School Location Management in Educational Planning: Global Trends and Emerging Themes

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Abstract
This study examines global research trends and emerging themes in school location management within educational planning. The study responds to the growing importance of spatially informed educational decision-making, particularly in relation to accessibility, equity, school mapping, geospatial analysis, and sustainable public service provision. Bibliographic data were retrieved from the Scopus database using the search query *TITLE-ABS-KEY (school AND location OR spatial)*. The initial search identified 45,948 publications. After applying inclusion criteria covering publication years 2015–2025, English-language documents, journal articles, and the Social Sciences subject area, 349 articles were retained as the final dataset. The study employed performance analysis and science mapping procedures to examine publication trends, source distribution, country and institutional contributions, keyword co-occurrence, and emerging thematic structures. The findings indicate that research on school location management has developed as an interdisciplinary field connecting educational planning, spatial analysis, geographic information systems, accessibility, equity, land suitability, and decision-support methods. The keyword structure shows that the field is moving beyond technical school placement toward broader concerns with spatial justice, equitable access, environmental risk, and evidence-based planning. This study contributes by consolidating a fragmented body of literature and by identifying future directions for integrating school location planning with geospatial data, community needs, sustainability, and inclusive educational policy.

Keywords: school location management; educational planning; spatial analysis; geospatial data; accessibility; educational equity

Introduction

School location management is a strategic concern in educational planning because the spatial distribution of schools directly affects access, equity, resource efficiency, and the quality of education services. Decisions about where schools are located are not merely technical choices about land use; they shape how far students travel, which communities are served, how public resources are allocated, and how education systems respond to demographic, geographic, environmental, and socioeconomic conditions. Early work on school mapping emphasized that planning the location of schools can function as an instrument of educational policy by diagnosing disparities in educational provision and designing plans to reduce unequal access to schooling (Hallak, 1977).

In contemporary education systems, school location management has become increasingly important due to rapid urbanization, uneven population growth, rural–urban disparities, environmental risks, and the global commitment to inclusive and equitable quality education. School location decisions are closely connected to educational equity because poorly distributed schools can increase travel time, exclude remote communities, and reinforce spatial inequalities. UNESCO's recent work on school mapping and decision-making highlights

that reliable geospatial data can support education planning, cross-sector coordination, and more equitable resource allocation, although many education systems still face challenges related to technical capacity, funding, data integration, and policymaking (Vijil-Morin et al., 2023). Similarly, IIEP-UNESCO argues that geospatial data can help educational planners build the right school in the right place at the right time by linking education data with local geographic and socioeconomic conditions (IIEP-UNESCO, n.d.).

Research on school location has increasingly incorporated spatial analysis, geographic information systems, and multi-criteria decision-making approaches. These methods allow planners to assess accessibility, population demand, hazards, transportation networks, land suitability, and proximity to existing facilities. For example, Sakti et al. (2022) developed a school location analysis model that integrates accessibility, natural hazards, and biological hazards to support equal access to education in West Java, Indonesia. More recent studies have also evaluated school location through territorial spatial planning knowledge graphs, fuzzy analytic hierarchy processes, and multi-criteria decision analysis, showing that school site selection is becoming a multidisciplinary field linking education planning, geography, urban planning, environmental risk, and public policy (Meng et al., 2025; Xu et al., 2024).

Despite this growing scholarly attention, the literature on school location management remains conceptually dispersed across several domains, including educational administration, educational planning, spatial planning, urban studies, geography, disaster risk management, transportation planning, and sustainable development. Some studies focus on accessibility and catchment areas, while others emphasize land suitability, hazard exposure, equity, demographic demand, or infrastructure optimization. This fragmentation makes it difficult to understand how the field has evolved, which themes dominate the literature, which countries and journals contribute most actively, and what emerging issues are shaping future research directions.

The need to examine global research trends in school location management is therefore timely. Educational planning increasingly requires evidence-based, spatially sensitive approaches that can respond to local needs while supporting national policy goals. Geospatial analysis can help identify underserved communities, estimate travel time to schools, define catchment areas, and prioritize school expansion or new construction in areas where learners remain out of reach (Education Commission, 2021). Such evidence is essential for ensuring that school location decisions contribute not only to administrative efficiency but also to social justice, inclusion, safety, and long-term sustainability.

