-environmental values is important to increase the satisfaction and revisit intention. This may include the development of green infrastructure, offering activities that promote conservation and engaging the tourists into community sustainability initiatives.

However, it is necessary to address the edge between the need to satisfy tourists' expectations and the protection of natural resources. Visitor satisfaction should not compromise destination's environmental integrity. Therefore, managing expectations and transparent communication about sustainability limitations and challenges, is essential to align tourists' expectations with the reality of conservation practices.

4. Final considerations

The findings in this research reaffirms, supported by previous literature, its vital role for biodiversity conservation supplying ecosystem services, as well as promoting local communities and visitors' well-being. It has been observed, also, that through responsible and well-managed practices, ecotourism can support environmental education, community engagement and natural areas preservation without compromising ecosystem integrity.

However, effective and continuous regulation are necessary. In the absence of effective regulation, ecotourism can exert pressures on natural resources such as the excess of tourists in sensitive areas, as

well as improper use of trails and ecologic habitats. To minimize these impacts, implement low-impact practices is important, such as visitor number control, sustainable infrastructure development and economical investment in environmental awareness programs.

The economic benefits of ecotourism are also highlighted. Overall, the studied authors argued around local economy boosting and the emergence of new alternatives to intensive resource exploitation. However, it is essential to ensure that these benefits are fairly distributed, contributing to the local sustainable development.

Although, the results found in this review can contribute to various stakeholder groups. For private tourism managers involved in ecotourism, these findings underline the importance of implementing practices that not only preserve the environment but also are advantageous for local communities. Might be noticed that due the implementation of such practices, it is possible to create tourism ecosystems that benefit all participants involved, ensuring that ecotourism activities are the source of economic growth while being culturally respectful.

In terms of contributions to the public sector, these findings can assist to enhance public policies aiming environmental conservation and strategic allocation of investments in ecotourism, as this tourist activity proves to be a potential vector for sustainable economic growth of communities in natural regions.

For academia, the research provides valuable considerations by regarding how new research approaches can aid the development of ecotourism practices, as well as deepen the understanding of environmental and social impacts of sustainable tourism. By researching the effectiveness of different impact minimization strategies, academia can provide empirical data supporting effective public policies and management practices. Additionally, exploring the interactions between tourists and local communities can be revealed some essential characteristics of the sociocultural dynamics, promoting a holistic and integrated understanding of ecotourism.

Although the present results point out the main factors influencing consumers' willingness to acquire ecotourism services, as well as service improvement in managerial aspects; there are other dimensions requiring to be analyzed. Therefore, it could be suggested to develop future research around three distinct and intrinsically related areas to ecotourism: market, financial and social. Appendix 1 briefly presents possible approaches for future research in these three areas.

In terms of market aspects, it is suggested to research the effectiveness of ecological loyalty programs and the influence of sustainability certifications on tourists' consumption decisions. Such research would consider some consumer behavior evidenced here, where it was observed that the intention to consume ecotourism is closely linked to the consumer's knowledge and concern for the natural environment.

About financial aspects, it is suggested to research the economical returns to the local communities, as well as how much ecotourism has contributed to local development. These studies could validate how important are the characteristics mentioned here, such as the increase of local family's individual income, regional development and better economical distribution among territory members.

Finally, for social aspects related to ecotourism, research aiming to evaluate how local population perceives ecotourism activities, particularly, in preserving their cultural peculiarities, could provide significant results for developing inclusive and respectful ecotourism activities. Additionally, considering that many natural areas are inhabited by traditional and indigenous communities, it would be interesting to conduct qualitative research giving voice to these inhabitants, assessing ecotourism impacts on preserving their traditional knowledge.

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Notes

- ⁱ Other nationalities were not presented due to the wide variety of countries with a frequency of 1.
- ⁱⁱ Keywords Plus are automatically generated terms derived from the titles of articles referenced in the bibliographies. For a term to be included, it must appear repeatedly in the reference list. These terms are organized according to their complexity, ranging from multi-word expressions to singular terms. The inclusion of these words expands the scope of results obtained through conventional searches that use only keywords or article titles (Web of Science, 2023).

Appendix 1: Future research schedule

Area	Title for Research ¹	Objective	Data Collection Methodology	Analysis Methodology
Market-Based Analysis	Effectiveness of Ecological Loyalty Programs Applied to Ecotourism on Consumer Behavior	Explore the Effectiveness of Ecological Loyalty Programs on Tourists' Consumption Decisions	Semi-Structured Interviews and Surveys	Content Analysis and PLS-SEM
	Influence of Sustainability Certifications on Tourists' Purchase Intentions	Assess the Influence of Sustainability Certifications on Tourists' Purchase Intentions	Surveys	PLS-SEM
Financial Analysis	Financial Returns of Ecotourism for the Local Community	Evaluate the Financial Returns of Ecotourism for the Local Community	Regional Economic Data Collection and Semi-Structured Interviews	Content Analysis and Use of Econometric Techniques
	Contribution of Ecotourism to Local Development	Examine How Ecotourism Contributes to Local Development	Territorial Data Collection (Political and Economic) and Semi-Structured Interviews	Content Analysis
Social	Local Community Perception of Ecotourism	Assess How the Local Community Perceives Ecotourism Activities and Their Influence on Cultural Preservation	Focus Groups and Semi-Structured Interviews	Discourse Analysis and Content Analysis
	Impacts of Ecotourism on the Preservation of Traditional Knowledge	Evaluate the Impacts of Ecotourism on the Preservation of Traditional Knowledge of Local Peoples	In-Depth Interviews and Participant Observation	Ethnographic Analysis and Content Analysis

Note¹: In the financial and social context, the proposed research should be applied within a comparative case study framework to evaluate the characteristics and impacts of ecotourism in the territory.

Recibido:

Reenviado:

Aceptado:

Sometido a evaluación por pares anónimos

13/01/2024

25/04/2024

25/04/2024