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Two Sides of the Coin: Integrating Architectural and Sports Management Perspectives for Improved Sports Facility Evaluation

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ABSTRACT

Sports facilities are vital community assets, but their success depends on effectively integrating the often-divergent perspectives of architects and sports managers. This study investigates these contrasting perspectives through a mixed-methods approach, combining a comprehensive literature review with bibliometric analysis of publications indexed in the Web of Science. The literature review reveals a thematic divergence: architects prioritize the physical environment (indoor environmental quality, accessibility, long-term functionality), while sports managers emphasize service quality and the overall user experience (customer satisfaction, operational efficiency). The bibliometric analysis confirms this divergence, identifying six distinct research clusters with limited direct connections between them: "User-Centered Facility Management and Performance Evaluation," "Data-Driven Facility Management and Simulation Tools," "Design Quality, Access, and User Satisfaction," "Sustainability and Evaluation in Sports Facilities," "Operational Barriers and Efficiency in Facility Performance," and "Asset Management and Infrastructure-Oriented Facilities." This pattern highlights the disciplinary siloization in sports facility research. This study's main contribution is to provide empirical evidence of this fragmentation and to underscore the critical need for a more holistic and integrated approach encompassing both architectural design and facility management principles. Bridging this gap will lead to sports facilities that are not only aesthetically pleasing and structurally sound but also functionally effective, user-centered, and ultimately promote greater participation in sport and physical activity.

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1. Introduction

Sports facilities are more than just buildings; they are vital community hubs that foster physical activity, social interaction, and overall well-being (Funk et al., 2008; Othman et al., 2019; Schoemaker, 2023; Testa et al., 2023; Yiğit & Yurtseven, 2021; Yıldırım, 2018). From local community centers to international stadiums, these spaces play a crucial role in promoting healthy lifestyles and building stronger communities (Cao et al., 2024). The global sports facilities market is experiencing significant growth, reflecting the increasing demand for venues that accommodate various athletic activities. In 2024, the market size was estimated at approximately $132.4 billion and is projected to reach around $1,084.0 billion by 2034, exhibiting a compound annual growth rate of 23.4% during the forecast period from 2025 to 2034 (Sports Facilities Market, 2025), highlighting the need for well-designed and managed sports facilities.

The success of these vital spaces depends on a complex interplay of factors, ranging from architectural design and construction to ongoing management and operations (Daugeliene et al., 2013).

Architects and sports managers, representing two key professional disciplines, play pivotal roles in shaping the user experience within sports facilities. Architects are primarily concerned with the physical environment, focusing on design, functionality, safety, and accessibility (Wojtas-Harań, 2025). Sports managers, on the other hand, prioritize service quality, customer satisfaction, and the overall operational efficiency of the facility (Hoye et al., 2022).

While both disciplines share the common goal of creating high-quality, user-friendly sports facilities, their approaches to evaluating and addressing performance deficiencies often diverge significantly. Architectural evaluations tend to prioritize the physical attributes of the built environment, such as indoor environmental quality, spatial layout, and aesthetics (Hassanain et al., 2021).

To evaluate these aspects, architects often employ post-occupancy evaluation (POE), a systematic method that provides valuable information about past design decisions and building performance, ultimately informing future building practices (Preiser et al., 1988). The importance of considering buildings with POE has been emphasized in previous studies, highlighting the need for a more rigorous and systematic approach to understanding how building design impacts user experience and overall satisfaction (Hassanain et al., 2021; Işıklar Bengi & Topraklı, 2020; Topraklı, 2011, 2019).

In contrast, sports management evaluations typically focus on service delivery, operational efficiency, and customer satisfaction metrics (USLU & YILDIRIM, 2021). This divergence in priorities can lead to a critical gap: a limited understanding of how these differing evaluation criteria translate into specific design and management decisions, and, crucially, how these decisions collectively impact the overall user experience and, ultimately, participation rates (Eun & Lee, 2012; Hunter et al., 2022; Işiklar Bengi & Toprakli, 2023).

