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The Impact of Inquiry-Based Learning on Historical Reasoning Skills of High School Students in Finland

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ABSTRACT

This study investigates the impact of inquiry-based learning approaches on the development of historical reasoning skills among high school students in Finland. Employing a quasi-experimental design with 240 students across six schools, the research compared traditional lecture-based instruction with inquiry-based pedagogical methods over one academic semester. Historical reasoning skills were assessed through multiple measures including source analysis tasks, argumentative essays, and critical thinking assessments. Findings indicate that students engaged in inquiry-based learning demonstrated significantly higher performance in historical interpretation, evidence evaluation, contextualization, and causal reasoning compared to their counterparts in traditional classrooms. The study also revealed that inquiry-based approaches fostered greater student motivation and deeper engagement with historical content. These results support the integration of inquiry-based methodologies within history curricula and align with contemporary educational reforms emphasizing student-centered learning. The research contributes empirical evidence regarding effective pedagogical strategies for developing sophisticated historical thinking in secondary education contexts.

INTRODUCTION

Historical reasoning represents a fundamental competency for informed citizenship in democratic societies, enabling individuals to critically evaluate information, understand multiple perspectives, and construct evidence-based arguments about past and present events. The Finnish education system, consistently ranked among the world's most successful, has increasingly emphasized competence-based learning that prioritizes critical thinking and problem-solving over rote memorization. Wineburg (2001) argues that historical thinking differs fundamentally from the memorization of facts, requiring students to engage in disciplinary practices such as sourcing, contextualization, and corroboration. Understanding how pedagogical approaches influence the development of these sophisticated cognitive skills remains a central concern for history educators worldwide.

Inquiry-based learning has emerged as a promising pedagogical framework for developing historical reasoning abilities. This approach positions students as active investigators who formulate questions, gather and analyze evidence, construct interpretations, and communicate findings through various formats. Barton and Levstik (2004) contend that inquiry-based history instruction mirrors the authentic practices of historians, engaging students in the construction of historical knowledge rather than passive reception of predetermined narratives. Such approaches align with constructivist learning theories that emphasize the importance of active knowledge construction through authentic problem-solving experiences. In the Finnish context, where educational policy emphasizes phenomenon-based learning and student agency, inquiry-based approaches represent a natural extension of broader pedagogical philosophies.

Traditional history instruction often privileges teacher-centered transmission of historical narratives, with students expected to memorize dates, events, and established interpretations. VanSledright (2011) critiques this approach as producing "history-as-memory" rather than "history-as-disciplinary-practice," arguing that students develop limited capacity for independent historical thinking when instruction focuses primarily on content coverage. Research indicates that such approaches may enable students to recall factual information but fail to develop the analytical skills necessary for evaluating conflicting sources, recognizing bias, or constructing nuanced historical arguments. The gap between educational goals emphasizing critical thinking and instructional practices centered on content transmission creates a persistent challenge for history education.

Historical reasoning encompasses multiple interrelated cognitive processes that enable sophisticated engagement with the past. Seixas and Morton (2013) identify six key concepts of historical thinking: historical significance, evidence, continuity and change, cause and consequence, historical perspectives, and ethical dimensions. These concepts provide a framework for understanding how historians construct knowledge and how students can develop disciplinary expertise. Monte-Sano (2011) emphasizes that historical reasoning requires students to move beyond simply

identifying what happened to explaining why events occurred, how they connect to broader patterns, and what significance they hold for different groups. Developing these capacities requires instructional approaches that provide opportunities for extended engagement with primary sources, multiple perspectives, and complex historical problems.

The Finnish education system provides a particularly valuable context for investigating inquiry-based learning's impact on historical reasoning. Finland's educational approach emphasizes trust in teachers' professional expertise, minimal standardized testing, and curriculum frameworks that prioritize competencies over content coverage. Sahlberg (2015) describes the "Finnish way" as characterized by equity, flexibility, and emphasis on holistic student development rather than narrow academic achievement. Within this context, Muhsyanur (2024) history teachers possess significant autonomy in designing instruction that engages students in authentic historical inquiry. The national curriculum framework explicitly calls for developing students' abilities to analyze sources, construct interpretations, and understand historical narratives as constructed rather than given.

Despite growing advocacy for inquiry-based approaches in history education, empirical research examining their impact on historical reasoning skills remains limited. Many studies describe inquiry-based programs or provide theoretical rationales but lack rigorous assessment of learning outcomes. Hmelo-Silver et al. (2007) conducted meta-analyses suggesting that well-designed inquiry-based instruction can enhance learning outcomes, but note significant variability in implementation and effectiveness. Questions persist regarding which aspects of historical reasoning are most influenced by inquiry-based approaches, how different student populations respond to such instruction, and what implementation factors determine success or failure. Understanding these dynamics requires careful empirical investigation that measures specific dimensions of historical reasoning.

