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THE EFFECT OF COGNITIVE APPRENTICESHIP STRATEGY ON DEVELOPING HISTORICAL THINKING SKILLS AMONG EIGHTH GRADE BASIC FEMALE STUDENTS

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ABSTRACT

This study investigated the effect of cognitive apprenticeship strategy on developing historical thinking skills among eighth-grade students using an experimental design with two equivalent groups. The sample consisted of eighth-grade female students from basic education schools in Zakho during the academic year 2024-2025, randomly assigned to experimental and control groups. The experimental group received instruction based on cognitive apprenticeship strategy while the control group used traditional teaching methods. A historical thinking skills test was developed and validated, encompassing five main skills: chronological and spatial sequencing, historical understanding, thinking about historical evidence, understanding change and continuity, and analyzing historical issues and decision-making. Results revealed statistically significant differences between groups favoring the experimental group, with further analysis showing significant improvement in all historical thinking skills from pre to post-test. Effect size calculations demonstrated that cognitive apprenticeship had a substantial impact on developing students' historical thinking skills. The study recommends incorporating historical thinking skills in social studies curricula and encouraging teachers to implement cognitive apprenticeship strategies.

Keywords: *Cognitive apprenticeship, historical thinking, eighth grade, social studies, teaching strategy*

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INTRODUCTION

History education faces significant challenges in contemporary educational settings. Traditional teaching methods often reduce history to mere memorization of names, dates, and isolated facts, failing to develop students' critical thinking abilities or deeper understanding of historical contexts (VanSledright, 2013). This approach undermines the true value of history education, which should enable students to analyze past events critically, evaluate historical evidence, and understand historical causality and continuity. Developing historical thinking skills has thus emerged as a crucial objective in modern history education, representing a shift from passive acquisition of historical information to active engagement with historical inquiry processes (Ercikan & Seixas, 2015).

Historical thinking encompasses specialized cognitive skills that allow students to approach history as historians do—questioning sources, contextualizing events, and developing evidence-based interpretations (Wineburg, 2010). These skills include chronological reasoning, contextualizing historical events within their proper time and space, analyzing historical evidence, recognizing continuity and change, and understanding historical perspectives (Seixas, 2017). The development of these skills requires instructional approaches that move beyond traditional pedagogical methods to more interactive, cognitive-based strategies (Tirado-Olivares et al., 2024).

Cognitive apprenticeship strategy represents one such approach, drawing from sociocultural learning theories and situated cognition principles (Dennen, 2013). This strategy models expert thinking processes, makes tacit cognitive processes visible to learners, and provides scaffolded learning experiences that gradually transfer responsibility to students. By treating the classroom as a cognitive workshop where teachers model historical thinking processes, cognitive apprenticeship creates an environment conducive to the development of complex cognitive skills required for historical analysis (Jiang et al., 2024).

The eighth grade represents a critical developmental stage where students transition from concrete to more abstract thinking patterns. At this educational level, students begin developing the cognitive capacities needed for historical analysis, making it an opportune time to introduce sophisticated historical thinking frameworks (Barton & Levstik, 2004). Their growing capacity for perspective-taking, causal reasoning, and abstract thought creates fertile ground for developing historical thinking competencies that will serve them throughout their academic careers and civic lives (Barton, 2012).

This research seeks to bridge theoretical principles with practical classroom applications by investigating how cognitive apprenticeship strategies can be systematically implemented to enhance historical thinking skills. The study focuses on five core historical thinking competencies: chronological and spatial sequencing of historical events, historical understanding and comprehension, thinking about historical evidence, understanding change and continuity in history, and analyzing historical issues and decision-making (Yassin, 2024). These competencies reflect

international standards for historical thinking and provide a comprehensive framework for measuring cognitive development in historical reasoning.

By examining the effectiveness of cognitive apprenticeship in developing these skills, this study contributes to the growing body of research on innovative history teaching methodologies. While previous research has established theoretical connections between constructivist learning approaches and historical thinking, fewer studies have empirically tested specific instructional strategies like cognitive apprenticeship within middle school history education contexts (Smith et al., 2018). This study addresses this gap by implementing and measuring the impact of a structured cognitive apprenticeship intervention on eighth-grade students' historical thinking capabilities.