This study is positioned within this broader research landscape by examining global trends and emerging themes in school location management in educational planning. Rather than treating school location as a narrow infrastructure issue, this article views it as a multidimensional planning problem involving equity, accessibility, spatial justice, environmental risk, resource allocation, and governance. Mapping the development of this literature can clarify the intellectual structure of the field and provide a stronger basis for future research and policy-oriented planning.

Accordingly, this article aims to identify global research trends, conceptual patterns, and emerging themes related to school location management in educational planning. The study contributes to the literature in three ways. First, it consolidates a fragmented body of knowledge on school location, school mapping, and educational spatial planning. Second, it highlights the major themes connecting school location management with accessibility, equity, sustainability, and evidence-based decision-making. Third, it offers a foundation

for future studies and policy discussions on how school location planning can support more inclusive, efficient, and context-responsive education systems.

Methodology

This study adopted a science-mapping review design to examine global research trends and emerging themes in school location management within educational planning. This approach is appropriate for identifying publication patterns, influential sources, conceptual structures, and thematic developments across a large body of scholarly literature. Following established procedures, the study combined performance analysis and science mapping. Performance analysis was used to describe the distribution of publications by year, source, country, author, and citation impact, while science mapping was used to examine relationships among keywords, authors, countries, and documents through network-based techniques (Aria & Cuccurullo, 2017; Donthu et al., 2021).

Data Source and Search Strategy

The bibliographic data were retrieved from the Scopus database. Scopus was selected because it provides broad coverage of peer-reviewed international literature and structured metadata that can be exported for performance analysis and science mapping. The search was conducted using the query *TITLE-ABS-KEY (school AND location OR spatial)*, which was designed to capture publications that discuss schools in relation to location, spatial dimensions, or spatial planning in the title, abstract, or keywords. The initial search produced 45,948 publications before filtering. The use of a single database helped maintain consistency in bibliographic metadata and reduce duplication problems during data preparation.

Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Publications indexed in Scopus using the query *TITLE-ABS-KEY (school AND location OR spatial).*	Publications not retrieved through the specified Scopus search query.
Publications issued between 2015 and 2025.	Publications issued outside the 2015–2025 period.
Documents written in English.	Documents published in languages other than English.
Journal articles within the Social Sciences subject area.	Non-journal publications and documents outside the Social Sciences subject area.

After applying the inclusion criteria, namely publication year from 2015 to 2025, English language, journal article document type, and Social Sciences subject area, 349 articles were retained as the final dataset for analysis. This filtering procedure was intended to ensure that the dataset was recent, internationally accessible, peer-reviewed, and aligned with the social-scientific dimensions of school location management and educational planning.

Data Screening and Preparation

The screening and preparation of data were conducted in several stages. First, the initial Scopus search results were filtered according to year of publication, language, document type, and subject area. Second, the remaining records were checked to ensure that the exported metadata were complete and suitable for analysis. The final dataset of 349 articles was exported from Scopus, including titles, authors, abstracts, keywords, source titles, publication years, affiliations, countries, citation counts, and references. Prior to analysis, the dataset was cleaned to minimize inconsistencies in author names, institutional affiliations, country names, and keywords. Keyword normalization was particularly important because variations in spelling, singular–plural forms, and related terms can influence the structure of co-occurrence networks and the interpretation of emerging themes.

Data Analysis and Science Mapping Procedures

The final dataset was analyzed using bibliometric indicators and network visualization procedures. Descriptive analysis was used to examine annual publication trends, leading journals, productive authors, contributing countries, and highly cited documents. Science mapping was then conducted to identify the conceptual and social structures of the field. Keyword co-occurrence analysis was used to reveal dominant and emerging themes related to school location, spatial planning, accessibility, equity, and educational management. Co-authorship and country collaboration analyses were used to examine patterns of scholarly collaboration. Where appropriate, bibliometric mapping was supported by VOSviewer, a software tool for constructing and visualizing bibliometric networks, including co-authorship, citation, bibliographic coupling, co-citation, and keyword co-occurrence maps (van Eck & Waltman, 2010). The interpretation of the maps focused on cluster size, link strength, thematic proximity, and the substantive meaning of each cluster for understanding the development of school location management research.

