

Journey of Journal of Accessibility and Design for All: A Review

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Received: 2024-10-07 | Accepted: 2025-03-31 | Publication: 2025-05-11

Abstract: This study aims to examine the publication journey of the Journal of Accessibility and Design for All (JACCES). This review article utilised bibliometric analysis to conduct performance evaluation and science mapping. The study employed the Bibliometrix R package (version 4.2.3) through the Biblioshiny interface, along with VOSviewer, to address the research questions. The performance analysis focused on the publication trends, citations, and contributions from authors, institutions, and countries of the JACCES. In addition, keyword co-occurrence and bibliographic coupling analyses were performed to measure the conceptual structure of the literature and the central themes on which the journal has published. The study identifies four themes: inclusive design and tourism for all, accessible tourism: sensory and digital approaches, measuring and evaluating disability-inclusive environments, and digital accessibility in public domains. A future research agenda is also proposed for researchers to work on and provide comprehensive information to fill the research gaps and strengthen the publication journey of the JACCES.

Keywords: biblioshiny, VOSviewer, science mapping, performance analysis, bibliographic coupling, Journal of Accessibility and Design for All, JACCES.

1. Introduction

People in built environment often face different types of exclusion, which goes against building codes and societal goals of inclusivity. This exclusion is shaped by both personal circumstances and the design of the physical environment (Muller et al., 2024). Industrialization, urbanization, and rapid technological changes have created a gap between people's skills and the skills needed. Many people, especially seniors and those with disabilities, are unable to use city environments and are the most affected. Attempts to close this gap often fail because of infrastructure limitations (Kose, 2016). Infrastructure is limiting because it was often built without considering inclusivity, making it hard to adapt for seniors and people with disabilities. While compromises have been made, they are often temporary fixes. The challenge is whether to accept these or push for better, more inclusive designs. Living in wealthier neighbourhoods with a mix of services (shops, healthcare, schools, and parks that support daily needs and social activities) and more places (accessible destinations like cultural, social, and commercial spaces) to go helps promote social inclusion. However, crowded areas and barriers such as negative attitudes (discrimination

or stigma toward certain groups, creating social and psychological barriers to inclusion), physical obstacles, and poor transportation options make it harder for people to feel included (Abdeldayem et al., 2022).

Design for all (DFA), also known as Universal or Inclusive Design, complements Assistive Technology by creating products and services that are accessible to as many people as possible, either on their own or with the help of assistive tools (Bühler & Stephanidis, 2004). DFA promotes inclusion by enabling everyone to participate in economic development, reducing social exclusion, and boosting economic benefits. DFA creates job opportunities in tourism and is a key source of income for many countries. DFA supports human rights by respecting diversity and promoting social inclusion and equality. It complements assistive technology and barrier-free accessibility and has been applied in areas like bathing, shopping, and gardening to encourage innovation and social awareness (Bühler, 2008; Di Bucchianico, 2018).

Accessibility is a multifaceted issue that involves the design of systems and addressing the specific needs of various groups of people with disabilities. It also considers the impact of embedded content, such as images or videos, and the use of assistive technologies to make information more easily accessible and usable (Alahmadi & Drew, 2018). Accessibility and physical disability (APD) refer to the design and adaptation of environments, products, and services to ensure that individuals with physical disabilities can access and use them as easily and independently as possible. APD eliminate barriers that prevent people with physical impairments from participating fully in society. Accessibility and universal design in various fields such as architecture, technology, education, and product design can play a major role in uplifting the morale of physically disabled people.

Journal of Accessibility and Design for All (JACCES) provides a platform for researchers to find solutions for current scenarios in the above domain and present them to society. JACCES is indexed in the Scopus database, which is considered one of the most reputable and genuine databases. It has an h-index of 7 (according to Scimago Journal Rank) with a cite score of 1.4 (2023) and 1.4 (1st February 2025 as per the Scopus database), publishes double-blind review manuscripts in the English language, and has been ranked in the quartile 2 (69%) of the architectural subject category. It covers a multifaceted research area, such as architecture, engineering, education, medical and healthcare, and society and economy. The ONCE Foundation, a leading disability organisation in Spain, sponsors the open-access publication of literature in JACCES. The foundation's primary goal is to provide training programs that help people with disabilities find jobs and integrate into the workforce. In addition, it creates accessible environments, products, and services for everyone.

A bibliometric study describes the evolution and present state of research within the journal (Antia-Obong et al., 2019). It provides insights into the journal's impact, published research work characteristics, article productivity, research trends, authors, degree of author collaboration, and emerging topics with specific journals using statistical methods. Presenting a retrospective review of a journal is not a new culture; it has been done with various quality journals such as *Tourism Cities* (Gurung & Gowreesunkar, 2024), *Consumer Behaviour* (Lim et al., 2023), *F1000Research* (D. Kumar et al., 2023), and *Contemporary Hospitality Management* (Sharma et al., 2023). Following the approach of previous journal retrospectives, the authors reviewed the JACCES using bibliometric analysis (BA). Against this backdrop, the present study seeks to offer valuable insights guided by the following research questions (RQs):

- RQ1: What are the publication and citation trends in the JACCES?
- RQ2: What are the most collaborative authors and countries in JACCES?

- RQ3: Which articles published in the JACCES are the most cited?
- RQ4: How did the major themes appear over time in JACCES?
- RQ5: What emerging topics have authors explored in JACCES?

2. Methodology

Paul and Criado (2020) posit that a review article's main goal is to closely examine the existing research in a specific area, theme, or discipline. The literature review was classified into three categories: domain-based, theory-based, and method-based. Domain-based review is further classified into - 1) Structured review, 2) Framework-based review, 3) Hybrid review, 4) Review aiming for theory development, and 5) Bibliometric review. In this study, a domain-based bibliometric review method was used.

Bibliometric methods come from library and information sciences research and deal with analysing large amounts of bibliographic data (Broadus, 1987; Pritchard, 1969). Bibliometric studies compile and summarise the available literature to generate meaningful information on authors, countries, affiliations, citations, publication growth, research trends, and funding agencies. Additionally, it aims to pinpoint any gaps in the research, helping the journal to call for studies that can address these gaps. The bibliometric approach of systematic review was chosen in the present study because of its compatibility with the analysis of large metadata, evaluation of performance through various metrics, systematic mapping of knowledge maps, and minimisation of biases by the authors (Mukherjee et al., 2022; Pandey et al., 2023). There are various tools for conducting bibliometric reviews, such as VOSviewer, the Bibliometrix R package using biblioshiny, CitNetExplorer, Sci2, etc.

A bibliometric approach applying the Bibliometrix R package 4.2.3, using a biblioshiny interface developed by Aria and Cuccurullo (2017), and VOSviewer 1.6.20 (van Eck & Waltman, 2010) has been used in various studies to understand journal publication patterns and overall trends (Donthu et al., 2020; Donthu, Kumar, Pandey, et al., 2021; A. Kumar et al., 2024; D. Kumar et al., 2023). By following the guidelines to conduct a bibliometric analysis (BA), suggested by (Donthu, Kumar, Mukherjee, et al., 2021), the present study has been developed. Ellegaard and Wallin (2015) posit that BA is gradually being embraced as a practical tool by professionals, not just as an academic method for experts in the field.