The significance of this research extends beyond its immediate focus on cognitive apprenticeship to address broader concerns in education. In an era of information abundance, students need skills to evaluate sources critically, construct evidence-based arguments, and understand complex causal relationships—all competencies developed through historical thinking (Pauncefort, 2021). By identifying effective strategies for cultivating these skills, this research contributes to educational efforts aimed at preparing students for the complex cognitive demands of contemporary citizenship and academic advancement.

The primary objective of this study is to investigate the effect of cognitive apprenticeship strategy on developing historical thinking skills among eighth-grade students. Specifically, the research aims to measure differences in historical thinking performance between students taught using cognitive apprenticeship and those taught using traditional methods, and to assess the magnitude of improvement in specific historical thinking competencies. The research is limited to female eighth-grade students in Zakho basic education schools during the first semester of the 2024-2025 academic year, focusing on the historical content of the prescribed social studies curriculum. The study tests two main hypotheses: first, that there are no statistically significant differences between the experimental and control groups in historical thinking skills development; and second, that there are no statistically significant differences between pre-test and post-test scores in historical thinking skills among students in the experimental group.

LITERATURE REVIEW

Historical thinking has emerged as a cornerstone of effective history education, representing a shift from passive absorption of historical narratives to active engagement with historical processes and methodologies. Seixas (2017) conceptualizes historical thinking as a set of cognitive processes that historians use to interpret the past, including source analysis, contextual understanding, and causal reasoning. These processes enable students to move beyond memorizing historical facts toward understanding how historical knowledge is constructed and interpreted. Recent studies have demonstrated that students who develop robust historical thinking skills show greater engagement with historical content and

improved academic performance across disciplines due to enhanced critical thinking capabilities (Lévesque & Clark, 2018).

Cognitive apprenticeship provides a framework for teaching complex cognitive skills by making expert thinking processes visible to learners. This approach draws from traditional apprenticeship models but focuses on cognitive rather than physical skills. Through its key components—modeling, coaching, scaffolding, articulation, reflection, and exploration—cognitive apprenticeship creates learning environments where complex thinking processes become accessible to students. Research by Stalmeijer et al. (2009) indicates that this approach is particularly effective for teaching skills that require nuanced judgment and analytical reasoning, making it well-suited for historical thinking instruction.

The application of cognitive apprenticeship to history education has shown promising results in diverse educational contexts. Tirado-Olivares (2024) found that when teachers explicitly model historical reasoning processes, students demonstrate improved abilities to construct evidence-based historical arguments. Similarly, recent studies on document-based history instruction revealed that students in classrooms where teachers modeled sourcing, contextualization, and corroboration strategies showed significant improvements in historical analysis capabilities (Inprasitha, 2022). These findings suggest that making expert historical thinking visible through cognitive apprenticeship facilitates students' development of sophisticated interpretive skills.

Developmental research indicates that early adolescence represents a critical period for historical thinking development. Adolescents begin developing the abstract reasoning capabilities necessary for historical understanding around ages 12-14, coinciding with eighth-grade education. Recent studies demonstrate that students at this age can begin to grasp complex historical concepts such as historical perspective and evidential reasoning when provided appropriate instructional support (Qolamani et al., 2025). This developmental readiness makes eighth grade an optimal point for introducing sophisticated historical thinking instruction through approaches like cognitive apprenticeship.

The specific components of historical thinking have been extensively studied in recent educational research. Contemporary scholars identify sourcing, contextualization, and corroboration as fundamental to historical reasoning, while emphasizing the importance of chronological thinking and causal analysis (Breakstone et al., 2018). Research by Lévesque & Clark (2018) highlights five interconnected competencies essential for historical thinking: establishing historical significance, using primary source evidence, identifying continuity and change, analyzing cause and consequence, and taking historical perspectives. These frameworks provide the theoretical foundation for measuring historical thinking development in educational interventions.

