

From Research Method to Cognitive Scaffold: Applying Grounded Theory Coding in University Source-Based History Instruction

Ge Kao¹

¹Faculty of Arts and Sciences, Beijing Normal University, Zhuhai 519087, Guangdong, China

Corresponding author: Ge Kao (e-mail: gekao1129@163.com).

ABSTRACT The study has explored the application of Grounded Theory as a cognitive scaffold in university source-based history instruction. Drawing on the fourteen-week classroom practice and seventy student assignments, this study examined how coding-based analysis supports students' historical thinking and source interpretation. Throughout the course, students worked step by step – beginning with open coding, moving into axial coding, and finally shaping their own thematic insights – all while engaging closely with historical sources. Rather than viewing assignments simply as learning outcomes, the researcher reconstructed students' cognitive pathways through their course assignments. The findings suggest that coding-based instruction provides beginners with a practical entry point into historical source analysis, helping students moving beyond descriptive reading toward structured historical interpretation. At same time, the study also reflects on the limitations of procedural approaches in humanities education. While coding frameworks may help students organize their thinking more clearly, leaning too heavily on rigid procedures will unintentionally pull attention away from the richness of historical texts, and limit opportunities for deeper, more creative interpretation. Finally, the study argues that Grounded Theory can function not only as a pedagogical scaffold for students, but also as a reflective analytical tool for teachers seeking to better understand students' historical reasoning processes.

INDEX TERMS Grounded Theory, Source-Based History Instruction, Cognitive Scaffold

I. INTRODUCTION

In recent years in China, history education has gradually shifted away from the mere transmission of historical facts toward the cultivation of students' historical thinking and disciplinary literacy. Increasingly emphasized in university history classrooms, therefore, has been source-based instruction, which asks students not simply to memorize conclusions, but to engage directly with historical materials through reading, questioning, and interpretation. As scholars Jannet van Drie and Carla van Boxtel pointed out, students should not only acquire knowledge of the past, but also apply this knowledge for interpreting phenomena from the past and the present, under the requirement of historical reasoning ability [1]. What students are expected to develop is the ability to identify effective information from sources, and the ability to recognize historical perspectives and construct evidence-based explanations.

Yet in actual classroom practice, a persistent problem remains. Many students can summarize what a source says, but struggled to explain what the source means historically. Particularly in undergraduate general history courses, source

analysis often stays at level of information extraction or descriptive paraphrase. Rarely do students move naturally toward structured historical reasoning. As a lecturer who has long worked with source-reading courses and historical text instruction, I gradually became aware of something rather striking: what students lacked was not necessarily historical knowledge themselves, but a workable cognitive pathway into historical interpretation. Put differently, students often knew how to “read” those sources, but not how to think historically basing on them.

This pedagogical dilemma led me to reconsider the question of scaffolding in history education. Existing instructional scaffolds are frequently built around teacher explanation, guided questioning, or classroom discussion. However, there has been relatively little research on whether students can internalize a systematic analytical approach that guides their own historical reasoning processes when reading primary sources. At this point, Grounded Theory attracted my attention in an unexpected way. Originally developed as a qualitative research methodology in social sciences, Grounded Theory emphasized open coding, axial

coding, and thematic coding. These analytical procedures mirror historical source analysis: extracting evidence, grouping ideas, identifying causes, and interpreting texts. This study explores how Grounded Theory coding—traditionally used as a research method—can be adapted to support students’ thinking and learning in university source-based history courses.

While many instructional studies emphasized measurable learning outcomes, this study took a closer, more caring look at how historical thinking develops—step by step—in students’ own words and work. Drawing on seventy student assignments collected throughout the course, I carefully trace how learners build historical understanding: how they choose evidence, craft thoughtful questions, make sense of causes, and shape their own narratives. What this paper argues is not merely that Grounded Theory coding improves students’ sensitivity toward historical evidence. More importantly, it provides students with a structured means of generating historical interpretation from within the text itself.