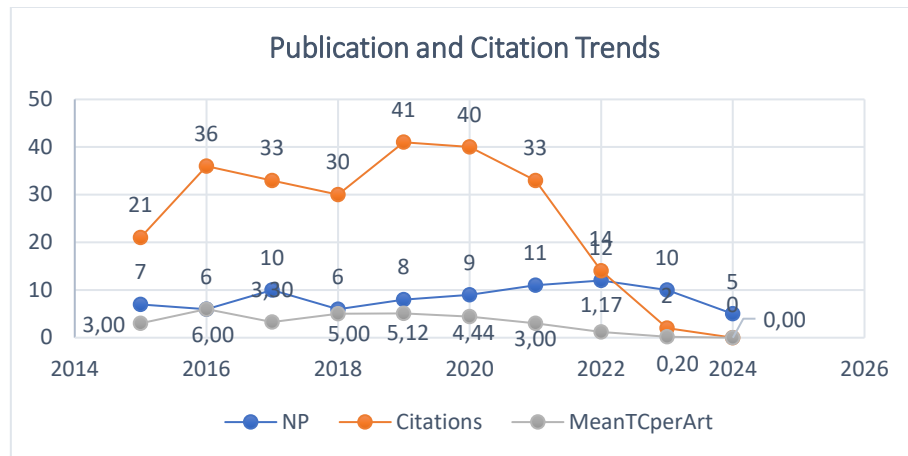
2.1. Data Curation

The metadata for the study was extracted from one of the most reliable databases, i.e. Scopus. By using the keywords "Journal of Accessibility and Design for all" and limited to "published", "Article", "Review", and "English" from 2015 to 2024 (31st September 2024), data is extracted. A total of 84 articles were downloaded in the CSV file format, and manual screening was performed to check for missing information, such as authors, DOI, and duplicates. No information was missing from the metadata, and it was used for the analysis.

2.2. Structure

BA was performed by applying the Bibliometrix R package using the biblioshiny interface and VOSviewer software. BA have been classified into two sections: performance analysis and science mapping. Performance analysis is used to measure publication growth, highly cited articles, most productive authors and countries and so on. Science mapping was performed to identify themes, clusters, and emerging themes and propose future research directions.

Figure 1. Publication and citation trends (Source: Author's creation)



Note: NP= Number of Publications, Mean TCperArt = Mean Total citations per Article

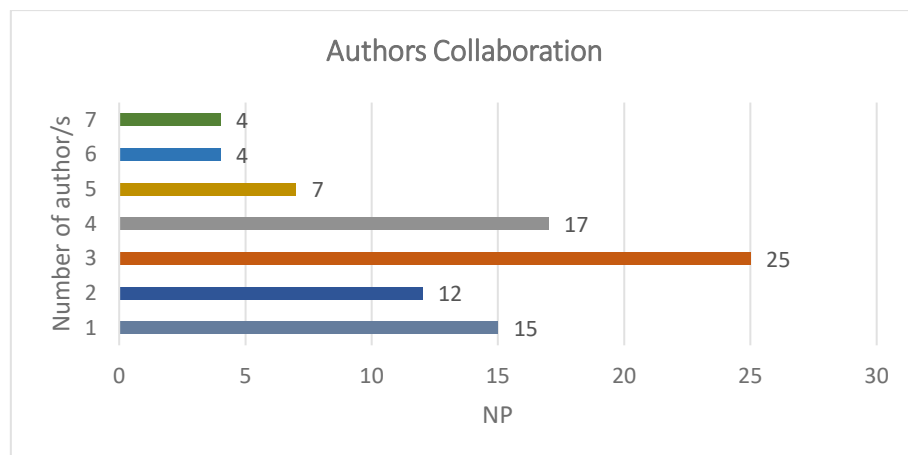
3. Results

3.1. Performance Analysis

3.1.1. Publication and Citation Trends in JACCES

RQ 1 aimed to visualise and identify the publication and citation trends of the JACCES over time. JACCES published only 84 articles in a decade (since 2015), with an average publication of 8.4 per year. The maximum number of publications (NP) (12) is published in 2022, whereas the minimum NP is published in 2018. Publication growth is almost consistent, which shows a rigorous quality check and the novelty of the literature. Over this period, these 84 publications received 250 citations, with an average of 2.98. It received an average mean Total Citations per Article (TCperArt) score of 3.12. In 2019, it received a maximum of 41 citations, followed by 40 citations in 2020, which is not very promising. Figure 1 also shows a downward trend, which is not a good indication of a quality journal like JACCES. This may be due to the journal's low visibility and awareness amongst the research fraternity.

Figure 2. Authors collaborations (Source: Author's creation)



Note: NP= Number of Publications

Figure 3. Countries collaboration (Source: Author's creation)



3.1.2. Authors, countries and institutions collaboration

Baker et al. (2023) highlighted that more collaboration represents a better research output. In the present study, Figure 2 shows that two to seven authors contributed to 69 publications (82%), whereas single authors contributed to the remaining 15 publications (18%). Multi-author contributions have the maximum contribution in the JACCES publication journey, highlighting the publication's high quality.

International collaboration significantly improves the quality of research articles, especially in countries with high research expenditure (Thelwall et al., 2024). Greater cross-country collaborations help journals enhance research quality, increase citations and visibility, and increase impact. Countries like Belgium and Italy collaborated twice with different countries, whereas Australia, Germany, India, Indonesia, Slovenia, Spain and the USA collaborated only once, as shown in Figure 3. European countries primarily collaborated with European countries, whereas Asian countries collaborated with Asian countries. A few cross-continent collaborations also exist, such as in Australia-Saudi Arabia and Japan-New Zealand.

3.1.3. Top 10 cited publications

The top 10 cited publications in the JACCES (RQ 2) are shown in Table 1. "Inspiring Architects in the Application of Design for All: Knowledge Transfer Methods and Tools", authored by Mosca et al., (2019), highlighted the important information such as effective communication, understanding users' needs, descriptive information, and built environment in designing inclusive environments. It received a maximum of citations (24) with a Total Citations per Year (TCpY) of 4. "A preliminary study for developing accessible MOOC services", authored by Iniesto & Rodrigo (2016), received the second-highest citations (16) and TCpY (1.78). It highlights the importance of a holistic approach that considers learners' abilities and learning objectives while developing Massive Online Open Courses (MOOC), which can be accessible to all. The third highly cited article, "Website Accessibility of Travel Agents: An Evaluation Using Web Diagnostic Tools", authored by Eusébio et al. (2020), received 12 citations and 2.40 of TCpY. It provides valuable

insights to the designers and developers of travel agency websites to ensure that their content is easily accessible to everyone, regardless of their individual needs, skills, or conditions.