This study aims to bridge this critical gap by systematically examining and comparing the contrasting perspectives of architects and sports managers on sports facility evaluation. Through a mixed-methods approach, combining a comprehensive literature review with bibliometric analysis, we will identify key differences in evaluation criteria, analyze the relationships between these criteria, and explore the potential for a more integrated and holistic approach to sports facility design and management. The ultimate goal is to contribute to the creation of sports facilities that are not only aesthetically pleasing and structurally sound but also functionally effective, user-centered, and conducive to increased participation in sports and physical activity.

The remainder of this paper is structured as follows. Section 2 outlines the research methodology, detailing the data collection and analysis procedures. Section 3 presents a thematic literature review, contrasting the architectural and sports management perspectives on key aspects of sports facility evaluation. Section 4 presents the results of the bibliometric analysis, highlighting key themes and relationships within the literature. Section 5 discusses the findings, synthesizes the contrasting perspectives, and proposes strategies for improved integration. Finally, Section 6 concludes the paper by summarizing the main contributions and suggesting avenues for future research.

2. Methodology

This study employed a mixed-methods approach to investigate the distinct perspectives of architects and sports managers in evaluating sports facility performance. This approach combined a comprehensive literature review with a bibliometric analysis, allowing for both a qualitative exploration of key concepts and a quantitative assessment of research trends (Figure 1).

2.1 Data Collection

The data collection process involved two key stages: an initial literature review and a systematic literature search.

2.1.1 Initial Literature Review

To gain a broad understanding of the existing research landscape on sports facility evaluation, we began with an initial literature review using Google Scholar. Google Scholar's wide coverage of academic publications and grey literature made it suitable for this preliminary exploration (Bandi & Abdullah, 2016). This initial phase helped us identify key terms, concepts, prominent researchers, and relevant databases for a more focused, systematic search. We examined both domestic and international publications, including journal articles, conference proceedings, and book chapters, that addressed sports facility evaluation from either an architectural or sports management perspective.

2.1.2 Systematic Literature Search

To conduct a more focused and replicable search, we used the Web of Science database, a comprehensive and widely recognized source for scholarly publications. We limited our search to publications published on or before November 1, 2023. Specific search filters were applied to target relevant research on sports facility performance. The following search terms were used in combination, encompassing both architectural and sports management perspectives: "sports facility" OR "sport facilities" AND ("architecture" OR "sports management") AND ("performance" OR "quality") AND ("deficiency" OR "deficiencies"). This systematic search strategy allowed us to compile a focused dataset for in-depth analysis.

2.2 Data Analysis

The collected data were analyzed using a combination of qualitative and quantitative methods: thematic analysis and bibliometric analysis. This mixed-methods approach

provided a comprehensive understanding of the research landscape, allowing us to explore both the nuanced perspectives within the literature and the broader patterns of research activity.

2.2.1 Qualitative Analysis

We conducted a thematic analysis of the literature to identify, analyze, and interpret patterns of meaning (themes) related to sports facility evaluation (Braun & Clarke, 2006). This involved a multi-stage, iterative process. First, two researchers independently coded a subset of the articles to identify initial themes and establish inter-coder reliability. We then met to discuss and refine these initial themes, collaboratively developing a comprehensive coding framework. This framework was then applied to the entire dataset, with the researchers meeting regularly to discuss emerging themes, resolve coding discrepancies, and refine the framework as needed. This iterative process ensured that the final themes were grounded in the data and accurately reflected the complexities of the literature. For example, a recurring theme in the architectural literature was the emphasis on 'indoor environmental quality,' while in the sports management literature, 'customer service' was a dominant theme.

2.2.2 Bibliometric Analysis

To complement the qualitative analysis and provide a quantitative overview of research trends, we conducted a bibliometric analysis using VOSviewer software (van Eck & Waltman, 2010). VOSviewer is a widely used tool for constructing and visualizing bibliometric networks, allowing us to map the relationships between keywords, authors, journals, and countries. The data from the Web of Science systematic search were exported in a compatible format and imported into VOSviewer. We focused on keyword co-occurrence analysis, examining how frequently keywords appeared together in the same publications. This allowed us to identify key themes and concepts, as well as the relationships between them, providing a visual representation of the research landscape.