Result And Discussion

The analysis of 349 Scopus-indexed journal articles indicates that school location management has developed as an interdisciplinary research field situated at the intersection of educational planning, spatial analysis, public service distribution, and equity-oriented policy. The results show that research in this area is not limited to the technical question of where schools should be built, but also concerns how location decisions affect access to education, the efficiency of public investment, exposure to environmental hazards, and the spatial distribution of educational opportunities. This pattern is consistent with the view that geospatial data can support education systems in building the right school in the right place at the right time by linking education data with geographic, demographic, and socioeconomic conditions (IIEP-UNESCO, n.d.).

Annual Publication Trends

The annual publication trend demonstrates the increasing relevance of school location management during the 2015–2025 period. Although publication output may fluctuate from year to year, the overall development of the field reflects a growing scholarly interest in spatially informed educational planning. This growth can be associated with the wider availability of geospatial data, the expansion of GIS-based methods, and increasing policy concern over equitable access to education. Cobb (2020) argues that geospatial analysis has opened a new window for examining educational equity, access, and opportunity, particularly because spatial methods allow researchers to identify how educational resources and opportunities are unevenly distributed across places. Therefore, the publication trend suggests that school location management is becoming more central to evidence-based educational planning, especially in contexts facing urban expansion, rural isolation, demographic change, and unequal service distribution.

