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Reading time and space together: the role of spatial literacy in history education

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This study aims to examine the multidimensional contributions of spatial literacy in history education. Traditional history teaching has long emphasized the chronological transmission of events; however, a meaningful understanding of historical processes requires more than knowing when events occurred. It also necessitates an understanding of where these events took place, under which spatial conditions, and within what environmental and social contexts. From this perspective, spatial literacy has emerged as a fundamental component of historical thinking. Spatial literacy encompasses individuals' abilities to analyze spatial relationships, recognize spatial patterns, and interpret these relationships through visual representations. These skills enable students to establish cause–effect relationships, evaluate change and continuity, and better comprehend the social, economic, and cultural dimensions of historical events. The literature highlights that the use of maps, diagrams, models, and digital tools—such as Geographic Information Systems (GIS), digital maps, and augmented reality applications—significantly enhances spatial thinking and supports deeper historical understanding. Place-based learning, fieldwork, and local history studies further strengthen students' connections between history and their immediate environments, contributing to increased engagement and learning retention. In addition, student-centered approaches such as problem-based learning and project-based learning promote spatial analysis, inquiry, and critical thinking skills. Overall, this study demonstrates that spatial literacy is not a supplementary element in history education but a core dimension of historical thinking, essential for developing a holistic and contextualized understanding of the past.

Introduction

History education is a multidimensional field of learning that aims not only to teach individuals about events that occurred in the past, but also to develop their ability to interpret these events within temporal, spatial, and contextual frameworks. Understanding the past is not limited to knowing the sequence of events; it also requires comprehending the geographical settings in which these events took place, the social, economic, and cultural structures of those settings, and how these factors influenced historical processes (Seixas & Morton, 2012). From this perspective, one of the fundamental goals of history education is to enable students to develop historical thinking skills that encourage them to seek answers not only to the question "what happened?" but also to "where?" and "why?". However, in instructional practices, the temporal dimension is often prioritized, while the spatial dimension of historical events remains secondary or is largely overlooked (Lee, 2017).

By their very nature, historical events are directly related to geographical conditions, spatial

locations, and environmental factors. For example, the Battle of Manzikert should be evaluated not only in terms of its outcomes but also in relation to the strategic significance of the geography in which it occurred. Similarly, the Ottoman Empire's ability to establish sovereignty across three continents is closely linked to Istanbul's geopolitical location and its position on major trade routes. Without considering such events within their spatial contexts, it is not possible to fully comprehend historical processes (Withers, 2009). Thus, space should be understood not merely as the setting of historical events, but as one of the fundamental factors shaping them.

In response to this limitation, the concept of spatial historical literacy has gained increasing attention in recent years. This concept lies at the intersection of historical literacy and spatial literacy and encompasses individuals' abilities to analyze, interpret, and make sense of historical events through their spatial dimensions (Gryl & Jekel, 2012). These abilities include understanding the geographical significance of cities, analyzing the strategic characteristics of regions where events took place, and reconstructing historical processes through maps or visual models (Schulze, 2020). Such an approach contributes to students' acquisition of historical knowledge in a more meaningful, contextual, and holistic manner.

Strengthening the spatial dimension in history education facilitates students' understanding of historical events not through memorization, but through inquiry based on cause–effect relationships and geographical connections. Understanding the relationship between "time" and "space" is a fundamental skill for grasping the complex nature of historical events. Nevertheless, existing research indicates that history instruction often prioritizes chronological sequencing, while the spatial and spatio-temporal dimensions of historical events remain less systematically addressed in classroom practice (Jo & Bednarz, 2014; Shin & Bednarz, 2019). This imbalance may constrain students' ability to contextualize historical events geographically and contribute to more fragmented or surface-level forms of historical understanding (Seixas, 2016; VanSledright, 2013). Addressing this gap, the present study aims to examine the theoretical foundations of spatial literacy in history education and to explore how it can be integrated into instructional processes, thereby contributing to the development of a more holistic understanding of history grounded in the interplay between time and space.