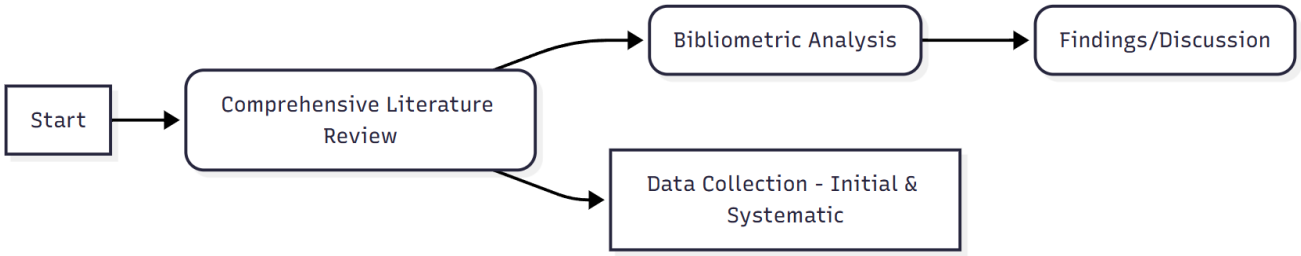

Figure 1 Overview of the study's methodology. Source: Authors.

3. Literature Review

The existing literature on sports facility evaluation reveals a divergence in how architects and sports managers approach the design, management, and assessment of these crucial community assets. While both disciplines aim to create successful and user-friendly facilities, their priorities and evaluation criteria often differ significantly. This section reviews the literature, contrasting the architectural and sports management perspectives on key aspects of sports facility performance, organized around four central themes: indoor environmental quality (IEQ), accessibility and safety, facility maintenance and operations, and the overall user experience.

3.1 Indoor Environmental Quality (IEQ) in Sports Facilities

Indoor Environmental Quality (IEQ) is a critical factor influencing the comfort, health, and performance of individuals within sports facilities (Gola et al., 2019). IEQ encompasses a range of factors, including thermal comfort (temperature and humidity), air quality (ventilation and pollutants), lighting (illuminance and glare), and acoustics (noise levels), all contributing to the overall indoor environment (Deng et al., 2024; Niza et al., 2024).

From an architectural perspective, IEQ is a primary design consideration. Architects strive to create spaces that meet specific standards and guidelines for thermal comfort, ventilation, lighting, and acoustics, often employing building simulation tools and post-occupancy evaluation (POE) to assess and optimize IEQ (Hassanain et al., 2021; Li et al., 2018). The focus is on achieving objective measurements that meet established benchmarks, such as those defined by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), particularly Standard 55 for thermal comfort and Standard 62.1 for ventilation and acceptable indoor air quality (ASHRAE, 2022, 2023; Borghero et al., 2024).

From a sports management perspective, IEQ is viewed primarily through the lens of its impact on user satisfaction, athletic performance, and overall operational efficiency (Çimen, 2011; USLU & YILDIRIM, 2021). While sports managers may not directly measure IEQ parameters, they are concerned with how these factors influence user perceptions and behavior. For instance, poor air quality or uncomfortable temperatures can lead to decreased participation, negative feedback, and potentially impose health risks for users (Karaiskos et al., 2024).

In synthesis, while both architects and sports managers recognize the importance of IEQ, their approaches differ. Architects tend to focus on achieving objective, measurable standards, while sports managers prioritize the subjective experience and its impact on user satisfaction and facility utilization. This difference highlights the need for a more integrated approach that considers both the technical aspects of IEQ and its impact on the user experience.

3.2 Accessibility and Safety in Sports Facilities

Accessibility and safety are paramount concerns in the design and management of sports facilities, ensuring that these spaces are inclusive and safe for all users, regardless of their physical abilities or potential vulnerabilities (Darcy et al., 2025; Legeby, 2024). Creating environments that are both easily navigable and free from hazards is crucial for promoting participation and well-being.