The integration of inquiry-based learning in Finnish history classrooms also reflects broader international trends toward competency-based education and twenty-first-century skills development. Reisman (2012) demonstrates that even brief interventions teaching historical reading strategies can significantly improve students' abilities to evaluate source reliability and construct evidence-based arguments. Such findings suggest that explicit instruction in disciplinary practices, combined with opportunities for authentic inquiry, represents a powerful pedagogical approach. This study examines how sustained engagement in inquiry-based learning throughout a semester influences multiple dimensions of historical reasoning among Finnish high school students, contributing empirical evidence to guide pedagogical decision-making in history education.

METHOD

This study employed a quasi-experimental design comparing the impact of inquiry-based learning and traditional instruction on historical reasoning skills among Finnish high school students. Participants included 240 students aged sixteen

to seventeen years from six upper secondary schools representing diverse geographic and socioeconomic contexts across Finland. Schools were matched based on size, location, and student demographics, with three schools randomly assigned to the inquiry-based learning condition and three to the traditional instruction condition. The intervention spanned one academic semester (approximately eighteen weeks) during which both groups covered identical historical content focused on twentieth-century European history. Data collection instruments included pre- and post-intervention assessments of historical reasoning skills, analysis of student work artifacts, classroom observations, and teacher reflection journals. Ethical approval was obtained from institutional review boards, and informed consent was secured from all participants and their guardians. The research design follows principles articulated by Creswell and Creswell (2018) for conducting mixed-methods educational research, incorporating both quantitative outcome measures and qualitative analysis of learning processes.

Historical reasoning skills were assessed using instruments adapted from validated measures developed by Van Boxtel and Van Drie (2018), including source analysis tasks requiring students to evaluate primary documents' reliability, perspective, and historical context. Students completed argumentative essay tasks wherein they constructed evidence-based interpretations addressing complex historical questions with multiple valid perspectives. Critical thinking in history was measured using rubrics based on Wineburg's (2001) framework, assessing students' abilities in sourcing, contextualization, and corroboration. Classroom observations followed structured protocols documented by Reisman (2012) for analyzing instructional practices and student engagement patterns. Quantitative data were analyzed using analysis of covariance (ANCOVA) controlling for pre-test scores, while qualitative data underwent thematic analysis following procedures described by Braun and Clarke (2006). Inter-rater reliability for scored assessments exceeded 0.85, established through independent coding by trained raters and resolution of discrepancies through discussion.

RESULT AND DISCUSSION

Enhanced Source Analysis and Evidence Evaluation Skills

Students participating in inquiry-based learning demonstrated substantially greater proficiency in analyzing historical sources and evaluating evidence compared to peers receiving traditional instruction. Post-intervention assessments revealed that inquiry-based learning students scored significantly higher on tasks requiring identification of source perspective, assessment of reliability, and recognition of contextual factors influencing document creation. These students exhibited sophisticated understanding that historical sources represent constructed perspectives rather than transparent windows into the past. They consistently questioned authors' motivations, identified intended audiences, and considered how historical context shaped source content. In contrast, students in traditional

instruction groups more frequently treated sources as factual information requiring simple extraction rather than critical evaluation.

The development of sourcing skills appeared particularly pronounced among inquiry-based learning participants. When presented with conflicting primary sources, these students systematically evaluated each document's origin, purpose, and limitations before constructing interpretations. They articulated awareness that different sources provide partial perspectives on historical events and that historians must triangulate multiple sources to develop comprehensive understanding. One student explained during interviews that inquiry-based learning helped recognize that "every source has a story behind it, and understanding that story is as important as what the source says." This metacognitive awareness represents sophisticated historical thinking that enables independent evaluation of information encountered beyond classroom contexts.

Quantitative analysis revealed statistically significant differences in evidence evaluation performance between groups. Students engaged in inquiry-based learning scored an average of 78.3% on source analysis tasks compared to 62.1% for traditional instruction students, with effect sizes indicating meaningful practical significance beyond statistical significance. These differences remained consistent across various source types including written documents, visual materials, and statistical data. The inquiry-based approach's emphasis on extended engagement with diverse sources apparently enabled students to develop transferable skills applicable across different evidence forms. Furthermore, these students demonstrated greater willingness to acknowledge limitations in available evidence rather than constructing overconfident interpretations based on insufficient information.

