

A Review of Research on the Application of Question Chains in English Reading Teaching

--A Bibliometric Analysis Based on CiteSpace

Shuting Yan

Sichuan Normal University, Chengdu, China

Abstract

This paper analyzes 335 articles on question chains and English reading teaching indexed in CNKI from 2015 to 2025, employing CiteSpace for bibliometric analysis. It reviews the current state, research hotspots, and trends in this field from the dimensions of temporal distribution, spatial distribution, and keywords. The findings reveal that research interest in this area has been steadily increasing and has reached a peak in recent years. Research hotspots mainly focus on the practical design of question chains in English reading classrooms and their impact on students' thinking quality, while the research perspective has gradually shifted from classroom operational techniques to the cultivation of core competencies. Although current studies have established a common theoretical framework for question chain design, issues remain, such as insufficient attention to individualized design and a lack of focus on teacher professional development. Future research should deepen individualized design, strengthen teacher professional capacity building, and expand the research horizon on educational values, so as to provide new insights for the application of question chains in English reading teaching.

Keywords

Question chains; English reading teaching; thinking quality; CiteSpace.

1. Introduction

The English Curriculum Standards for Senior High School (2017 Edition, Revised in 2025) proposes that teachers should design questions covering different cognitive levels, including comprehension, application, analysis, and evaluation. Question chains are a series of clearly structured and interrelated teaching questions that teachers transform from textbook content based on instructional objectives, students' prior knowledge or experience, and potential difficulties they may encounter in learning (Wang Houxiong, 2010). As a logically connected and progressively structured questioning approach, question chains help guide students from text comprehension to self-connection by providing scaffolding for thinking, thereby enhancing learner autonomy and promoting the synergistic development of language proficiency and thinking quality (Jiang Jingli, 2022). As a key component of English instruction, English reading teaching serves as an important arena for cultivating students' thinking quality. Consequently, the design and application of question chains in English reading teaching have drawn increasing academic attention. In view of this, the present study employs CiteSpace as an analytical tool to conduct a precise search of academic journal articles published between 2015 and 2025, and carries out a visual analysis of research findings on the application of question chains in domestic English teaching. The aim is to objectively present the current research status, hot topics, and evolving trends in this field, so as to offer new perspectives and directions for domestic English teaching research.

2. Data Sources and Research Methods

2.1. Data Sources

This paper uses the China National Knowledge Infrastructure (CNKI) database as the data source. Using the advanced search function of CNKI, the search query was: (Subject: question chain) AND (Subject: English reading), with the time period set from 2015 to 2025. After retrieval, items such as conference reports and book reviews were manually excluded, yielding 335 valid publications.

2.2. Research Methods

This study employs CiteSpace (version 6.4.R1), a visualization analysis software designed and developed by Professor Chaomei Chen of the United States, as the data analysis tool. The software generates visual knowledge maps that present the knowledge structure, developmental patterns, and distribution of a research field (Li & Chen, 2023), thereby enabling the exploration and analysis of research hotspots, intellectual frontiers, and developmental trends in the field (Chen Yue, Chen Chaomei, & Hu Zhigang, 2014).

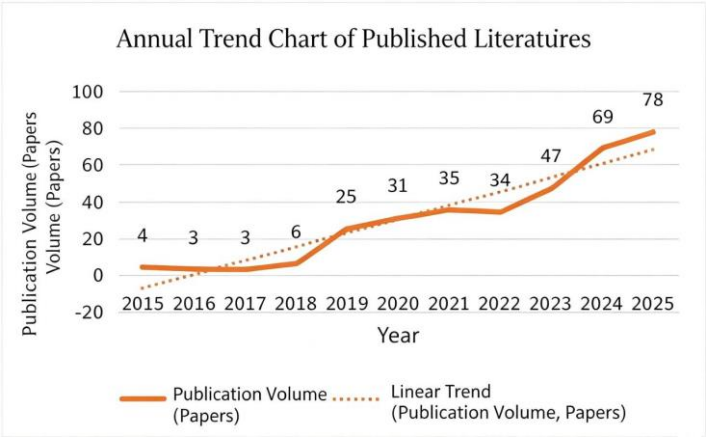
The 335 valid publications were imported into CiteSpace, with the time span set from 2015 to 2025, a time slice of one year, and node types including core authors, core institutions, and keywords. Co-citation and co-occurrence maps as well as cluster networks were then generated. By synthesizing and analyzing the map information, the characteristics and properties of the literature system in this research domain are revealed, with the aim of identifying the hotspot issues and developmental trends in the field.