Table 1. Top 10 cited publications (Source: Author's creation)

Author/s, year	Title	TC	TCpY
(Mosca et al., 2019)	Inspiring architects in the application of Design for all: Knowledge Transfer Methods and Tools	24	4.00
(Iniesto & Rodrigo, 2016)	A preliminary study for developing accessible MOOC services	16	1.78
(Eusébio et al., 2020)	Website accessibility of travel agents: an evaluation using web diagnostic tools	12	2.40
(Hitch et al., 2016)	Does universal design education impact on the attitudes of architecture students towards people with disability?	10	1.11
(Palmer Peterson, 2021)	Built environment accessibility in the eastern province of the Kingdom of Saudi Arabia as seen by persons with disabilities	10	2.50
(Gaire et al., 2017)	Walking behaviour of individuals with and without disabilities at right-angle turning facility	9	1.13
(Zimmermann-Janschitz, 2018)	Geographic information systems in the context of disabilities	9	1.29
(Henríquez et al., 2022)	The past, present, and future of accessible tourism research: a bibliometric analysis using the Scopus database	8	2.67
(Piramanayagam et al., 2019)	Inclusive hotel design in India: a user perspective	8	1.33
(Rahmatizadeh & Valizadeh-Haghi, 2018)	Monitoring for accessibility in medical university websites: meeting the needs of people with disabilities	7	1.00

Note: TC= Total citations, TCpY = Total citations per year

Table 2. Top 10 influential authors (Source: Author's creation)

Author	h_index	g_index	m_index	TC	NP	PY_start
Freddi P	2	2	0.25	8	2	2017
Gamache S	2	3	0.25	15	4	2017
Leblond J	2	2	0.25	8	2	2017
Morales E	2	3	0.25	16	8	2017
Noreau L	2	2	0.25	8	2	2017
Rosa MP	2	2	0.5	8	4	2021
Routhier F	2	2	0.25	7	3	2017
Abate TP	1	1	0.111	1	1	2016
Abbas NY	1	1	0.333	2	1	2022
Acheampong E	1	1	0.125	2	1	2017

Note: TC = Total Citations, NP= No. of publications, PY_Start = Start of publication year

3.1.4. Top 10 influential authors

A total of 241 authors have contributed their work to JACCES. Lotka's law of productivity is often used to understand an author's productivity and research output in a specific domain (Lotka, 1926). A small proportion of authors contributed to a large proportion of publications, whereas the majority contributed only a few papers. The same can be seen in the present study; 224 authors contributed only to one article, whereas 12 authors contributed to two articles, followed by two authors who contributed three and four articles. Table 2 highlights the top 10 most impactful authors based on their h-index. The h-index is a widely used scientific indicator of an author's output, as it balances publications and citations (impact in the scientific community) (Hirsch, 2005). Freddi P, Gamache S, Leblond J, Morales E, Noreau L, Rosa MP, and Routhier F have an h-index of 2, which suggests that at least 2 publications were cited 2 times. The g-index measures the overall citation impact of a collection of articles (Egghe, 2006). In the present study, Gamache S. and Morale E. have the highest g-index of 3. Moreover, the m-index is the h-index normalized by the number of years since the researcher's first publication. In the present study all top five authors have the same g-index i.e. 0.25.

3.1.5. Top 10 impactful countries

Articles published in JACCES have contributions from 37 countries. The top 10 impactful countries based on the citations received are shown in Table 3. Although Canada (15), the United States (10) and Spain (9) are the biggest contributors, Portugal appeared as the most impactful country, receiving the maximum number of citations (14) with only 6 contributions, followed by Indonesia (12 citations). Australia published only 3 articles but received the third-highest citations (10) with a maximum average article citation (AAC) of 10. African continent contribution is scarce in the JACCES publication journey, except for Ghana, which has a single publication.

Table 3. Top 10 impactful countries (Source: Author's creation)

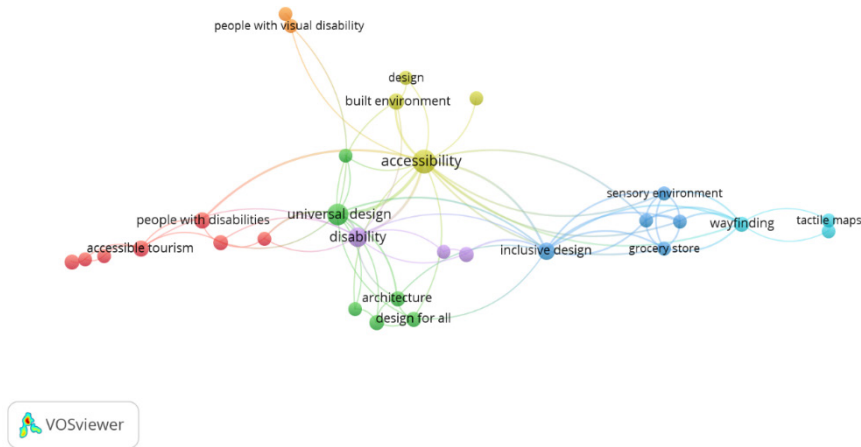
Country	(TC)	(NP)	(AAC)
Portugal	14	6	7.00
Indonesia	12	4	3.00
Australia	10	3	10.00
Saudi Arabia	10	2	10.00
Austria	9	2	9.00
Bulgaria	7	1	7.00
Canada	7	15	1.80
Iran	7	1	7.00
Denmark	6	2	3.00
Malta	5	1	5.00

Note: TC= Total citations, NP = Number of Publications, AAT = Average Article Citations

Table 4. Top 10 impactful institutions (Source: Author's creation)

Affiliation	Country	Articles
Universitas Indonesia	Indonesia	7
Thomas Jefferson University	US	6
Université Laval	Canada	6
Bandung Institute of Technology	Indonesia	5
Kyushu Institute of Technology	Japan	5
Instituto Federal De Educação	Brazil	4
University of Algarve	Portugal	3
University of Aveiro	Portugal	3
University of British Columbia	Canada	3
University of Geneva	Switzerland	3

Figure 4. Keywords co-occurrence network visualisation (Source: Author's creation)



3.1.6. Top 10 impactful institutions

A total of 34 institutions and affiliations contributed their work to the JACCES research journey of one decade. The top ten influential institutions contributed 53.57% (45 articles) of the total published articles, as shown in Table 4. Universitas Indonesia contributed a maximum of seven articles, followed by Thomas Jefferson University and Université Laval, with six articles each. These institutions are mainly located in Indonesia, Canada, and Portugal. None of the top 10 institutions was from either the Australian or the African continent.

