A Study on the Design and Application of Question Chains in Senior High School English Continuation Task Instruction

Wang Yutong

[**Abstract**] Addressing the issue of low collaboration in high school English writing-after-reading tasks, this study, grounded in the interactive collaboration model and the question chain theory, conducted a 12-week teaching experiment involving 93 first-year high school students. By implementing a "three-stage teaching approach" that integrates four types of question chains and employing corpus-based and test-data analyses, the findings reveal that systematic question chains can effectively construct reading-writing scaffolds, significantly enhancing students' awareness of lexical reuse, syntactic creativity, and textual coherence. The research demonstrates that well-designed question chains constitute an effective pathway for improving the collaborative dynamics of writing-after-reading tasks.

[**Key words**] question chain; continuation writing; senior high school English; synergy

[**About the author**] Wang Yutong (2005—), female, from Bengbu, Anhui, China, bachelor in foreign languages and literature from the School of Foreign Languages at Anqing Normal University. Research interests: foreign language pedagogy and applied linguistics.

[**DOI**] https://doi.org/10.62662/kxwxy0309001

[**Website**] www.oacj.net

1 Introduction

With the promulgation and implementation of the "English Curriculum Standards for Ordinary Senior High Schools (2017 Edition)", cultivating core competencies in the English subject has become the central focus of instruction. As a comprehensive task type that closely integrates reading and writing, continuation task has attracted considerable attention for its effectiveness in assessing students' language comprehension and production skills. Wang Chuming (2012) points out that, by imposing a mandatory "continuation", this approach compels learners to engage in creative expression based on their understanding of the original text, thereby producing a "leveling effect": learners' written output tends to converge toward the level of the source text.

Nevertheless, in actual high school English teaching practice, continuation task still faces numerous challenges. Although many teachers emphasize the importance of "reading", they often remain at the level of superficial information extraction, lacking systematic scaffolds to guide students in deeply analyzing the original text's syntactic features, emotional undercurrents, and overarching discourse structure. Students commonly report that they can "understand what they read but cannot write", or that they can "write but with a markedly different style". Consequently, their continuations frequently exhibit abrupt plot developments, disjointed stylistic choices, and awkward logical transitions—issues that fundamentally reflect insufficient interaction between reading and writing and the failure to fully activate synergistic effects. In response to the aforementioned issues, this study introduces the "question chain" as a pedagogical intervention. As a systematic, hierarchical sequence of questions designed in alignment with instructional objectives, content, and students' cognitive patterns, the question chain makes implicit thought processes explicit, guiding students to actively construct deep connections with the original text during reading.

This research aims to achieve the following objectives: first, to verify the feasibility of the question chain-based teaching model in high school English post-reading writing; second, to explore the specific mechanisms through which the question chain exerts synergistic effects across three levels—vocabulary, syntax, and discourse;

and third, to develop an operational framework for question chain-based post-reading writing instruction, with particular emphasis on the classification of question chain types, design principles, and the implementation details of a three-stage teaching approach.

2 Theoretical framework

This study, grounded in the theories of question chains and synergy, constructs a theoretical framework of "question chain—interactive reinforcement—multidimensional synergy", aiming to explore the mechanisms by which question chains function as cognitive scaffolds in continuation tasks.

Firstly, the question chain theory provides an operational framework for instructional intervention. A question chain is not merely a haphazard collection of questions; rather, it is a systematic, hierarchical sequence constructed in accordance with instructional objectives and students' cognitive patterns. It is both directive and the inquiry-based approach guides students' thinking to develop progressively from the surface level to greater depth. This study categorizes the question chains in post-reading continuation writing into four types: introductory question chains are designed to activate background knowledge and predict plot, addressing the motivational question of "what to write"; diagnostic question chains focus on analyzing the original text's linguistic features and logical structure, tackling the deeper issue of "how to read"; exploratory question chains emphasize plot inference and emotional resonance, resolving the logical question of "how to continue"; and summarizing question chains serve for reflection and evaluation, addressing the monitoring question of "whether the writing is well done". These four types of question chains are integrated throughout the entire writing process, compelling students to attend to form and logic during reading and to engage in deliberate reconstruction when writing.

Secondly, the theory of synergistic effects elucidates the intrinsic mechanisms underlying language acquisition. Building on Pickering and Garrod's interactive alignment model and Wang Chuming's "continuation theory", synergy refers to learners' unconscious imitation of the source text's linguistic forms, discourse structure, and emotional tone during continuation tasks, thereby aligning their output with the input. Its psychological underpinnings include "structural priming", which posits that individuals tend to recur to syntactic patterns they have recently encountered, and the "interactive reinforcement hypothesis", which holds that the strength of synergy depends on the depth of interaction. The role of a question chain is precisely to enhance the intensity and effectiveness of interaction through external intervention, facilitating a shift in synergy from "unconscious imitation" to "conscious learning".

