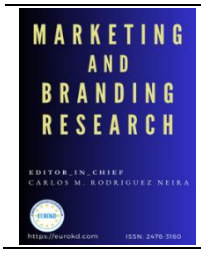

MARKETING AND BRANDING RESEARCH

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Knocking on the Doors of Perception: Neuroacoustics in Marketing and Tourism. A Comparative Systematic Literature Review and Bibliometric Analyses

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ABSTRACT

This research is the first comprehensive analysis to thoroughly examine the emerging discipline of neuroacoustics in marketing and tourism marketing. Neuroacoustics combines neuroscience and acoustics to fully understand the effect of these signals on humans' behavior and decision-making processes. Employing two systematic literature reviews and bibliometric analyses, this study provides a comparative examination of the neuroacoustics discipline within the marketing and tourism marketing domains. By bridging the existing gaps, such as the recognition of neuroacoustics as a discipline, tracing its academic evolution, and identifying emerging trends, this research underscores the interdisciplinary nature of neuroacoustics and its relevance in shaping managerial capabilities and strategic decision-making processes.

The impact of sound on human physiology has been acknowledged across history and applied innovatively in diverse contexts. This influence is evident in wartime situations, such as during the Gulf War, where high-volume acoustic signals were used to extract confessions, or in Kinmen

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during the conclusion of the Chinese Civil War, where traditional warfare methods gave way to strategic placement of speakers emitting speeches and music (Lekner, 2022). Additionally, music therapy in field hospitals and veteran rehabilitation emerged during these conflicts (Gilliland, 1945). However, armies also discovered less therapeutic aspects of music over time, such as its use in torture practices, exemplified when the US Army utilized songs like Metallica's "Enter Sandman" during the interrogation of Iraqi detainees, repeatedly played at high volume (Cusick, 2020). Besides these applications, contemporary research continues to reveal the multidimensional influence of acoustic signals, with studies indicating its positive effects on cows, suggesting that playing music to cows can lead to an increase in milk production (Kochewad et al., 2022).

In the fields of tourism and marketing, the term "acoustics" has been scarcely used (Barnes, 2024; Lowe & Haws, 2017), in contrast to its extensive examination in engineering, encompassing diverse topics ranging from architectural soundproofing to environmental noise control (Arjunan et al., 2024; Barrigón Morillas et al., 2002). The integration of neuroscience and acoustics has mainly been observed in medical research, particularly in studies exploring the therapeutic effects of acoustic signals' stimulation for conditions such as tinnitus, Parkinson's disease, and Alzheimer's disease (Bastos et al., 2021; Gálvez et al., 2018; Kroener-Herwig et al., 2000).

Based on other interdisciplinary neuroscience research disciplines definitions (Bhardwaj et al., 2023; Juárez-Varón et al., 2024; Kaur, 2024), neuroacoustics can be described as the study of how the brain interprets and processes acoustic signals. This entails understanding the transmission of these acoustic signals in a physical space and their brain interpretation.

Despite the considerable body of research in sensory marketing that has examined the significance of acoustics signals' stimuli (Biswas et al., 2019; Fan et al., 2023; Spence, 2012), which include concepts like sonic branding, music, sound, and phonetic symbolism, a universally accepted terminology for this area of research is lacking, posing the question of whether there is a need to establish neuroacoustics as an emerging discipline in business and tourism domains.

Against this backdrop, this research aims to undertake a comparative examination through conducting two systematic literature reviews and two bibliometric analyses to examine the body of research concerning neuroscience and acoustics, and to address the deficiencies hindering the discipline, such as (1) the recognition of neuroacoustics as a discipline; (2) the identification of the interest in neuroacoustics within marketing and tourism marketing, (3) the specific themes and areas of focus within neuroacoustics related to marketing and tourism marketing; and (4) the publication patterns and distribution within the domain of neuroacoustics. Accordingly, this study seeks to explore the following research questions (RQs):

(RQ1) Is there a recognized discipline within the field of neuroacoustics?
(RQ2) Is there a growing interest in neuroacoustics within marketing and tourism marketing?
(RQ3) What topics does neuroacoustics encompass within marketing and tourism marketing?
(RQ4) Are there identifiable publication trends?

This research offers academic and managerial contributions by establishing robust foundations for neuroacoustics. It proposes a comprehensive and comparative analysis of research conducted concerning neuroscience and acoustics in marketing and tourism marketing.

Method

To address the research gaps and questions, two systematic literature reviews (SLRs) were conducted, followed by two bibliometric analyses, regarding neuroacoustics in the fields of marketing and tourism marketing. SLR and bibliometric analysis stand as cornerstones of literature review methods in scientific research (Cano-Marin et al., 2023).

Following Chaudhuri et al.'s (2023) recommendations SLR was selected within different objectives: (1) to ensure quality in the literature review and the findings of the analyses; (2) to review a wide range of articles; (3) to minimize potential biases and errors; (4) to ensure validity and transparency by facilitating the replicability of the analyses; (5) to synthesize current literature and organize search data within the research domains; and (6) to provide theoretical and managerial. Moreover, SLR is necessary when the topic under research is delimited, facilitating comprehension of the current state of the topic and ensuring the application of the study within its context (Deepa et al., 2024).

In this study, the SLR process was developed through five sequential steps, adapted from the PRISMA methodology, which comprises four main stages: identification, screening, eligibility, and inclusion (Moreno-Lobato et al., 2023).

Step 1: Question formulation

The five-stage process, which begins with the first step of question formulation, inspired by Beloskar et al.'s (2024) study.

Step 2: Identification

The second step, identification, is the phase where specific databases are selected and the Boolean operators are defined to identify relevant articles (Deepa et al., 2024; Moreno-Lobato et al., 2023). The bibliometric analyses were conducted using the Web of Science (WoS) and Scopus databases.

The decision criteria used for both bibliometric analyses developed was based on prior studies (Beloskar et al., 2024; Liu & Avello, 2021; Kaur, 2024; Novitzky et al., 2023). Table 1 illustrates the Boolean criteria strategy utilized for each of the two bibliometric analyses conducted, i.e., neuroacoustics within the domains of marketing and tourism marketing. These searches were conducted on the 26th of February 2024. The primary keywords employed were silence, noise, music, sound, and jingle. Additionally, for the bibliometric study in marketing, the keywords "consumer, user, marketing, brand, or advertisement" were included. For the analysis in the tourism marketing domain, the keyword "tourism" was also incorporated.

For both bibliometric studies, the inclusion criteria were defined based on the document type, which was limited to articles, and the language, which was English. The inclusion criteria regarding WoS categories and Scopus subject areas are shown in Table 1 for both bibliometric analyses. The difference between the two analyses regarding this inclusion criterion lies in the

bibliometric study focusing on neuroacoustics in tourism marketing, which included an additional WoS category, namely hospitality, leisure, sport, and tourism (Moreno-Lobato et al., 2023).

Table 2 presents the number of records obtained after conducting searches using the five primary keywords (i.e., silence, noise, music, sound, and jingle) in both the marketing and tourism marketing domains. This process resulted in the creation of ten databases, each dedicated to one of the five search criteria.

Table 1

Decision Criteria

	neuroacoustics in marketing		neuroacoustics in tourism marketing	
Criteria	*Web of Science Core Collection*	*Scopus Elsevier*	*Web of Science Core Collection*	*Scopus Elsevier*
Meta Search	Topic:	Title, abstract, keywords:	Topic:	Title, abstract, keywords:
	The following words were used in the searches: (1) silence AND consumer* OR user* OR marketing* OR brand* OR advertisement* (2) noise AND consumer* OR user* OR marketing* OR brand* OR advertisement* (3) music AND consumer* OR user* OR marketing* OR brand* OR advertisement* (4) sound AND consumer* OR user* OR marketing* OR brand* OR advertisement* (5) jingle AND consumer* OR user* OR marketing* OR brand* OR advertisement*		The following words were used in the searches: (1) silence AND tourism (2) noise AND tourism (3) music AND tourism (4) sound AND tourism (5) jingle AND tourism	
Inclusion Criteria	Document Type: Article	Document Type: Article	Document Type: Article	Document Type: Article
	Language: English	Language: English	Language: English	Language: English
	Web of Science Categories: Behavioural Science; Business; Communication; Management; Social sciences, interdisciplinary	Subject area: Business, Management and Accounting; Social Sciences; Economics, Econometrics and Finance	Web of Science Categories: Behavioural Science; Business; Communication; Hospitality, Leisure, Sport & Tourism; Management; Social sciences, interdisciplinary	Subject area: Business, Management and Accounting; Social Sciences; Economics, Econometrics and Finance

Table 2

Number of Articles Within Databases Scope (Without Filtering): Distribution Per Source

Database in neuroacoustics marketing	sound	silence	noise	music	jingle
Web of Science Core Collection	1094	208	606	1670	26
Scopus Elsevier	3143	300	1967	3105	31
Total	4237	508	2573	4775	57
Web of Science Core Collection	192	65	58	334	1
Scopus Elsevier	360	63	140	403	2
Total	552	128	198	737	3

Step 3: Screening

The third step involved removing duplicate articles present in each of the databases, which were independently cleaned. This involved employing Biblioshiny for processing and deleting duplicate DOI and SR values, no author keywords, and entries lacking DOI or SR values (Cano-Marin et al., 2023; Kaur, 2024). Tables 3 and 4 show the results after these two procedures.

Table 3

Articles Within Databases Scope: After Processing in Biblioshiny

Database in neuroacoustics marketing	sound	silence	noise	music	jingle
Web of Science Core Collection	1093	208	606	1670	26
Scopus Elsevier	3112	298	1948	3074	31
Total	4205	506	2554	4744	57
Web of Science Core Collection	192	65	58	334	1
Scopus Elsevier	360	63	140	403	2

Table 4

Articles Within Databases Scope: After Deleteing Missing DOI Values, Duplicates DOI Values, Duplicates or no SR Values and no Author Keywords

Merged database: Web of Science Core Collection and Scopus Elsevier	sound	silence	noise	music
Database in neuroacoustics marketing	2449	298	1957	2761
Database in neuroacoustics tourism marketing	331	85	131	469

Step 4: Eligibility

During this phase, each database underwent independent cleaning, excluding records lacking relevance after abstract, title, and keyword review (Cano-Marin et al., 2023).