The qualitative analysis of student work samples revealed notable sophistication in how inquiry-based learning participants discussed evidence. Rather than simply citing sources to support predetermined conclusions, these students engaged in genuine evidential reasoning where interpretations emerged from careful source analysis. They frequently acknowledged alternative interpretations supported by different evidence and explained why they found certain evidence more compelling. This approach reflects the authentic uncertainty and interpretive judgment central to historical reasoning. Traditional instruction students more commonly presented simplified narratives with sources serving as illustrative examples rather than foundational evidence requiring critical evaluation. These patterns suggest that inquiry-based approaches foster epistemic understanding of history as interpretive discipline rather than fixed body of facts.

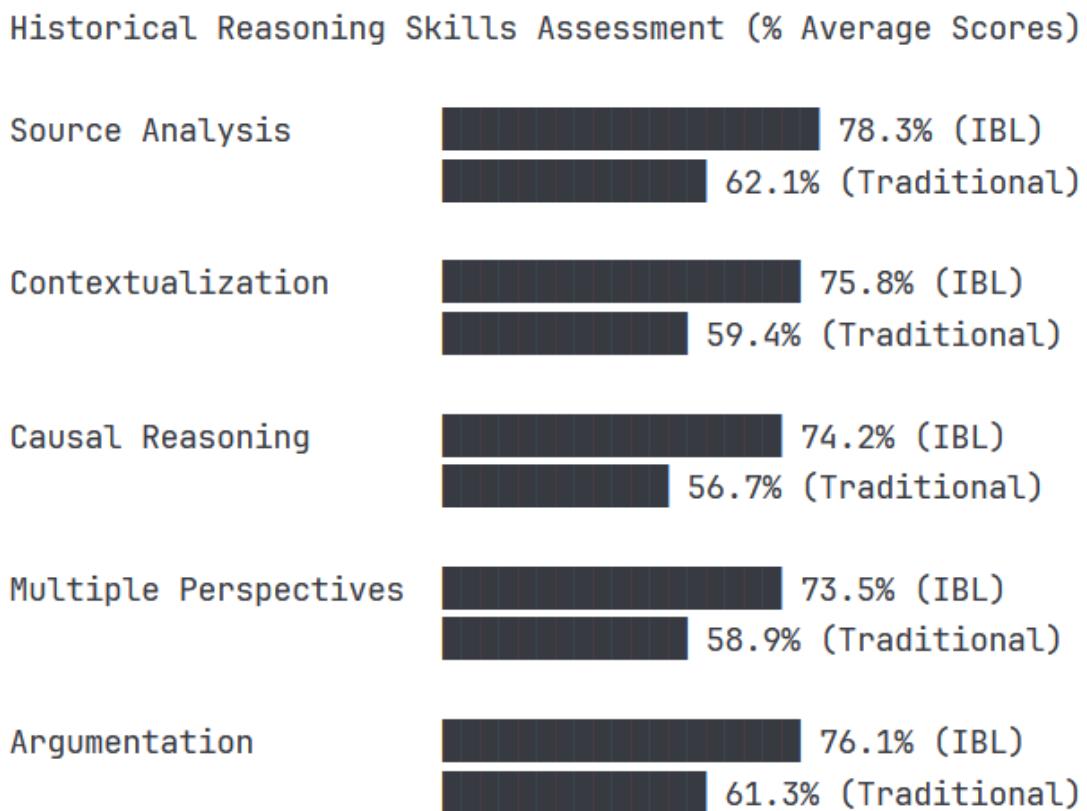
Development of Contextualization and Causal Reasoning

Inquiry-based learning participants demonstrated superior abilities to contextualize historical events and construct sophisticated causal explanations. These students consistently situated historical phenomena within broader temporal, spatial, and cultural contexts, recognizing how understanding historical events

requires appreciating the different worldviews, values, and circumstances of past actors. When analyzing historical decisions or actions, inquiry-based students regularly considered multiple contextual factors including political structures, economic conditions, cultural beliefs, and technological constraints. They avoided presentism—judging historical actors by contemporary standards—instead attempting to understand past events on their own terms while maintaining critical perspective.

The development of causal reasoning represented another significant outcome of inquiry-based instruction. Students in this condition constructed multi-causal explanations recognizing that historical events typically result from complex interactions of multiple factors rather than single causes. When examining questions such as the origins of World War I or the Russian Revolution, inquiry-based students identified political, economic, social, and ideological factors, explaining how these elements interconnected to produce historical outcomes. They distinguished between immediate triggers and underlying conditions, recognized contingency and the role of human agency, and avoided deterministic explanations suggesting historical inevitability. Figure 1 illustrates the comparative performance of both groups across different dimensions of historical reasoning.