Empirical studies examining instructional strategies for historical thinking development have identified several effective approaches. Document-based questioning, when implemented with explicit teacher modeling, has shown positive

results in enhancing students' evidential reasoning skills (Breakstone et al., 2018). Historical simulations and role-play activities, particularly when guided by expert modeling, contribute to improved perspective-taking abilities (Brush & Saye, 2017). Research demonstrates that writing-intensive approaches, where teachers model historical argumentation, significantly improve students' abilities to construct evidence-based historical interpretations (De La Paz, 2021).

Recent studies have examined the effectiveness of technology-enhanced cognitive apprenticeship in history education. Floyd & Spraetz (2024) found that digital learning environments incorporating cognitive apprenticeship principles significantly improved secondary students' historical thinking skills, particularly in analyzing primary sources. Brush & Saye (2017) demonstrated that video modeling of expert historical thinking processes enhanced students' ability to evaluate historical evidence and construct historical narratives. These technological applications expand the potential reach of cognitive apprenticeship approaches while maintaining fidelity to core pedagogical principles.

The development of historical thinking assessment tools has advanced considerably in recent years. Gregersen & Mercer (2022) validated assessment instruments that measure multiple dimensions of historical thinking, providing educators with reliable means to evaluate students' competencies. Hama & Fatah (2024) developed performance-based assessments that capture the complexity of historical thinking through authentic tasks requiring source analysis and interpretation. These assessment innovations allow for more nuanced measurement of historical thinking development and enable researchers to evaluate the efficacy of instructional interventions more precisely.

Cross-cultural studies have examined how historical thinking manifests across different educational contexts. Berti & Zehbe (2024) found that while specific historical content varies across national curricula, core historical thinking competencies remain consistent, suggesting the universal applicability of cognitive apprenticeship approaches. Recent research demonstrated that cultural factors influence how students approach historical evidence, but that explicit modeling of historical thinking processes proves effective across diverse cultural settings (Ibrahim, 2017). These findings support the cross-cultural relevance of cognitive apprenticeship for developing historical thinking skills.

The relationship between historical thinking and civic education has received increasing attention in recent research. Sulaiman & Abdullah (2023) found that students who develop advanced historical thinking skills demonstrate greater civic engagement and more nuanced understanding of contemporary social issues. Current studies show that historical thinking competencies transfer to evaluation of current events and media sources, highlighting the broader educational impact of historical thinking instruction (Pauncefort, 2021). These connections between historical thinking and civic participation underscore the importance of effective instructional approaches like cognitive apprenticeship.

Metacognitive dimensions of historical thinking have been explored in several recent studies. Bashori et al., (2020) found that explicit modeling of historical thinking strategies enhanced students' metacognitive awareness of their own historical reasoning processes. Istiqomah (2024) demonstrated that cognitive apprenticeship approaches incorporating reflection activities significantly improved students' ability to monitor and evaluate their historical thinking. These findings suggest that cognitive apprenticeship not only develops specific historical thinking skills but also enhances students' capacity for self-regulated learning in historical contexts.

Teacher professional development for historical thinking instruction has emerged as a critical area of research. Recent studies found that teachers who received training in cognitive apprenticeship approaches demonstrated improved ability to model historical thinking processes effectively (Fogo, 2014). Collaborative professional development focusing on historical thinking pedagogies has been shown to enhance teachers' instructional practices and student outcomes (Miralles et al., 2015). These studies highlight the importance of teacher preparation in implementing cognitive apprenticeship approaches to historical thinking instruction.

Longitudinal studies have begun to examine the long-term impact of historical thinking instruction. Inprasitha (2022) found that students who received explicit instruction in historical thinking during middle school demonstrated sustained advantages in historical reasoning through high school. Recent research showed that cognitive apprenticeship approaches produced more durable learning outcomes than traditional instruction, with students maintaining historical thinking competencies over extended periods (McLaughlin et al., 2019). These findings support the lasting value of investing in robust historical thinking instruction during formative educational years.

RESEARCH METHOD

Research Design

The researchers adopted the experimental approach to study the research problem, as it is most compatible with the research objectives and hypotheses. The experimental approach is distinguished from other methodologies in addressing phenomena with the aim of making specific changes and then carefully observing, analyzing, and interpreting the results.