Architects address accessibility primarily through the application of universal design principles and adherence to building codes and regulations. Universal design aims to create environments usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (Alvez, 2024; Umezinwa et al., 2024). This includes incorporating standards such as those outlined in the Americans with Disabilities Act (ADA) in the United States (Park et al., 2024; Sholanke & Eleagu, 2024) or equivalent regional legislation, which mandate features like ramps, accessible parking, clear signage, accessible restrooms, and appropriate spatial layouts (Darwish, 2025). Architectural safety considerations focus on structural integrity, fire safety systems, emergency egress routes, and the specification of non-hazardous building materials, often dictated by national building codes (Darcy et al., 2025; Lubogo, 2024; Toprakli & Satir, 2024).

Sports managers, while also responsible for ensuring compliance with safety regulations, tend to focus on the operational and experiential aspects of accessibility and safety. This involves implementing safety management systems, conducting risk assessments, providing clear safety instructions to users, and ensuring staff are trained in emergency procedures (An & JUNG, 2024; Darcy et al., 2025; Ørke et al., 2024). A key aspect from the management perspective is fostering an inclusive and welcoming environment for all participants, which includes addressing not only physical accessibility but also social safety concerns like bullying or discrimination, ensuring equitable access and positive experiences (Cho, 2024; Darcy et al., 2025; Judge et al., 2024; Khosravi et al., 2024).

The contrasting perspectives highlight that architects primarily focus on the *physical* realization of accessibility and safety through code compliance and design strategies like universal design. Sports managers, conversely, emphasize the *operational* delivery of safety and the creation of an *inclusive social environment*, managing risks and user interactions to ensure a safe and welcoming experience for everyone. Both perspectives are essential for achieving truly accessible and safe sports facilities.

3.3 Facility Maintenance and Operations

Effective maintenance and operations are essential for ensuring the long-term functionality, safety, and user satisfaction of sports facilities (Ndakotsu, 2024; Onotu, 2024). A well-maintained facility not only supports sports development but also demonstrates a commitment to user health and well-being (Ndakotsu, 2024; Onotu, 2024). However, facility maintenance can sometimes be deprioritized due to budget constraints or other factors (Onotu, 2024).

From an architectural perspective, maintenance is proactively considered during the design phase through strategies like 'design for maintainability,' focusing on selecting durable materials, ensuring ease of access for repairs, and minimizing overall lifecycle costs. Architects may also specify maintenance schedules and procedures, particularly those related to ensuring the long-term structural integrity and performance of the building envelope and systems (Benoit et al., 2024; Oh et al., 2025; West et al., 2024).

Sports managers are responsible for the day-to-day operations and maintenance of the facility. This includes implementing regular cleaning schedules, conducting repairs, managing equipment upkeep, and ensuring the facility meets the diverse needs of its users (Fatma & Nurrachmad, 2025; USLU & YILDIRIM, 2021). They often rely on user feedback, complaint systems, and performance metrics (e.g., attendance rates, customer satisfaction scores) to identify areas for improvement and guide maintenance priorities (İmamoğlu & Mutlu, 2012; Jin et al., 2024). Sports managers also play a critical role in

overseeing operational procedures, managing resources efficiently, and implementing sustainable practices, such as improving energy efficiency and waste reduction, within the facility (Atalay & Demir, 2024; Gregori-Faus et al., 2025; Miletić et al., 2024; Shariat Naseri et al., 2025).

The architectural perspective on maintenance is primarily proactive and long-term, focusing on design choices that minimize future problems and ensure structural longevity. The sports management perspective is more centered on daily operations and reactive maintenance, focusing on addressing immediate user needs, ensuring operational efficiency, and maintaining a positive user experience (Kaddour & Tahir, 2024; Zhu et al., 2023). However, both perspectives are crucial, and effective facility management requires integrating design considerations with operational procedures for the overall success of the facility (Utari & Astuti, 2024).