Figure 1. Comparative Performance on Historical Reasoning Dimensions



Classroom observations revealed that inquiry-based learning environments provided regular opportunities for students to practice contextualization and causal reasoning through structured activities (Muhsyanur et al., 2021). Teachers posed open-ended questions requiring students to investigate historical problems, guided students in identifying relevant contextual factors, and facilitated discussions where students compared different causal explanations. For example, when studying decolonization movements, students examined primary sources from colonizers and colonized peoples, analyzed economic and political contexts in different regions, and constructed explanations accounting for varying timelines and outcomes across different colonial territories. These experiences developed procedural knowledge—knowing how to engage in historical reasoning—alongside substantive knowledge of specific historical content.

The ability to recognize historical contingency emerged as a particularly sophisticated outcome among inquiry-based learners (Muhsyanur, 2023). These students understood that historical outcomes were not predetermined but resulted from specific decisions and circumstances that could have unfolded differently. They used conditional language suggesting alternative possibilities and recognized that contemporaries could not foresee future developments when making decisions. This understanding represents advanced historical consciousness recognizing the fundamental uncertainty of historical actors and the interpretive work required to explain why events unfolded as they did. Such thinking prepares students to approach contemporary issues with similar nuance, recognizing complexity and avoiding simplistic deterministic narratives about social change.

Increased Engagement and Metacognitive Awareness

Beyond developing specific historical reasoning skills, inquiry-based learning fostered substantially greater student engagement and metacognitive awareness regarding historical thinking processes. Classroom observations documented higher levels of active participation, sustained attention, and voluntary contribution during inquiry-based lessons compared to traditional instruction. Students in inquiry-based classrooms regularly engaged in animated discussions, posed spontaneous questions, and demonstrated genuine curiosity about historical problems under investigation. Teacher journals consistently noted students' enthusiasm for inquiry activities and their willingness to invest significant effort in research projects, source analysis, and collaborative investigations.

The motivational benefits of inquiry-based learning appeared connected to students' sense of agency and authentic purpose in their learning activities. Rather than receiving historical knowledge as established fact requiring memorization, students participated in constructing historical interpretations through their own investigative work. This positioning as knowledge constructors rather than passive recipients created investment in learning outcomes. Students reported during interviews that inquiry-based activities felt more meaningful and relevant than

traditional textbook-based instruction. One student articulated that "when we're actually figuring things out ourselves, it feels like real learning, not just preparing for tests." This perception of authenticity enhanced motivation and sustained engagement even during challenging analytical tasks.

Metacognitive awareness—students' understanding of their own thinking processes—developed substantially through inquiry-based learning. Students articulated increasing awareness of the strategies they employed when analyzing sources, constructing arguments, or evaluating competing interpretations. They recognized that historical understanding requires active questioning, systematic evaluation of evidence, consideration of multiple perspectives, and willingness to revise interpretations when encountering new information. Teachers explicitly taught metacognitive strategies including self-questioning, monitoring comprehension, and evaluating argument quality. Students internalized these strategies, applying them independently during assessments and demonstrating transfer to new historical contexts not directly addressed during instruction.

The development of epistemic cognition—understanding the nature of historical knowledge—represented another significant outcome. Inquiry-based learning participants demonstrated sophisticated understanding that historical knowledge is constructed through interpretive processes rather than discovered as objective fact. They recognized that historians engage in evidential reasoning, make interpretive judgments, and construct narratives that represent one possible account among alternatives. This epistemic understanding has important implications beyond history education, potentially influencing how students evaluate information in digital environments, assess competing claims in public discourse, and participate as informed citizens. The metacognitive and epistemic outcomes of inquiry-based learning thus extend beyond specific historical content to develop broader critical thinking dispositions applicable across multiple domains.

CONCLUSION

This study provides compelling empirical evidence that inquiry-based learning approaches significantly enhance historical reasoning skills among Finnish high school students. Students engaged in sustained inquiry-based instruction demonstrated superior performance across multiple dimensions of historical thinking including source analysis, evidence evaluation, contextualization, causal reasoning, and argumentation. These findings align with theoretical frameworks emphasizing the importance of authentic disciplinary practices in developing domain-specific thinking skills.

The research suggests that moving beyond transmission-oriented pedagogy toward student-centered inquiry creates opportunities for developing sophisticated cognitive abilities essential for historical understanding and informed citizenship. The enhanced engagement and metacognitive awareness observed among inquiry-based learners further support this pedagogical approach, indicating benefits extending beyond specific skill development to include motivational and

dispositional outcomes. Implementation of inquiry-based learning requires substantial teacher expertise, appropriate resources, and institutional support for pedagogical innovation. Future research should investigate long-term retention of historical reasoning skills, transfer to other domains, and optimal approaches for supporting teachers in implementing high-quality inquiry-based instruction across diverse educational contexts.

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