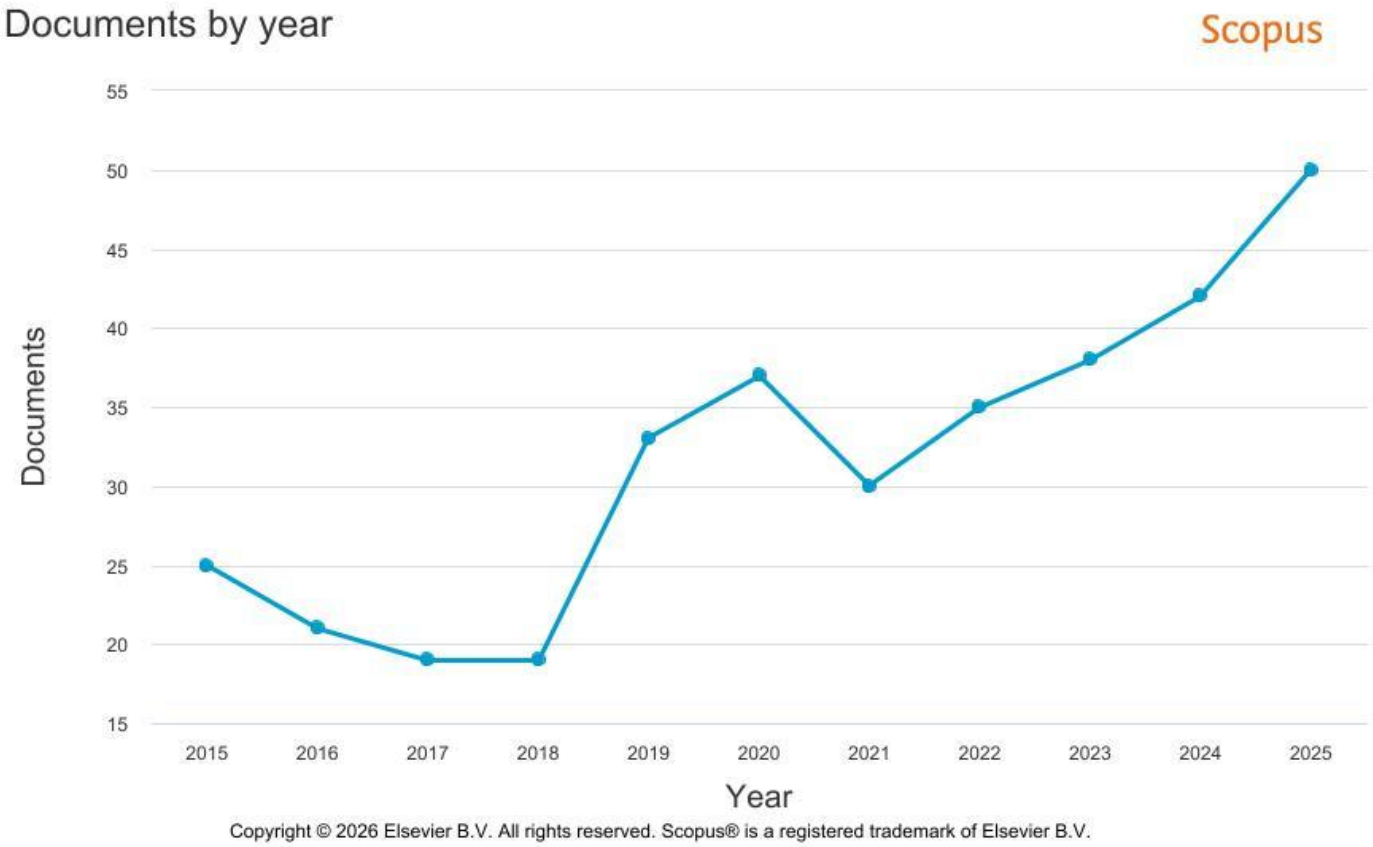

Figure 1. Annual publication trends on school location management, 2015–2025.

Source Distribution and Leading Journals

The distribution of sources indicates that research on school location management is published across journals related to education, geography, urban studies, planning, sustainability, public policy, and geoinformation science. This source pattern confirms that the topic is multidisciplinary. School location management requires educational knowledge about access, enrolment, and resource allocation, but it also depends on spatial methods for evaluating distance, travel time, land suitability, hazards, and the distribution of population demand. Studies on school location analysis have shown that accessibility, natural hazards, biological hazards, and land suitability need to be integrated when assessing educational facility locations (Sakti et al., 2022). Similarly, Jiang et al. (2024) demonstrate that measuring the spatial distribution and accessibility of primary school facilities can reveal mismatches between school-age population distribution and school facility provision. As a result, the leading journals in this area are likely to represent both educational and spatial-scientific traditions, showing that the field cannot be understood through a single disciplinary lens.