Building on the observation that the spatial dimension of history teaching is often treated as secondary, this study seeks to discuss the theoretical relationship between spatial literacy and historical literacy within a holistic framework. To this end, literature from history education, geography education, and the broader spatial turn in the humanities is brought together to conceptually ground the notion of spatial historical literacy. The pedagogical potential of this concept in history education is also evaluated, highlighting the effects of addressing historical events within both temporal and spatial contexts on learning processes.

Within this framework, the study adopts a qualitative approach in the form of a theoretical literature review. Studies published across various disciplines are systematically analyzed to more clearly define the intersection between historical literacy and spatial literacy. In this respect, the study aims to provide a theoretical contribution to a history education approach that places the time–space relationship at its core.

Integrating approaches such as historical literacy, spatial literacy, and spatial history within a shared theoretical framework has the potential to render history education more holistic and meaningful. Accordingly, the following sections examine how these concepts are theoretically grounded and present an analytical perspective on spatial historical literacy.

This study does not involve the collection of empirical data; instead, it adopts a qualitative theoretical approach grounded in a conceptual review of the literature. Drawing on international and interdisciplinary research in history education, spatial thinking, spatial literacy, spatial

history, and place-based pedagogy, the study offers a holistic synthesis that brings together historical literacy and spatial literacy—two approaches that are often addressed separately in the literature. By doing so, the study aims to contribute a conceptual framework and a pedagogical discussion that foregrounds the integration of time and space in history education, rather than proposing a methodological application.

Conceptual Framework and Key Concepts

Historical Literacy and Historical Thinking

Historical literacy is one of the core concepts of history education and enables students not only to learn about the past but also to understand, interpret, and evaluate it critically on the basis of evidence, context, and multiple perspectives (Wineburg, 2010). This competence goes beyond memorizing events in chronological order; it includes students' ability to analyze cause–effect relationships, recognize historical continuity and change, question the significance of events, and effectively engage with primary sources (Seixas & Morton, 2012). The literature emphasizes that historical literacy allows individuals to establish more meaningful connections with the past and to relate historical knowledge to contemporary issues (Lee, 2011; VanSledright, 2013).

Historical thinking, which constitutes an integral component of historical literacy, focuses on the cognitive processes through which historical knowledge is constructed. These processes involve evaluating events within their historical contexts, analyzing historical sources, recognizing diverse perspectives, and constructing evidence-based narratives (Seixas, 2016). Moreover, historical thinking requires understanding not only what and why events occurred, but also when and in what sequence they unfolded (Wineburg, 2022). Recent research, however, indicates that understanding where events took place is as critical as temporal knowledge in historical thinking. Historical events are shaped not only by time but also by space; therefore, the spatial dimension constitutes an indispensable component of historical reasoning (Withers, 2009).

Spatial Literacy: Origins and Educational Dimensions

The concept of spatial literacy originates from multiple disciplines, particularly geography education and cognitive sciences, and refers to individuals' abilities to perceive, interpret, and utilize spatial information within their environments (Goodchild, 2010). Spatial literacy extends beyond simply recognizing places; it also encompasses the ability to identify spatial patterns, reason about spatial relationships, and critically evaluate spatial information. While spatial literacy has long been emphasized in geography education, it has increasingly gained attention in history education, where the role of space in the analysis of historical events has become more explicitly acknowledged (Bednarz & Kemp, 2011)

Spatial literacy requires the application of fundamental spatial concepts—such as location, direction, distance, scale, distribution, connectivity, and region—in the analysis of historical and social phenomena. This competence involves not only reading maps and spatial data but also interpreting and contextualizing them across different analytical frameworks (Gersmehl & Gersmehl, 2011). In educational contexts, spatial literacy is regarded as a foundational competency for understanding today's complex social, political, and historical structures (National Research Council, 2006). Individuals with well-developed spatial literacy are better able to recognize how geographical conditions shape historical developments, how environmental constraints influence human mobility, and how strategic locations contribute to political or military outcomes.

