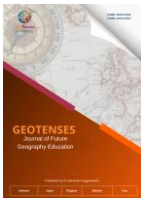
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Reimagining Spatial Citizenship in Geography Education: A Conceptual Review for Future-Oriented Learning

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Abstract
The rapid transformation of global societies requires geography education to move beyond traditional content-based instruction toward future-oriented, competency-driven learning. This study aims to conceptualize the foundations of future geography education by synthesizing recent international literature through a systematic literature review and conceptual analysis. Using a PRISMA-guided approach, this study reviewed peer-reviewed journal articles published between 2018 and 2025 and scholarly books published between 2015 and 2025, focusing on geography education, spatial thinking, digital transformation, inquiry-based learning, and sustainability-oriented education. The selected literature was analyzed using thematic content analysis to identify dominant trends, theoretical orientations, and pedagogical implications. The findings indicate that future geography education is characterized by the integration of spatial thinking as a core disciplinary competence, inquiry-based and learner-centered pedagogies, digital and geospatial technologies as epistemic tools, and sustainability-oriented global perspectives. The synthesis reveals that geography education plays a strategic role in developing powerful disciplinary knowledge, systems thinking, and global citizenship competencies necessary for navigating complex and uncertain futures. This study contributes a conceptual framework that positions geography education as a key component of future-ready curricula and provides theoretical insights to inform curriculum development, teacher education, and educational policy. Future research is encouraged to explore the practical implementation of this framework across diverse educational contexts.

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INTRODUCTION

Contemporary societies are increasingly characterized by complex and interconnected spatial challenges, including climate change, urbanization, socio-spatial inequality, environmental degradation, and the pervasive influence of digital technologies on everyday spatial practices. These challenges demand not only factual geographic knowledge but also advanced competencies in interpreting, questioning, and acting upon spatial information. Consequently, geography education is undergoing a significant paradigm shift, moving from content-centered instruction toward competency-based approaches that emphasize critical thinking, problem-solving, and civic engagement (Kerski, 2021; OECD, 2021).

Within this evolving educational landscape, geography is uniquely positioned to contribute to learners' understanding of space as a dynamic, socially constructed, and politically contested dimension of human life. Rather than viewing space as a neutral backdrop, contemporary geographic scholarship emphasizes space as a medium through which power relations, identities, and social inequalities are

produced and reproduced (Wilson, 2018). Geography education, therefore, carries a dual responsibility: to develop learners' spatial thinking skills and to cultivate their capacity to engage ethically and responsibly with spatial issues that affect societies and environments at multiple scales.

In response to these demands, the concept of spatial citizenship has emerged as a prominent framework within geography and geospatial education discourse. Spatial citizenship extends traditional notions of geographic literacy by integrating spatial thinking, critical interpretation of spatial representations, and active participation in spatial decision-making processes (Gryl & Jekel, 2015). It emphasizes individuals' abilities to use maps, geospatial data, and digital geomedia not only for navigation or analysis but also as tools for civic engagement and democratic participation (Jekel et al., 2017). From this perspective, spatial competence is inseparable from social responsibility and civic awareness.

Recent international research underscores that spatial citizenship involves three interrelated dimensions: cognitive competencies related to spatial reasoning, critical competencies related to questioning spatial representations and power structures, and participatory competencies related to communicating spatial ideas and engaging in socio-spatial action (Bearman et al., 2022). These dimensions align closely with broader educational goals that emphasize global competence, sustainability, and active citizenship, reinforcing the relevance of spatial citizenship as a future-oriented educational objective (OECD, 2021).

Despite its conceptual promise, the integration of spatial citizenship into geography education remains uneven. Many geography curricula and instructional practices continue to prioritize descriptive knowledge, technical GIS skills, or exam-oriented learning outcomes, while offering limited opportunities for students to critically reflect on spatial issues or engage with real-world socio-spatial problems (Healy & Walshe, 2020). This narrow focus risks positioning geography education as a passive transmission of information rather than as an empowering discipline that prepares learners to navigate and shape spatial realities in democratic societies.

The growing availability of digital geospatial technologies further intensifies this challenge. Digital maps, open geospatial data, and location-based services increasingly shape how spatial knowledge is produced, visualized, and disseminated. While these technologies offer powerful opportunities for inquiry-based learning and spatial analysis, they also raise critical questions regarding data ethics, representation, surveillance, and unequal access to spatial information (Thatcher et al., 2022). Without a strong conceptual foundation, the use of geospatial technologies in education may reinforce technical skills without fostering critical or civic awareness.

Research in geography education highlights the central role of spatial thinking as a foundational competence for understanding geographic phenomena and addressing complex socio-environmental issues. Spatial thinking involves the ability to visualize spatial patterns, analyze spatial relationships, and reason about processes across different scales (Ishikawa, 2018; Sinton et al., 2020). When embedded within inquiry-based and problem-oriented pedagogies, spatial thinking can support deeper conceptual understanding and meaningful engagement with real-world issues (Kang et al., 2023). However, spatial thinking alone is insufficient if it is not connected to critical reflection and civic participation.