Experimental design refers to the precise planning for hypothesis testing and taking integrated procedures for the experimentation process. Selecting the appropriate experimental design to achieve research objectives is among the researcher's basic tasks. The researchers chose an experimental design called (equal groups design with pre and post-tests), as shown in the following table.

Table 1.
Experimental Design of the Research

Group	Pre-measurement	Independent Variable	Post-measurement	Dependent Variable
Experimental	Historical Thinking	Cognitive Apprenticeship Strategy	Achievement Historical Thinking	-Achievement in historical topics -Development of historical thinking skills
Control		Traditional Method		

This design requires two equal groups (experimental and control). The experimental group is taught according to the cognitive apprenticeship strategy while the control group is taught using the traditional method. Both groups are subjected to a pre-test for historical thinking skills, while the dependent variables represent achievement in historical topics and development of historical thinking skills, which show their effect in the post-tests.

Population and Sample

The research population consisted of all eighth-grade female students distributed across morning basic education schools in the Education Directorate in Zakho Independent Administration Center for the academic year (2024-2025), with a total of (85) schools and (4046) eighth-grade female students. Diman Girls' School was selected from the day schools affiliated with Zakho Education Directorate (intentionally) for several reasons, including: the school administration and social studies teachers expressed their full readiness to cooperate with the researcher to implement the research experiment; the availability of necessary equipment and tools to conduct the experiment such as (data show device - educational maps and drawings of some historical manuscripts and drawings - white board); in addition to the availability of four sections for the eighth grade, allowing for random selection of the two groups. The research groups were randomly assigned, with a total of (67) female students after excluding repeating students due to their prior experience, as shown in the following table.

Table 2.
Shows the Number of Research Sample Individuals Distributed to the Experimental and Control Groups

Group	Teaching Method	Group	Number of Students		After Exclusion
			Before Exclusion	Excluded	
Experimental	Cognitive Apprenticeship Strategy	8/D	34	4	30
Control	Traditional Method	8/A	33	3	30
Total Number of Students			67	7	60

Equivalence of Research Groups

To verify the equivalence of the research groups in several variables that might affect the results of the experiment, the researchers identified several variables including.

[1] Intelligence Score. The researchers adopted the (Ravine) test for sequential matrices standardized for the Iraqi environment by (Fakhri Al-Dabbagh), consisting of (36) items, applied to members of both research groups. To compare the means of intelligence scores, the data were subjected to statistical processing using (t-Test) for two independent samples. The arithmetic mean of the experimental group was (20.14) and the control group (19.37), while the t-value reached (0.757), which is less than the tabular value of (2.000) at a significance level of (0.05) and a degree of freedom (58), thus both research groups are considered equivalent in these variables.

[2] General Average for the Seventh Grade for the Year (2023-2024). The researchers relied on the results of the general examinations for the seventh grade for students of both research groups for the academic year (2023-2024). To compare the means of the general average, the data were subjected to statistical processing using (t-Test) for two independent samples. The arithmetic mean of the experimental group was (69.882) and the control group (67.431), and the t-value between the two groups was (1.079), which is less than the tabular value of (2.000) at a significance level of (0.05) and a degree of freedom (58), thus both research groups are considered equivalent in these variables.

[3] History Subject Grades as Part of Social Studies for the Seventh Grade for the Academic Year (2023-2024): The researchers relied on the first course grades for history subject in the previous year. To compare the means of history subject grades, the data were subjected to statistical processing using (t-Test) for two independent samples. The arithmetic mean of the experimental group was (70.70) and the control group (68.23), and the t-value between the two groups was (1.242), which is less than the tabular value of (2.000) at a significance level of (0.05) and a degree of freedom (58), thus both research groups are considered equivalent in these variables.

[4] Chronological Age Calculated in Months: To verify the equivalence of research groups, the chronological age was calculated up to (30/9/2024). To compare the means of the general chronological age, the data were subjected to statistical processing using (t-Test) for two independent samples. The arithmetic mean of the experimental group was (165.83) and the control group (167.40), and the t-value was (0.968), which is less than the tabular value of (2.000) at a significance level of (0.05) and a degree of freedom (58), thus both research groups are considered equivalent in these variables.