Step 5: Included

A new revision of duplicate DOI and SR values was performed in the merged databases. Following this process, a total sample of 286 records was obtained for neuroacoustics in marketing, while 39 records were collected for neuroacoustics in tourism marketing, as explained in Table 5. The sample sizes used in this study were considered appropriate, as they were similar to those used in recent related studies (Chaudhuri et al., 2023; Moreno-Lobato et al., 2023).

Table 5

Articles Within Databases Scope: After Excluding Records Lacking Relevance After Abstract, Title, and Keyword Review and After Deleting Duplicates in the Merged Database

Databases: Web of Science Core Collection and Scopus Elsevier	sound	silence	noise	music	jingle	Total
Database in neuroacoustics marketing	159	2	4	119	2	286
Database in neuroacoustics in tourism marketing	7	2	3	27	0	39

The next and final step involved conducting bibliometric analyses within the software tools. These included Biblioshiny (a graphical interface of Bibliometrix R package), which is widely used in current bibliometric studies (Beloskar et al., 2024; Makaya et al., 2023; Oludapo et al., 2024), as well as Tableau and Microsoft Excel (Alhashmi et al., 2024; Del Gesso et al., 2024), for analysis and visualization purposes.

Table 6 offers an overview of significant bibliometric metrics. For the marketing domain, the articles included in the study sample were published from 1993 to 2024, presenting an annual growth rate of 5.33%. In comparison, the analyzed articles for the tourism marketing domain were published between 2001 and 2024. The average number of citations per document in the marketing field is 16.99, while in the tourism marketing area, it is 12.18.

Table 6
Study Sample Technical Characteristics

Description	Results: neuroacoustics marketing	Results: neuroacoustics tourism marketing
Timespan	1993:2024	2001:2024
Documents	286	39
Annual Growth Rate %	5.33	0
Document Average Age	7.06	5.64
Average citations per doc	16.99	12.18
References	8637	1516
Authors	663	97
Authors of single-authored docs	45	6
Co-Authors per Doc	2.67	3.13
International co-authorships %	7.692	17.95

Descriptive Review of the Literature

Articles Per Year and Country Location

Since the first neuroacoustics article was published in 1993, research activity in the marketing domain remained low until 2009, and was almost non-existent in the tourism marketing field (Table 7). In the field of marketing, 92.66% of the papers were published after 2009, while 94.87% were in the field of tourism marketing.

Price's Index indicates the percentage of references that are less than five years old (Gong, 2023; Price, 1970). Until February 2024, the findings offer a Price's Index of 49.3% in the marketing field and 66.7% in the tourism marketing domain. As the Price Index's values are reasonably high (Liu & Avello, 2021), neuroacoustics is considered an innovative and robust research field. It has been stated that normally the development of a scientific discipline undergoes exponential growth, doubling in size every 10 to 15 years (Price, 1963). The evolution of the scientific field typically encompasses four stages: the precursor phase, the exponential growth period, the consolidation of knowledge, and the decline in production stage.

Figure 1 reveals that research in both domains is still in its precursor phase (Liu & Avello, 2021). However, it remains to be seen the evolution of neuroacoustics, considering the substantial growth observed in 2023 with 43 articles published in marketing and 9 in tourism marketing.

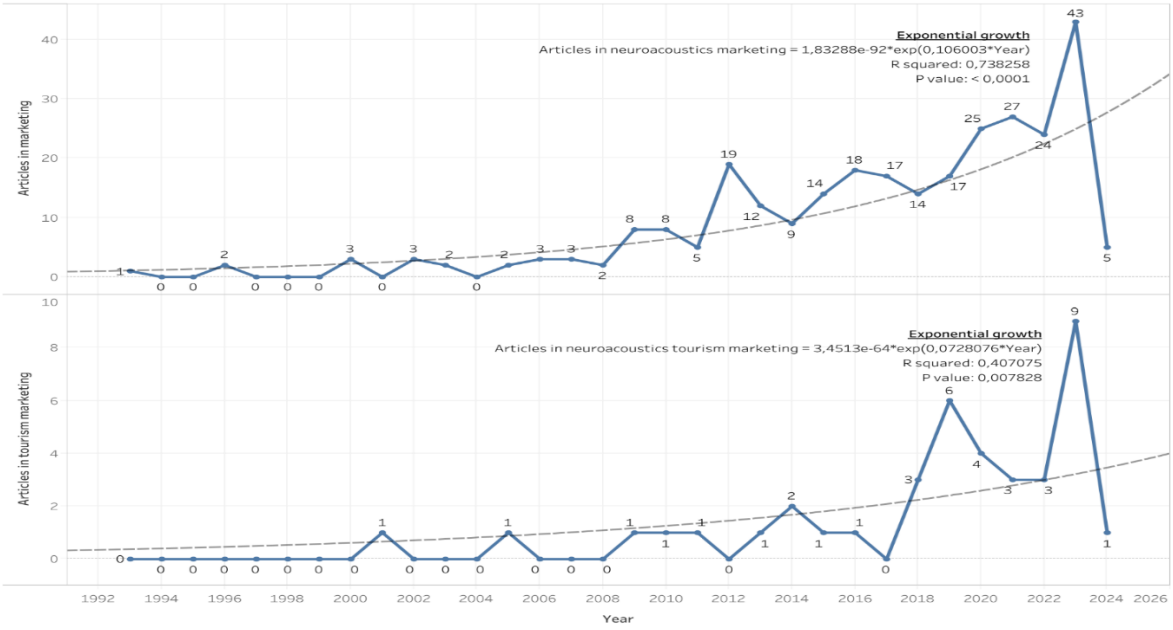
Table 7

Frequency of Publication of Articles Related to Neuroacoustics in Marketing and in Tourism Marketing Per Year

Year	Frequency in marketing	Percentage in marketing	Cumulative relative frequency in marketing	Frequency in tourism marketing	Percentage in tourism marketing	Cumulative relative frequency in tourism marketing
1993	1	0.3%	0.35%	0	0%	0
1994	0	0%	0.35%	0	0%	0
1995	0	0%	0.35%	0	0%	0
1996	2	0.7%	1.05%	0	0%	0
1997	0	0%	1.05%	0	0%	0
1998	0	0%	1.05%	0	0%	0
1999	0	0%	1.05%	0	0%	0
2000	3	1%	2.10%	0	0%	0
2001	0	0%	2.10%	1	3%	2.56%
2002	3	1%	3.15%	0	0%	2.56%
2003	2	0.7%	3.85%	0	0%	2.56%
2004	0	0%	3.85%	0	0%	2.56%
2005	2	0.7%	4.55%	1	3%	5.13%
2006	3	1%	5.59%	0	0%	5.13%
2007	3	1%	6.64%	0	0%	5.13%
2008	2	0.7%	7.34%	0	0%	5.13%
2009	8	2.8%	10.14%	1	3%	7.69%
2010	8	2.8%	12.94%	1	3%	10.26%
2011	5	1.7%	14.69%	1	3%	12.82%
2012	19	6.6%	21.33%	0	0%	12.82%
2013	12	4.2%	25.52%	1	3%	15.38%
2014	9	3.1%	28.67%	2	5%	20.51%
2015	14	4.9%	33.57%	1	3%	23.08%
2016	18	6.3%	39.86%	1	3%	25.64%
2017	17	5.9%	45.80%	0	0%	25.64%
2018	14	4.9%	50.70%	3	8%	33.33%
2019	17	5.9%	56.64%	6	15%	48.72%
2020	25	8.7%	65.38%	4	10%	58.97%
2021	27	9.4%	74.83%	3	8%	66.67%
2022	24	8.4%	83%	3	8%	74.36%
2023	43	15.0%	98%	9	23%	97.44%
2024	5	1.7%	100%	1	3%	100.00%

Figure 1

Growth of Scientific Production



The neuroacoustics discipline is primarily located in the United States, United Kingdom, China, and Australia, as illustrated in Figures 2 and 3. In the marketing field, the leading countries are the United States of America (103), followed by the United Kingdom (32), China (28), Australia (23), and Spain (17). Meanwhile, in the tourism marketing domain, the top countries include China (45), Australia (10), United Kingdom (9), United States (6), and Greece (6). Figure 2 also highlights evidence of neuroacoustics research in emerging economies within both fields, underscoring the need for more studies in developing countries, as suggested in prior research (Albahari et al., 2022).