3.4 User Experience

The user experience (UX) encompasses all aspects of a user's interaction with a system, product, or service, including their perceptions, emotions, preferences, behaviors, and accomplishments that occur before, during, and after use (Ntoa, 2024). In the context of sports facilities, UX involves the user's entire journey, from initial awareness and arrival to participation in activities and departure. Creating a positive user experience is a shared goal of both architects and sports managers, requiring consideration of both the physical environment and the services provided (Mohd Aznan et al., 2024; Saputra et al., 2024), although their approaches and priorities may differ.

Architects contribute significantly to the user experience through the design of the physical environment. This includes tangible factors like spatial layout, aesthetics, acoustics, and lighting (Gift & Philips, 2024; Martin & Müller, 2024; Radwan et al., 2024), as well as the overall atmosphere or "feel" of the space (Paiva, 2024). Architectural design aims to create spaces that are not only functional and safe but also comfortable, visually appealing, and potentially inspiring, thereby positively influencing the user's emotional response and overall experience (Alnehayan, 2024; Chen, 2024; GÜNGÖR et al., 2024). Universal design principles are also crucial from an architectural standpoint to ensure an inclusive and equitable user experience for people of all abilities (Stefanovska Cvetkovska, 2024).

Sports managers primarily focus on the service aspects of the user experience. This includes the quality of interactions with staff, the suitability and variety of program offerings, the cleanliness and maintenance of the facility, and the overall perceived service quality (Cho, 2024; Saputra et al., 2024). They strive to create a welcoming, inclusive, and supportive environment where users feel valued (Darcy et al., 2025; Stefanovska Cvetkovska, 2024). Key tools for assessing and improving the user experience from a management perspective include customer satisfaction surveys, feedback mechanisms, and observation of user behavior (Asmawi et al., 2024; Baughman, 2024; Çimen, 2011; YUAN et al., 2024). The goal is to enhance service quality and build customer loyalty.

Ultimately, the user experience in a sports facility is a product of the interplay between the physical environment designed by architects and the services managed by sports managers. A truly successful facility integrates both perspectives, requiring collaboration and communication to ensure that design decisions support operational goals and enhance service delivery, and that operational practices maximize the potential of the physical space (Toprakli & Işıklar Bengi, 2024; Yang & Tang, 2025). This holistic approach is essential for creating positive, memorable experiences that encourage repeat visits and promote long-term engagement with the facility.

4. Results

This section presents the findings of the bibliometric analysis conducted using VOSviewer, examining keyword co-occurrence patterns in the combined literature on sports facility evaluation from both architectural and sports management perspectives. The analysis identified key research themes and the relationships between them, providing a quantitative overview of the field.

4.1 Overall Keyword Clusters

The bibliometric analysis identified six distinct clusters of keywords based on co-occurrence, representing the major research themes within the literature. Table 1 summarizes these clusters, providing a description derived from the constituent keywords, the number of publications associated with each cluster, and the key keywords ordered by their frequency of occurrence.

4.2 Relationships Between Keyword Clusters

Analysis of the keyword co-occurrence and the distribution of keywords across clusters (Table 1) suggests generally limited direct connections between the six identified research themes, indicating a degree of separation between distinct areas of focus within sports facility evaluation literature.

However, some overlaps and bridging concepts exist. For instance, "facility management" is a key keyword in both Cluster 1 (User-Centered Facility Management and Performance Evaluation, freq. 5) and Cluster 2 (Data-Driven Facility Management and Simulation Tools, freq. 6), linking user-centric approaches with data-driven methods and simulation tools. Similarly, the keyword "performance" is central to Cluster 5 (Operational Barriers and Efficiency in Facility Performance, freq. 6) but also appears in Cluster 1 (freq. 8) and Cluster 2 (freq. 3), suggesting its relevance across user perspectives, data analysis, and operational efficiency. "Management" also appears in Cluster 1 (freq. 3) and Cluster 2 (freq. 6), reinforcing the link between user-centric and data-driven management strategies. The term "evaluation" links Cluster 1 (freq. 4), Cluster 2 (freq. 3), and Cluster 4 (Sustainability and Evaluation in Sports Facilities, freq. 3), indicating its application across user-focused, data-driven, and sustainability contexts. Lastly, the keyword "facilities" connects Cluster 1 (freq. 8) and Cluster 6 (Asset Management and Infrastructure-Oriented Facilities, freq. 5), linking user-centric performance views with asset management strategies.