3.2. Science Mapping

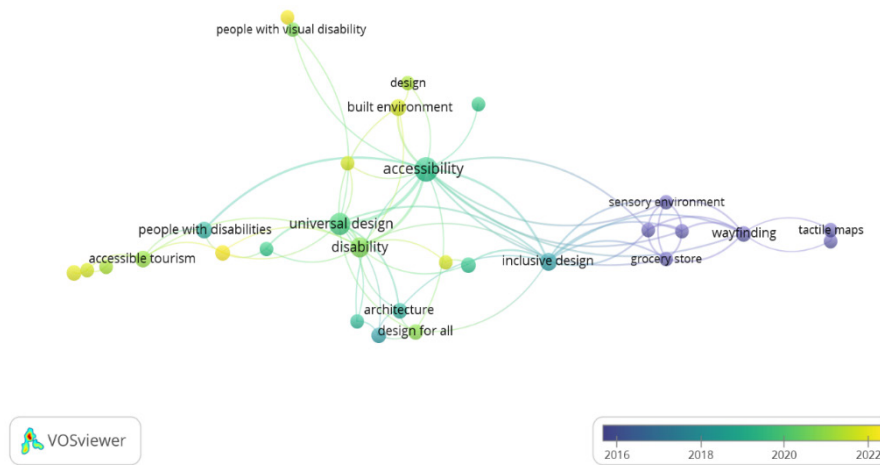
3.2.1. Keywords co-occurrence

Keyword co-occurrence analysis was performed to measure the conceptual or knowledgeable structure of the literature (Callon et al. 1983; Cheng et al. 2018). In the present study, keyword co-occurrence analysis was performed on the keywords of 321 authors using a minimum of two occurrence criteria. 31 keywords with a total of 124 appearances and a total link strength (TLS) of 224 appeared in 84 articles. Accessibility (25 occurrences and 35 TLS), universal design (17 occurrences and 22 TLS), and disability (11 occurrences and 15 TLS) appeared as the top three occurring keywords shown in Figure 4.

These 31 keywords developed 8 clusters and created a theme of "Urban Inclusive Accessibility", "Inclusive Universal design for Vision-impaired shoppers", "Accessible Design for Intellectual Disabilities", "Inclusive Design for Disabilities", "Tactile Wayfinding", and "Accessible visual design."

Keywords' appearance over time is visualised in Figure 5 using overlay visualisation features of VOSviewer software developed by (van Eck & Waltman, 2010). Keywords visualised in yellow colour highlight the appearance of the latest keywords in JACCES-published articles. Keywords such as "Universal accessibility", "social participation", "web accessibility", "built environment", and "occupational therapy" are the latest mentioned keywords, which have the potential to be studied more by future researchers.

Figure 5. Keywords co-occurrence overlay visualisation (Source: Author's creation)



3.2.2. Bibliographic Coupling Analysis (Documents)

Bibliographic coupling (BC) is employed to understand the major research themes explored by JACCES authors over time. BC is used to estimate the similarity between scholarly works based on shared references or topics of interest. BC provides a fundamental understanding of the current state of a particular research area, thereby supporting the identification of potential future research directions (Gheno, 2021). Through scientific mapping utilising BC, researchers can develop themes or groupings based on the assumption that articles referencing similar literature are likely to share similar content (Lim et al., 2023). Similar to the content analysis, the articles within each cluster were carefully read to understand the underlying common theme. In the current BC of the JACCES, only four clusters emerged. The themes of the four clusters, as well as the number of articles and studies, are listed in Table 5.

Cluster 1. Inclusive design and tourism for all

This cluster of research articles focused on accessibility in various contexts, specifically hospitality, tourism, and the built environment. The seven articles included in this research theme examined accessibility from different perspectives, including user experiences, website usability, physical infrastructure, and the economic implications of accessibility. Research articles in the cluster generally focus on building and tourism environments, highlighting the importance of inclusive spaces for people with disabilities. This is a notable emphasis on the needs of persons with disabilities, specifically with motor and dexterity impairments. Moreover, inclusive hotel design, geographical information system application, and the built environment's economic benefits were also examined. This cluster also includes both a BA and a systematic literature review. While the past, present, and future of accessibility in tourism research have been analysed using BA, a systematic literature review was conducted to examine the geographic information systems within the context of disability. A study that examined the website accessibility of travel agents found that they received the highest number of citations within the cluster.

Table 5. Clusters identified through bibliographic coupling (Source: Author's creation)

Cluster	Central focus	Theme Keywords	N	Studies in the cluster
1	Inclusive design and tourism for all	Accessibility; Build environment; Inclusive design; Economic benefits	7	(Eusébio et al., 2020; Palmer Peterson, 2021; Pascual et al., 2015; Piramanayagam et al., 2019; Suárez Henríquez et al., 2022; Terashima & Clark, 2021; Zimmermann-Janschitz, 2018)
2	Accessible tourism: sensory and digital approaches	Sensory Experiences; Elderly/ Disabled; Digital literacy; Tourism	6	(Bender et al., 2021; Offei et al., 2017; Rolim et al., 2021; Rosa et al., 2021; Trotta, 2023; Vieira et al., 2022)
3	Measuring and evaluating disability-inclusive environments	Taxonomy: disability; Measurement Tools; Evidence-based approach; Urban planning and design	5	(Arfaoui et al., 2019; Gamache et al., 2018, 2020; Gamache, Grenier, et al., 2017; Gamache, Routhier, et al., 2017a; Rahmatizadeh & Valizadeh-Haghi, 2018)
4	Digital accessibility in public domains	Digital accessibility; Website accessibility; Online spaces; Visually impaired	5	(Alahmadi & Drew, 2018; Debevc et al., 2023; Rahmatizadeh & Valizadeh-Haghi, 2018; Sabev et al., 2020; Stitz & Blundell, 2018)

Note: N = Number of articles in the cluster

Cluster 2. Accessible Tourism: Sensory and Digital Approaches

The six articles included in Cluster 2 emphasised accessible tourism experiences, particularly for persons with disabilities and the elderly. Articles in this cluster cover a range of topics, including sensory experiences ((e.g. the Hand of Fatima in Lagos), accessible tourism in historical locations (Cape Coast and Elmina Castles in Ghana), proposals for inclusive and accessible tourism specifically focusing on bird watching and birding by ear (City of Logos), accessibility experiences of blind and partially sighted visitors to the Vatican museum, digital literacy for elderly tourists (Algarve, Portugal), and tactile-enabled surfaces at bus stops to facilitate accessible tourism. In general, articles in this cluster emphasised the importance of infrastructure that supports accessibility and accessible tourism. Unlike the previous cluster, which focused on the built environment and technological accessibility, studies in this cluster have expanded into sensory tourism experiences, digital literacy, and digital empowerment of elderly tourists.