Despite its established importance in geography education, spatial literacy has long remained peripheral in history teaching. Historical instruction has predominantly been structured around chronological narratives, often overlooking the places where events occurred and the role of

space in shaping historical processes. As a result, students may possess factual knowledge of historical events yet struggle to understand where these events took place and why spatial factors were significant in shaping them (Adashvoevich, 2025).

The Relationship Between Space and History: The Spatial History Approach

One of the approaches that emphasizes the importance of spatial thinking in history education is the concept of spatial history. This approach argues that presenting historical events solely in chronological order is insufficient; instead, attention must also be given to where events occurred, how they spread across space, and through which spatial dynamics they were shaped (Bodenhamer et al., 2010). In recent years, advances in digital mapping technologies and Geographic Information Systems (GIS) have rendered spatial history research more systematic. The examination of historical events through maps and visual data has introduced new dimensions to both academic research and teaching practices. Consequently, history education has moved beyond a process based solely on information transmission toward a more analytical learning environment centered on spatial analysis and inquiry.

The spatial turn that emerged in the humanities toward the end of the twentieth century has further foregrounded the role of space in historical analysis (Soja, 2013). With this shift, historians began to conceptualize space not merely as the backdrop of historical events but as one of the primary factors shaping those events. Within this framework, the spatial history approach integrates spatial analytical tools—such as GIS—with historical inquiry in order to reveal how spatial structures influence the past and how human–space relationships shape elements such as identity, society, and politics (Gregory & Geddes, 2014).

From a spatial history perspective, historians and educators are encouraged to view space as an integral component of historical explanation. For instance, trade networks in the Ottoman Empire can only be fully understood when analyzed in relation to the geographical routes and central cities through which they operated. Similarly, processes such as imperial expansion, mass migrations, and military campaigns can be examined in greater depth when spatial relationships and geographical constraints are taken into account (Knowles et al., 2008). Such approaches underscore the importance of spatial reasoning in history education and enable students to interpret events not only temporally but also spatially, thereby rendering historical thinking more multidimensional and contextual.

Spatial Historical Literacy: A Conceptual Framework

Historical literacy and spatial literacy have long been addressed as robust yet largely separate concepts within the fields of history and geography education. However, studies that integrate these two constructs within a holistic framework remain relatively limited. In this context, spatial historical literacy can be defined as a set of competencies that enable individuals to understand, interpret, and analyze historical events and processes within their spatial contexts through the use of geographical tools (Gryl & Jekel, 2012). Through this approach, students begin to perceive space not merely as the setting in which events occur, but as an active and dynamic element that both shapes and is shaped by historical developments.

Spatial historical literacy encompasses several core competencies that can be conceptualized by synthesizing scholarship on historical thinking and literacy (Seixas & Morton, 2012; Seixas, 2016) with frameworks of spatial thinking and spatial literacy (National Research Council, 2006; Gersmehl & Gersmehl, 2011), as well as work at the intersection of geography and citizenship education emphasizing spatial interpretation and critique (Gryl & Jekel, 2012). The first is spatial contextualization, referring to the ability to explain how the geographical characteristics of a place shape the causes and consequences of historical events (Withers, 2009; Seixas, 2016). Spatio-temporal reasoning involves analyzing events across time while tracing how processes

unfold across different locations and scales (National Research Council, 2006; Bodenhamer et al., 2010). The interpretation of spatial evidence entails using maps, spatial data, and geographic representations as evidence in historical inquiry (Knowles & Hillier, 2008; Gregory & Geddes, 2014). Finally, place-based interpretation focuses on connecting historical identities, cultural structures, and power relations to particular places and landscapes, consistent with place-based pedagogy and spatial approaches in the humanities (Gruenewald, 2003; Soja, 2013).