II. LITERATURE REVIEW

Grounded Theory was originally developed by Barney Glaser and Anselm Strauss [2] as a inductive approach to qualitative research: one that grows theory thoughtfully from real people’s experiences and observations, rather than beginning with fixed assumptions. In later developments, Strauss and Corbin [3] expanded Grounded Theory by introducing a step-by-step approach to analysis, guiding researchers through open coding, axial coding, and selective (or thematic) coding with intention. These stages help researchers move from raw observations to conceptual categories and explanatory frameworks. Unlike traditional qualitative description, Grounded Theory linked evidence, concepts, and meaning in an ongoing process. Recent literature treat coding as the core mechanism for turning qualitative interpretation into structured, theory-driven insights.

In recent years, Grounded Theory has found a warm and thoughtful home in China higher education research, especially in studies exploring classroom interactions, how students learn, and the ways they make sense of their learning. Far from being confined to sociology or anthropology, this coding-based approach became a trusted and widely embraced method for understanding students’ lived experiences and enriching teaching practices.

For example, Zhihui Wu’s study, *A Grounded Theory Study on the Generation Mechanism of Pseudo-Engagement among University Learners in Digital-Intelligence Environments*, employed Grounded Theory to analyze structured narrative texts collected from seventy-two foreign language learners [4]. Through three-level coding analysis, the study built a grounded model that helps us understand how pseudo-engagement develops. This study identified four forms of pseudo-engagement—ritualistic, strategic, avoidant, and trauma-based—and an evolutionary pathway: “cognitive offloading, performance compliance, self-rationalization, and technological dependence” [5]. The study shows how

coding—when done with care and curiosity—can illuminate learners’ inner cognitive and emotional worlds within educational settings.

Similarly, Haili Zhang and Ling Zhou, in *Teachers’ Academic Emotions in Graduate Classrooms: An Exploratory Analysis Based on Grounded Theory*, combined classroom observation with constructivist Grounded Theory methods to investigate academic emotions among university teachers [6]. Using verbal interaction, nonverbal behavior, and observational records, the researchers applied three-stage coding and tested for theoretical saturation. They found that teachers’ academic emotions in graduate classrooms reflect four dimensions—institutional, professional, relational, and strategic—shaped by disciplinary background, teaching style, classroom structure, and academic agency [7]. The study further argues that positive academic emotion constitutes an important condition for high-quality university teaching.

These studies highlight how Grounded Theory has grown into a trusted tool for understanding educational processes, and for gently uncovering the often-unseen cognitive and emotional experiences that shaped learning in higher education. That is to say, most current applications still use it primarily as a reflective methodology: scholars typically apply it after teaching concludes, to make sense of what has already happened.

Little attention has been given to using Grounded Theory coding as a learning tool for students during class. The study builds upon my previous research, *How Undergraduate Students Develop Historical Source Analysis Ability: A Grounded Theory Case Study of the American Military History Course at Beijing Normal University*, which applied Grounded Theory as an analytical method to examine how students’ source-analysis abilities developed during classroom practices [8]. That earlier study focused on using coding analysis to understand students’ learning outcomes, based on what happened in the class.

The present study extended this research in two important ways. First, Grounded Theory was no longer treated solely as a research methodology used by researchers; instead, it is introduced directly into classroom teaching as a cognitive scaffold guiding students’ historical source analysis process. Secondly, the study continues to employ Grounded Theory analysis not only to examine students’ assignments, but to reconstruct the cognitive pathways through which students have generated historical interpretation from textual evidence.

In this spirit, this study invites Grounded Theory to step gently from its role as a research method into a supportive companion for teaching and learning. Rather than only analyzing educational outcomes, the coding framework itself became part of the learning process through which students gradually develop historical reasoning, evidence sensitivity, and interpretive thinking within source-based history instruction.