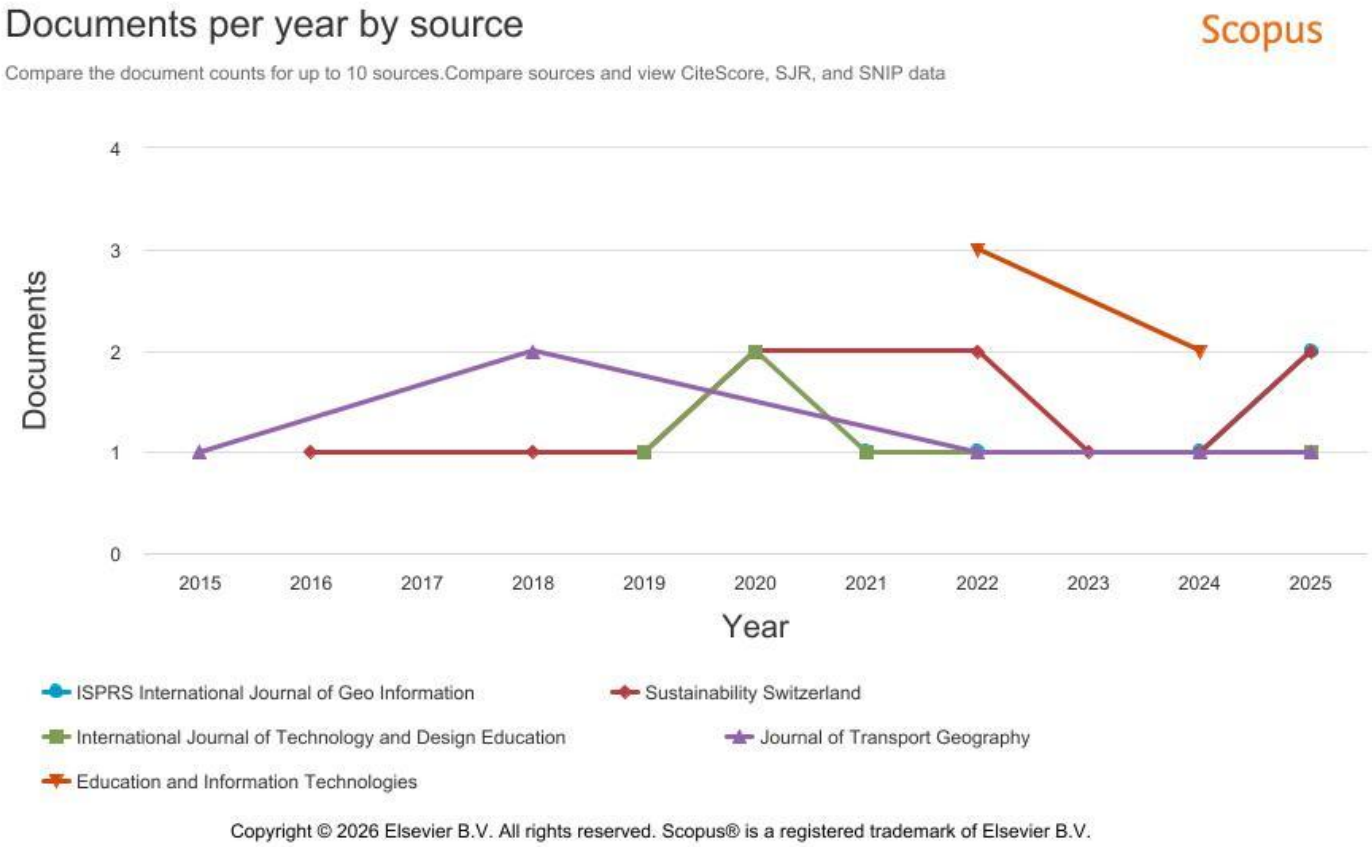

Table 1. Leading journals publishing research on school location management.

Most Productive Countries and Institutions

The country and institutional distribution suggests that research productivity is shaped by local planning problems as well as by institutional capacity to use spatial data and analytical tools. Countries experiencing rapid urbanization, regional inequality, school-age population changes, or infrastructure expansion tend to have strong reasons to study school location and educational accessibility. At the same time, productive institutions are often those with research capacity in education policy, urban planning, GIS, remote sensing, or public administration. Huang et al. (2023) show that spatial equity in basic educational facilities depends on the balance between facility supply, population demand, accessibility, and local planning conditions. This finding supports the argument that educational planning must account for local geographic and social conditions if policies are to respond to the needs of communities and reduce spatial imbalance in educational services.