Figure 2

Countries' Scientific Production in Neuroacoustics in Marketing and in Tourism Marketing

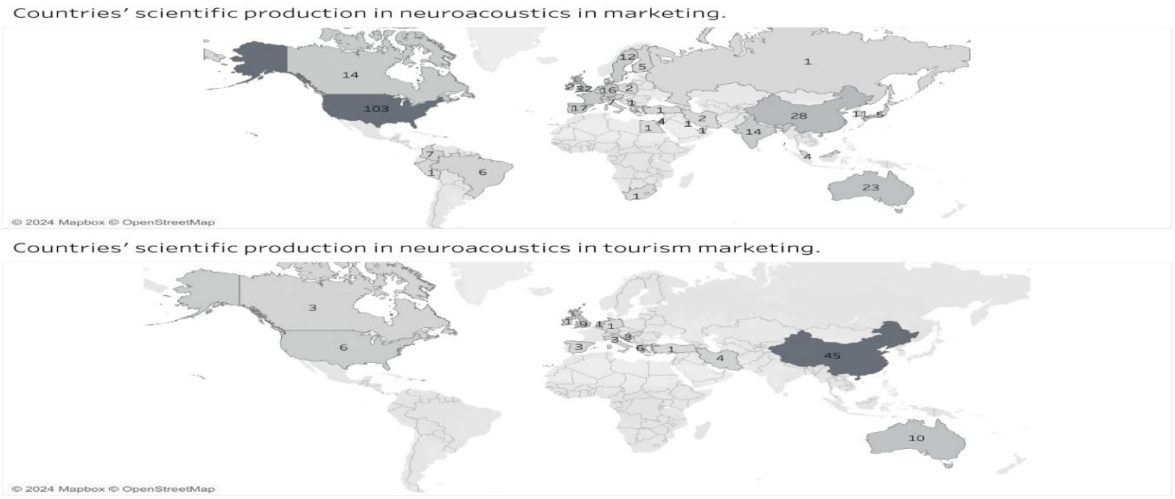
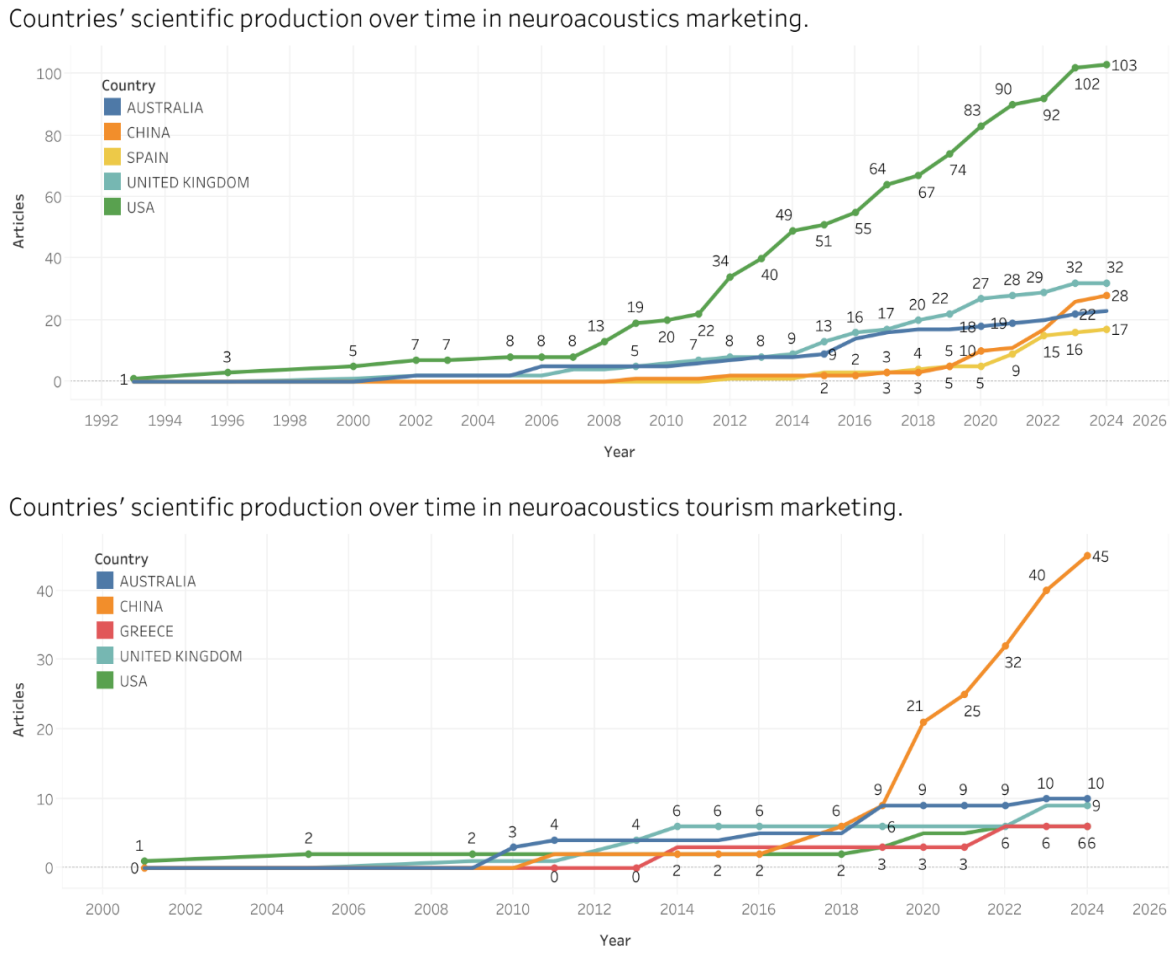


Figure 3

Countries' Scientific Production Over Time



Main Topics Analysed and Research Lines

Keywords

Analysing the frequency of keyword appearances offers insights into the main topics covered (Chaudhuri et al., 2023; Kaur, 2024; Liu & Avello, 2021). As presented in Tables 8 and 9, terms such as "background music," "perception," and "impact" appear as the top five most frequently mentioned concepts across both domains. Additionally, in the marketing field, keywords like "behaviour" and "sound" are highly mentioned, whereas in the tourism area, "music" and "landscape" also rank among the top five most mentioned.

As observed in the word clouds presented in Figures 4 and 6, most of these terms are associated with the acoustic signals' influence on consumers' or visitors' attitudes, except for "landscape", which is connected to the concept "soundscape" (refer to Figure 7). The tree maps shown in Figures 5 and 7 visually represent the data from Tables 8 and 9, highlighting additional topics explored in neuroacoustics disciplines that vary between the marketing and tourism marketing domains. For instance, in the marketing field, keywords such as "memory", "phonetic symbolism", as well as those related to target segmentation, have emerged. Conversely, in tourism marketing,

other relevant keywords include “tourism development”, “tourism management”, “authenticity” and “identity”.

Table 8
Frequency of Occurrence of Neuroacoustics in Marketing Keywords (>9 Times)

Keywords	Frequency	Percentage
background music	44	8.91%
Behavior	38	7.69%
Impact	34	6.88%
Sound	30	6.07%
Perception	28	5.67%
Music	26	5.26%
Memory	21	4.25%
phonetic symbolism	21	4.25%
Responses	19	3.85%
Mood	18	3.64%
Information	15	3.04%
Female	14	2.83%
Involvement	14	2.83%
Male	14	2.83%
Adult	13	2.63%
Model	13	2.63%
Consumers	12	2.43%
Consumption	12	2.43%
Perceptions	12	2.43%
Personality	12	2.43%
Taste	12	2.43%
Attitude	11	2.23%
Human	11	2.23%
Article	10	2.02%
Attention	10	2.02%
in-store music	10	2.02%
Pitch	10	2.02%
Tempo	10	2.02%

Table 9
Frequency of Occurrence of Neuroacoustics in Tourism Marketing Keywords (>3times)

Keywords	Frequency	Percentage
Music	15	24.59%
perception	7	11.48%
landscape	6	9.84%
Impact	5	8.20%
background music	4	6.56%
behaviour	4	6.56%
experiences	4	6.56%
responses	4	6.56%
Tourism	4	6.56%
tourism development	4	6.56%

Figure 4

Neuroacoustics in Marketing Keywords Co-Occurrence Network in Word Cloud Format

Figure 5

Neuroacoustics in Marketing Keywords Co-Occurrence Network in Tree Map Format

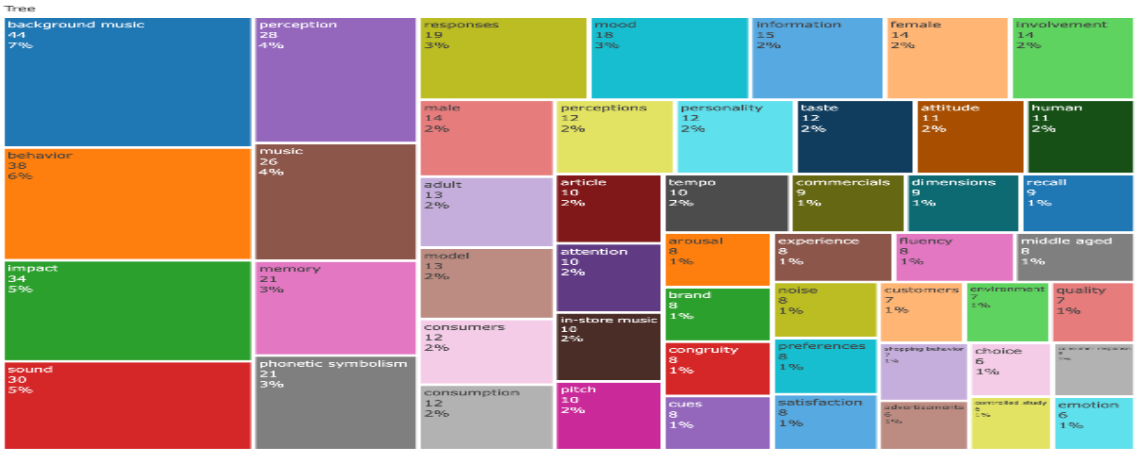


Figure 6

Neuroacoustics in Tourism Marketing Keywords Co-Occurrence Network in Word Cloud Format

Figure 7

Neuroacoustics in Tourism Marketing Keywords Co-Occurrence Network in Tree Map Form

Co-word analyses

Biblioshiny created the correlation network maps in both fields, as presented in Figures 8 and 9. Figure 8 indicates that the marketing domain is represented by four clusters, whereas Figure 10 outlines that the tourism marketing field is categorized into seven clusters. To understand the correlation network maps between keywords presented in Figures 8 and 9, nodes of the same colour form a cluster, and the closer proximity between nodes within the same cluster indicates a stronger relationship (Haba et al., 2023; Kaur, 2024; Liu & Avello, 2021).