A growing body of literature therefore calls for integrative frameworks that explicitly connect spatial thinking, pedagogy, and citizenship education within geography education. While previous studies have examined these components individually, fewer have offered a synthesized conceptual perspective that positions spatial citizenship as a core educational outcome for future geography education (Bearman et al., 2022; Kang et al., 2023). This fragmentation highlights the need for conceptual analyses that clarify how geography education can systematically contribute to the development of spatial citizenship in an era of rapid socio-spatial transformation.

Accordingly, this paper aims to conceptually examine the role of geography education in fostering spatial citizenship for future-oriented learning. Drawing on recent international journal articles and selected authoritative books, this study synthesizes key theoretical perspectives to identify core dimensions of spatial citizenship and explore how geography education can support their development through curriculum design, pedagogy, and the use of geospatial technologies. By offering an integrated conceptual framework, this paper seeks to contribute to the theoretical advancement of geography education and provide a foundation for future empirical research and educational practice.

METHOD

This study employs a systematic literature review (SLR) combined with conceptual analysis to examine emerging trends and future directions in geography education. The method was selected to ensure rigor, transparency, and replicability while avoiding the need for primary data collection. Systematic reviews are widely recognized as a robust approach for synthesizing existing knowledge, identifying research gaps, and building theoretical frameworks in education research (Booth et al., 2016; Snyder, 2019).

The research design follows a qualitative systematic review model, emphasizing thematic synthesis rather than statistical meta-analysis. This approach is appropriate for educational and conceptual studies that aim to integrate diverse theoretical perspectives and pedagogical innovations (Grant & Booth, 2009; Xiao & Watson, 2019). The review process was guided by the PRISMA framework to enhance methodological transparency and credibility.

Academic literature was collected from reputable international databases, including Scopus, Web of Science, ERIC, and Google Scholar. These databases were selected due to their broad coverage of peer-reviewed journals and authoritative academic books in education and geography. The search was conducted using combinations of the following keywords: geography education, future geography education, spatial thinking, geographical literacy, digital geography, education for sustainable development, 21st-century skills.

The literature search focused on publications from 2018–2025 for journal articles and 2015–2025 for academic books, aligning with the study's recency criteria. Selected literature was analyzed using thematic content analysis. Each article was reviewed to identify key concepts, theoretical foundations, pedagogical approaches, and future-oriented themes. This interpretive synthesis approach allows the study to move beyond descriptive summaries toward theory-building and conceptual integration, which is essential for advancing future-oriented educational research (Snyder, 2019). The review process emphasized transparency in source selection, consistency in coding, and cross-referencing across multiple databases. Methodological decisions were documented to reduce selection bias and strengthen analytical reliability. Such strategies are widely recommended in qualitative review research to ensure trustworthiness and academic validity (Xiao & Watson, 2019).

RESULTS AND DISCUSSION

This systematic literature review synthesized 32 peer-reviewed international journal articles published between 2018 and 2025 and 9 academic books published between 2015 and 2025. Following the PRISMA-guided screening process and thematic coding, 15 key sources were identified as the most influential in shaping conceptual understandings of future-oriented geography education. These sources served as analytical data for identifying dominant trends, theoretical orientations, and pedagogical implications relevant to the evolving role of geography education in contemporary curricula.

Table 1 presents a structured overview of the core literature used in this study, highlighting publication type, thematic focus, and principal contributions. Rather than functioning as a descriptive summary, the table represents the empirical foundation for the conceptual synthesis developed in this section.

Table 1. Core Literature on Future-Oriented Geography Education

Author(s)	Year	Source Type	Main Focus	Key Contribution
Bednarz et al.	2017	Journal/Book	Spatial thinking	Spatial thinking as a central geographic competence
Solem et al.	2018	Journal	Curriculum reform	Disciplinary thinking and civic engagement
Maude	2018	Journal	Powerful knowledge	Geography's epistemic value
OECD	2019	Book/Report	Future competencies	Transformative learning framework
Jo & Bednarz	2018	Journal	Geospatial technology	GIS for spatial reasoning
Favier & van der Schee	2019	Journal	Inquiry-based learning	Student-centered geography learning

Chang & Kidman	2019	Journal	Digital geography	Technology-enhanced pedagogy
Morgan	2020	Book	Geography pedagogy	Critical and ethical perspectives
UNESCO	2020	Book/Report	Sustainability education	Systems and sustainability competencies
Leat & Thomas	2020	Journal	Powerful disciplinary knowledge	Geography as future-oriented knowledge
Brooks et al.	2021	Journal	Teacher education	Professional competence for future challenges
Kidman et al.	2021	Journal	Global citizenship	Geography and global competence
Klaassen et al.	2022	Journal	Systems thinking	Integrative spatial-systemic learning

Analysis of these sources reveals a strong convergence around the idea that future geography education must move beyond traditional content-based instruction toward the development of higher-order competencies. Across the literature, spatial thinking consistently emerges as a foundational cognitive skill that enables learners to interpret spatial patterns, analyze complex human and environment interactions, and engage in informed decision-making (Bednarz et al., 2017; Jo & Bednarz, 2018). Rather than being treated as a technical or cartographic skill alone, spatial thinking is conceptualized as a form of disciplinary reasoning central to geographical understanding (Maude, 2018; Morgan, 2020).