Cluster 3. Measuring and Evaluating Disability-Inclusive Environments

Five articles published between 2017 and 2020 were included in Cluster 3. Articles in the cluster focused on the assessment and evaluation of the accessibility of urban and built environments for persons with physical and sensory impairments. Studies in this cluster have examined different dimensions of accessibility, including risk factors in daily life, taxonomies for disability studies, measurement tools for environmental accessibility, municipal practices, and objective

evaluations of environmental obstacles. Studies in this cluster have strongly emphasised methodological approaches and quantification and categorisation of accessibility challenges, highlighting evidence-based approaches to urban planning and design to fulfil the needs of diverse individuals with disabilities. Compared to other clusters, articles in this cluster focused on the technical and infrastructural aspects of accessibility, emphasising the assessment of obstacles in the building environment and developing a framework to improve accessibility at the municipal level.

Cluster 4. Digital Accessibility in Public Domains

The five articles included in this cluster focused on the evaluation and monitoring of digital accessibility across digital platforms and public domains. Studies in this cluster examined issues associated with image accessibility for visually impaired users, general website monitoring, website accessibility of a medical university, online library guides, and public websites in Bulgaria. The articles included in this study strongly emphasise the accessibility of online digital resources and websites of educational and public service organisations, considering the essential nature of websites that are essential for education, healthcare, and public services, specifically for persons with disabilities. Unlike previous clusters, the research articles in this cluster concerned the digital accessibility and needs of disabled users in online spaces, reflecting the growing importance of the digital domain that aimed to provide equitable access to information and services to all users.

In conclusion, the four clusters of research articles identified through bibliometric coupling indicate the multidimensional approach adopted by researchers to study accessibility and inclusiveness in recent years. The identified clusters also demonstrate the progression of research from physical to digital accessibility concerns. The bibliometric coupling highlights the evolving nature of accessibility research, reflecting sustainable development goals, including accessibility and inclusion.

3.2.3. Thematic development in JACCES for future directions

Bibliographic Coupling Analysis (BCA) generated four themes that emerged from 23 documents published over time (2015-2024). Developing a clear theme is crucial for crafting well-organised and persuasive research papers. It helps to clearly communicate the researcher's findings and arguments. Figure 6 shows the year-wise publication patterns of the various clusters that appeared over time. Cluster 1 has the highest no. of publications (NP=7), followed by Cluster 2 (NP=6) and Clusters 3 and 4 (NP=5). Owing to fewer articles published that cover a wider domain, only four clusters appeared, with a minimum of five articles in every cluster.

Cluster 1, which generated a theme of "Inclusive design and tourism for All" has a maximum of 7 articles showing a consistent growth pattern. A maximum of two articles were published in 2021, but none were published in 2017 or 2023. The social model of disability challenges professionals to recognise how the design of the built environment can create barriers for people with disabilities. By addressing these issues, practitioners can significantly improve the accessibility of buildings and public spaces (Jackson, 2018). Chan et al. (2024) posits that evidence-based approaches can be helpful for governments and businesses in developing effective strategies that promote disability inclusion and improve the representation of people with disabilities in the workforce.

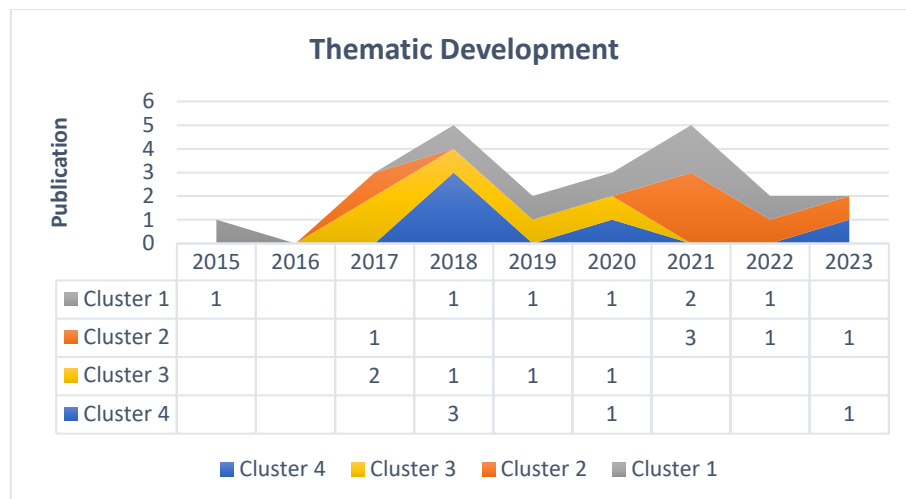
Cluster 2 highlights the "Accessible Tourism: Sensory and Digital Approaches" theme and published the second highest number of articles, i.e. 6. This cluster showed publication inconsistencies and a zigzag trend over the study period. A maximum of 3 articles were published in this cluster in 2021. Disabled tourists are often loyal, tend to spend more time, and usually stay

longer at their destinations. However, travel habits vary across countries (Domínguez Vila et al., 2019). Tourism services should be welcomed to ensure the safety of elderly individuals and people with disabilities, respecting their personal values by promoting the use of technological tools and providing a list of other accessible tourist services in the area, such as restaurants, museums, and more, ensuring accessibility for all visitors (Vieira et al., 2022). Bender et al. (2021) suggested to find a new approaches to appreciate, observe, and interpret through the senses are intended not only for tourists and visitors but also for the local community. Although published consistently since 2021, this cluster has shown consistent downward growth.

Clusters 3 and 4 highlight the "Measuring and evaluating disability-inclusive environments", and "Digital Accessibility in Public Domains" themes. These clusters published only five articles over the period but did not show any promising trends. In cluster 3, while the first publication appeared in 2017, it ceased in 2020, after which no further publication was found, indicating a diminishing interest of authors in this area. Cluster 4 has exhibited an intermittent publication trend. In 2018, there were a maximum of three publications, and only one each in 2020 and 2023. The main emphasis of this cluster is that both service providers and consumers need to increase their self-representation, rethink tourism spaces and their roles, change power dynamics and break the social barriers to increase the tourism participation of people with disabilities (Gillovic & McIntosh, 2020). Khasawneh (2024) identified that social media platforms have the potential to play a big role in addressing inequalities and can help to create a more inclusive and accessible online environment for everyone.

The specific features of outdoor and indoor spaces that limit access for people with mobility challenges can be identified using mobility assistive technologies (non-compliant items) which can be helpful in identifying areas that need improvement, especially access ramps and washrooms (Gamache et al., 2020). Gamache et al. (2017) suggested that there is a need to develop and implement guidelines to make pedestrian infrastructure accessible. Potential improvements have been identified to enhance the practices that support the social participation of individuals with physical disabilities. Using the measure of environmental accessibility (MEA) can help people improve public infrastructure for those with physical, cognitive, and intellectual disabilities. It also creates a shared language and understanding of working on urban projects (Gamache et al. 2018). Debevc et al. (2023); Rahmatizadeh & Valizadeh-Haghi, (2018) posited that combining basic and detailed monitoring would help improve website accessibility and provide a better understanding of the needs of disabled users.