In the marketing domain (Figure 8), Cluster 1, represented by the red network titled "Background music behaviour", focuses on the relationship between background music and consumer behaviour, including aspects such as memory, in-store music, shopping behaviour, choice, experience, and preferences. Cluster 2, shown by the green network labelled "Sound perceptions", encompasses themes related to sound and perception. Cluster 3, represented by the blue network and titled "Consumers' segmentation", covers topics related to target segmentation, such as gender and age, as well as connections to noise, music, and satisfaction. Cluster 4, the purple network, and named "Responses to symbolic sounds", comprises themes related to phonetic symbolism, personality, perception, fluency, and quality.

In the tourism marketing field (Figure 9), Cluster 1, red network, entitled "Music influence on tourism", includes concepts such as music, identity, place, travel, and transportation. Cluster 2, represented by the blue network and named "Satisfactory experiences" is related to the terms satisfaction and experience. Cluster 3, green network and titled "Background music effects on tourism", encompasses concepts such as tempo, background music, and impact. Cluster 4, purple network, labelled "Mental-tourism-imagery", mainly relates to mental imagery and behaviour. Cluster 5, orange network, named "Tourism development", is associated with concepts of tourism management. Cluster 6, brown network, named "Experience perceptions", focuses on these two terms. Cluster 7, pink network, titled "Nature stress relief", is related to national parks and stress recovery.

Figure 8

Neuroacoustics In Marketing Correlation Map Between Keywords

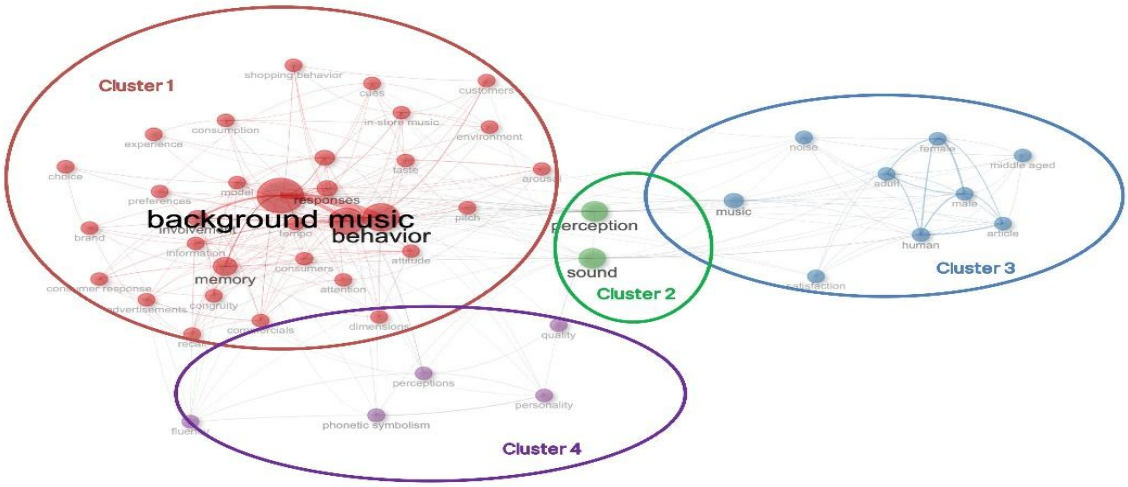
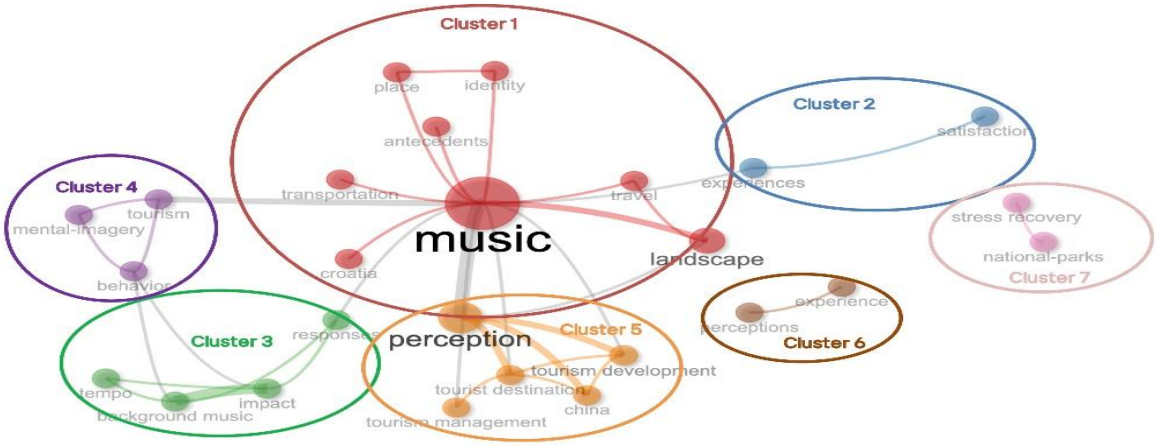


Figure 9

Neuroacoustics In Tourism Marketing Correlation Map Between Keywords



Thematic Maps

Biblioshiny generates a thematic map for each bibliometric analysis, using authors' keywords as the units of analysis to reveal critical themes (Oludapo et al., 2024). These thematic maps are interpreted based on their centrality, which reveals their significance, and density, which represents their growth, in relation to various research themes (Kaur, 2024).

Figure 10 presents a neuroacoustics thematic map within the marketing domain, highlighting themes such as "art" and "landscape" as fundamental topics relevant to general research. Themes such as "behavioural research", "crowdsourcing", "music preferences"; "audio acoustics", "audio" and "computer applications", and "public attitude" and "noise pollution" are showing a declining trend. In contrast, "computer music", "electronic music" and "generation" represent are emerging themes with limited representation but rapid growth. Finally, "background music", "behaviour",

"impact", and "perception", "sound" and "music" represent the motor themes driving research in the field.

Likewise, Figure 11 shows a neuroacoustics thematic map within the tourism marketing field, underscoring themes as "music", "behaviour" and "tourism" and "impact", "background music" and "responses" as key themes. Topics such as "tourism development", "tourist destination", and "perception" are displaying a decreasing development. Conversely, "national park", "identity", "soundscapes", "place" and "urban" denote emergent themes with reduced representation but fast development. Lastly, "landscapes," "experiences," and "noise" are the key themes that enhance research in the area.

Hence, scholars are encouraged to further develop the motor themes in both domains (i.e., marketing and tourism marketing), given their significance and potential for future research in neuroacoustics.

Figure 10

Thematic Strategic Map For Neuroacoustics In Marketing

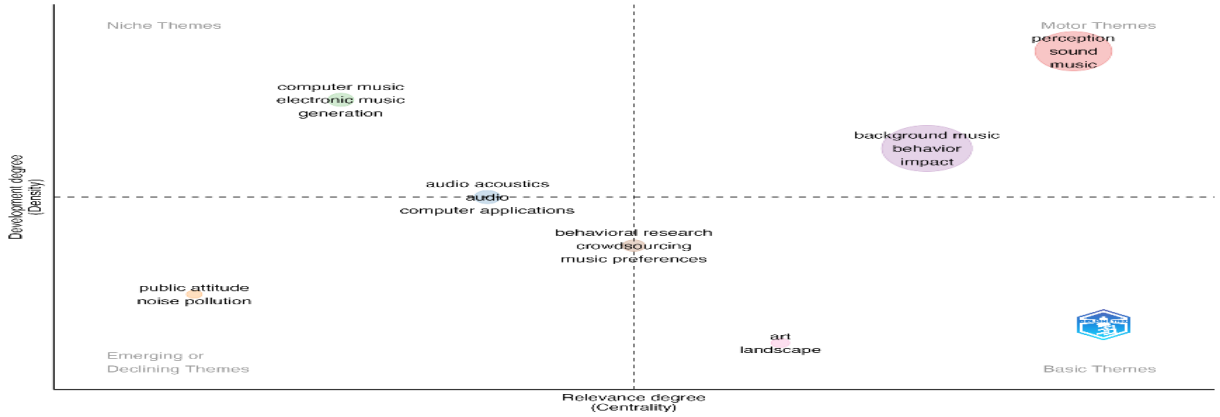
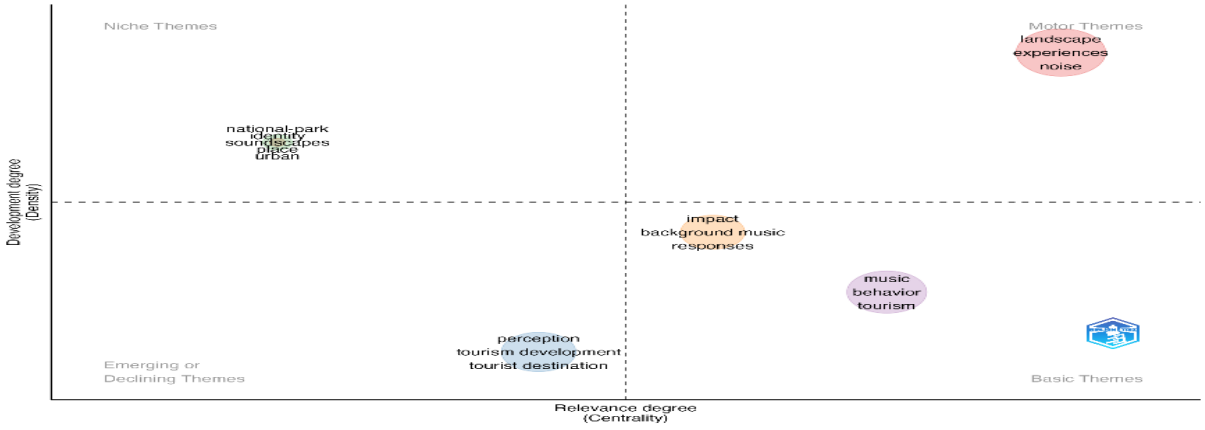


Figure 11

Thematic Strategic Map for Neuroacustics in Tourism Marketing



Scientific scope

Most productive and influential journals

The significance of journals was evaluated based on the number of articles they published and their citation computations (Liu & Avello, 2021). Table 10 details the 25 most influential journals

in neuroacoustics within marketing, based on a sample of 286 records. Table 11 provides information on all the journals that have published articles on neuroacoustics in tourism marketing, as it is based on a smaller sample of 39 records.