3. Research Results and Analysis

3.1. Analysis of Temporal Distribution Characteristics

From the perspective of temporal distribution (see table 1), the period from 2015 to 2017 represents the exploratory phase of this field, with only a small number of papers addressing the topic and the field still in its infancy. The period from 2018 to 2022 marks a phase of steady development, during which the volume of core publications gradually increased, and both research hotspots and the scope of content were significantly expanded. The period from 2023 to 2025 has witnessed a peak in research activity, with 194 relevant articles published over these three years. Overall, research interest in the application of question chains in English reading teaching has continued to rise, with a sustained growth trend expected in the future, indicating that the research value and potential for innovation remain substantial.

Table1 Annual Trend Chart of Published Literature



3.2. Analysis of Spatial Distribution Characteristics

3.2.1. Analysis of Institutional Collaboration Networks

With the node type set to publishing institutions, a co-occurrence map of core institutions was generated (see Figure 1). The map contains 159 core institutions ($N=159$), with 5 connecting lines between nodes ($E=5$), and the overall network density is extremely low ($\text{Density}=0.0004$). This indicates that collaboration among research institutions in this field is very limited; the vast majority of institutions conduct research independently, and a broad cross-institutional academic collaboration network has not yet been established. According to the map data, the institutions with the highest publication output are Guangzhou University, Northwest Normal University, and Southwest University, all of which have produced research in recent years. Overall, core institutions are mostly distributed as isolated points, with sparse inter-institutional cooperation and weak connections. The high-frequency co-occurring institutions are predominantly domestic universities and colleges, especially schools of foreign languages and normal universities. Secondary schools also appear with considerable frequency, indicating that frontline teachers have a strong awareness of exploring the practical application of question chains in English reading, though most of their studies are conducted independently with limited collaboration with university-based researchers. As teacher discourse gains increasing practical significance, research focused on question chain design is likely to become a future trend. Consequently, subsequent studies should strengthen inter-institutional collaboration and resource sharing in order to promote systematic and in-depth development of research in this field, as well as to facilitate practical application and dissemination.

3.2.2. Analysis of Author Collaboration Networks

With the node type set to authors, a co-occurrence map of core authors was generated (see Figure 2). The map contains 153 core authors ($N=153$), with 4 connecting lines ($E=5$), and the overall network density is extremely low ($\text{Density}=0.0003$). This suggests that collaboration among authors in this research area is very sparse, and a core group of authors has not yet been formed. The majority of researchers work independently, lacking a close academic collaboration network. Scholars with relatively high publication output include Zhang Xiaoqian, Yang Pingping, Zhang Junyang, An Ran, and others, most of whom are frontline teachers in primary and secondary schools, reflecting the considerable impact of question chains in English reading teaching practice. These scholars have carried out extended explorations of teaching practices involving question chains, making important contributions to the development of the field. Overall, the map indicates that although the research topic application of question chains in English reading teaching has attracted a certain number of researchers over the past decade, the field remains in a phase of fragmented development, with weak academic connections among authors and no stable research teams or collaborative networks yet established. Therefore, it is necessary to further build a broad and relatively stable platform for collaborative research among authors.

3.3. Research Results

3.3.1. Keyword Distribution and Co-occurrence Analysis

Keywords are terms that appear with high frequency and strong centrality in the literature, directly reflecting the core content of a paper's topic. Hence, keyword analysis helps to identify research hotspots and developmental trends in a given field during a specific period. Keywords reflect the main themes and core content of articles. When two or more keywords co-occur in the same publication, they form keyword co-occurrence. Co-word analysis of keywords can reveal hotspots, subject distribution, and disciplinary structure within a research domain (Li & Chen, 2023). As shown in Figure 3, there are 91 keyword nodes, with 267 connecting lines between nodes and a network density of 0.0652. Based on node size, line thickness, and color,

high-frequency keywords in this field can be extracted, including question chain, reading teaching, junior high English, senior high English, thinking quality, and deep learning. This map intuitively demonstrates a research landscape characterized by question chains as the means, reading teaching as the vehicle, and the cultivation of students' thinking quality and core competencies as the goal. The research covers multiple educational stages, with increasingly diverse strategies and methods.