This integrated literacy framework encourages students to move beyond viewing historical knowledge as a body of information to be memorized, instead enabling them to interpret the past through spatial relationships in a more contextual and meaningful manner. Moreover, spatial historical literacy supports higher-order cognitive skills such as critical thinking, problem-solving, and synthesis. As a result, students are better equipped to seek answers not only to the question "what happened?" but also to "where, why, and how did it happen?", thereby constructing richer and more nuanced historical narratives.

Pedagogical Implications and Their Relationship with Instructional Processes

The effective integration of spatial historical literacy into classroom practices cannot be achieved through ad hoc methods; rather, it requires planned and intentional instructional approaches grounded in solid theoretical foundations. The literature emphasizes that map-based activities, spatial data analysis, and the integration of digital tools such as Geographic Information Systems (GIS) into history instruction offer significant opportunities for fostering this literacy (Shin & Bednarz, 2019). Such practices enable historical events to be examined not only in chronological order but also within networks of spatial relationships, thereby deepening students' historical understanding.

Instructional approaches proposed in the literature encourage students to evaluate historical processes through spatial patterns. For example, examining historical phenomena such as trade routes, political centers, or the territorial expansion of empires through maps and spatial representations allows students to more clearly comprehend the impact of geographical conditions on historical developments. These activities are not limited to history education alone; they also promote transferable skills that can be linked to related disciplines such as geography, citizenship education, and digital literacy.

The successful implementation of these approaches is closely tied to teacher education. Research indicates that many pre-service history and social studies teachers do not feel sufficiently competent or confident in teaching spatial concepts, supporting spatial reasoning, or using geographical tools for pedagogical purposes (Jo & Bednarz, 2014). Consequently, it is evident that teacher education programs should place greater emphasis on spatial thinking skills and interdisciplinary approaches. Establishing academic and pedagogical bridges between the disciplines of history and geography will facilitate the sustainable integration of spatial historical literacy into instructional practices.

Literature Review and Reflections on Instructional Processes

Empirical Findings on Spatial Thinking in History Education

In recent years, there has been a notable increase in research examining the role of spatial thinking in history education. These studies demonstrate that presenting historical events solely along a temporal axis limits students' historical understanding, whereas linking events to their geographical contexts leads to deeper and more meaningful learning (Jo & Bednarz, 2014; Shin & Bednarz, 2019). In particular, lessons in which historical processes are explored through maps, routes, and spatial connections tend to foster stronger analytical thinking and cause–effect reasoning among students.

At the same time, the literature reveals that both students and pre-service teachers encounter significant challenges in map reading and spatial thinking. Empirical studies indicate that teacher candidates often lack sufficient pedagogical knowledge and confidence to address historical events within spatial contexts, particularly in relation to map-based instruction and spatial reasoning (Jo & Bednarz, 2014; Bednarz & Kemp, 2011). Similarly, students across different age groups may recall basic historical facts yet struggle to accurately locate events on maps or explain their spatial relationships (Wineburg, 2022).

These findings indicate that the text-based and chronologically oriented instructional approaches still prevalent in history education do not adequately support spatial thinking. Seixas (2016) emphasizes that elements such as context, causality, and evidence-based reasoning are central to historical thinking, and that context encompasses not only temporal but also spatial dimensions. Ignoring the spatial dimension, therefore, may hinder students' ability to understand complex relationships between events and to engage in more holistic historical analysis.

Conversely, the planned and systematic integration of spatial thinking into history instruction produces observable improvements in student learning. Research by Jo and Bednarz (2014) and Shin and Bednarz (2019) demonstrates that activities designed to support spatial reasoning significantly enhance students' knowledge of historical geography, their ability to establish spatial relationships, and their capacity for cause–effect analysis. These findings underscore that spatial thinking should be regarded not as a supplementary component, but as a core element of learning in history education.