[5] (5) Pre-Test of Historical Thinking Skills: The pre-application test for historical thinking skills was conducted for both groups before starting the experiment to ensure the equivalence of the groups. The data were subjected to statistical

processing using (t-Test) for two independent samples. The arithmetic mean of the experimental group was (30.67) and the control group (30.13), and the t-value between the two groups was (0.961), which is less than the tabular value of (2.000) at a significance level of (0.05) and a degree of freedom (58), thus both research groups are considered equivalent in these variables.

[6] Equivalence of Parents' Achievement Level: The equivalence of the educational achievement for both (fathers and mothers) was verified according to their educational achievement after merging cells with fewer than five frequencies. The level of educational achievement was classified into (primary or below - preparatory or below - institute or above) and the Chi-Square test was used. The value for fathers reached (1.677) and mothers (0.634), which is less than the tabular value of (5.99) at a significance level of (0.05) and a degree of freedom (2). This means that there is no statistically significant difference between the equivalence of the two research groups in the variable of parents' educational achievement, thus the two groups are considered equivalent.

Research Requirements and Supplies

To achieve the research objective and hypotheses, the following supplies must be prepared:

[1] Determining the Scientific Material for Topics. The researchers determined the curriculum material for social studies topics related to historical subjects scheduled to be taught to eighth-grade female students for the academic year (2024-2025) for the first semester. The researcher found unification between the experimental and control research groups in the subjects that will be taught to them, which included.

a) First item: The Islamic Call and the Establishment of the Islamic State, including (8) topics
b) Second item: The Islamic State during the era of the Rightly Guided Caliphs, including (7) topics
c) Third item: The Islamic State during the era of the Umayyad Caliphs, including (4) topics
d) Fourth item: The Islamic State during the era of the Abbasid Caliphs, including (5) topics

[2] The researchers began analyzing the content of the educational material into main and secondary historical concepts as well as a number of discussion and reasoning questions. The number of lessons scheduled to be taught for each chapter was determined through consultation with a number of history teachers to ensure a fair and methodical distribution of the educational material.

[3] Formulation of Behavioral Objectives. The researchers formulated the behavioral objectives expected to be achieved during the first semester in light of the prescribed vocabulary. (139) behavioral objectives were prepared based on Bloom's taxonomy levels for the cognitive domain (remembering,

understanding, application). The list of behavioral objectives was presented to a group of arbitrators and specialists in the field of education and methods of teaching history and social sciences to know their opinions on the correctness of the behavioral objective formulation. An agreement percentage of (80%) or more from the arbitrators' opinions was adopted as a criterion for the validity and appropriateness of the objective.

[4] Preparation of Teaching Plans. The researchers prepared two models of teaching plans: the first according to the steps of the (cognitive apprenticeship) strategy for students of the experimental group represented by the steps (modeling, presentation, training, educational scaffolding, expression, reflection, exploration). The second according to the traditional (ordinary) method for students of the control group represented by the steps (introduction - presentation - conclusion - evaluation - homework). In light of the plan analysis, a model of the experimental and control plan was presented to a group of arbitrators and specialists in the field of education and methods of teaching history and social sciences for the purpose of verifying their validity for use in the experiment. All the observations they indicated were taken into account, and the necessary adjustments were made.

Research Tool

[1] Historical Thinking Skills Test. For the purpose of measuring the level of historical thinking skills among eighth-grade female students, and after reviewing a number of literature related to determining historical thinking skills which included the following skills: (chronological and spatial sequencing of historical events, historical understanding and comprehension, thinking about historical evidence, understanding change and continuity in history, and analyzing historical issues and decision-making). In light of these skills, the researchers formulated (43) items distributed among the five historical thinking skills, in a four-alternative multiple-choice format, taking into account the objectives for which the test was designed and the characteristics of the population to which it will be applied. A model answer was also prepared to correct the test items, where the student is given (1) point for the correct answer, and (0) for the wrong or omitted answer, and the highest score a student can obtain represents the extent of her possession of the targeted skills.