Despite these overlaps, the distinct nature of the clusters is evident. Keywords highly specific to certain domains, such as "user satisfaction" (Cluster 1), "simulation" (Cluster 2), "quality" (Cluster 3), "sport facility" (Cluster 4), "efficiency" (Cluster 5), and "asset management" (Cluster 6), show limited co-occurrence with the core themes of other clusters based on the top keyword lists. This overall pattern suggests that while common concepts exist, research often concentrates within specific thematic boundaries (e.g., focusing primarily on user experience, or operational efficiency, or sustainability, or data simulation) rather than consistently integrating across the diverse facets of sports facility evaluation encompassed by both architectural and management domains.

5. Discussion

This study employed a mixed-methods approach, combining a comprehensive literature review and bibliometric analysis, to examine the contrasting perspectives of architects and sports managers on sports facility evaluation. *The bibliometric analysis revealed **six** key research clusters:* "User-Centered Facility Management and Performance Evaluation," "Data-Driven Facility Management and Simulation Tools," "Design Quality, Access, and User Satisfaction," "Sustainability and Evaluation in Sports Facilities," "Operational Barriers and Efficiency in Facility Performance," *and "Asset Management and Infrastructure-Oriented Facilities." The analysis also revealed limited direct connections between these clusters, suggesting a degree of disciplinary siloization.* This section discusses these findings in detail, relating them to the existing literature, exploring their practical and theoretical implications, acknowledging limitations, and suggesting avenues for future research.

5.1 Interpretation of Key Findings

5.1.1 Cluster Analysis

The six distinct clusters identified in the bibliometric analysis reflect the major areas of focus within sports facility research. The prominence of the "User-Centered Facility Management and Performance Evaluation" cluster underscores the importance of user-centric approaches, often aligned with sports management's emphasis on user satisfaction found in the literature (Çimen, 2011; USLU & YILDIRIM, 2021). The "Data-Driven Facility Management and Simulation Tools" cluster points towards the increasing use of quantitative methods and technology. The "Design Quality, Access, and User Satisfaction" cluster directly links design elements to user outcomes. The "Sustainability and Evaluation in Sports Facilities" cluster brings in the specific context of sport and environmental concerns. The "Building Performance and Assessment in Sports Facility Architecture" cluster, identifiable through keywords like performance, assessment, building, and simulation within architectural contexts in Table 1, clearly reflects the architectural focus on the physical environment and its efficiency (Gola et al., 2019; Hassanain et al., 2021). The "Operational Barriers and Efficiency" cluster addresses practical challenges, while the "Asset Management" cluster focuses on infrastructure.

The limited connections between the clusters are a significant finding. This suggests that research on sports facilities often operates within disciplinary silos, with architects primarily focusing on the building itself and sports managers primarily focusing on service delivery and operations. This lack of integration can potentially lead to suboptimal outcomes, where facilities may excel in one area (e.g., architectural design) but fall short in others (e.g., user experience or operational efficiency).