In relation to neuroacoustics within marketing, the journals that have published the highest number of neuroacoustics articles include the Journal of Business Research (17 articles), Psychology & Marketing (13 articles), Journal of Retailing and Consumer Services (12 articles), and Marketing Letters (12 articles), all with a strong focus on business marketing (refer to Table 11). However, it is noteworthy that the most cited journals differ from those with the highest number of publications in neuroacoustics (Liu & Avello, 2021). For instance, the top four most cited journals are the Journal of Business Research (68.574 citations and 17 neuroacoustics articles), Journal of Retailing and Consumer Services (20.489 citations and 12 neuroacoustics articles), European Journal of Marketing (10.334 citations and seven neuroacoustics articles), and Psychology & Marketing (10.243 citations and 13 neuroacoustics articles).

Table 12 provides insights into journals that publish articles on neuroacoustics in tourism marketing. The journals that have published the highest number of neuroacoustics articles are Current Issues In Tourism (4 articles), Asia Pacific Journal of Tourism Research (3 articles), Annals of Tourism Research (2 articles), International Journal of Tourism Policy (2 articles), Journal of Destination Marketing and Management (2 articles), Tourism Management Perspectives (2 articles), and Tourist Studies (2 articles), all emphasizing a strong orientation towards tourism management. Among the most cited journals are Sustainability (187.953 citations and one neuroacoustics article), Journal of Business Research (68.574 citations and one neuroacoustics article), Annals of Tourism Research (19.874 citations and two neuroacoustics articles), and Journal of Travel Research (13.84 citations and one neuroacoustics article).

Table 10

Top 25 Journals Regarding the Number of Articles Published in Neuroacoustics Marketing

Sources	**NA Feb. 2024**	**TC 2022**	**TCA 2022**	**JCR 2022**	**JCR edition**	**JCR category**	**JIF quartile 2022**	**JIF rank 2022**
Journal of Business Research	17	68.574	6	11.3	SSCI	BUSINESS - SSCI	Q1	14/154
Psychology & Marketing	13	10.243	5	6.7	SSCI	BUSINESS - SSCI; PSYCHOLOGY. APPLIED - SSCI	Q2; Q1	47/154; 11/83
Journal of Retailing and Consumer Services	12	20.489	7	10.4	SSCI	BUSINESS - SSCI	Q1	19/154
Marketing Letters	12	3.544	2	3.6	SSCI	BUSINESS - SSCI	Q3	105/154
Journal of Product and Brand Management	8	4.73	4	5.6	SSCI	BUSINESS - SSCI; MANAGEMENT - SSCI	Q2; Q2	63/154; 84/227
European Journal of Marketing	7	10.334	3	4.4	SSCI	BUSINESS - SSCI	Q3	88/154
Journal of Consumer Psychology	7	8.525	3	4.8	SSCI	BUSINESS - SSCI; PSYCHOLOGY. APPLIED - SSCI	Q3; Q1	78/154; 20/83
Indian Journal of Marketing[1]	5	*	*	*	*	*	*	*
International Journal of Advertising	5	4.345	3	6.7	SSCI	COMMUNICATION - SSCI; BUSINESS - SSCI	Q2; Q1	47/154; 6/96
Journal of Brand Management	5	3.344	3	4.1	SSCI	BUSINESS - SSCI; MANAGEMENT - SSCI	Q3; Q3	95/154; 127/227
Journal of Retailing	5	10.611	5	10	SSCI	BUSINESS - SSCI	Q1	22/154
Appetite	4	25.778	3	5.4	SSCI	NUTRITION & DIETETICS - SCIE; BEHAVIORAL SCIENCES - SCIE	Q2; Q1	24/88; 4/52
Asia Pacific Journal of Marketing and Logistics	4	3.095	2	3.7	SSCI	BUSINESS - SSCI	Q3	103/154
International Journal of Industrial Ergonomics	4	5.114	2	3.1	SSCI	ERGONOMICS - SSCI	Q3	9/16
International Journal of Research in Marketing	4	6.466	3	7	SSCI	BUSINESS - SSCI	Q2	44/154
Journal of Marketing Research	4	31.359	4	6.1	SSCI	BUSINESS - SSCI	Q2	52/154
Personal and Ubiquitous Computing	4	2.505	*	1.924	SCIE	TELECOMMUNICATIONS - SCIE; COMPUTER SCIENCE. INFORMATION SYSTEMS - SCIE	Q2; Q2	33/89; 48/146

Sources	**NA Feb. 2024**	**TC 2022**	**TCA 2022**	**JCR 2022**	**JCR edition**	**JCR category**	**JIF quartile 2022**	**JIF rank 2022**
Behavioural Sciences	3	3.166	1	2.6	SSCI	PSYCHOLOGY. MULTIDISCIPLINARY - SSCI	Q2	61/147
Expert Systems with Applications	3	76.302	4	8.5	SCIE	OPERATIONS RESEARCH & MANAGEMENT SCIENCE - SCIE; COMPUTER SCIENCE. ARTIFICIAL INTELLIGENCE - SCIE; ENGINEERING. ELECTRICAL & ELECTRONIC - SCIE	Q1; Q1; Q1	6/86; 22/145; 23/275
International Journal of Gastronomy and Food Science	3	1.646	2	3.8	SCIE	FOOD SCIENCE & TECHNOLOGY - SCIE	Q2	54/142
International Journal of Retail & Distribution Management	3	4.413	3	4.4	SSCI	BUSINESS - SSCI; MANAGEMENT - SSCI	Q3; Q3	88/154; 121/227
International Review of Retail Distribution and Consumer Research	3	1.180	2	3.6	ESCI	BUSINESS - ESCI	Q3	172/306
Journal of Consumer Marketing	3	4.818	2	2.8	ESCI	BUSINESS - ESCI	Q3	172/306
Journal of International Consumer Marketing	3	1.467	1	3.3	ESCI	BUSINESS - ESCI	Q3	168/306
Journal of Marketing	3	30.960	8	12.9		BUSINESS - SSCI	Q1	8/154

Note. NA number of articles. TC total cites. TCA total cites per article, JCR Journal Citation Reports Impact, JIF Journal Impact Factor,

* These journals lack impact in the JCR 2022.

[1] Indian Journal of Marketing is indexed in the Scimago Journal & Country Rank under the subject area of Business, Management, and Accounting, specifically in the Marketing category, with an h-index of 12 and placed in the Q3 tier.

Table 11

Journals that Have Published Articles Regarding Neuroacoustics in Tourism Marketing

Sources	**NA Feb. 2024**	**TC 2022**	**TCA 2022**	**JCR 2022**	**JCR edition**	**JCR category**	**JIF quartile 2022**	**JIF rank 2022**
Current Issues in Tourism	4	11.548	4	8	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI	Q1	14/58
Asia Pacific Journal of Tourism Research	3	3.674	3.5	5	SSCI	HOSPITALITY, LEISURE. SPORT & TOURISM - SSCI	Q2	19/58
Annals of Tourism Research	2	19.874	6	13.2	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI; SOCIOLOGY - SSCI	Q1; Q1	1/58; 1/149
International Journal of Tourism Policy[2]	2	*	*	*	*	*	*	*
Journal of Destination Marketing and Management	2	4.848	5	8.4	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI; MANAGEMENT - SSCI	Q1; Q1	12/58: 36/227
Tourism Management Perspectives	2	6.336	6	8.7	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI; MANAGEMENT - SSCI	Q1; Q1	11/58; 33/227
Tourist Studies	2	890	2	2.4	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI	Q3	40/58
Consumer Behavior in Tourism and Hospitality[1]	1	*	*	*	*	*	*	*
Cultural Management: Science and Education[3]	1	*	*	*	*	*	*	*
European Countryside	1	520	1	1.6	ESCI	GEOGRAPHY - ESCI	Q2	74/169
Geojournal	1	5.326	1	2.7	ESCI	GEOGRAPHY - ESCI	Q1	40/169
International Journal of Tourism Cities	1	875	1	2.6	ESCI	HOSPITALITY, LEISURE, SPORT & TOURISM - ESCI	Q2	50/136
International Journal of Tourism Research	1	4.715	3	4.6	SSCI	HOSPITALITY, LEISURE. SPORT & TOURISM - SSCI	Q2	22/58
Journal of Business Research	1	68.574	6	11.3	SSCI	BUSINESS - SSCI	Q1	14/154
Journal of Heritage Tourism	1	1.28	1	2.7	ESCI	HOSPITALITY. LEISURE. SPORT & TOURISM - ESCI	Q2	56/136
Journal of Hospitality and Leisure Marketing[1]	1	*	*	*	*	*	*	*

Sources	**NA Feb. 2024**	**TC 2022**	**TCA 2022**	**JCR 2022**	**JCR edition**	**JCR category**	**JIF quartile 2022**	**JIF rank 2022**
Journal of Hospitality and Tourism Management	1	5.691	6	8.3	SSCI	HOSPITALITY, LEISURE. SPORT & TOURISM - SSCI; MANAGEMENT - SSCI	Q1; Q1	13/58; 37/227
Journal of Nonprofit and Public Sector Marketing	1	657	1	1.4	ESCI	BUSINESS - ESCI	Q4	241/306
Journal of Quality Assurance in Hospitality and Tourism	1	1.251	2	3.3	ESCI	HOSPITALITY, LEISURE. SPORT & TOURISM - ESCI	Q2	57/136
Journal of Tourism Sustainability and Well-Being[1]	1	*	*	*	*	*	*	*
Journal of Travel Research	1	13.84	6	8.9	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI	Q1	10/58
Journal of Travel and Tourism Marketing	1	6.552	5	7.2	SSCI	HOSPITALITY. LEISURE. SPORT & TOURISM - SSCI	Q2	16/58
Journal of Vacation Marketing	1	2.047	3	5.1	SSCI	BUSINESS - SSCI; HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI	Q2; Q2	72/154; 18/58
Service Industries Journal	1	4.695	4.5	9.4	SSCI	MANAGEMENT - SSCI	Q1	29/227
Sustainability (Switzerland)	1	187.953	2	3.9	SSCI	ENVIRONMENTAL STUDIES - SSCI; GREEN & SUSTAINABLE SCIENCE & TECHNOLOGY - SSCI	Q2; Q2	48/128; 5/9
Tourism in Marine Environments[4]	1	*	*	*	*	*	*	*
Tourism Recreation Research	1	2.461	2.5	4.2	ESCI	HOSPITALITY, LEISURE, SPORT & TOURISM - ESCI	Q1	31/136
Tourism Review	1	3.275	4	7.8	SSCI	HOSPITALITY, LEISURE, SPORT & TOURISM - SSCI	Q2	15/58
Turyzm/Tourism[5]	1	*	*	*	*	*	*	*

Note. NA number of articles, TC total cites, TCA total cites per article, JCR Journal Citation Reports Impact, JIF Journal Impact Factor.