Keyword centrality and citation frequency are positively correlated with research heat in the field. The higher the centrality, the greater the importance of the keyword within the co-occurrence network. Table 2 lists the top 9 keywords ranked by centrality, along with their occurrence frequencies. It can be observed that keywords such as senior high English and junior high English have relatively high frequencies but low centrality (centrality < 0.1), indicating that they do not play a significant structural connective role in the overall network and are primarily routine knowledge points. Some keywords, such as question chain and reading teaching, stand out prominently in both frequency and centrality, indicating that the application of question chains to English reading teaching is a key hotspot in this field. In recent years, with the advancement of the new curriculum reform, keywords such as thinking quality and reading ability have gradually emerged as research hotspots; however, their centrality remains insufficient, suggesting that more scholars and frontline English teachers need to engage in in-depth discussions on these topics.

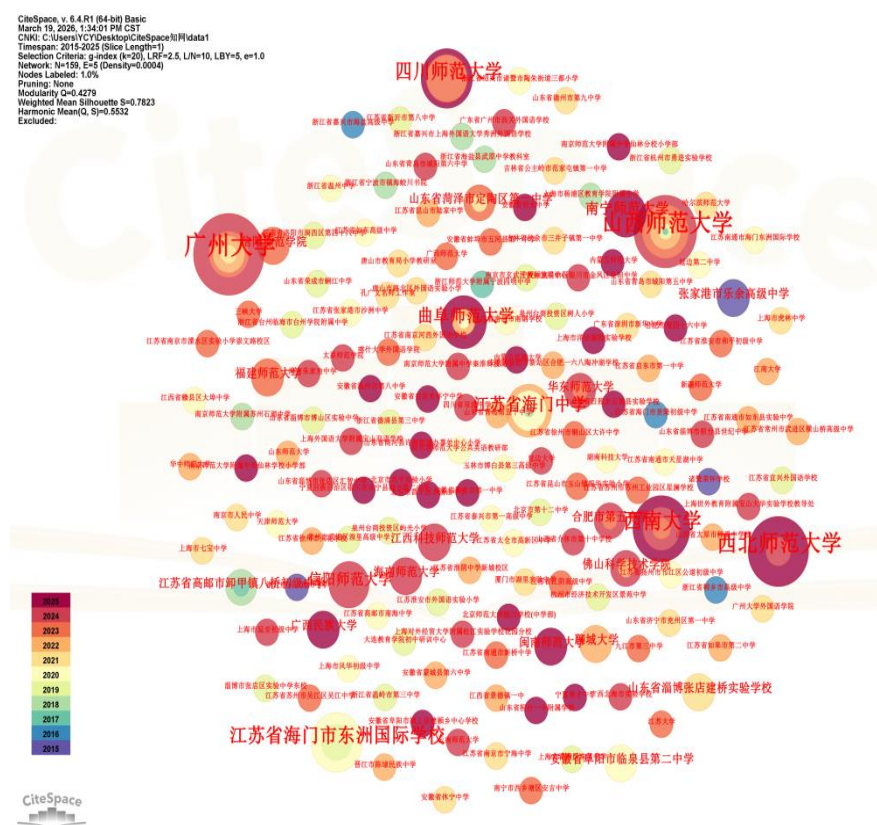


Figure 1 Co-occurrence Map of Core Institutions



CiteSpace, v. 6.4.R1 (64-bit) Basic
March 19, 2026, 1:58:56 PM CST
C:\Users\1\Desktop\CiteSpace 知网data1
TimeSpan: 2015-2025 (Slice Length=1)
Selection Criteria: g-index (k=20), LRF=2.5, UN=10, LB=5, e=1.0
Network: N=91, E=267 (Density=0.0652)
Largest 1 CCs: 85 (93%)
Nodes Labeled: 1.0%
Pruning: None
Modularity Q=0.4279
Weighted Mean Silhouette S=0.7823
Harmonic Mean(Q, S)=0.5532
Excluded:



180

Table2 Statistics of Centrality and Frequency of Core Keywords

Number	Frequency	Centrality	First Publication Year	Keyword
1	215	1.2	2015	Question chain
2	115	0.27	2016	reading teaching
3	45	0.07	2015	senior high English
4	49	0.05	2018	thinking quality
5	55	0.05	2016	junior high English
6	8	0.04	2021	reading ability
7	16	0.01	2021	action research
8	9	0.01	2019	deep reading
9	18	0.01	2015	English reading

3.3.2. Keyword Cluster Analysis

The cluster view is used to present the knowledge structure of different research domains (as shown in Figure 4). The modularity Q-value and the mean silhouette S-value are important metrics for evaluating the structure of the co-occurrence network and the quality of clustering. Generally, a larger Q-value indicates a more significant clustering effect (when $Q > 0.3$, the network structure is considered pronounced); the S-value reflects the homogeneity of the network, with $S > 0.5$ indicating a reasonable cluster structure and $S > 0.7$ indicating a good and reliable structure. In Figure 5, the Q-value is 0.7725, suggesting that the keyword clustering effect is favorable; the S-value is 0.9531, indicating that the cluster network structure is reasonable and trustworthy.