Table 1 Keyword Clusters in Sports Facility Evaluation Literature

Cluster	Number of Items	Description	Key Keywords (Ordered by Frequency)
1	6	User-Centered Facility Management and Performance Evaluation: Focuses on facility performance from a user-centric perspective, highlighting themes such as facility management, user satisfaction, and uncertainty analysis in performance evaluations.	facility performance (8), facilities management (5), facility performance evaluation (4), management (3), uncertainty analysis (3), user satisfaction (3)
2	5	Data-Driven Facility Management and Simulation Tools: Emphasizes measurement and evaluation through key performance indicators (KPIs); this cluster includes simulation-based approaches and performance metrics in the management of facilities.	facility management (6), simulation (5), key performance indicators (4), measurement (3), performance evaluation (3)
3	4	Design Quality, Access, and User Satisfaction: Explores how design quality and accessibility contribute to user satisfaction, reflecting the importance of spatial and experiential aspects in facility evaluation.	quality (15), access (3), design (3), satisfaction (3)
4	4	Sustainability and Evaluation in Sports Facilities: Focused on the assessment and sustainability of sports facilities, this cluster connects environmental concerns with broader evaluation strategies in the context of sport.	sport facility (12), sport (8), sustainability (5), evaluation (3)
5	3	Operational Barriers and Efficiency in Facility Performance: This cluster highlights challenges to operational efficiency in facilities, emphasizing performance-related barriers and strategies for overcoming them.	performance (6), efficiency (5), barriers (3)
6	2	Asset Management and Infrastructure-Oriented Facilities: Centered on managing physical assets and infrastructure, this cluster involves strategic facility management practices from an asset-oriented viewpoint.	asset management (5), facilities (5)

Note: Number of Items refers to the number of publications associated with each cluster. Keywords are listed with their occurrence frequency in parentheses.

5.1.2 Keyword Analysis

The analysis of broadly relevant keywords like 'performance', 'quality', and 'facility management', which appeared across multiple clusters (Table 1), underscores their fundamental importance to the overall evaluation of sports facilities. However, their specific connotations and the context in which they are discussed often appear tied to the primary focus of the respective cluster (e.g., user experience vs. operational efficiency vs. building assessment vs. sustainability), further highlighting the limited integration between disciplinary perspectives observed in the cluster analysis. The absence of other key terms initially targeted for detailed analysis (like "parameter" or "tool") from the final high-frequency keyword list suggests they might be less central in the combined discourse or used less frequently in the titles/abstracts/keywords indexed by Web of Science within this specific search.

5.2 Relationship to Existing Literature

The findings of this study both support and extend the existing literature on sports facility evaluation. The emphasis on service quality and customer satisfaction in the sports management literature, as highlighted by (Çimen, 2011), (Uslu & Yildirim, 2021), and others, is clearly reflected in the prominence of the user-centric Cluster 1. Similarly, the architectural focus on IEQ, building performance, and design, as discussed by (Hassanain et al., 2021), (Gola et al., 2019), and (Li et al., 2018), is evident in the keywords associated with the relevant clusters identified in Table 1.

However, our findings also highlight a critical gap identified in the literature review: the lack of integration between these perspectives. While previous studies have acknowledged the importance of both design and management, the bibliometric analysis reveals that research often remains siloed within disciplinary boundaries. This supports the need for a more holistic and interdisciplinary

approach. While some studies are beginning to bridge these domains by linking design features to user outcomes (Toprakli & Işıklar Bengi, 2024), our bibliometric analysis indicates this is not yet the norm in the broader research landscape. Our study contributes to addressing this gap by explicitly comparing the two perspectives through the literature review and demonstrating the limited connections between research themes via the bibliometric analysis.

5.3 Practical Implications

These findings have significant practical implications for the design, management, and evaluation of sports facilities.

- *For Architects:* Architects should consider incorporating service quality principles and user experience considerations more explicitly into their design process. This could involve collaborating more closely with sports managers, conducting user surveys, and utilizing POE methods to assess not only building performance but also user satisfaction.
- *For Sports Managers:* Sports managers should recognize the significant impact of the physical environment on user experience and satisfaction. This could involve advocating for design improvements, collaborating with architects on renovations, and implementing operational strategies that enhance IEQ and accessibility.
- *For Policymakers:* Policymakers can play a crucial role in promoting a more integrated approach by developing guidelines and standards that encourage collaboration between architects and sports managers, incentivize user-centered design, and require comprehensive performance evaluations that encompass both building performance and user satisfaction.