III. METHODOLOGY

This study adopts a classroom-based qualitative research design centered on a fourteen-week university source-reading course (Spring semester course on reading of historical sources about modern world history at the Zhuhai Campus of Beijing Normal University). In classroom, Grounded Theory coding was introduced not as a tool for professional historians—but as a supportive, easy-to-use thinking strategy that students could confidently apply while reading historical sources. The teaching process emphasized slow reading, evidence extraction, In-depth questioning, conceptual grouping, and interpretive explanation. Students are encouraged to move from “what the source says” toward “what historical meaning the source produces.”

One representative classroom case focused on Columbus’ Letter to the King and Queen of Spain (1494). During instruction, the source was first read sentence by sentence together in the class (This is the process of executing open coding). Instead of immediately explaining historical conclusions, I guided students to identify several major issues repeatedly mentioned in the text: the establishment of the Island of Espanola colony, the living conditions of settlers, the organization of gold collection, and the transportation system connecting colonial gold extraction to Spain (This is the process of executing axial coding). After this close reading process, students were further encouraged to raise broader interpretive questions. For example: Was religion functioning here as a spiritual mission or as the tool of colonial governance? What relationship existed between the “conversion” of Indigenous populations and economic extraction? Through analysis deeply, many students came to see how religious language served not just spiritual purposes—but also functioned as an ideological tool that helped sustain colonial rule and enable gold extraction. Therefore, this is a matter of the transformation of the identity of the indigenous people in the colony. (This is the process of executing thematic coding).

Following this classroom model, students were later asked to independently locate historical sources related to course topics and conduct their own coding-based source analysis assignments. These assignments became the primary dataset of my study. This study sees student assignments not as final products, but as reflections of their thinking. By analyzing how students selected evidence, organized concepts, raising questions, and generated interpretations, this study attempted to reconstruct the formation pathway of students’ thinking under support of Grounded Theory.

Over the fourteen-week course, I collected seventy student assignments. Students were asked to independently locate a group of historical sources related to modern world history, design several source-analysis questions, and explain both their question-setting logic and key interpretive points. This study’s analysis centers on understanding how students think as they engage with historical sources, honoring the unique ways they read, question, and make meaning. Rather than focusing only on whether answers are

“right” or “wrong”, I paid close attention to the thoughtful steps students took in their reading and interpretation, their questions and self-prepared answers. To study the thinking paths of students, I adapted a three-stage coding approach also inspired by Grounded Theory, keeping student thinking at the heart of every stage (Figure 1).

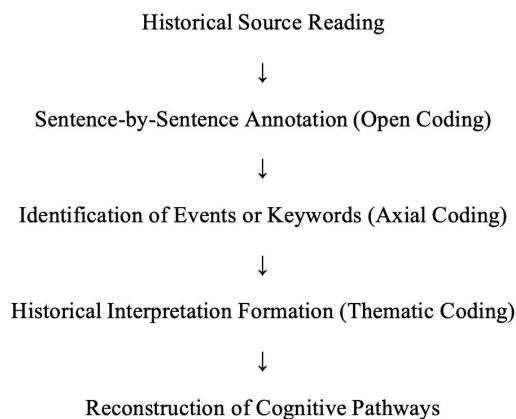


FIGURE 1. Flowchart analyzing the process of students’ historical explanation generation.

At the first stage, students conducted close reading of their selected historical sources. They annotated important expressions, descriptions of events, and narration to social or political structures. The purpose of this stage was to slow down the reading and increase students’ sensitivity to historical evidence. After noticing key details in the text, students grouped related information into broader conceptual categories or historical issues. At this second stage, isolated observations gradually became organized historical relationships. Finally, students connected these categories or issues to larger historical frameworks and generated interpretive arguments. Through the analysis of students’ three-stage coding process, this study reconstructed how students gradually transformed historical sources into historical meaning.