In summary, the theoretical framework developed in this study posits that, at the input level, the question chain serves as a cognitive scaffold, prompting students to engage in deep processing through diagnosis and inquiry; at the interaction level, it establishes a virtual "reader—author" dialogue, thereby enhancing the intensity of interaction; and at the output level, under the dual influence of structural activation and interactive reinforcement, students demonstrate higher-order coordination across vocabulary, syntax, and discourse, thus facilitating the enhancement of their language proficiency.

3 Research methodology

This study selected a total of 93 first-year high school students from two parallel classes at a high school in Bengbu City, Anhui Province, with the same teacher assigned to both classes to ensure homogeneity. Following random assignment, Class 1-3 was designated as the experimental group, and Class 1-4 as the control group. After excluding invalid responses, the final sample comprised 90 participants (46 in the experimental group and 44 in the control group).

The study employed a quasi-experimental design, with the teaching model serving as the independent variable: the experimental group implemented a three-stage teaching approach incorporating a "question chain" framework, while the control group followed conventional instruction. The dependent variable was the collaborative effect of continuation writing, operationalized across three dimensions—vocabulary, syntax, and discourse—and extraneous variables such as instructional duration, textbook selection, and test difficulty were rigorously

controlled. Research instruments included a continuation-writing test drawn from actual college entrance examination items, assessed using a two-dimensional scoring method (Kappa=0.82); the "Continuation-Writing Learning Experience and Collaborative Perception Questionnaire"; as well as AntConc for corpus analysis and SPSS for statistical analysis.

The experimental period lasted 12 weeks and was divided into three phases: the pre-experimental phase, the experimental intervention phase, and the post-experimental phase. Using pre- and post-test comparisons, questionnaire surveys, and corpus analysis, the study systematically examined the impact of question chain instruction on students' collaborative effects.

4 Research process

4.1 Master schedule of experimental plans

During the preparation phase (Week 1), the pre-test, questionnaires, and experimental briefing were completed. During the experimental phase (Weeks 2-9), one continuation-writing task was completed every two weeks, for a total of four tasks. In the summarization phase (Weeks 10-11), the post-test, post-questionnaires, and interviews were conducted. Finally, during the analysis phase (Week 12), data were entered, AntConc analyses were performed, and SPSS statistical analyses were carried out.

4.2 Pre-experimental phase

The core tasks of the pre-experimental phase were "baseline assessment" and "ice-breaking". First, a standardized pre-test was administered, with exam time strictly limited to 60 minutes, and grading conducted under a blind review protocol. Second, AntConc analysis of the pre-test essays revealed that the two classes did not differ significantly in lexical richness; however, both groups commonly exhibited low reuse of source text vocabulary (average<15%) and frequent failures in imitating complex sentence structures. Finally, students were briefed on the importance of continuation writing, but were informed only that the experimental group would pilot "new reading guided approaches", thereby minimizing the Hawthorne effect.

4.3 Experimental phase: embedding the question chain and the three-stage teaching method

The experimental phase is the core of the study, with the experimental class rigorously following the "three-stage teaching method" and incorporating four types of question chains. Below, taking Week 4's material, "Underdog Triumphs in Writing Contest", as an example, we will detail the design and implementation process of the question chains:

4.3.1 Pre-reading stage: introduction-based question chain

Objective: Activate schemas, predict the plot, and establish an emotional connection.

Question chain design:

(1) Look at the title and illustrations, and predict the protagonist's personality traits and the challenges they may face. (Prediction)

(2) Drawing on your own life experiences, what do you think are the key factors behind the "underdog's" comeback? (Connection)

(3) What kinds of descriptions in the original text might highlight the protagonist's "comeback"? (Form Prediction)

Procedure: Students engage in a 3-minute group discussion. Rather than providing the answer directly, the teacher writes students' predicted key words on the board, which will serve as checkpoints for verifying their understanding during subsequent reading. This stage aims to address the "what to write" motivation by fostering initial engagement with the text through prediction.

4.3.2 Reading stage: diagnostic and inquiry-based question sequences

Objective: Deeply deconstruct the original text, identify points of synergy, and deduce the underlying logic.