5.4 Theoretical Implications

This study contributes to sports facility evaluation literature by empirically demonstrating the gap between architects' and sport managers' perspectives. Although they have common concerns, they generally focus on their own priorities, reflected in the distinct research clusters. Bridging the gap between two perspectives and developing more user-friendly facilities is very important from a theoretical standpoint for creating more comprehensive evaluation models.

5.5 Limitations

This study has several limitations that should be acknowledged. First, the bibliometric analysis was limited to publications indexed in the Web of Science database. While Web of Science is a comprehensive database, it does not include all publications in the field, and there may be relevant research published in other databases or in grey literature (e.g., reports, theses). Second, the analysis relied on keyword co-occurrence, which is an indirect measure of the relationships between concepts. Keyword co-occurrence does not necessarily imply a direct conceptual link, and the analysis does not capture the nuances of the arguments within the publications. Finally, the study focused on the perspectives of architects and sports managers derived from the literature and did not directly examine the perspectives of other stakeholders, such as athletes, spectators, or community members through primary data collection.

5.6 Future Research

Based on these findings and limitations, several avenues for future research are suggested:

- Expand the Scope: Future research could expand the scope of the bibliometric analysis to include other databases (e.g., Scopus, Google Scholar) and grey literature.
- Qualitative Investigation: Qualitative research methods, such as interviews or case studies, could be used to explore the perspectives of architects and sports managers in more depth, examining their decision-making processes and the challenges they face in collaborating.
- User-Centred Research: Future research should focus more intensely on user satisfaction and well-being levels within specific sports facilities.
- Integrated Evaluation Tools: Research is needed to develop and test integrated evaluation tools that incorporate both architectural and sports management perspectives, providing a more holistic assessment of sports facility performance.
- Cross-Cultural Comparisons: Future studies could examine cross-cultural differences in sports facility design and management, exploring how cultural factors influence user expectations and preferences.
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5.7 Unexpected findings

An unexpected finding of the study relates to Post-Occupancy Evaluation (POE). Although POE is recognized in the literature as a very important tool for evaluating

buildings, the bibliometric analysis revealed limited studies explicitly connecting POE methodology with sports facility evaluation within the analyzed dataset, suggesting a potential underutilization or lack of focus on this specific evaluation method in the indexed sports facility literature compared to its prominence in general architectural evaluation.

6. Conclusion

This study set out to examine the contrasting perspectives of architects and sports managers on sports facility evaluation, aiming to identify key differences in their approaches and explore the potential for a more integrated approach. Through a mixed-methods approach, combining a comprehensive literature review with bibliometric analysis, we have demonstrated that research on sports facility evaluation tends to be fragmented. This is evidenced by six distinct research clusters focusing on areas such as user experience, data/simulation, design/access, sustainability, operational efficiency, and asset management, with limited connections observed between these thematic areas. This highlights a significant gap in the literature: a lack of integration between these two crucial perspectives.

The main contribution of this study is to provide empirical evidence of this disciplinary siloization and to highlight the need for a more holistic and interdisciplinary approach to sports facility design, management, and evaluation. By explicitly comparing the architectural and sports management perspectives, we have identified key areas where collaboration and integration are needed. This research underscores the limitations of evaluating sports facilities solely from one perspective, emphasizing that a truly user-centered and effective facility requires considering both the physical environment and the services provided.

The findings have practical implications for architects, sports managers, and policymakers, suggesting the need for increased collaboration, the incorporation of user-centric design principles, and the development of integrated evaluation tools. Theoretically, this study contributes to a more nuanced understanding of the complexities of sports facility evaluation, highlighting the need to move beyond disciplinary boundaries.

In conclusion, bridging the gap between architectural and sports management perspectives is crucial for creating sports facilities that are not only aesthetically pleasing and structurally sound but also functionally effective, user-centered, and conducive to increased participation in sports and physical activity. A more integrated and collaborative approach, informed by both design expertise and operational excellence, will ultimately lead to healthier, more engaged communities and a more vibrant sports landscape.

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Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper

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