[2] Test Validity. To verify face validity, the test was presented with a brief description of the terms contained therein to a group of arbitrators and specialists with experience and specialization in the field of education and methods of teaching history and social sciences. After reviewing this, (3) items that received less than (80%) were deleted and some other items were linguistically modified, bringing the test to (40) items.

[3] Test Pilot Study. The researchers conducted the pilot study on (29/9/2024), on a pilot sample of (100) female students with the aim of identifying the clarity of the test instructions and items, detecting weaknesses in terms of formulation

and content, the appropriateness of the answer alternatives, and the time taken to answer the test items. The results showed clarity of the items and instructions. The time taken to answer the test items was calculated by calculating the arithmetic mean of response time for the first and last five students who completed answering the test items, and the average time was (30) minutes. After correcting the sample responses, the scores were arranged in descending order and a percentage of (27%) was selected, amounting to (54) students for the upper and lower groups, for extracting the level of difficulty of the questions, their discrimination coefficient, and verifying the effectiveness of their alternatives. The statistical results were as follows.

a) Item difficulty coefficient: The item difficulty coefficient ranged between (0.313-0.593), which is within the acceptable range because good test questions have a difficulty level between (0.20 - 0.80).
b) Item discrimination coefficient: The item discrimination coefficient ranged between (0.333 - 0.667), and measurement and evaluation data indicated that the degree of discrimination is acceptable starting from (0.25) and above.
c) Effectiveness of wrong alternatives: The effectiveness of wrong alternatives for test items was calculated and all items were negative except for the correct alternative, which means that the wrong alternatives were effective.
d) Test reliability: The researchers verified the reliability of the test using the Cronbach's alpha equation, after applying it to a sample of (32) female students. The total reliability coefficient of the test was (0.78), which is a good coefficient. Thus, the test became ready for application.

Implementation of the Experiment

The experiment procedures were implemented as follows: (1) The historical thinking test was applied pre-test on Wednesday (29-9-2024), and the intelligence test on Thursday (30/9/2024). (2) The actual application of the experiment on students of both research groups started on (13/10/2024) and continued until (16/12/2024). (3) The historical thinking skills test was applied on (18/12/2024). (4) Both research groups were taught, with the cognitive apprenticeship strategy used in teaching the experimental group, while the traditional method was used for teaching the control group.

Correction of Research Tools

To convert students' responses on the historical thinking skills test to a digital quality, the answers were corrected by giving a score of (1) for the correct answer and a score of (0) for the wrong or omitted answer, for both tests. Thus, the test scores ranged between (0 - 40).

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Statistical Methods

The researchers used the Statistical Package for Social Sciences (SPSS-25) program to process the data statistically in addition to programming some special formulas for tests using Microsoft Excel program and adopted the following statistical methods in their procedures and analysis of results: (1) t-Test for two independent samples: For the purpose of equivalence between members of the two research groups and testing hypotheses. (2) Chi-square: To verify the equivalence procedure of parents' educational level. (3) Item difficulty coefficient: To find the degree of difficulty of test items. (4) Discrimination power equation for objective items: To find the discrimination of test items. (5) Effectiveness of wrong alternatives: To calculate the effectiveness of wrong alternatives for test items. (6) Cronbach's alpha coefficient: To find the reliability coefficient of the historical thinking skills test. (7) Eta squared equation η^2: To know what the independent variable does in the dependent variable. The effect size was calculated using the eta squared equation (η^2). (8) t-Test for two correlated samples: To calculate the difference ratio between pre and post applications on the historical thinking skills test for the experimental group. (9) Cohen's effect size equation (d): To know the effect size between pre and post tests on the historical thinking skills test.

RESULTS AND DISCUSSION

The researchers addressed the results reached by the research through the application of the cognitive apprenticeship strategy in developing historical thinking skills among eighth-grade students in history subject, in addition to interpreting the results reached according to its hypotheses, which can be clarified and discussed in detail as follows:

First - Presentation of Results:

Results related to the first null hypothesis which states: "There is no statistically significant difference at the level of (0.05) between the mean scores of historical thinking skills of students in the experimental group who studied according to the cognitive apprenticeship strategy and students in the control group who studied according to the traditional method."