* These journals lack impact in the JCR 2022.

[1] Consumer Behavior in Tourism and Hospitality, Journal of Hospitality and Leisure Marketing and Journal of Tourism Sustainability and Well-Being are not indexed in either JCR or Scopus.

[2] International Journal of Tourism Policy is indexed in the Scimago Journal & Country Rank under the subject area of Business, Management, and Accounting, specifically in the Tourism, Leisure, and Hospitality Management category, with an h-index of 17 and placed in the Q4 tier.

[3] Cultural Management: Science and Education is indexed in the Scimago Journal & Country Rank within the subject area of Arts and Humanities (Arts and Humanities (miscellaneous)), Business, Management and Accounting (Business and International Management and Strategy and Management) and Social Science (Education). It boasts an h-index of 5 and is positioned in the Q2 tier for the Arts and Humanities category, while being placed in the Q3 tier for the other categories.

[4] Tourism in Marine Environments is indexed in the Scimago Journal & Country Rank falls under the categories of Business and International Management Strategy, Management (Tourism, Leisure, and Hospitality Management) and Social Sciences (Geography, Planning and Development). It boasts an h-index of 23 and is positioned in the Q3 tier in all the categories.

[5] Turyzm/Tourism s is indexed in the Scimago Journal & Country Rank falls under the categories of Economics, Econometrics and Finance (Economics, Econometrics and Finance (miscellaneous) and Social Sciences (Geography, Planning and Development, Social Sciences (miscellaneous) and Sociology and Political Science). It boasts an h-index of 10 and is positioned in the Q4 tier in all the categories.

Most cited articles

Analysing the most cited articles within a discipline offers valuable insights into the literature considered most significant by the research community. The number of citations is a key indicator of both influence and attention within the scientific community. It is essential to note that the articles mentioned in Tables 13 and 13 were retrieved on February 26, 2024. Although the articles remain the same upon repeated searches, the number of citations may vary as new citations accumulate over time (Bengoa et al., 2023; Liu & Avello, 2021).

Table 12 presents the 25 most influential articles on neuroacoustics in marketing, with their citation counts and the percentage of citations per year. Precisely, a total of 19 articles acquired more than 60 citations, a relatively modest number of citations compared to more established fields of research. The most cited article, with 267 citations, is related to phonetic symbolism (Klink, 2000), representing one of the earliest contributions to the field. Following closely behind is the research by Berns and Morre (2011), which has 175 citations. Similarly, Table 13 reveals that only one article received over 60 citations, specifically the research by Waitt and Duffy (2010) on sonic knowledge of listening, with a total of 80 citations.

Table 12

Articles Published Concerning Neuroacoustics in Marketing

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Klink, R. R.	2000	Creating brand names with meaning: The use of sound symbolism.	Journal of Global Marketing	267	10.68	2.21	10.1023/A:1008184423824
Berns, G. S., & Moore, S. E.	2011	A neural predictor of cultural popularity.	Journal of Consumer Psychology	175	13.46	4.80	10.1016/j.jcps.2011.05.001
Garlin, F. V., & Owen, K.	2006	Setting the tone with the tune: A meta-analytic review of the effects of background music in retail settings.	Journal of Business Research	144	7.58	1.45	10.1016/j.jbusres.2006.01.013
Sweeney, J., & Wyber, F.	2002	The role of cognitions and emotions in the music-approach-avoidance behaviour relationship.	Journal of Services Marketing	144	6.26	2.23	10.1108/08876040210419415
Herrington, J. D.	1996	Effects of music in service environments: a field study.	Journal of Services Marketing	133	4.59	1.97	10.1108/08876049610114249
Biswas, D., Lund, K., & Szocs, C.	2019	Sounds like a healthy retail atmospheric strategy: Effects of ambient music and background noise on food sales.	Journal of the Academy of Marketing Science	121	20.17	6.79	10.1007/s11747-018-0583-8
Oakes, S.	2000	The influence of the musicscape within service environments.	Journal of Services Marketing	92	3.68	0.76	10.1108/08876040010352673
Beverland, M., Lim, E.A., Morrison, M., & Terziovski, M.	2006	In-store music and consumer–brand relationships: Relational transformation following experiences of (mis)fit.	Journal of Business Research	82	4.32	0.83	10.1016/j.jbusres.2006.07.001
Spence, C.	2012	Auditory contributions to flavour perception and feeding behaviour.	Physiology & Behavior	78	6.00	2.14	10.1016/j.physbeh.2012.04.022

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Alpert, J. I., Alpert, M. I., & Maltz, E. N.	2005	Purchase occasion influence on the role of music in advertising.	Journal of Business Research	75	3.75	1.90	10.1016/S0148-2963(03)00101-2
Kim, J., Kim, M., & Lennon, S. J.	2016	Effects of web site atmospherics on consumer responses: music and product presentation.	Direct Marketing: An International Journal	75	4.69	2.21	10.1108/17505930910945705
Aljanaki, A., Wiering, F., & Veltkamp, R. C.	2016	Studying emotion induced by music through a crowdsourcing game.	Information Processing and Management	74	8.22	3.36	10.1016/j.ipm.2015.03.004
Bailey, N., & Areni, C. S.	2006	When a few minutes sound like a lifetime: Does atmospheric music expand or contract perceived time?	Journal of Retailing	71	3.74	0.72	10.1016/j.jretai.2006.05.003
Hagtvedt, H., & Brasel, S. A.	2016	Cross-modal communication: Sound frequency influences consumer responses to color lightness.	Journal of Marketing Research	70	7.78	3.18	10.1509/jmr.14.0414
Shrum, L.J., Lowrey, T. M., Luna, D. Lerman, D.B., & Liu, M.	2012	Sound symbolism effects across languages: Implications for global brand names.	International Journal of Research in Marketing	70	5.38	1.92	10.1016/j.ijresmar.2012.03.002
Demoulin, N.	2011	Music congruency in a service setting: The mediating role of emotional and cognitive responses.	Journal of Retailing and Consumer Services	64	4.57	2.35	10.1016/j.jretconser.2010.08.007
North, A. C., Sheridan, L., & Areni, C. S.	2016	Music congruity effects on product memory, perception, and choice.	Journal of Retailing	64	7.11	2.91	10.1016/j.jretai.2015.06.001
Argo, J. J., Popa, M., & Smith, M. C.	2010	The sound of brands.	Journal of Marketing	61	4.07	2.45	10.1509/jmkg.74.4.97

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Lowe, M. L., & Haws, K. L.	2017	Sounds big: The effects of acoustic pitch on product perceptions.	Journal of Marketing Research	61	7.63	4.08	10.1509/jmr.14.0300
Andersson, P., Kristensson, P., Wästlund, E., & Gustafsson, A.	2012	Let the music play or not: The influence of background music on consumer behaviour.	Journal of Retailing and Consumer Services	59	4.54	1.62	10.1016/j.jretconser.2012.06.010
Knöferle, K., Spangenberg, E. R., Herrmann, A., & Landwehr, J. R.	2012	It is all in the mix: The interactive effect of music tempo and mode on in-store sales.	Marketing Letters	57	4.38	1.56	10.1007/s11002-011-9156-z
Klink, R. R., & Athaide, G. A.	2012	Creating brand personality with brand names.	Marketing Letters	54	4.15	1.48	10.1007/s11002-011-9140-7
Lageat, T., Czellar, S., & Laurent, G.	2003	Engineering hedonic attributes to generate perceptions of luxury: Consumer perception of an everyday sound.	Marketing Letters	47	2.14	1.00	10.1023/A:1025462901401
Nijland, H., Van Kempen, E., Van Wee, G., & Jabben, J.	2003	Costs and benefits of noise abatement measures.	Transport Policy	47	2.14	1.00	10.1016/S0967-070X (02)00064-1
Bijsterveld, K.	2010	Acoustic cocooning.	The Senses and Society	45	3.00	1.81	10.2752/174589210X12668381452809
Magnini, V. P., & Parker, E. E.	2009	The psychological effects of music: Implications for hotel firms.	Journal of Vacation Marketing	44	2.75	1.29	10.1177/1356766708098171
Sullivan, M.	2002	The impact of pitch, volume, and tempo on the atmospheric effects of music.	International Journal of Retail & Distribution Management	43	1.87	0.66	10.1108/09590550210429531
Cocron, P., & Krems, J. F.	2013	Driver perceptions of the safety implications of quiet electric vehicles.	Accident Analysis & Prevention	41	3.42	4.35	10.1016/j.aap.2013.04.028