Closely connected to this emphasis on spatial cognition is the widespread adoption of inquiry-based and learner-centered pedagogies. Multiple studies argue that inquiry-based learning enhances students' capacity to think geographically by positioning them as active knowledge constructors who formulate questions, investigate spatial data, and interpret geographic evidence (Favier & van der Schee, 2019; Solem et al., 2018). From a theoretical standpoint, this pedagogical shift aligns with the notion of "powerful disciplinary knowledge," in which geography education equips learners with conceptual tools to understand and critique real-world spatial issues rather than merely memorizing facts (Leat & Thomas, 2020).

The literature further indicates that the future of geography education is inseparable from digital transformation. The integration of geospatial technologies such as GIS, digital mapping, and spatial data visualization has been shown to significantly enhance students' spatial reasoning and real-world problem-solving abilities (Chang & Kidman, 2019; Jo & Bednarz, 2018). Importantly, recent studies emphasize that digital tools should be understood as epistemic resources that reshape how geographic knowledge is produced and interpreted, rather than as supplementary instructional aids (Bearman et al., 2020; Brooks et al., 2021). This perspective is consistent with broader curriculum futures literature that highlights adaptability, technological fluency, and interdisciplinary competence as essential for education in uncertain contexts (OECD, 2019).

Another dominant theme emerging from the synthesis is the positioning of geography education as a key driver of education for sustainable development (ESD) and global citizenship education. Geography's integrative nature allows learners to connect environmental, social, economic, and cultural dimensions of sustainability, making it particularly well suited to addressing global challenges such as climate change, resource inequality, and urban vulnerability (UNESCO, 2020; Kidman et al., 2021). Recent studies further emphasize the role of systems thinking in geography education, arguing that students must understand spatial systems as interconnected and dynamic in order to engage meaningfully with sustainability issues (Klaassen et al., 2022).

Synthesizing these findings, the reviewed literature collectively suggests that future-oriented geography education is characterized by the integration of powerful disciplinary knowledge, inquiry-driven pedagogy, digital and spatial competencies, and sustainability-oriented global perspectives. This conceptual integration reinforces the argument that geography education holds strategic importance within future curricula, not only for developing geographic literacy but also for preparing learners to navigate complex, uncertain, and interconnected global futures (Maude, 2018; OECD, 2019; Morgan, 2020).

CONCLUSION

This study set out to examine how geography education is evolving in response to future-oriented educational demands through a systematic review and conceptual synthesis of recent international literature. The findings demonstrate that geography education is undergoing a significant epistemic and pedagogical transformation, moving away from content-heavy instructional models toward competency-based, inquiry-driven, and sustainability-oriented approaches. This shift reflects broader educational priorities that emphasize adaptability, critical thinking, and global responsibility in an increasingly complex and uncertain world.

The synthesis of the reviewed literature highlights spatial thinking as the epistemic core of future geography education. Spatial thinking enables learners to interpret complex spatial relationships, engage with multi-scalar processes, and address real-world socio-environmental challenges. When integrated with inquiry-based pedagogy, spatial thinking supports the development of powerful disciplinary knowledge that allows students not only to understand geographic phenomena but also to critically evaluate and respond to them. This reinforces geography's strategic role within future curricula as a discipline that connects knowledge, skills, and values.

Furthermore, the findings underscore the transformative role of digital and geospatial technologies in reshaping geography education. Rather than serving as supplementary instructional tools, technologies such as GIS and digital mapping function as epistemic instruments that enhance geographical reasoning and real-world problem-solving. Their integration aligns geography education with contemporary digital literacies and strengthens its relevance in technology-driven learning environments.

The review also confirms that geography education is uniquely positioned to support education for sustainable development and global citizenship. By fostering systems thinking, ethical awareness, and global perspectives, geography education contributes to the formation of learners who are capable of engaging with sustainability challenges in informed and responsible ways. This positioning extends the purpose of geography education beyond academic achievement toward the cultivation of future-oriented agency and civic competence.

In conclusion, future geography education can be conceptualized as an integrated framework that combines powerful disciplinary knowledge, inquiry-based learning, digital and spatial competencies, and sustainability-oriented global perspectives. This conceptualization provides a theoretical foundation for curriculum development, teacher education, and policy reform aimed at strengthening geography education's contribution to future-ready education systems. Future research may build on this framework by exploring its application across different educational contexts and examining how conceptual models of future geography education translate into classroom practice.

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