To verify the validity of the hypothesis, the arithmetic mean and standard deviation were extracted for the post-test scores of historical thinking skills as a whole for members of the experimental and control groups. To identify the statistical significance of the difference between the scores of the two arithmetics means, the researcher used the (t-test) for two independent samples, and the results were included in the following table.

Table 3.
Result of the (t-test) Between the Mean Scores of Post Historical Thinking Skills Among Members of the Experimental and Control Groups

Variable	Group	Number	Mean	Standard Deviation	t-value		Degree of Freedom	Significance Level
					Calculated	Tabulated		
Historical Thinking Skills	Experimental	30	33.80	2.441	4.664	2.002	58	Significant
	Control	30	31.27	1.701				

It is clear from the table above that the calculated (t) value reached (4.664), which is greater than the tabular (t) value of (2.002) at a significance level of (0.05) and a degree of freedom (58). Thus, the second null hypothesis is rejected and the alternative is accepted, which means that there is a statistically significant difference between the means of the experimental and control groups in developing historical thinking in favor of the experimental group. The researchers also verified the effect size of the experimental independent variable (cognitive apprenticeship strategy) on the dependent variable (historical thinking) among members of both research groups, by applying the eta squared equation (η^2), and the data and result were included in the following table.

Table 4.
Shows the Value of Eta (η^2) for the Cognitive Apprenticeship Strategy and Historical Thinking Among Members of Both Research Groups

t-value	Factor	Calculated Value	Standards				Effect Size
			Small	Medium	Large	Very Large	
4.664	(η^2)	0.273	0.01	0.06	0.14	0.2	Very Large

It is clear from the table above that the effect size value (η^2) reached (0.273), indicating a very large effect size compared to the standard values. This means that the experimental variable had an effective impact.

Results related to the second null hypothesis which states: "There is no statistically significant difference at the level of (0.05) between the mean development of historical thinking skills for the scores of the (pre and post) tests among students of the experimental group who studied according to the cognitive apprenticeship strategy."

To verify the validity of the hypothesis, the data of the (pre and post) tests for the experimental group scores were unloaded and the amount of development for each skill of historical thinking skills was found. The arithmetic means of the two tests and the standard deviation of the difference in development scores for the experimental group were calculated, then processed using the (t-test) for two correlated samples, and the results were included in the following table.

Table 5.
Results of the (t-test) to Measure the Differences Between the Mean Scores of the (Pre and Post) Tests in Developing Historical Thinking Skills Among Students of the Experimental Group

Historical Thinking Skills	Arithmetic Mean		Difference	Standard Deviation of Difference	t-value		Significance Level
	Pre-test	Post-test			Calculated	Tabulated	
Chronological and spatial sequencing of historical events	6.07	6.77	0.70	0.535	7.167	(1.699) (0.05) (29)	Significant
Historical understanding and comprehension	6.10	6.90	0.80	0.805	5.442		Significant
Thinking about historical evidence	6.03	6.70	0.67	0.844	4.325		Significant
Understanding change and continuity in history	5.93	6.60	0.67	0.547	6.679		Significant
Analyzing historical issues and decision-making	6.53	7.03	0.50	0.509	5.385		Significant

It is clear from the table above that all calculated t-values are greater than the tabular t-value (1.699) at a significance level of (0.05) and a degree of freedom (29). Thus, the third null hypothesis is rejected and the alternative is accepted, which means that there is a statistically significant difference between the mean scores of the (pre and post) tests in developing historical thinking skills for students of the experimental group, in favor of the post-test. The researchers also verified the calculation of the effect size of the independent variable (cognitive apprenticeship strategy) on the dependent variable (historical thinking skills) among members of the experimental research group, by applying Cohen's equation (d), and the data and result were included in the following table.