From the full set of 70 assignments, I conducted a comprehensive qualitative analysis, examining each submission for its coding patterns and interpretive depth (Table I). I explored how coding-based support helped students grow more attentive to evidence, reason more carefully about cause and effect, and develop deeper, more confident interpretations of historical sources.

TABLE 1. Construction of Students’ Historical Thinking Through Grounded Theory

Coding Stage	Student Activity	Cognitive Function
Open	Sentence-by-sentence annotation	Evidence extraction
Axial	Grouping keywords and events	Conceptual organization
Thematic	Building historical interpretation	Historical thinking

IV. FINDINGS

My review of student assignments reveals how Grounded Theory coding gently supported learners in moving from close, descriptive reading toward thoughtful, structured historical reasoning. Across the coursework, students went beyond summarizing historical sources: they began thoughtfully organizing evidence, making meaningful connections between ideas, and developing rich, nuanced interpretations through a supportive, step-by-step coding process (Table II).

During open coding, students showed growing attentiveness to historical evidence – carefully noticing patterns, turning points, and meaningful details embedded in the sources. In the assignment on the English Bill of Rights (1689), for example, one student repeatedly focused on phrases related to parliamentary consent, legislative bills on conscription and taxation, and decline of the royal family. Similarly, in the assignment based on the Declaration of the Rights of Man and of the Citizen, the student paid particular attention to expressions concerning liberty, property, equality, and personal security, especially the idea that human beings were “born and remain free and equal in rights.” In the assignment on the Napoleonic Civil Code, the student highlighted phrases such as “reconstructing the relationship between the individual and the state” and “the inviolability of private property.”

TABLE 2. Students' Cognitive Development Across the Three Stages Coding (Examples)

Historical Source Assignment	Open Coding	Axial Coding	Thematic Coding
Bill of Rights (1689)	The student focused on parliamentary consent, conscription and taxation principals, and weakening royal authority.	Limitations on monarchy and parliamentary sovereignty	Constitutional monarchy
Declaration of the Rights of Man and of the Citizen (1789)	The student highlighted liberty, property, equality, personal security.	Collapse of the Old Regime and natural rights theory	French Republican System
Napoleonic Civil Code (1804)	The student identified phrases on private property and state-individual relations.	Liberal capitalism and private property protection.	A rights-based modern legal order

As students progressed into axial coding stage, they thoughtfully began weaving their close textual observations into broader historical categories – and discovering meaningful conceptual connections along the way. In the Bill of Rights assignment, references to taxation, legislation, and standing armies were grouped under larger themes such as “limitations on monarchy” and “parliamentary sovereignty.” In the Declaration of the Rights of Man and of the Citizen assignment, revolutionary principles and constitutional language was connected to categories such as “the collapse of the Old Regime” and “natural rights theory.” Meanwhile, in the Napoleonic Civil Code assignment, individual legal clauses were increasingly interpreted within the broader framework of liberal capitalism and the protection of private property rights. At this stage, students were no longer reading sources sentence by sentence in isolation; instead, they began constructing conceptual relationships between political systems, legal principles, and social transformation.

Even more meaningfully, students began moving – thoughtfully and confidently – from close reading of texts toward rich, interpretive historical explanations during the thematic coding stage. In the Bill of Rights assignment, the student concluded that the Glorious Revolution represented a structural transfer of political legitimacy from monarchy to Parliament, laying the institutional foundation for constitutional monarchy and the rule of law in Britain. In the assignment on the Declaration of the Rights of Man and of the Citizen, the student insightfully argued that the Declaration laid out, in its vision of political ideals, a hopeful and enduring path toward France’s eventual stabilization within a republican framework. In the Napoleonic Civil Code assignment, the student interpreted the emergence of the Civil Code as part of a larger transition from morality-centered governance toward a rights-based modern legal order, while also acknowledging how cultural traditions continue to shape and enrich contemporary legal systems.