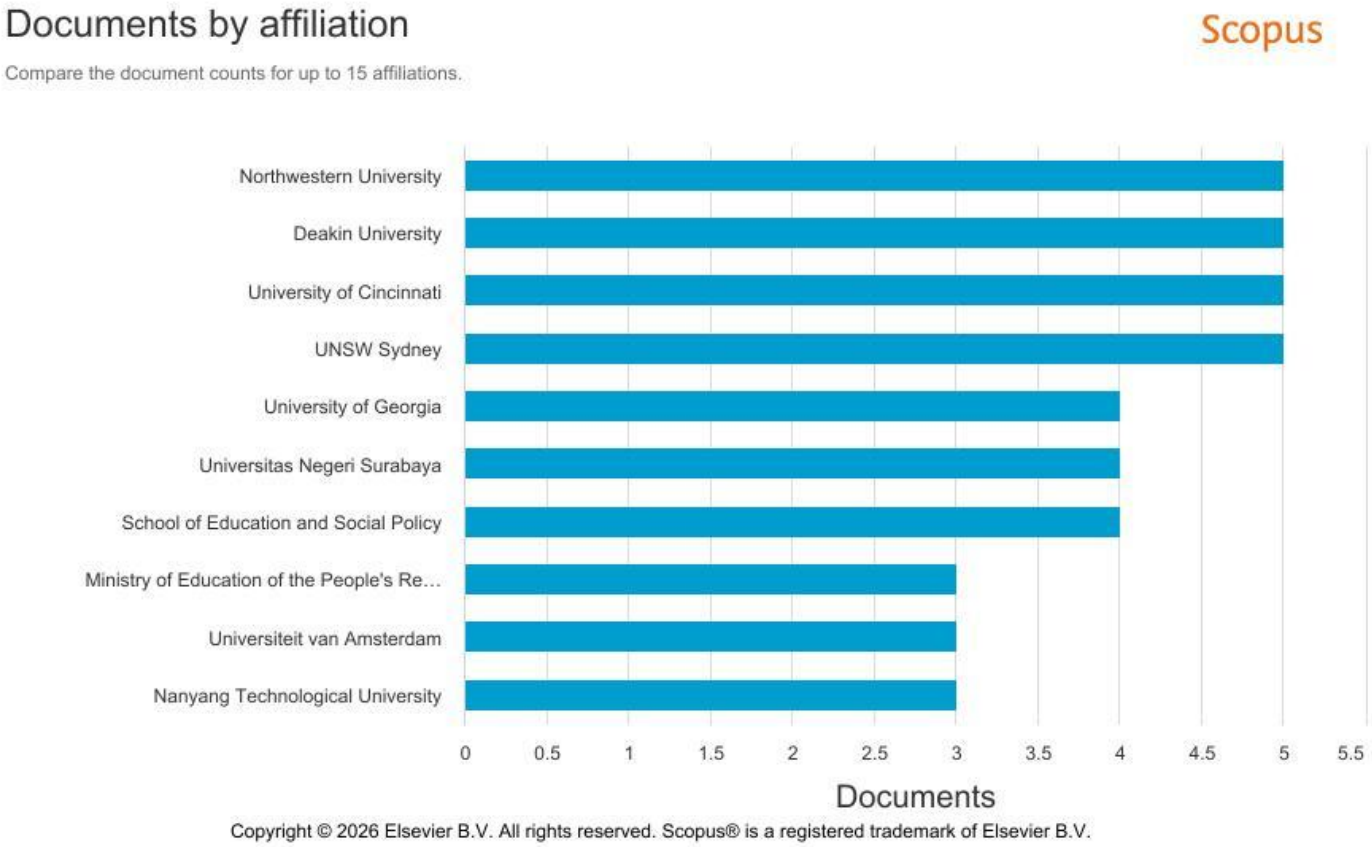

Figure 2. Most productive institutions in school location management research.