Figure 6. Thematic development (Source: Author's creation)



4. Discussion and Conclusion

JACCES has been quite young in the publication race as compared to other Quartile 2 journals. It started the publication journey in 2011 but on the Scopus database it appears in 2015 and, until 2024 (August), published only 84 articles due to its rigorous quality check and critical review process, which includes promptness, confidentiality, the standard of objectivity, and acknowledgement of sources. Daniel Guasch and Jesus Hernandez are the chief editors of the journal. JACCES publishes the work in five main domains, namely Engineering (Julio Abascal, Chern Sheng Lin, and Konstantinos – Editorial board), Architecture and Construction (Satoshi Kose, Nick Tyler, Nieves Navarro Cano – Editorial board), Health and Medical Care (Hennie Boeije, Alarcos Cieza – Editorial board), Education (Joan McGuire and Roger Slee – Editorial board), and Society and Economy (Colin Barnes, Simon Andrew Darcy, Patrick Devlieger – Editorial board). The bifurcation of editorial boards can help to maintain the highest quality in a particular domain. Universitat Politècnica de Catalunya, Spain, published the journal. It has an h-index of seven according to Scimago Journal Rank, highlighting the journal's limited visibility on a global platform. The present review highlights publication and citation trends, authors, countries' collaboration, highly cited articles, impactful countries, institutions, and authors (performance analysis). It also identified the major and emerging themes in the JACCES publication journey through science mapping analysis.

The journal has published 9 articles/year since its evolution (2011). A maximum of seven authors collaborated to publish their work in JACCES, but contributed only four articles. A total of 25 articles were published in collaboration with three authors globally, followed by 17 articles by four authors. Only Belgium (Ireland and Germany) and Italy (Jordan and Belgium) collaborated with two countries, whereas the remaining 20 countries collaborated with a single country. Mosca et al. (2019), Iniesto & Rodrigo (2016), and Eusébio et al. (2020) received the maximum citations of 24, 16, and 12, respectively. However, the three most influential authors are Morales E, Gamache S, and Freddi P, with citations of 16, 15 and 8. Portugal, Indonesia, and Australia were the top three most influential countries, with 14, 12, and 10 citations, respectively. In contrast, Universitas Indonesia (Indonesia), Thomas Jefferson University (US), and Université Laval (Canada) are the top three institutions that contributed to their quality work in JACCES.

Science mapping was performed to explore keyword co-occurrences and the emergence of major themes based on the BCA of documents. A total of eight clusters emerged when analysed using VoSviewer software, and themes were developed, focussing mainly on "Urban Inclusive accessibility", "Inclusive Universal design for Vision-impaired shoppers", "Accessible Design for Intellectual Disabilities", "Inclusive Design for Disabilities", "Tactile Wayfinding", and "Accessible visual design." BCA of the documents resulted in four clusters comprising 23 documents. Each cluster developed separate themes such as inclusive design and tourism for all accessible tourism: sensory and digital approaches, measuring and evaluating disability-inclusive environments, and digital accessibility in public domains.

These emerging themes provide ideas for future research. Other major domains, such as health and medical care, education, society, and economy, are the least explored domains in which future researchers can contribute their work and support society and enhance the economy. Expanding changing place facilities not only helps meet legal requirements but also promotes greater social inclusion and participation for people with severe physical disabilities (Martin et al., 2018). These future directions can be used by the researchers and come up with some concrete ground which can be beneficial for elderly and specially-abled people.

5. Bibliography

- Abdeldayem, N., Al Tal, R., & Gharaibeh, A. (2022). Using geographic information systems to study the impact of the built environment on social inclusion of people with physical disabilities: The case of Amman. *A/Z ITU Journal of the Faculty of Architecture*, 19(3), 569–583. <https://doi.org/10.5505/itujfa.2022.59319>.
- Alahmadi, T., & Drew, S. (2018). Evaluation of image accessibility for visually impaired users. *Journal of Accessibility and Design for All*, 8(2), 125–160. <https://doi.org/10.17411/jacces.v8i2.167>.
- Antia-Obong, S. E., Casselden, B., & Pickard, A. (2019). A bibliometric analysis of *Journal of Higher Education Management (JHEM)* from 2007 to 2016. *Library Philosophy and Practice*. <https://digitalcommons.unl.edu/libphilprac/3037>.
- Arfaoui, A., Edwards, G., Morales, E., & Fougeyrollas, P. (2019). Understanding risk in daily life of diverse persons with physical and sensory impairments. *Journal of Accessibility and Design for All*, 9(1), 66–89. <https://doi.org/10.17411/jacces.v9i1.183>.
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>.
- Bender, A. C., Rosa, M. P., Lopes, A. C., & Flores, A. (2021). The Symbolism of the door Knocker “Hand Of Fatima”: A proposal of sensory tourist experiences in the City of Lagos. *Journal of Accessibility and Design for All*, 11(2), 232–258. <https://doi.org/10.17411/jacces.v11i2.324>.
- Bianco, L. (2020). Universal design: From design philosophy to applied science. *Journal of Accessibility and Design for All*, 10(1), 70–97. <https://doi.org/10.17411/jacces.v10i1.249>.
- Broadus, R. N. (1987). Toward a definition of “bibliometrics.” *Scientometrics*, 12(5), 373–379. <https://doi.org/10.1007/BF02016680>.
- Bühler, C. (2008). Design for All – from Idea to Practise. In: Miesenberger, K., Klaus, J., Zagler, W., Karshmer, A. (eds) *Computers Helping People with Special Needs. ICCHP 2008. Lecture Notes in Computer Science*, vol 5105. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-70540-6_14.
- Bühler, C., Stephanidis, C. (2004). European Co-operation Activities Promoting Design for All in Information Society Technologies. In: Miesenberger, K., Klaus, J., Zagler, W.L., Burger, D. (eds) *Computers Helping People with Special Needs. ICCHP 2004. Lecture Notes in Computer Science*, vol 3118. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-27817-7_12
- Callon, M., Courtial, J.-P., Turner, W. A., & Bauin, S. (1983). From translations to problematic networks: An introduction to co-word analysis. *Social Science Information*, 22(2), 191–235. <https://doi.org/10.1177/053901883022002003>
- Chan, F., Iwanaga, K., Tansey, T. N., Ditchman, N., Wehman, P., Wu, J. R., & Chen, X. (2024). Assessing Evidence-Based Disability Inclusion Policy and Practices to Promote Employment of People With Disabilities in the Workplace: Scale Development and Validation. *Rehabilitation Counseling Bulletin*. <https://doi.org/10.1177/00343552241268757>.