Taken together, these course assignments revealed a clear cognitive shift in students’ historical thinking. Rather than remaining at the level of factual extraction, students increasingly learned to organize evidence into conceptual structures and historical arguments. Through repeated coding practices, many students learned to identify underlying political logic, link texts to broader historical change, and build evidence-based historical interpretations.

Based on seventy student assignments, this study shows how learners built historical understanding through coding-based source analysis. The findings suggest that Grounded Theory coding functioned not merely as a reading technique, but as a cognitive scaffold that supported students in selecting evidence, framing historical questions, reasoning about causality, and constructing their own interpretive narratives. In this sense, the thinking process enabled by coding helps students shift from passively accepting historical knowledge to actively constructing historical meaning.

V. DISCUSSION

This study shows that Grounded Theory coding effectively supports structured historical reasoning in university source-based history instruction. By offering a clear, step-by-step analytical process, the coding approach welcomed many students into the meaningful work of interpreting historical sources. For students who previously struggled to begin source analysis or felt they had “nothing to say” about historical sources, The coding framework gave students a straightforward way to get started with picking evidence, grouping ideas, and explaining history.

At the same time, however, the classroom experience also revealed several limitations that deserve further reflection. First, the effectiveness of coding-based historical analysis remained closely tied to students’ pre-existing knowledge structures. Students with stronger historical background knowledge more readily advanced from open coding to conceptual integration and thematic interpretation. For these students, Coding did more than organize information – it

became a thoughtful partner in helping them uncover their own original historical insights. Many found themselves naturally connecting individual pieces of evidence to bigger questions in history, enduring ideas, and meaningful long-term changes.

By contrast, students with weaker historical foundations often stayed at information extraction or descriptive categorization. Although they could identify keywords and summarize source content through the coding process, many found difficult to move naturally toward independent interpretation or deeper historical argumentation. In other words, coding supports students in structuring their thinking – while acknowledging that deep historical understanding also grows from rich background knowledge and thoughtful, empathetic interpretation. This highlights a key tension in scaffold-based teaching: while structured analysis helps students enter historical reasoning, creative interpretation still relies on historical knowledge, experience, and disciplinary intuition.

A second consideration is how structured analysis can thoughtfully support, rather than limit students' historical imagination. The coding framework encouraged students to approach sources step by step: identifying evidence, grouping concepts, and building interpretations through explicit analytical stages. Pedagogically, this structure proved valuable, especially for beginners. Yet history, as a humanistic discipline, was not reducible to procedural reasoning alone. Several moments in students' assignments suggested that excessive reliance on coding categories could sometimes narrow students' engagement with the source itself. Students sometimes treated historical materials as fragmented information to process, not as complex, interconnected texts. As Jin Zhu and Jiale Mao argue, teaching must shift fundamentally toward contextualized, relational approaches—embedding knowledge points within interconnected historical contexts, social structures, and ideological currents to foster students' contextual thinking and holistic interpretation [9]. In this sense, structured analysis – when used without balance – can overshadow intuitive or holistic ways of understanding history, which are just as vital to thoughtful historical scholarship.

Indeed, many of the most compelling historical interpretations grow not just from procedural analysis, but from a historian's thoughtful sensitivity to language, context, contradiction, atmosphere, and lived historical experience. Such insights were often difficult to fully formalize within a coding framework. For this reason, the study does not argue that Grounded Theory coding should replace traditional historiographical practice. Rather, coding should be understood as a transitional cognitive scaffold: a method that helps students initially enter the process of historical analysis, especially when they lacked confidence or analytical direction.

From a teaching perspective, the coding approach offers valuable support – especially at the start of students' historical thinking journey. It helps students overcome the

paralysis of not knowing how to begin, encourages closer attention to evidence, and introduce a clearer structure for organizing interpretation. Over longer term, however, historical understanding cannot rely solely upon procedural pathways provided by coding itself.