As shown in Table 3 the keywords in this field form a total of seven clusters, each consisting of multiple closely related keywords. The clusters are numbered from 0 onward, with smaller numbers indicating larger cluster sizes (i.e., containing more keywords). Analyzing the cluster size, silhouette values, and main content of each cluster helps to identify the research hotspots and frontier trends in this field.

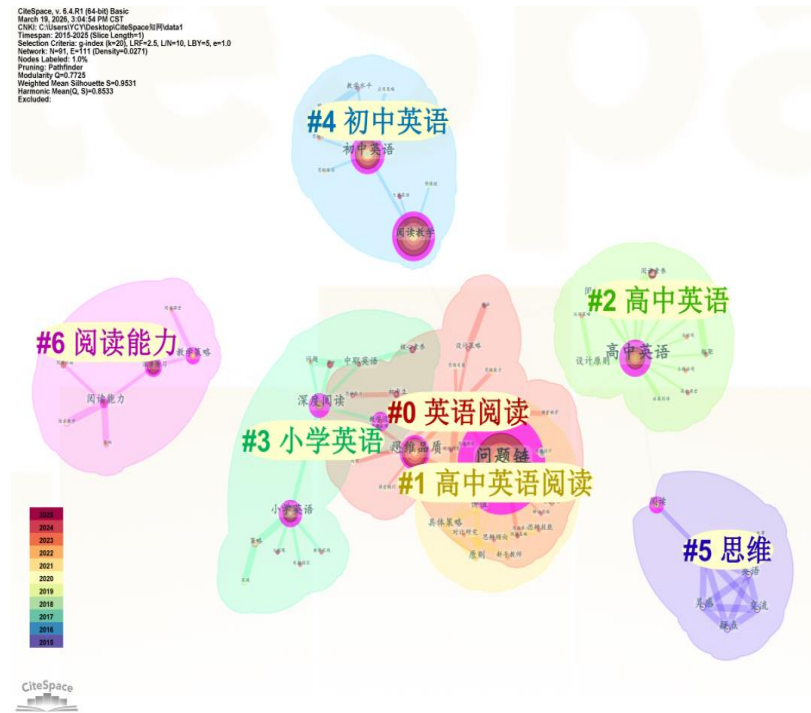


Figure 5 Keyword Cluster Map

Table 3. Cluster Number Identification Table

Cluster ID	Size	Silhouette	Main Content
#0 English reading	20	0.958	English reading; thinking quality; junior high English; reading achievement; reading teaching
#1 Senior high English reading	15	1	Senior high English reading; question design; junior high English; junior high English reading teaching; English reading teaching
#2 Senior high English	14	0.913	Senior high English; reading literacy; junior high English; design principles; efficient classroom
#3 Primary school English	12	0.871	Primary school English; deep reading; secondary vocational English; thinking quality; teaching practice
#4 Junior high English	10	1	Junior high English; reading teaching; senior high English; English reading; English reading teaching
#5 Thinking	7	0.946	Thinking; English; communication; doubts; inspiration
#6 Reading ability	7	1	Reading ability; reading interest; reading teaching; influence; picture book teaching

3.3.3. Analysis of Research Hotspots in the Field

In summary, the high-frequency keywords and clusters reflect that the main research hotspots in this field are primarily focused on the following two themes: the practice and design of question chains in English reading classrooms; and research on the impact of question chains on students’ thinking quality. Over time, emerging social issues and needs have also influenced research hotspots at different stages.

3.3.3.1 Practice and Design of Question Chains in English Reading Classrooms

a. Practical Application of Question Chains Across Different Educational Stages

Reading teaching is the most concentrated area of question chain application. In English reading instruction, teachers construct question chains around textual themes to guide students in exploring thematic meaning, thereby achieving the integrated development of text comprehension, language construction, and cognitive advancement (Li Liujian, 2022). To cultivate students’ ability to analyze and solve problems from a connective perspective, teachers need to focus on uncovering the connections within the text, between the text and the unit, and between the text and students’ prior knowledge and life experiences, designing appropriate question chains that guide students to view the text from a relational standpoint (Zhang Wanying, 2024).