Overall, empirical studies suggest that neglecting the spatial dimension in history teaching constrains learning, whereas its deliberate incorporation substantially strengthens historical thinking. This body of evidence provides strong scientific support for the systematic inclusion of spatial historical literacy within instructional processes.

Map-Based Learning and Historical Understanding

One of the most widely used approaches to fostering spatial historical literacy is the integration of map-based learning into history instruction. Maps function not merely as visual tools that indicate where events occurred, but as powerful instructional instruments that enable the analysis of historical change, spatial relationships, and cause–effect connections (Bednarz & Kemp, 2011). In this respect, maps support students in questioning why events took place in specific locations, recognizing how geography influences historical outcomes, and considering how factors such as proximity, accessibility, or isolation shape historical interactions.

Research demonstrates that map-based activities significantly enhance students' historical thinking skills in multiple ways. For instance, students who participate in historical mapping activities show stronger performance in explaining cause–effect relationships and identifying patterns of continuity and change across different regions (McLaughlin & Bailey, 2023). These activities extend beyond memorizing place names or borders; they encourage students to reconstruct historical events within their spatial contexts. Tasks such as tracing the spread of Islam, mapping trade networks along the Silk Road, or analyzing strategic maneuvers during the Napoleonic Wars enable students to examine historical phenomena in meaningful ways through maps (Gregory & Geddes, 2014).

Advances in digital technologies have further expanded the pedagogical potential of maps in history education. Interactive mapping platforms allow students to organize historical data into layers, visualize changes over time, and dynamically track spatial transformations (Bodenhamer et al., 2010). Such digital tools move students beyond passive information consumption and position them as active inquirers. As a result, students engage in deeper learning processes—both cognitively and technically—while analyzing spatial evidence (Shin & Bednarz, 2019).

Geographic Information Systems (GIS) in History Education

The use of Geographic Information Systems (GIS) in history education is regarded as a significant advancement in the development of spatial pedagogy. GIS technology enables students to collect, analyze, and visualize spatial data, thereby linking historical information—often perceived as abstract—to concrete spatial contexts (Gregory & Geddes, 2014). Through GIS-based activities, students can more clearly examine how historical processes such as demographic change, migration patterns, or urban growth unfold across both temporal and spatial dimensions.

Empirical research indicates that integrating GIS into history instruction yields substantial educational benefits. Jo and Bednarz (2014) report that GIS-based activities strengthen students' understanding of historical geography and significantly enhance their spatial reasoning skills. Similarly, Knowles and Hillier (2008) emphasize that GIS applications allow students to visualize historical events in ways that are not possible with traditional maps alone. For example, analyzing the effects of industrialization by examining political boundaries alongside population density, production zones, and transportation networks enables students to develop a more holistic understanding of historical processes. In this respect, GIS not only supports content knowledge but also contributes to the development of higher-order thinking skills such as analysis, synthesis, and interpretation (Shin & Bednarz, 2019).

Despite its considerable pedagogical potential, GIS has not yet been widely adopted in history classrooms. The literature identifies several key barriers to its implementation, including teachers' limited training in GIS, insufficient technological infrastructure in schools, and the restricted inclusion of GIS-based practices in curricula (Jo & Bednarz, 2014). Overcoming these challenges requires strengthening technological resources within educational institutions and implementing targeted professional development programs that focus on the effective integration of GIS into classroom instruction.

Place-Based Pedagogy and Historical Contextualization

One prominent pedagogical approach that supports spatial historical literacy is place-based pedagogy. This approach emphasizes learning from place by linking historical learning to students' immediate environments. Place-based education encourages students to access historical knowledge not only through textbooks, but also through the natural and cultural landscapes of their surroundings, including historical buildings, monuments, and lived spaces (Gruenewald, 2003). When students engage directly with history in situ, they tend to develop a more concrete, contextualized, and enduring understanding of the past.