Table 6.
Value of (d) and the Amount of Effect Size of the Independent Variable in Developing Historical Thinking Skills Among Students of the Experimental Group

Skill	(t) value	Factor	Calculated Value	Effect Size
Chronological and spatial sequencing of historical events	7.167	(η^2)	0.300	Very Large
		(d)	1.308	Very Large
Historical understanding and comprehension	5.442	(η^2)	0.198	Large
		(d)	0.994	Large
Thinking about historical evidence	4.325	(η^2)	0.135	Large
		(d)	0.790	Large
Understanding change and continuity in history	6.679	(η^2)	0.271	Very Large
		(d)	1.219	Very Large
Analyzing historical issues and decision-making	5.385	(η^2)	0.195	Large
		(d)	0.983	Large

It is clear from the table above that the effect size value (d) was very large, compared to the standard values (small, medium, large, very large) (0.2, 0.5, 0.8, 1.0) specified for it, which indicates a large effect size. That is, the cognitive apprenticeship strategy has had a significant and effective impact on developing historical thinking skills among students of the experimental group.

The cognitive apprenticeship strategy derived from constructivist theory addressed the core of effective and real teaching that contributed to the development of historical thinking skills. It provided students of the experimental group the opportunity to deepen their understanding of these skills and apply them methodically and systematically in analyzing historical events, which the control group students lacked as they relied on the traditional method. The strategy helped experimental group students connect historical concepts with previous information in cognitive structures meaningfully and gave them the opportunity to use that information in new situations by making the student build knowledge self-constructively through practicing scientific activities, active participation, and reflection during the lesson. This led to a deeper understanding of historical information and development of the ability to interpret events and analyze causal relationships between them, thus increasing their independence in dealing with and analyzing historical material.

The presentation of historical sources such as (documents, pictures, maps, testimonies) during the lesson contributed to the development of historical thinking skills, where students learned how to extract historical information from these sources, distinguish between facts and opinions, and evaluate the credibility of sources. These skills form the core of critical historical thinking that clearly appeared in the performance of the experimental group. This finding is consistent with Wineburg (2010) who emphasized that historical thinking requires questioning sources and contextualizing events. The cognitive apprenticeship strategy contributed to the development of historical thinking skills through modeling and thus achieving cognitive balance among experimental group students, which led to a noticeable improvement in their level of historical thinking skills after the experiment. Instead of receiving information separately as in the pre-test, students in the post-test became able to integrate new knowledge within an integrated conceptual framework that is easy to recall and employ in understanding historical issues.

The nature of presenting the subject matter according to sequential and organized steps increased students' efficiency and stimulated their mental abilities to search for historical information and facts, especially in the skills of (chronological and spatial sequencing of historical events and understanding change and continuity in history), which focused on making students the center of the educational process through positive participation during the lesson and engagement in activities through training. These improvements align with Seixas (2017) who identified chronological reasoning and recognizing continuity and change as fundamental historical thinking competencies. The teacher here did not control the performance of students but gave them the opportunity to discuss

historical issues, which helped them employ what they learned in history subject through scaffolding and comparing what they reached with their colleagues through expression, analyzing results, and reflecting on reaching historical evidence. This scaffolded approach supports Dennen (2013) findings that cognitive apprenticeship creates environments conducive to developing complex cognitive skills. All this contributed to the students' ability to design activities in light of the historical sources provided by the teacher to the students such as (analyzing contemporary historical events in light of similar events from the past, analyzing historical articles, preparing historical exhibitions). The students also competed among themselves to apply various activities such as (activities based on representing and playing the role of historical figures and events, designing wall magazines, writing historical articles). The significant improvements observed are consistent with VanSledright (2013) assertion that effective history education should enable students to analyze past events critically and evaluate historical evidence. All this led to a qualitative change in their level of historical thinking, which was clearly shown by the results of the post-test in all subsidiary skills of historical thinking.

CONCLUSION

In light of the research results, this study confirms that the cognitive apprenticeship strategy has a significant positive effect on developing historical thinking skills among eighth-grade students. This research recommends including general and procedural objectives in social studies curricula at different educational stages that focus on developing historical thinking skills, providing social studies teachers with the list of historical thinking skills identified in this study to benefit from them in student evaluation, encouraging social studies teachers to use active learning strategies including the cognitive apprenticeship strategy during their teaching in different classrooms, and focusing on measuring students' abilities to think in various types, especially historical thinking. Future research should investigate the effect of the cognitive apprenticeship strategy on other dependent variables and different educational stages, as well as comparing this strategy with other modern teaching strategies.

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