- Cheng, F.-F., Huang, Y.-W., Yu, H.-C., & Wu, C.-S. (2018). Mapping knowledge structure by keyword co-occurrence and social network analysis. *Library Hi Tech*, 36(4), 636–650. <https://doi.org/10.1108/LHT-01-2018-0004>.
- Debevc, M., Škraba, T., Cerovac, B., Kožuh, I., & Rajh, N. (2023). Monitoring website accessibility: Evaluating current approaches and a proposal for improvements. *Journal of Accessibility and Design for All*, 13(2), 162–187. <https://doi.org/10.17411/jacces.v13i2.485>.
- Di Bucchianico, G. (2018). Design for All. The Increasing Dissemination of Teaching Experiences. In: Di Bucchianico, G., Kercher, P. (eds) *Advances in Design for Inclusion. AHFE 2017. Advances in Intelligent Systems and Computing*, vol 587. Springer, Cham. https://doi.org/10.1007/978-3-319-60597-5_2.
- Domínguez Vila, T., Alén González, E., & Darcy, S. (2019). Accessible tourism online resources: a Northern European perspective. *Scandinavian Journal of Hospitality and Tourism*, 19(2), 140–156. <https://doi.org/10.1080/15022250.2018.1478325>.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133(April), 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>.
- Donthu, N., Kumar, S., Pandey, N., & Gupta, P. (2021). Forty years of the International Journal of Information Management: A bibliometric analysis. *International Journal of Information Management*, 57 (December 2020), 102307. <https://doi.org/10.1016/j.ijinfomgt.2020.102307>.
- Donthu, N., Kumar, S., & Pattnaik, D. (2020). Forty-five years of Journal of Business Research: A bibliometric analysis. *Journal of Business Research*, 109 (November 2019), 1–14. <https://doi.org/10.1016/j.jbusres.2019.10.039>.
- Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, 69(1), 131–152. <https://doi.org/10.1007/s11192-006-0144-7>.
- Ellegaard, O., & Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, 105(3), 1809–1831. <https://doi.org/10.1007/s11192-015-1645-z>.
- Eusébio, C., Silveiro, A., & Teixeira, L. (2020). Website accessibility of travel agents: An evaluation using web diagnostic tools. *Journal of Accessibility and Design for All: JACCES*, 10(2), 180–208. <https://doi.org/10.17411/jacces.v10i2.277>.
- Gaire, N., Sharifi, M. S., Christensen, K., Chen, A., & Song, Z. (2017). Walking behavior of individuals with and without disabilities at right-angle turning facility. *Journal of Accessibility and Design for All*, 7(1), 56–75. <https://doi.org/10.17411/jacces.v7i1.127>.
- Gamache, S., Grenier, Y., Fougereyrollas, P., Edwards, G., & Mostafavi, M. A. (2017). Developing a taxonomy of the built environment for disability studies. *Methodological insights. Journal of Accessibility and Design for All*, 7(2), 236–265. <https://doi.org/10.17411/jacces.v7i2.130>.
- Gamache, S., Morales, E., Noreau, L., Dumont, I., & Leblond, J. (2018). Measure of environmental accessibility (MEA): Development and inter-rater reliability. *Journal of Accessibility and Design for All*, 8(1), 1–32. <https://doi.org/10.17411/jacces.v8i1.141>.
- Gamache, S., Routhier, F., Morales, E., Vandersmissen, M.-H., Leblond, J., Boucher, N., James McFadyen, B., & Noreau, L. (2017a). Municipal practices and needs regarding accessibility

- of pedestrian infrastructures for individuals with physical disabilities in Québec, Canada. *Journal of Accessibility and Design for All*, 7(1), 21–56. <https://doi.org/10.17411/jacces.v7i1.122>.
- Gamache, S., Routhier, F., Mortenson, W. Ben, Lacroix, E., Miller, W. C., & Ginis, K. A. M. (2020). Objective evaluation of environmental obstacles encountered in two canadian urban settings by mobility device users. *Journal of Accessibility and Design for All*, 10(1), 98–123. <https://doi.org/10.17411/jacces.v10i1.186>.
- Gheno, G. (2021). BIBLIOBICLUSTER: A Bicluster Algorithm for Bibliometrics. *IFIP Advances in Information and Communication Technology*, 627, 271 – 282. https://doi.org/10.1007/978-3-030-79150-6_22.
- Gillovic, B., & McIntosh, A. (2020). Accessibility and inclusive tourism development: Current state and future agenda. *Sustainability (Switzerland)*, 12(22), 1–15. <https://doi.org/10.3390/su12229722>.
- Gurung, D. J., & Gowreesunkar, V. (2024). Mapping the landscape of tourism cities research: a bibliometric analysis of the International Journal of Tourism Cities. *International Journal of Tourism Cities*, 10(1), 213–239. <https://doi.org/10.1108/IJTC-10-2023-0207>.
- Henríquez, C. S., Ricoy Cano, A. J., Galán, J. H., & de la Fuente Robles, Y. M. (2022). The past, present, and future of accessible tourism research. *Journal of Accessibility and Design for All* (pp. 26–61). <http://www.jacces.org/index.php/jacces/article/view/350/259>.
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America*, 102(46), 16569–16572. <https://doi.org/10.1073/pnas.0507655102>.
- Hitch, D., Dell, K., & Larkin, H. (2016). Does universal design education impact on the attitudes of architecture students towards people with disability?. *Journal of Accessibility and Design for All* (Vol. 6, Issue 1, pp. 26–48). <https://doi.org/10.17411/jacces.v6i1.103>.
- Iniesto, F., & Rodrigo, C. (2016). A preliminary study for developing accessible MOOC services. *Journal of Accessibility and Design for All*, 6(2), 126–150. <https://doi.org/10.17411/jacces.v6i2.117>.
- Jackson, M. A. (2018). Models of Disability and Human Rights: Informing the Improvement of Built Environment Accessibility for People with Disability at Neighborhood Scale? *Laws*, 7(1), 10. <https://doi.org/10.3390/laws7010010>.
- Khasawneh, M. A. S. (2024). Digital Inclusion: Analyzing Social Media Accessibility Features for Students with Visual Impairments. *Studies in Media and Communication*, 12(December), 71–78. <https://doi.org/10.11114/smc.v12i1.6559>.
- Kose, S. (2016). Built environment design toward an inclusive society: How can we improve the existing infrastructure in cities?. *Advances in Intelligent Systems and Computing*, 500, 307–313. https://doi.org/10.1007/978-3-319-41962-6_27.
- Kumar, A., Sharma, S., Vashistha, R., Srivastava, V., Tabash, M. I., Munim, Z. H., & Paltrinieri, A. (2024). International Journal of Emerging Markets: a bibliometric review 2006–2020. *International Journal of Emerging Markets*, 19(4), 1051–1089. <https://doi.org/10.1108/IJOEM-05-2021-0668>.