Research indicates that place-based practices enhance students' spatial awareness and support their ability to interpret historical events within specific geographical and social contexts (Gruenewald, 2003; Johnson, 2012). Place-based learning enables students to connect abstract historical phenomena to tangible locations and their own lived environments, which has been shown to foster stronger cognitive engagement, deeper contextual understanding, and increased emotional connection with historical content (Gryl & Jekel, 2012; Shin & Bednarz, 2019).

Moreover, place-based education supports students not only in learning about the past, but also in understanding how historical processes shape communities and how spatial decisions made over time influence contemporary social and political structures. Such awareness aligns closely with one of the central aims of history education: cultivating critically minded, informed, and participatory citizens (Gryl & Jekel, 2012).

Teacher Education and Its Relationship with the Curriculum

The effective development of spatial historical literacy largely depends on teachers' professional

competencies in this domain and on the extent to which curricula are structured to support such competencies. Research reveals that many pre-service history and social studies teachers encounter spatial thinking concepts only to a limited degree and lack sufficient pedagogical knowledge of map-based instructional approaches (Jo & Bednarz, 2014). As a result, instruction often remains text-centered and abstract, with limited use of applied methods such as spatial analysis.

For this reason, it is essential that teacher education programs systematically and experientially cultivate spatial thinking skills. The literature emphasizes the importance of interdisciplinary approaches, activity-based learning, and the integration of digital mapping tools into instructional processes to support the development of these competencies (Bednarz & Kemp, 2011). In addition, in-service training and professional development workshops can assist teachers in becoming familiar with spatial pedagogies and in effectively implementing these approaches in classroom settings.

At the same time, curriculum design must be reconsidered in ways that actively support this pedagogical shift. Scholars argue that spatial learning objectives should be integrated not only into classroom activities but also into history education standards and assessment systems (Shin & Bednarz, 2019). Such integration can enable students to move beyond rote memorization by engaging with spatial evidence, conducting analyses grounded in geographical contexts, and developing more holistic historical interpretations.

Challenges and Future Perspectives

Although significant steps have been taken toward integrating spatial literacy into history education, several challenges remain in practice. One of the primary challenges is the inherently interdisciplinary nature of spatial literacy, which requires stronger theoretical and pedagogical collaboration among fields such as history, geography, and educational technology (Soja, 2013).

Another major challenge concerns assessment and evaluation practices commonly used in history education. These practices tend to focus predominantly on factual knowledge and chronological sequencing, which limits the use of performance-based approaches that would allow students to demonstrate historical thinking skills in more comprehensive and creative ways (VanSledright, 2013).

In addition, digital mapping, spatial data visualization, and digital humanities tools that link historical information with spatial contexts offer promising opportunities for history education. These technologies enable students to work with historical evidence while simultaneously analyzing its spatial dimensions, thereby supporting the development of a multidimensional understanding of history (Gregory & Geddes, 2014).

From the perspective of this review, these challenges indicate that the limited integration of spatial thinking in history education is not solely a matter of instructional practice, but also reflects a deeper theoretical separation between time and space that continues to shape curricular priorities and pedagogical traditions.

Summary of Pedagogical Implications

Theoretical and empirical studies on spatial thinking and spatial historical literacy in history education reveal several shared pedagogical tendencies. In this regard, the following key implications for instructional practice emerge:

- The explicit and systematic teaching of spatial concepts significantly supports meaningful history learning across educational levels, from primary education to higher education, and should be integrated into curricula accordingly.

- Map-based activities and Geographic Information Systems (GIS) serve as effective tools for understanding not only when historical events occurred, but also where and how they unfolded.
- Place-based learning experiences help students establish stronger connections with historical content, rendering historical events more concrete, meaningful, and emotionally engaging.
- Increasing the emphasis on spatial thinking within teacher education programs directly contributes to the effective classroom implementation and development of these skills among students.
- The literature increasingly emphasizes the need to diversify assessment and evaluation approaches to encompass spatial reasoning alongside content knowledge.