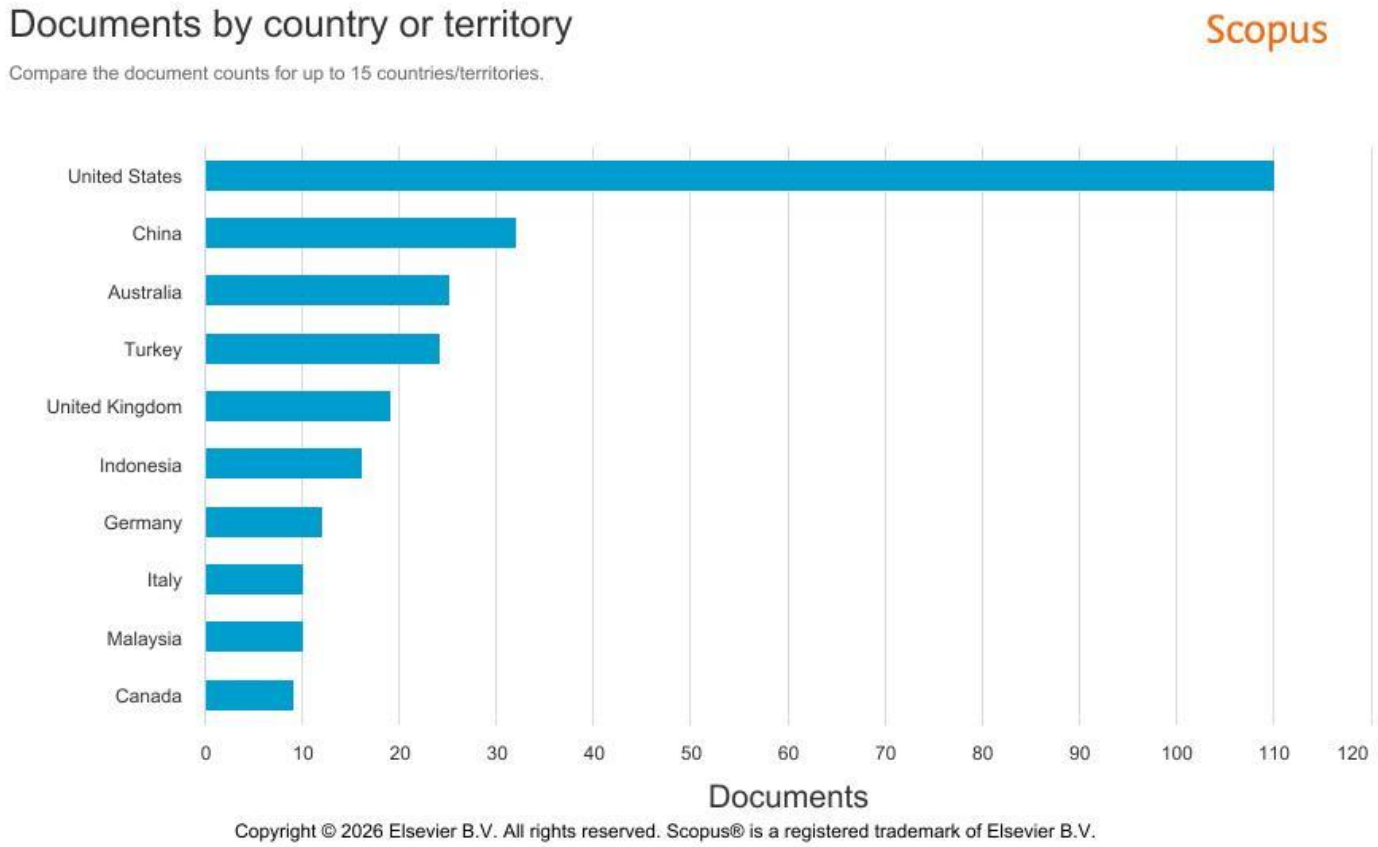

Figure 2. Most productive countries

Keyword Co-occurrence and Thematic Structure

The keyword co-occurrence structure reveals that the conceptual core of the field is organized around several interconnected themes: school location, accessibility, spatial analysis, GIS, educational equity, school mapping, urban planning, land suitability, and decision-making. These themes show that school location management has moved beyond administrative placement and has become a broader spatial justice issue. Accessibility-related keywords indicate concern with travel distance, catchment areas, transportation networks, and the ability of learners to reach schools safely and efficiently. Equity-related keywords indicate that school location is linked to the fair distribution of educational opportunities, especially for learners in remote, peripheral, or underserved areas. Recent site-selection research also shows increasing use of multi-criteria decision analysis, fuzzy analytic hierarchy processes, and machine-learning approaches to evaluate educational facility suitability and improve planning decisions (Meng et al., 2025; Sun et al., 2025). Location-allocation studies further demonstrate that alternative school placement scenarios can reduce average travel distances and improve access to primary education, indicating the practical value of spatial modelling for educational planners (Köse et al., 2023).