Based on the keywords in Figure 5, this study can be categorized into three distinct segments: primary school English reading, junior high English reading, and senior high English reading. In these studies, the majority employ qualitative research methods to analyze the practice, application, and impact of question chains in English reading instruction.

In English reading classrooms, most research concentrates on the current state of question chain practice, the challenges faced, problems encountered, and specific design and implementation strategies. English reading is a relatively weak area for primary school students, and English reading instruction also suffers from low teaching efficiency (Yu Jingjing, 2020). Zhou Na (2023) argues that given students’ limited language proficiency, teachers can use question chains as an entry point, grounded in students’ actual learning conditions, to

explore the thematic meaning of the text and continuously optimize the design of question chains.

Ye Yi (2020), through classroom observation and surveys, found that teachers' questioning suffers from problems such as inappropriate difficulty levels, weak logical coherence, and a lack of overall consideration of the text. English reading accounts for a significant proportion of scores in junior high English examinations; therefore, cultivating students' reading thinking ability has become one of the important tasks for English teachers. Junior high school students are in a stage of adolescent development, during which their thinking gradually transitions from abstract thinking to rational thinking. Teachers can employ topics, pictures, or multimedia aids that are reasonably related to the reading material to design question chains that both inspire student thinking and exercise their thinking abilities (Wang Di, 2021). At the senior high level, textbook texts increase in difficulty and length, and high-quality reading activities are conducive to promoting the development of students' subject core competencies. Scholars have discussed the necessity of question chains in senior high English reading teaching from the perspectives of textbook guidance, the requirements of the new curriculum concepts, and the actual needs of teaching (Pei Song, 2011). Regarding current classroom question chains, Yang Pingping (2017) points out problems such as ineffective design from the students' perspective and deviation from the text topic. Senior high school students' abstract logical thinking develops rapidly, and they face the assessment of higher-order thinking skills in the college entrance examination. According to the new curriculum standards' requirements for thinking quality, the design of question chains should shift from being merely interesting to cultivating students' critical, logical, and creative thinking.

b. Research on the Design of Question Chains in English Reading Classrooms

First, regarding the internal logical construction of question chains, scholars consistently emphasize that layering and progressiveness are their essential characteristics. Whether it is Yao He's (2007) notion of mutual triggering and laying the groundwork for sublimation or Jiang Min's (2018) advocacy for tiered questioning, both point to the idea that question chains should guide students in a stepwise manner from superficial text comprehension to deep meaning construction. This design logic requires teachers, at the initial design stage, to thoroughly study the text, identify the main thread running through it, and then decompose it into a number of logically interrelated sub-questions, so that each preceding question serves as the cognitive foundation for the next, and each subsequent question extends the thinking of the previous one. This interlocking design effectively avoids the randomness and fragmentation of classroom questioning, ensuring that students' thinking follows a clear path of gradual deepening.

Second, in terms of the practical orientation of question chains, scholars generally agree that the design of question chains should be student-centered and connected to real-life situations. Wang Houxiong (2010) explicitly states that design should be based on students' actual doubts, and Song Jianjian (2017) and Shi Wei (2019) repeatedly emphasize the importance of grounding design in students' actual circumstances and teaching focal points. This indicates that effective question chains are not detached from students but must be rooted in their zone of proximal development. Chen Weibing and Shen Huadong (2018) further refine this by specifying students' language, information, and thinking levels, pointing out that in the English subject, question chain design must take into account the synergistic development of language ability and thinking quality—that is, the difficulty of questions must consider not only students' thinking capacity but also their current language expression ability.

Third, regarding the value pursuit of question chains, promoting the enhancement of thinking quality is the ultimate goal of design. Wang Luping's (2011) principles of appropriateness and scientificity based on cognitive psychology, as well as Jiang Min's (2018) proposal to use question chains to present teaching difficulties and activate higher-order thinking, both reveal the deeper value of question chains—they are not only a vehicle for knowledge transmission

but also a tool for thinking training. In particular, Shi Wei's (2019) principle of openness reminds us that, beyond emphasizing tightly structured pre-planning, teachers should also leave room for students to question, critique, and think creatively, allowing question chains to become a dynamically generated dialogic field rather than a rigid, predetermined cage.

In summary, although existing research has provided rich theoretical support for question chain design from multiple perspectives, there remains room for further expansion. Therefore, exploring how to design question chains in senior high English reading instruction that both conform to the laws of English language learning and effectively promote the development of students' thinking quality holds significant theoretical value and practical implications.