Taken together, these implications indicate a shift away from approaches in history education that focus exclusively on time, toward more holistic and multidimensional frameworks that foreground space alongside time. Such an approach offers students learning experiences that enable them not merely to memorize the past, but to analyze, question, and evaluate it within meaningful historical contexts.

Conclusion and Future Research Directions

The Contribution of Spatial Literacy to Historical Understanding

Addressing spatial literacy in history education offers an important theoretical opportunity to reconsider how students understand the past. Traditional history instruction has largely relied on text-based narratives that prioritize factual knowledge and the chronological sequencing of events. While these elements remain fundamental to history education, the limited visibility of the geographical spaces in which events occurred can constrain students' historical understanding.

The literature demonstrates that integrating spatial literacy into history education fosters a more holistic historical understanding in which time and space are considered together (Withers, 2009; Seixas & Morton, 2012). This approach supports students' ability to analyze where historical events took place, how the characteristics of specific locations influenced these events, and the role of space in shaping cause–effect relationships.

Through spatial literacy, students can, for example, map the routes of migration movements, interpret geopolitical conflicts through spatial relationships, understand why trade routes passed through particular regions, or evaluate the geographical diffusion of cultural interactions. In this way, historical learning moves beyond memorization toward a deeper process centered on analysis, interpretation, and relational thinking.

Moreover, spatial literacy facilitates connections between historical events and contemporary issues. Current challenges such as urbanization, environmental crises, and international tensions can be understood more meaningfully when examined in relation to past spatial processes. From this perspective, spatial thinking emerges as a valuable cognitive tool that enables students to evaluate historical knowledge by linking it to the present-day world (Goodchild, 2010; Soja, 2013).

The Spatial Dimension in Pedagogical Approaches

Incorporating spatial thinking into history education requires a fundamental transformation not only in content but also in instructional methods. For many years, history teaching has been organized primarily around the chronological ordering of events, with students expected to memorize this sequence. However, considering not only when events occurred but also where

and under what conditions they unfolded can render learning far more meaningful and profound.

In this regard, it is essential for teachers to develop strategies that integrate spatial reasoning into their instructional practices. Map-based activities, Geographic Information Systems (GIS) applications, and place-based learning approaches, in particular, enable students to analyze historical events within their geographical contexts. These methods support active engagement by encouraging students not merely to receive information, but to think critically, ask questions, and generate their own interpretations (Gregory & Geddes, 2014; Jo & Bednarz, 2014). Such approaches also contribute to the creation of more interactive learning environments that move beyond teacher-centered instruction and promote student participation and inquiry-based learning.

For this transformation to be successfully realized, teacher education programs must be restructured accordingly. Both pre-service and in-service teachers need support in developing spatial analysis skills, using digital mapping tools, and establishing meaningful connections between history and geography. The literature indicates that explicitly addressing spatial thinking in teacher education facilitates the effective transfer of these skills into classroom practice (Bednarz & Kemp, 2011; Shin & Bednarz, 2019).

In conclusion, teacher education plays a critical role in this pedagogical shift and paves the way for the systematic, sustainable, and meaningful integration of spatial historical literacy into history instruction.

Evaluation in Terms of Curriculum and Education Policies

For spatial historical literacy to be fully embedded within the education system, changes must extend beyond classroom practices to encompass curriculum design and education policy. In this regard, history curricula should define spatial competencies not merely as supportive elements but as explicit learning outcomes. Maps and geographical content should be treated not only as visual aids but as core components of historical thinking (VanSledright, 2013).

Accordingly, clear and measurable learning objectives should be developed for competencies such as spatial contextualization, spatio-temporal reasoning, and the analysis of map-based data. These objectives would provide a structured framework for integrating spatial thinking systematically into history instruction.

Assessment practices must also adapt to this transformation. While many history assessments continue to focus primarily on content knowledge and chronological understanding, spatial competencies often remain marginalized. Innovative assessment tools—such as map-based analyses, digital story maps, and spatial performance tasks—can more effectively capture students' competencies in this domain (Schulze, 2020). The use of such tools may also encourage teachers to incorporate spatial thinking more consistently into their instructional practices.