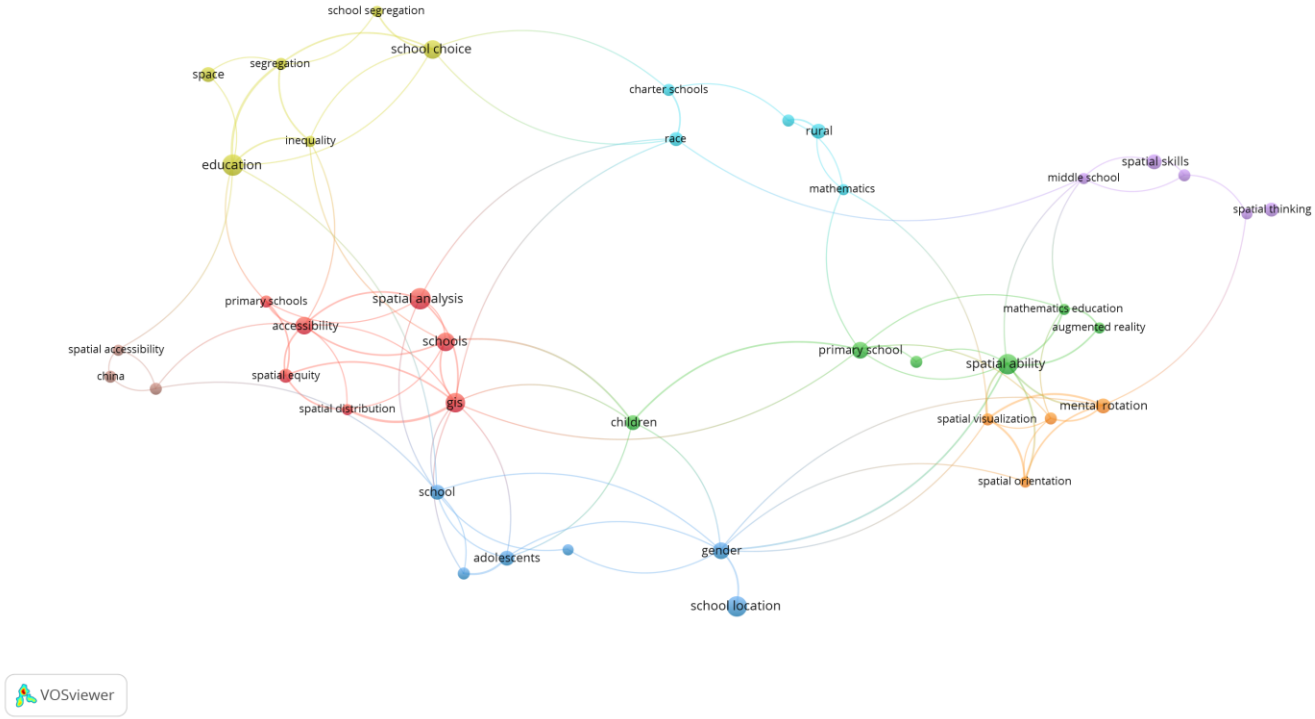

Figure 3. Keyword co-occurrence network of school location management research.

Emerging Themes and Future Research Directions

The emerging themes suggest that future research should integrate school location management with equity, sustainability, climate and disaster risk, transportation accessibility, demographic change, and community-responsive governance. The field is moving toward more data-driven and decision-support approaches, but the interpretation of the results also shows that technical models must be connected with educational policy goals. In other words, selecting optimal school locations should not only minimize distance or maximize land suitability, but should also support inclusion, social justice, safety, and long-term educational sustainability. Al-Sabbagh (2020) shows that GIS-based location-allocation models can help improve accessibility to primary schools by evaluating existing distributions and proposing more optimal locations. Future studies should therefore combine spatial modelling with qualitative policy analysis, stakeholder participation, and context-sensitive evaluation to ensure that school location decisions contribute to inclusive and equitable education systems.

Conclusion

This study examined global research trends and emerging themes in school location management within educational planning based on 349 Scopus-indexed journal articles published between 2015 and 2025. The findings show that school location management has developed into an interdisciplinary field that connects educational planning, spatial analysis, public service distribution, accessibility, equity, and sustainability. Rather than being limited to technical decisions about school placement, the field increasingly addresses how spatial decisions shape educational opportunity, resource allocation, community access, and the long-term responsiveness of education systems.

The results indicate that the literature is organized around several major themes, including school location, spatial planning, GIS, accessibility, educational equity, school mapping, land suitability, and decision-making. These themes demonstrate that school location management is closely related to broader policy concerns, particularly the need to ensure that learners in both urban and rural areas can access schools that are safe, reachable, and appropriately distributed. The increasing attention to geospatial data and decision-support methods also suggests that future educational planning will require stronger integration between education data, demographic information, environmental risk assessment, and spatial modelling.

The study contributes to the literature by consolidating a fragmented body of research on school location, educational spatial planning, and equitable access to education. It also highlights the importance of viewing school location as a multidimensional planning issue involving social justice, sustainability, infrastructure efficiency, and governance. For policymakers and educational planners, the findings imply that school location decisions should be based not only on administrative convenience or physical land availability, but also on evidence about population distribution, travel distance, hazard exposure, community needs, and equity in educational provision. Future research should further investigate how school location planning can be integrated with climate resilience, transportation systems, demographic change, digital geospatial platforms, and participatory planning so that education systems become more inclusive, efficient, and context-responsive.

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