3.3.3.2 Review of the Impact of Question Chains on Students' Thinking Quality

As an important component of the core competencies in the English subject, thinking quality refers to the distinctive characteristics of students' thinking manifested in the process of language comprehension and expression, primarily including logical, critical, and creative aspects of thinking. The Ministry of Education (2025) explicitly states that the development of thinking quality contributes to enhancing students' ability to analyze and solve problems. In English reading instruction, how to effectively develop students' thinking quality has become a focal point of researchers' attention, and question chains, as a commonly used teaching strategy, have received widespread academic attention due to their unique value in guiding students' text interpretation and promoting thinking development (Wu Ying, 2019).

Regarding the overall impact of question chains on thinking quality, researchers generally agree that they play a systematic role throughout the entire process of reading instruction. Wu Ying's (2019) study shows that question chains can effectively activate students' thinking before reading; during the reading process, multi-level question design enables thinking activities to permeate the entire process of information extraction, processing, and integration; and after reading, question chains can expand the breadth and depth of students' thinking. This whole-process design concept distinguishes question chains from isolated classroom questioning, making them a systematic teaching tool for developing thinking quality. Guo Yifei's (2019) practical research further confirms that through the scaffolding built step by step by question chains, students' language gradually becomes enriched and their thinking levels progressively rise, ultimately enabling them to produce linguistically rich expressions imbued with thought—fully demonstrating the synergistic effect of language learning and thinking development.

With respect to the three core dimensions of thinking quality—logicality, criticality, and creativity—scholars have explored the cultivation pathways of question chains from different perspectives. Luo Yuan and Zhu Shenhai (2021) propose that teachers can develop students' logical, critical, and creative thinking abilities respectively by clarifying textual structure, digging deeply into the text, and facilitating internalization and transfer. Tang Mingxia (2016), starting from the internal logic of question chains, emphasizes that each question must possess a certain degree of logicality and layering, and that this progressive relationship can guide students' thinking to gradually advance toward the deeper meaning of the text.

In terms of question chain design strategies, researchers pay particular attention to how to activate students' thinking motivation through question design. Hu Wenna (2018) points out that teachers should identify precise entry points and targeted practice points, such as text titles and key sentences, and design question chains that are as life-oriented as possible and capable of generating cognitive conflict in students. This view underscores the importance of context creation in question chain design, because thinking often arises from authentic problem situations; question chains detached from students' experience can hardly reach the core of thinking. At the same time, teachers should embrace the philosophy of teaching for thinking, paying attention not only to what students think about in reading instruction but also to the

process of how they think—an insight that holds guiding significance for deepening the pedagogical practice of question chains.

In summary, existing research has revealed the positive impact of question chains on students’ thinking quality from multiple levels. However, there remains room for further deepening. Most studies still remain at the level of experience summary and theoretical speculation, with relatively insufficient systematic research based on long-term tracking and empirical data. Moreover, with regard to the specific context of senior high English reading instruction, specialized research on how to effectively promote thinking quality improvement while attending to language ability development still needs to be strengthened.

3.3.4. Evolution of Research Hotspots in the Field

The burstness detection technique provided by CiteSpace can extract words that have experienced a surge in frequency in different time periods (burst terms), which are used to describe newly emerging topics at the research frontier. Burst terms can reflect the developmental evolution of research on question chains in English reading teaching. As shown in Figure 6:

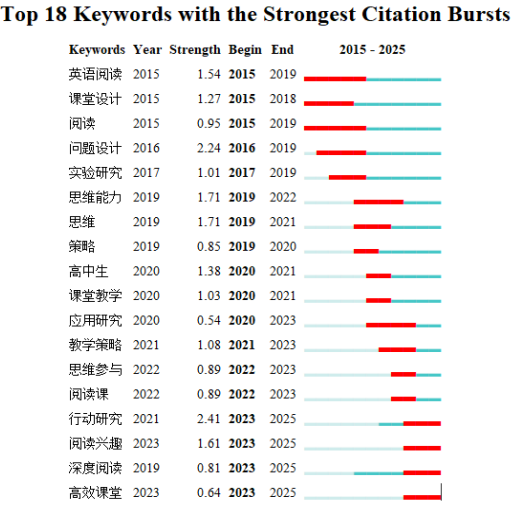


Figure 6. Keyword Burst Map

In Figure 6, the top 18 burst terms ranked by burst strength (strength) are presented in chronological order of their first appearance, with the burst intervals indicated by dark-colored bars. The simultaneous emergence of the three keywords English reading, classroom design, and reading in 2015 indicates that researchers began to turn their attention to operational research at the classroom level. Scholars were no longer merely discussing what to teach and why to teach, but began to systematically focus on how to specifically teach reading in the classroom. As question chains became widely applied in English reading instruction, the research focus gradually shifted from the exploration of a single teaching method to a deeper concern for the development of students’ core competencies. The emergence of keywords such as thinking, thinking ability, and strategy demonstrates that the academic community began to systematically examine the internal mechanisms by which question chains promote higher-order thinking development, and attempted to verify their instructional effectiveness through applied research. Entering 2022 and beyond, multiple keywords emerged in concentrated succession, forming a new peak of bursts—a trend closely related to the educational context of the implementation of the new curriculum reform. At the same time, the structural adjustments to textbook content and the elevation of teaching requirements have presented teachers with greater challenges in instructional design and implementation, prompting classroom teaching to place greater emphasis on efficiency enhancement and the activation of student agency. Against this backdrop, how to guide students through question chains to engage in deep reading

and stimulate their intrinsic reading interest has become a core issue of shared concern for both researchers and frontline teachers.

4. Conclusions and Prospects

In view of the problems and shortcomings in the research on the application of question chains in English reading teaching, this study proposes the following directions for expansion and improvement.

4.1. Research Content: From Common Principles to Individualized Deepening

Existing research on the design principles of question chains has largely focused on common characteristics such as layering, progressiveness, and student-centeredness, forming a relatively mature theoretical framework. However, the individualized design for different educational stages, different text types, and different dimensions of thinking still requires further deepening. Future research should further refine the design of question chains in the following aspects. First, more specialized studies on senior high English reading teaching are needed. At the senior high level, textbook texts increase in difficulty and length, students' abstract logical thinking develops rapidly, and they face the demand for higher-order thinking assessed in the college entrance examination. Although existing research has touched upon senior high English reading teaching, systematic studies specifically targeting this educational stage remain insufficient. Future efforts should explore question chain design strategies that align with the cognitive characteristics of senior high students, investigating how to effectively promote critical and creative thinking while attending to language ability development. Second, research should explore genre-based differentiated design of question chains. Different text genres—such as narratives, expository texts, and argumentative texts—possess distinct discourse structures and values for thinking training. Future studies should examine how to construct differentiated questioning paths based on genre characteristics, so that question chain design can more precisely serve the dual goals of text interpretation and thinking development.

4.2. Strengthening Professional Development for Teachers' Question Chain Design Ability

Current research predominantly focuses on the design principles and instructional effects of question chains, with insufficient attention paid to the professional development of teachers as designers and implementers. Future research should strengthen the systematic cultivation of teacher' relevant competencies. First, a training mechanism that integrates theoretical study with practical refinement should be established, helping teachers grasp the defining characteristics, design logic, and mechanisms for cultivating thinking through question chains, thereby moving from experience-based design to professional design. Second, efforts should be made to enhance teachers' text interpretation ability, which is the foundation of question chain design. Only when teachers have a deep understanding of the text's structure and educational value can they design logically coherent question chains that target deep understanding. Third, attention should be given to training teachers in classroom follow-up questioning and dynamic generation, enabling them to identify students' thinking obstacles in authentic teaching situations and flexibly adjust questioning paths. Moreover, teacher learning communities centered on question chain design should be promoted. Through collective lesson planning, lesson study, and school-based professional development, teachers can share experiences and exchange insights, making question chains a practical vehicle for their professional growth and ultimately serving the sustained development of students' thinking quality.

4.3. Research Perspective: From Subject Teaching to Educational Value

With the deepening implementation of the core competencies concept, research on question chains needs to elevate its perspective—from a mere focus on subject teaching strategies to a deeper exploration of educational value. On the one hand, specialized studies targeting the senior high stage should be strengthened. Senior high students' abstract logical thinking develops rapidly, and they face the assessment of higher-order thinking skills in the college entrance examination. More targeted research is needed on how to effectively enhance thinking quality while simultaneously fostering language ability development. On the other hand, the potential value of question chains in cultivating students' autonomous learning ability should be explored. Question chains are not only a tool for teachers' instruction but should also be transformed into a scaffold for students' learning. Future research may explore how to guide students from answering questions to posing questions, cultivating their problem awareness and problem-construction ability, thus achieving the leap from teaching through questioning to learning to question. Moreover, the design and application of question chains should respond to the new curriculum reform's concerns regarding dimensions of core competencies such as cultural awareness and learning ability. Research should explore how to use question chains to guide students in cultivating cultural understanding and developing learning strategies through reading, so that question chains truly become an important vehicle for realizing the educational value of the subject.