For this transformation to be sustainable, policymakers and educational leaders bear significant responsibility. Supporting collaboration between the disciplines of history and geography, providing professional development programs focused on spatial pedagogies, and equipping schools with technological infrastructures such as Geographic Information Systems (GIS) constitute essential steps in this process (Knowles et al., 2015). When implemented collectively, these measures can facilitate the broader and more effective use of spatial approaches in history education.

Suggested Areas for Future Research

Although substantial progress has been made in exploring the intersection of spatial literacy and history education, significant gaps remain in the literature, offering fertile ground for future

research. One priority area involves the development of valid and reliable assessment instruments for evaluating spatial historical literacy. While many existing tools assess spatial skills or historical thinking separately, instruments that capture the integrated nature of spatial historical reasoning remain limited. Developing such tools would not only advance research in the field but also inform instructional design and education policy (Gryl & Jekel, 2012).

In addition, there is a need for longitudinal studies that examine how spatial historical literacy develops over time and across different educational levels. Such research could illuminate how students' spatial reasoning skills evolve from primary education through higher education and how these skills influence broader historical understanding and civic engagement. Experimental studies are also needed to test the effects of specific pedagogical interventions—such as GIS-based modules, fieldwork, and interdisciplinary projects—on spatial historical literacy (Jo & Bednarz, 2014; Johnson, 2012).

Emerging technologies likewise present promising avenues for future research. Virtual reality (VR), augmented reality (AR), and three-dimensional mapping tools enable more immersive explorations of historical spaces and processes. Comparative studies could examine the effects of these technologies on student engagement, knowledge retention, and higher-order cognitive skills relative to traditional instructional methods (Gregory & Geddes, 2014). Similarly, digital humanities projects that integrate big data, spatial analysis, and historical narratives may offer innovative models for spatial history teaching and research (Bodenhamer et al., 2010).

A Spatially Informed Historical Understanding

In conclusion, integrating spatial literacy into history education is not merely a matter of improving students' academic performance; rather, it is fundamentally concerned with cultivating a deeper and more nuanced historical consciousness. When students learn to interpret the past through both temporal and spatial lenses, they become more aware of the role geography plays in shaping human experience and are better able to comprehend the development of societies, identities, and global interactions in a holistic manner (Soja, 2013).

A spatially informed approach to historical understanding enables students to critically reflect on how spatial decisions made in the past continue to shape the present. It also equips them with analytical tools that allow for meaningful engagement with contemporary spatial issues, such as territorial disputes or urban planning. In this respect, spatial historical literacy transcends disciplinary boundaries and contributes to the cultivation of informed, participatory, and spatially aware citizens.

Overall Evaluation

This literature review highlights a growing scholarly consensus that spatial literacy is not an optional component of history education but a foundational element of historical understanding. When spatial reasoning is integrated holistically into curricula, pedagogical approaches, and assessment practices, students move beyond memorization toward constructing connected narratives that explain how and why historical processes unfolded as they did. Such an approach not only enriches history learning but also equips students with the analytical skills required to navigate an increasingly complex and spatially interconnected world.

Future research, curriculum reforms, and pedagogical innovations will play a critical role in advancing this transformation. In particular, future studies may focus on developing assessment tools and instructional models that integrate spatial reasoning into historical thinking, while curriculum reforms can more explicitly embed spatial competencies—such as map-based analysis and spatio-temporal reasoning—within history learning outcomes. Pedagogical innovations, including the use of digital mapping tools, GIS-based activities, and place-based learning approaches, also hold considerable potential to support the systematic integration of

spatial historical literacy into classroom practice. When successfully implemented, this integration has the potential to fundamentally reshape history education—enabling students not only to know about the past, but to read it through the combined lenses of time and space.

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