VI. CONCLUSION

This study explored the application of Grounded Theory coding as a cognitive scaffold in university source-based history instruction. The findings suggest that coding-based analysis can offer beginners a clear, welcoming pathway into interpreting historical sources. By guiding students through stages of evidence identification, conceptual grouping, and thematic interpretation, the method helped many students overcome the common difficulty of “not knowing how to begin” while facing historical texts.

At the same time, the study also indicates the limitations of procedural approaches in humanities education. While coding structures can support analytical thinking, excessive reliance on step-by-step frameworks seems to risk fragmenting historical texts and narrowing students' engagement with the broader meaning and complexity of historical sources. Historical interpretation requires not only analytical procedures, but intellectual imagination, and deeper disciplinary understanding.

Finally, the value of Grounded Theory coding extends beyond classroom instruction itself. The coding framework also provide teachers with a useful method for analyzing student assignments and reconstructing students' thinking processes. In this way, coding can serve both students and instructors with care: as a supportive scaffold for learners—and as a thoughtful, reflective tool for teachers to better understand how students read, organize, and interpret historical evidence as they learn.

ACKNOWLEDGMENT

The author would like to thank Yi Yang for serving as the teaching assistant for this course. The author greatly appreciates Yi Yang's support, guidance, and helpful feedback throughout the semester.

REFERENCES

- [1] J. van Drie and C. van Boxtel, “Historical Reasoning: Towards a Framework for Analyzing Students' Reasoning about the Past,” *Educational Psychology Review*, vol. 80, p. 88, 2008, doi: <https://doi.org/10.1007/s10648-007-9056-1>.
- [2] B. G. Glaser and A. L. Strauss, *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago, IL, USA: Aldine Publishing, 1967.
- [3] J. Corbin and A. Strauss, *Basics of Qualitative Research: Techniques and Procedures For Developing Grounded Theory*, 2nd ed. Newbury Park, CA, USA: Sage, 1998.
- [4] Z. Wu, “A Grounded Theory Study on the Generation Mechanism of Pseudo-Engagement among University Learners in Digital-Intelligence Environments,” *Educational Technology Research*, vol. 6, pp. 78–85, 2026, doi: <https://doi.org/10.13811/j.cnki.eer.2026.06.010>.
- [5] Z. Wu, “A Grounded Theory Study on the Generation Mechanism of Pseudo-Engagement among University Learners in Digital-Intelligence Environments,” *Educational Technology Research*, vol. 6, pp. 82–83, 2026, doi: <https://doi.org/10.13811/j.cnki.eer.2026.06.010>.

- [6] H. Zhang and L. Zhou, "Exploring Teachers' Academic Emotions in Graduate Classrooms: An Exploratory Analysis Based on Grounded Theory," *Higher Science Education*, vol. 3, pp. 10–20, 2026. [Online]. Available: <https://link.cnki.net/urlid/62.1028.g4.20260521.1313.002>.
- [7] H. Zhang and L. Zhou, "Exploring Teachers' Academic Emotions in Graduate Classrooms: An Exploratory Analysis Based on Grounded Theory," *Higher Science Education*, vol. 3, pp. 15–16, 2026. [Online]. Available: <https://link.cnki.net/urlid/62.1028.g4.20260521.1313.002>.
- [8] G. Kao, "How Undergraduate Students Develop Historical Source Analysis Ability: A Grounded Theory Case Study of the American Military History Course at Beijing Normal University," *Textile and Leather Review*, vol. 9, pp. 4497–4516, 2026, doi: <https://doi.org/10.31881/TLR.2026.4497>.
- [9] J. Zhu and J. Mao, "The Historical Echoes of the Educator's Spirit: Qian Bazi and the Reconstruction of the Foundation of China's Independent System of Liberal Arts Education," *Wuling Journal*, vol. 51, no. 2, p. 52, 2026, doi: <https://doi.org/10.16514/j.cnki.cn43-1506/c.2026.02.007>.