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Sayın, E., Krishna, A., Ardelet, C., Decré, G. B., & Goudey, A.	2015	"Sound and safe": The effect of ambient sound on the perceived safety of public spaces.	International Journal of Research in Marketing	40	4.00	2.73	10.1016/j.ijresmar.2015.06.002
Ding, C. G., & Lin, C.	2012	How does background music tempo work for online shopping?	Electronic Commerce Research and Applications	39	3.00	1.07	10.1016/j.elerap.2011.10.002
Shan, M. K., Kuo, F. F., Chiang, M. F., & Lee, S. Y.	2009	Emotion-based music recommendation by affinity discovery from film music.	Expert Systems with Applications	39	2.44	1.15	10.1016/j.eswa.2008.09.042
Klink, R. R., & Lan, W.	2014	The role of position, type, and combination of sound symbolism imbeds in brand names.	Marketing Letters	38	3.45	2.24	10.1007/s11002-013-9236-3
Vida, I., Obadia, C., & Kunz, M.	2007	The effects of background music on consumer responses in a high-end supermarket.	The International Review of Retail, Distribution and Consumer Research	38	2.11	1.97	10.1080/09593960701631532
Cuny, C., Fornerino, M., & Helme-Guizon, A.	2015	Can music improve e-behavioural intentions by enhancing consumers' immersion and experience?	Information & Management	37	3.70	2.53	10.1016/j.im.2015.07.009
Lu, W., & Petiot, J. F.	2014	Affective design of products using an audio-based protocol: Application to eyeglass frame.	International Journal of Industrial Ergonomics	37	3.36	2.18	10.1016/j.ergon.2014.01.004
Abel, G. A., & Glinert, L.	2008	Chemotherapy as language: Sound symbolism in cancer medication names.	Social Science & Medicine	36	2.12	1.06	10.1016/j.socscimed.2007.12.016
Imschloß, M., & Kuehnl, C.	2019	Feel the music! Exploring the cross-modal correspondence between music and haptic perceptions of softness.	Journal of Retailing	35	5.83	1.96	10.1016/j.jretai.2019.10.004
Styvén, M. E.	2010	The need to touch: Exploring the link between music involvement and tangibility preference.	Journal of Business Research	35	2.33	1.41	10.1016/j.jbusres.2008.11.010

Authors	Year	Title	Journal	TC	TC per year	Normalized TC	DOI
Craton, L. G., & Lantos, G. P.	2011	Attitude toward the advertising music: an overlooked potential pitfall in commercials.	Journal of Consumer Marketing	34	2.43	1.25	10.1108/07363761111165912
Hwang, A.H.-C., Oh, J., & Scheinbaum, A.C.	2020	Interactive music for multisensory e-commerce: The moderating role of online consumer involvement in experiential value, cognitive value, and purchase intention.	Psychology & Marketing	32	6.40	2.35	10.1002/mar.21338

Table 13

Articles Published Concerning Neuroacoustics in Tourism Marketing

Authors	Year	Title	Journal	TC	TC per year	Normalized TC	DOI
Waitt, G, & Duffy, M.	2010	Listening and tourism studies.	Annals of Tourism Research	80	5.33	1,00	10.1016/j.annals.2009.10.017
Liu, A., & Wang, X. L., Liu, F., Yao, C., & Deng, Z.	2017	Soundscape and its influence on tourist satisfaction.	Service Industries Journal	35	5.00	1,84	10.1080/02642069.2017.1382479
Votsi, N.-E. P., Mazaris, A. D., Kallimanis, A. S., & Pantis, J. D.	2014	Natural quiet: An additional feature reflecting green tourism development in conservation areas of Greece.	Tourism Management Perspectives	33	3.00	1,35	10.1016/j.tmp.2014.02.001
Hadinejad, A., Moyle, B. D., Kralj, A., & Scott, N.	2019	Physiological and self-report methods to the measurement of emotion in tourism.	Tourism Recreation Research	30	5.00	1,71	10.1080/02508281.2019.1604937
He, M., Li, J., Li, J., & Chen, H.	2018	A comparative study on the effect of soundscape and landscape on tourism experience.	International Journal of Tourism Research	29	4.83	1,66	10.1002/jtr.2237

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Min, Z., Jie, Z., Xiao, X., Mengyuan, Q., Youhai, L., Hui, Z., … Meng, H.	2019	How destination music affects tourists' behaviours: travel with music in Lijiang, China.	Asia Pacific Journal of Tourism Research	26	5.20	1,33	10.1080/10941665.2019.1683046
Lu, Y.-H., Zhang, J., Zhang, H., Xiao, X., Liu, P., Zhuang, M., & Hu, M.	2021	Flow in soundscape: the conceptualization of soundscape flow experience and its relationship with soundscape perception and behaviour intention in tourism destinations.	Current Issues in Tourism	26	8.67	1,95	10.1080/13683500.2021.1922363
Qiu, M., Zhang, J., & Zheng, C.	2018	Exploring tourists' soundscape emotion and its impact on sustainable tourism development.	Asia Pacific Journal of Tourism Research	20	2.86	1,05	10.1080/10941665.2018.1494614
Jiang, J., Zhang, J., Zheng, C., Zhang, H., & Zhang, J.	2018	Natural soundscapes in nature-based tourism: leisure participation and perceived constraints.	Current Issues in Tourism	20	4.00	1,03	10.1080/13683500.2018.1540559
Henke, L. L.	2005	Music induced tourism: Strategic use of indigenous music as a tourist icon.	Journal of Hospitality & Leisure Marketing,	19	0.95	1,00	10.1300/J150v13n02_02
Yin, C.-Y., Bi, N., & Chen, Y.	2020	You exist in my song! How a destination-related popular song enhances destination image and visit intentions.	Journal of Vacation Marketing	17	3.40	0,87	10.1177/1356766720904773
Chen, Y., Liu, P., Zhang, J., & Xiao, X.	2019	Falling in love with a place because of a song: the transportation effects of music on place attachment.	Asia Pacific Journal of Tourism Research	16	2.67	0,91	10.1080/10941665.2019.1638428
Roberts, L.	2014	Marketing musicscapes, or the political economy of contagious magic.	Tourist Studies	16	1.45	0,65	10.1177/1468797613511683

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Wilson, S., Chambers, D., & Johnson, J.	2019	VW campervan tourists embodied sonic experiences.	Annals of Tourism Research	16	2.67	0,91	10.1016/j.annals.2019.02.009
Lu, Y. H., Zhang, J., Zhang, H., Xiao, X., Liu, P., Zhuang, M., & Hu, M.	2020	The transition of soundscapes in tourist destinations from the perspective of residents' perceptions: A case study of the Lugu Lake Scenic Spot, Southwestern China.	Sustainability	15	3.00	0,77	10.3390/su12031073
Pan, S., & Hanusch, F.	2011	Tourism TV commercials: A delicate balance between aural and visual Information load.	Journal of Travel and Tourism Marketing	12	0.86	1,00	10.1080/10548408.2011.587750
Fremaux, S., & Fremaux, M.	2013	Remembering the Beatles' legacy in Hamburg's problematic tourism strategy.	Journal of Heritage Tourism	12	1.00	1,00	10.1080/1743873X.2013.799172
Trompeta, M. A., Karantinou, K., Koritos, C., & Bijmolt, T. H. A.	2022	A meta-analysis of the effects of music in tourism and hospitality settings.	Journal of Business Research	8	2.67	0,60	10.1016/j.jbusres.2021.08.067
Montazerolhodjah, M., Sharifnejad, M., & Montazerolhodjah, M. R.	2019	Soundscape preferences of tourists in historical urban open spaces.	International Journal of Tourism Cities	7	1.17	0,40	10.1108/IJTC-08-2018-0065
García, L., Muñoz Fernández, A., López-Guzmán, T.	2019	Cultural tourism and flamenco in the city of Cordoba (Spain).	Journal of Quality Assurance in Hospitality & Tourism	7	1.17	0,40	10.1080/1528008X.2019.1579077
Jiang, J., & Yan, B.	2022	From soundscape participation to tourist loyalty in nature-based tourism: The moderating role of soundscape emotion and the mediating role of soundscape satisfaction.	Journal of Destination Marketing and Management	6	2.00	0,45	10.1016/j.jdmm.2022.100730

Authors	Year	Title	Journal	TC	TC per year	Normalized TC	DOI
King, S. A., & Foster, P. R.	2001	"No problem, mon": Strategies used to promote reggae music as Jamaica's cultural heritage.	Journal of Nonprofit and Public Sector Marketing	5	0.21	1,00	10.1300/J054v08n04_02
Rudan, E., & Stipanović, C.	2021	Music in the tourism offering of rural regions (the case of Eastern Croatia).	European Countryside	3	0.75	2,25	10.2478/euco-2021-0036
Cashman, D.	2016	Tequila! Social control of guest movement by live music performance on cruise ships.	Tourism in Marine Environments	3	0.33	1,00	10.3727/154427315X14513374773328
Schofield, P.	2009	Soft city, hard sell: Manchester's popular music soundscape.	International Journal of Tourism Policy	3	0.19	1,00	10.1504/IJTP.2009.023271
Fan, Y., Wong, I. A., & Lin, Z. C.	2023	How folk music induces destination image: A synthesis between sensory marketing and cognitive balance theory.	Tourism Management Perspectives	2	1.00	3,60	10.1016/j.tmp.2023.101123
Stipanovi, C., Grguri, D., & Jurina, N.	2018	Audio management in the development and branding of Krk Island.	International Journal of Tourism Policy	2	0.29	0,11	10.1504/IJTP.2018.098933
Wissmann, T., & Zimmermann, S.	2015	Sound in media: Audio drama and audio-guided tours as stimuli for the creation of place.	Geojournal	2	0.20	1,00	10.1007/s10708-015-9645-3
Kou, L., Xiao, X., Xu, H., & Cheng, J.	2023	Understanding tourist experiences of sounds at nature-based destinations: from a relational perspective.	Current Issues in Tourism	1	1.00	1,00	10.1080/13683500.2023.2168522
Barnes, S. J.	2023	Smooth talking and fast music: Understanding the importance of voice and music in travel and tourism ads via acoustic analytics.	Journal of Travel Research	1	0.50	1,80	10.1177/00472875231185882
Friel, M., & Segre, G.	2021	Are music lovers promising tourists? attracting classical music and opera aficionados into the tourism loop.	Current Issues in Tourism	1	0.50	1,80	10.1080/13683500.2021.2007859