References

- [1] Chen, W. B., & Shen, H. D. (2018). Design strategies of "question chain" in junior high school English reading instruction aimed at thinking quality. *New Curriculum Research (First Half)*, (02), 127-129.
- [2] Chen, Y., Chen, C. M., & Hu, Z. G. (2014). Principles and applications of citation space analysis: A practical guide to CiteSpace. Science Press.
- [3] Guo, Y. F. (2019). Application of question chain in junior high school English reading teaching. *Foreign Language Teaching in Primary and Secondary Schools (Middle School Edition)*, 42(10), 61-65.
- [4] Hu, W. N. (2018). Question chain design in junior high school English reading teaching based on thinking quality cultivation. *English Teachers*, 18(07), 135-140.
- [5] Jiang, J. L. (2022). Suggestions for junior high school English classroom teaching oriented by core competencies. *Basic Foreign Language Education*, 24(03), 3-11+109.
- [6] Jiang, M. (2018). Reflection and practice on junior high school English reading teaching based on question chain. *Shanghai Curriculum and Teaching Research*, (11), 52-56.
- [7] Li, J., & Chen, C. M. (2023). CiteSpace: Text mining and visualization in science and technology (3rd ed.). Science Press.
- [8] Li, L. J. (2022). Application of question chain in enhancing students' ability to explore thematic meaning of texts. *Foreign Language Teaching in Primary and Secondary Schools (Middle School Edition)*, 45(11), 15-21.
- [9] Luo, Y., & Zhu, S. H. (2021). Questioning strategies for senior high school English reading based on thinking quality development. *Education Observation*, 10(43), 89-92.
- [10] Pei, S. (2011). Application of question chain in senior high school English reading teaching. *Journal of Shandong Normal University (Basic English Education)*, 13(06), 75-79.
- [11] Shi, W. (2019). Design strategies of "question chain" in senior high school mathematics. *Middle School Mathematics*, (07), 90-91.
- [12] Song, J. J. (2017). Design of effective question chains in primary school mathematics teaching. *Teaching and Management*, (20), 46-48.
- [13] Tang, M. X. (2016). Design of question chain in senior high school English reading teaching. *Foreign Language Teaching in Primary and Secondary Schools (Middle School Edition)*, 39(09), 38-42.

- [14] Wang, D. (2021). A brief discussion on the design and application of “question chain” teaching model in junior high school English reading teaching. *Overseas English*, (02), 195-196.
- [15] Wang, H. X. (2010). Types and teaching functions of “question chain” -- Taking chemistry teaching as an example. *Educational Science Research*, (05), 50-54.
- [16] Wang, L. P. (2011). On the design of “question chain” in chemistry teaching. *Chemistry Teaching*, (03), 6-10.
- [17] Wu, Y. (2019). Question chain design in junior high school English reading classes based on developing thinking quality. *Basic Foreign Language Education*, 21(04), 83-88+108.
- [18] Xu, D. (2020). Senior high school English reading teaching practice based on question chain. *Journal of Yanbian Institute of Education*, 34(02), 200-202.
- [19] Xue, L. L. (2020). Application of question chain based on English learning activity view in senior high school English reading teaching design. *English Square*, (05), 115-116.
- [20] Yang, P. P. (2017). Problems and countermeasures in question chain design in English reading teaching. *Teaching and Management*, (31), 60-62.
- [21] Yao, H. (2007). On “questions” and “question chains”. *Curriculum, Teaching Materials and Teaching Research (Secondary School Research)*, (Z2), 13-15.
- [22] Ye, Y. (2020). Problems in teachers’ questioning in junior high school English reading classes and improvement strategies. *Foreign Language Teaching in Primary and Secondary Schools (Middle School Edition)*, 43(07), 18-23.
- [23] Yu, J. J. (2020). Exploration of primary school English reading teaching based on question chain — Taking the teaching of PEP Book 4 “Sports and Games” (Story Time) as an example. *Campus English*, (07), 220.
- [24] Zhang, W. Y. (2024). Design and application practice of question chain oriented to cultivating dialectical thinking. *Foreign Language Teaching in Primary and Secondary Schools (Middle School Edition)*, 47(05), 1-5.
- [25] Ministry of Education of the People’s Republic of China. (2025). English curriculum standards for senior high school (2017 edition, 2025 revised). People’s Education Press.
- [26] Zhou, N. (2023). Question chain design for primary school English reading teaching based on thinking quality. *Primary and Secondary School Teaching Research*, 24(01), 42-47.