- Kumar, D., Shandilya, A. K., & Srivastava, S. (2023). The journey of F1000Research since inception: through bibliometric analysis. *F1000Research*, 12, 1–27. <https://doi.org/10.12688/f1000research.134244.2>.
- Lim, W. M., Kumar, S., Pandey, N., Verma, D., & Kumar, D. (2023). Evolution and trends in consumer behaviour: Insights from Journal of Consumer Behaviour. *Journal of Consumer Behaviour*, 22(1), 217–232. <https://doi.org/10.1002/cb.2118>.
- Lotka, A. J. (1926). The frequency distribution of scientific productivity. *Journal of the Washington Academy of Sciences*, 16(12), 317–323. <http://www.jstor.org/stable/24529203>
- Martin, A; Watchorn, Valerie; Grant, C (2018). Changing Places, Changing Lives. Deakin University. Journal contribution. <https://hdl.handle.net/10536/DRO/DU:30117063>.
- Mosca, E. I., Herssens, J., Rebecchi, A., & Capolongo, S. (2019). Inspiring architects in the application of design for all: knowledge transfer methods and tools. *Journal of Accessibility and Design for All*, 9(1), 1-24. <https://doi.org/10.17411/jacces.v9i1.147>
- Mukherjee, D., Lim, W. M., Kumar, S., & Donthu, N. (2022). Guidelines for advancing theory and practice through bibliometric research. *Journal of Business Research*, 148, 101–115. <https://doi.org/10.1016/j.ibusres.2022.04.042>.
- Muller, L., Erdtman, E., & Hedvall, P.-O. (2024). Is the city planned and built for me? Citizens' experiences of inclusion, exclusion and (un) equal living conditions in the built environment. *Journal of Accessibility and Design for All*, 14(1), 32–51. <https://doi.org/10.17411/jacces.v14i1.500>.
- Offei, L., Acheampong, E., Appiah-Brempong, E., Okyere, P., & Owusu, I. (2017). Accessibility of tourist sites to people with disabilities: The case of cape coast and elmina castles in Ghana. *Journal of Accessibility and Design for All*, 7(2), 127–158. <https://doi.org/10.17411/jacces.v7i2.112>.
- Palmer Peterson, H. (2021). Built environment accessibility in the eastern province of the kingdom of saudi arabia as seen by persons with disabilities. *Journal of Accessibility and Design for All*, 11(1), pp. 115–147. <https://doi.org/10.17411/jacces.v11i1.294>.
- Pandey, N., Andres, C., & Kumar, S. (2023). Mapping the corporate governance scholarship: Current state and future directions. *Corporate Governance: An International Review*, 31(1), 127–160. <https://doi.org/10.1111/corg.12444>.
- Pascual, A., Ribera, M., & Granollers, T. (2015). Impact of accessibility barriers on the mood of users with motor and dexterity impairments. *Journal of Accessibility and Design for All*, 5(1), 1–26. <https://doi.org/10.17411/jacces.v5i1.93>.
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>.
- Piramanayagam, S., Pritam, P., & More, B. A. (2019). Inclusive hotel design in India: A user perspective. *Journal of Accessibility and Design for All*, 9(1), 41–65. <https://doi.org/10.17411/jacces.v9i1.185>.
- Pritchard, A. (1969). Statistical bibliography or bibliometrics. *Journal of Documentation*, 25, 348.

- Rahmatizadeh, S., & Valizadeh-Haghi, S. (2018). Monitoring for accessibility in medical university websites: Meeting the needs of people with disabilities. *Journal of Accessibility and Design for All*, 8(2), 102–124. <https://doi.org/10.17411/jacces.v8i2.150>.
- Rolim, A. M., Pinto, V. D., & Rosa, M. P. (2021). Birdwatching and birding by ear: An accessible and inclusive tourism proposal for the city of lagos. *Journal of Accessibility and Design for All*, 11(1), 48–85. <https://doi.org/10.17411/jacces.v11i1.316>.
- Rosa, M. P., De Mello, G. S., & Morato, S. (2021). Tactile paving surfaces at bus stops: The need of homogeneous technical solutions for accessible tourism. *Journal of Accessibility and Design for All*, 11(2), 259–294. <https://doi.org/10.17411/jacces.v11i2.313>.
- Sabev, N., Georgieva-Tsaneva, G., & Bogdanova, G. (2020). Research, analysis, and evaluation of web accessibility for a selected group of public websites in Bulgaria. *Journal of Accessibility and Design for All*, 10(1), 124–160. <https://doi.org/10.17411/jacces.v10i1.215>.
- Sharma, G. D., Taheri, B., Gupta, M., & Chopra, R. (2023). Over 33 years of the hospitality research: a bibliometric review of the International Journal of Contemporary Hospitality Management. *International Journal of Contemporary Hospitality Management*, 35(7), 2564–2589. <https://doi.org/10.1108/IJCHM-04-2022-0499>.
- Stitz, T., & Blundell, S. (2018). Evaluating the accessibility of online library guides at an academic library. *Journal of Accessibility and Design for All*, 8(1), 33–79. <https://doi.org/10.17411/jacces.v8i1.145>.
- Suárez Henríquez, C., Ricoy Cano, A. J., Hernández Galán, J., & de la Fuente Robles, Y. M. (2022). The past, present, and future of accessible tourism research: A bibliometric analysis using the SCOPUS database. *Journal of Accessibility and Design for All*, 12(1), 26–60. <https://doi.org/10.17411/jacces.v12i1.350>.
- Terashima, M., & Clark, K. (2021). Measuring economic benefits of accessible spaces to achieve ‘meaningful access’ in the built environment: A review of recent literature. *Journal of Accessibility and Design for All*, 11(2), 195–231. <https://doi.org/10.17411/jacces.v11i2.274>.
- Thelwall, M., Kousha, K., Abdoli, M., Stuart, E., Makita, M., Wilson, P., & Levitt, J. (2024). Which international co-authorships produce higher quality journal articles? *Journal of the Association for Information Science and Technology*, 75(7), 769–788. <https://doi.org/10.1002/asi.24881>.
- Trotta, R. (2023). Vatican museums’ accessibility practices for Blind and Partially Sighted (BPS) visitors: A case study. *Journal of Accessibility and Design for All*, 13(2), 113–139. <https://doi.org/10.17411/jacces.v13i2.405>.
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>.
- van Eck, N.J., Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics* 84, 523–538. <https://doi.org/10.1007/s11192-009-0146-3>.

- Vieira, G. C., Manita, C. B., Ribeiro, C., & Rosa, M. P. (2022). Digital literacy of elderly tourists in the Algarve destination. *Journal of Accessibility and Design for All*, 12(2), 180–211. <https://doi.org/10.17411/jacces.v12i2.314>.
- Zimmermann-Janschitz, S. (2018). Geographic Information Systems in the context of disabilities. *Journal of Accessibility and Design for All*, 8(2), 161–192. <https://doi.org/10.17411/jacces.v8i2.171>.

How to cite this article

Kumar D., Piramanayagam S., Shandilya A.K. (2025). Journey of Journal of Accessibility and Design for All: A Review. Journal of Accessibility and Design for All, 15(1), 87–106.
<https://doi.org/10.17411/jacces.v15i1.573>.



© Journal of Accessibility and Design for All (JACCES), ISSN 2013-7087, is published by the Universitat Politècnica de Catalunya, Barcelona Tech, with the sponsorship of ONCE Foundation for Cooperation and Social Inclusion of People with Disabilities. This issue is free of charge and available in electronic format.



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