Authors	**Year**	**Title**	**Journal**	**TC**	**TC per year**	**Normalized TC**	**DOI**
Coronel, M., & Irimiás, A.	2022	"A very special song from Queen to you!" The role of music in destination promotional videos.	Consumer Behavior in Tourism and Hospitality	1	0.50	1,80	10.1108/CBTH-11-2021-0265
Hu, M., Lu, Y., Zhuang, M., Zhang, X., Zhang, H., Zhang, Y., Zhang, J., & Liu, P.	2021	Development of tranquility perception scale: From tourists' perspective.	Journal of Hospitality and Tourism Management	1	0.25	0,75	10.1016/j.jhtm.2021.10.008
Frohlick, S., & Macevicius, C.	2023	Listening otherwise: From "silent tourism" soundscapes to privileged sonic ways of knowing.	Tourist Studies	0	0.00	0,00	10.1177/14687976231171713
Ma, J., Scott, N., & Wu, Y.	2023	Tourism destination advertising: effect of storytelling and sensory stimuli on arousal and memorability.	Tourism Review	0	0.00	0,00	10.1108/TR-07-2022-0319
Grgurić, D., & Stipanović, C.	2021	Innovating the music and sound management model in tourist destinations.	Cultural Management: Science and Education	0	0.00	0,00	10.30819/cmse.5-1.02
Çatir, O.	2023	The musicscape in hotel businesses: Evidence from online reviews.	Turyzm/Tourism	0	0.00	0,00	10.18778/0867-5856.33.1.05
Motoki, K., Park, J., Pathak, A., & Spence, C.	2023	Creating luxury brand names in the hospitality and tourism sector: The role of sound symbolism in destination branding.	Journal of Destination Marketing & Management	0	0.00	0,00	10.1016/j.jdmm.2023.100815
Ay, E., & Günay, S.	2023	Turn on and tune in: Problematizing the relationship between soundscape and tourist mood.	Journal of Tourism, Sustainability and Well-being	0	0.00	0,00	10.34623/bzah-e510

Most Used Research Methods

Research methods assist the systematic collection and analysis of real-world data, contributing to the expansion of scientific knowledge (Liu & Avello, 2021). Table 14 shows that most studies in both marketing and tourism marketing are empirical, accounting for 91% and 68%, respectively. These empirical studies primarily employ quantitative methods, with experiments being the most common approach in marketing (66%) and surveys being the most common in tourism marketing (56%). Regarding data analysis techniques, multivariate methods are popular in marketing (43%), while other statistical approaches are common in tourism marketing (35%).

Table 14

Main Research Methods Used

	neuroacoustics in marketing			**neuroacoustics in tourism marketing**	
	Frequency	**Percentage**		**Frequency**	**Percentage**
Type of study (n=286)			**Type of study (n=39)**		
Conceptual / review	27	9%		5	10%
Empirical	259	91%		34	68%
Research methodology (n=259)			**Research methodology (n=34)**		
Qualitative	22	8%		7	21%
Quantitative	216	83%		25	74%
Mixed methods	21	8%		2	6%
Data collection method (n=34)			**Data collection method (n=34)**		
Interviews/focus groups	18	7%		5	15%
Experiment	170	66%		5	15%
Survey	41	16%		19	56%
Mixed data collection	3	1%		2	6%
Others	27	10%		3	9%
Data analysis technique (n=34)			**Data analysis technique (n=34)**		
Co-variance and variance-based SEM	15	6%		10	29%
Qualitative content analysis	11	4%		5	15%
Bivariate	39	15%		1	3%
Multivariate	112	43%		6	18%
Not Applied	7	3%		0	0%
Neuromarketing	4	2%		0	0%
Other statistics	71	27%		12	35%

Conclusions and Future Research Lines

This research contributes significantly to the emerging discipline of neuroacoustics. One of the main contributions of this study is conducting two SLRs followed by two bibliometric analyses,

comparing the progress of neuroacoustics in two different areas. The aim is to shed light on neuroacoustics and its interdisciplinary nature, particularly in marketing and tourism. In this section, the research questions will be addressed in detail.

Different bibliometric indicators have been analysed, including the distribution of years of publication, Price's index, number of citations, source of publication, research areas, research methods, and co-occurring keywords, among others. This comprehensive study aimed to clarify the main characteristics and trends in neuroacoustics research across both domains. The first neuroacoustics article in the marketing field was published in 1993, exhibiting an annual growth rate of 5.33%. Additionally, neuroacoustics in tourism marketing emerged as a more recent subfield, with only twenty-three years of history (RQ1). As observed in many other disciplines, the United States, the United Kingdom, China, and Australia are the most significant contributors, highlighting the need to foster this discipline in other countries.

The marketing potential of neuroacoustics represents a recent and growing phenomenon, justifying the increased intensity of scientific research in recent years. Notably, 49.3% of articles in the marketing field and 66.7% in the tourism marketing domain were published from 2019 onwards, indicating a recent surge in scientific interest in this discipline (RQ2). Research in this field is still in its early stages in both domains, with the tourism marketing domain showing a particularly high number of authors who have only made one contribution (refer to Table 13).

The most common research type in this discipline is empirical, with quantitative methods being mainly used. However, there are differences in data collection procedures and analysis techniques between the two fields. In marketing, experimental procedures and multivariate analysis are most commonly employed, whereas in tourism marketing, surveys and other statistical calculations are more frequently used. While electroencephalography (EEG) and magnetoencephalography (MEG) have proven effective for studying neuroacoustics, due to advancements in signal cleaning techniques to avoid noise contamination (Mutanen et al., 2018), there has been limited research using EEG analysis in both marketing and tourism. Specifically, only four studies in marketing have employed EEG techniques (i.e., Ausín et al., 2021; Chen et al., 2023; Hsu & Chen, 2019), with none specifically on the tourism marketing area. While studying the employment of MEG, there are none in both domains.

A significant number of articles focus on experiential marketing, particularly examining atmospheric sounds and behavioural responses in both domains. Specifically, "background music" emerged as the most frequent term in the marketing domain, while "music" was the main in the tourism field. The relationship between music and tourism has recently been assessed by Moreno-Lobato et al. (2023), highlighting the importance of emotions in conjunction with music elements and tools, with an increase in interest over the past decade. Research within the analysed clusters in both domains directly relates to consumers' responses and perceptions, encompassing concepts such as memory, gender, tempo, and mood in the marketing field, and factors like authenticity, identity, and tourism development in the tourism domain (RQ3).

The trend of scientific production related to the discipline in both domains indicates a growing interest in sound, music, and perceptions within the marketing field, and landscapes, experiences,

and noises within the tourism marketing domain (RQ4). This highlights the importance of advancing knowledge in sensory marketing, with a particular focus on the sense of sound.

One notable limitation of this research is that the field of neuroacoustics has not been fully recognized as a business discipline. As a result, studies related to this field may have been conducted using alternative terminology such as sound, phonetic symbolism, or music. Additionally, due to the selection criteria applied in both SLRs, some articles may not have been included in this study. These could include articles published in other domains like wellness or sports, which may offer valuable theoretical and methodological insights. Additionally, articles published in languages other than English were excluded from consideration. Furthermore, during the eligibility stage of the SLRs, articles that simultaneously measured multiple senses were discarded. This decision was made to maintain a clear focus on the impact of neuroacoustics.

Future research has immense potential in revealing the influence of acoustic signals on both conscious and subconscious brain responses, which can enhance customer satisfaction. While current research has shed light on the marketing implications of acoustics, future studies should delve deeper into the neurological dimensions of acoustic marketing.

Furthermore, scholars could develop different research lines, such as advancing knowledge concerning recent studies that examine the influence of modifying digital vocal tract length (i.e., timbre) of AI-generated voices on shaping consumers' experiences (Efthymiou et al., 2023). Another interesting avenue for further research is examining the correlation between acoustics signals in video games, slot machines, or even the metaverse, and impulsive buying behaviours. Research has analysed the phenomenon of Losses Disguised as Wins (LDWs) on slot machines, revealing that despite being monetary losses, LDWs are perceived and processed as wins both psychophysically and psychologically by participants (Scarfe et al., 2021; Dixon et al., 2013). Additionally, given the current trend toward health-conscious eating, it would be compelling to continue examining the effects of natural acoustic signals on stress recovery and promoting healthy food choices (Michels & Hamers, 2023).

Additionally, there are several research lines in the field of tourism marketing. Scholars are encouraged to employ archaeoacoustics to emphasize the importance of cultural heritage, not solely for preservation purposes, but also for educating tourists and increasing their awareness of the need to ensure the sustainability of these assets. This will ultimately enhance tourist arrivals by offering insights into the true intentions of ancient builders, thereby enriching visitors' experiences. Furthermore, future research could evaluate how personalized acoustic signals, capable of affecting adrenaline levels or alleviating stress, influence the perception of tourism services (Gomes Arrulo et al., 2023). This could encompass accommodations, wellness amenities, or even adventure activities.

In conclusion, neuroacoustics has the potential to be recognized as a valuable business discipline, offering companies competitive advantages by leveraging acoustics signals. These acoustic signals can impact all stages of the customer journey: from the decision-making process and purchase experience to post-purchase behaviour. The challenge lies in neuroacoustics' ability

to provide effective responses to consumer reactions, a task that can be measured by scholars conducting research using EEG (Mutanen et al., 2018).

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