Question chain design:

(1) Diagnostic: Identify three verbs or phrases in the text that describe the protagonist's "nervousness", and

analyze their rhetorical effect. (Language Focus)

(2) Diagnostic: What role does the underlined sentence, "His heart pounded like a drum", play within the paragraph? If it were you, what kind of sentence structure would you use to continue it? (Syntactic Awareness)

(3) Exploratory: Before the final match, the protagonist suddenly feels like giving up. Aside from external pressures, what other inner struggles are at play? Infer this based on the character's traits as presented in the text. (Logical Coordination)

(4) Exploratory: If the ending were "glorious in defeat", which foreshadowing elements in the original text could support such a conclusion? (Discourse Coordination)

Procedure: Students read and reflect independently for five minutes, followed by a presentation of their "question chain insights". The teacher employs follow-up questioning—"Where in the original text did you find evidence for this?" or "Could this sentence structure work in your own continuation?"—to compel students to reread the text and deepen engagement. This stage is pivotal for generating synergistic effects: diagnostic questions pinpoint linguistic forms, while exploratory questions help students infer discourse-level logic.

4.3.3 Post-reading stage: summary-based question chain

Objective: Plan for continuation, conduct self-assessment and collaboration, and reflect on areas for improvement.

Question chain design:

(1) Which two keywords from the original text must your first paragraph of continuation include? (Lexical Co-checking)

(2) Which sentence structure from the original text do you plan to emulate when describing the climactic scene? (Syntactic Co-planning)

(3) Does your conclusion address the predictions made in the first paragraph's chain of questions? (Discourse Co-checking)

Procedure: Before beginning to write, students complete a "Co-checking Checklist", while the teacher circulates to provide guidance, focusing on correcting the tendency to stray from the original text. This step makes implicit collaborative awareness explicit, helping students develop self-monitoring skills. Control-Class Procedure: After reading, the teacher explains new vocabulary, analyzes the main ideas of each paragraph, assigns the continuation task, and emphasizes "paying attention to handwriting and grammar", without systematically guiding students through a chain of questions or facilitating co-checking.

4.4 Post-experiment phase

The post-experiment phase focuses on "validation" and "reflection". The post-test material used was "Repaying a Stranger's Kindness with Integrity". Ninety valid essays were scanned and converted into text, with those exhibiting clear plagiarism or insufficient word counts excluded. Post-test questionnaires were collected, and the analysis centered on students in the experimental group's feedback regarding whether the "question chain helped you identify the original text's linguistic features".

In addition, three students from each of the high-, medium-, and low-performing groups were selected from the experimental class to participate in semi-structured interviews, with the aim of gaining an in-depth understanding of how the question chain influences their thinking processes.

5 Research and analysis

5.1 Deep activation and diversification of lexical coordination

Lexical coordination constitutes the foundational level of post-reading writing. Prior to the experiment, the proportion of source-text words in the experimental and control groups was 0.689 and 0.761, respectively, with no significant difference. Post-experiment data reveal that this proportion decreased to 0.626 in the experimental group and to 0.662 in the control group. With respect to the use of lexical variants, the experimental group demonstrated a markedly strong capacity for generation: the number of coordinated occurrences of root-related

words rose from 217 before the experiment to 265, while coordinated uses of synonyms surged from 90 to 156, totaling 421 instances—accounting for 48.5% of all keyword occurrences. By contrast, in the control group, root-related word coordination declined from 196 to 153, with synonym coordination remaining steady at 90, yielding a combined total of only 27.3%. Statistical tests indicate that, following the intervention, both groups exhibited significant differences in the coordination of root-related words ($p<0.05$) and synonyms ($p<0.05$). These findings suggest that the diagnostic question chain, by compelling learners to attend to the rhetorical effects of source-text vocabulary, effectively activated their awareness of lexical coordination, shifting them from mere replication toward meaning-based, diversified expansion.

5.2 Creative reconstruction and logical internalization through syntactic coordination

Syntactic coordination reflects students' degree of internalization of the original text's linguistic structure and their capacity for creative application. Following the experiment, the experimental class scored significantly lower than the control class on both complete-phrase coordination (2.250 vs. 5.933, $p=0.005$) and complete-sentence coordination (1.75 vs. 3.111, $p=0.005$), while scoring significantly higher on incomplete-phrase coordination (6.438 vs. 3.833) and incomplete-sentence coordination ($p<0.05$). This seemingly "counterintuitive" pattern actually reveals the deeper effects of question chain instruction: rather than mechanically replicating the original text's sentence patterns, students in the experimental class, through the iterative reasoning of inquiry-based question chains, internalize the original syntactic structures as part of their own linguistic repertoire and creatively reconstruct them in accordance with the context of the continuation. Such "incomplete coordination" is, in fact, a hallmark of high-level coordination, demonstrating that the question chain approach successfully facilitates a shift in syntactic coordination—from formal imitation to logical internalization.

5.3 Holistic advancement and structural optimization of discourse coordination

Textual coherence represents the highest level of post-reading writing. Following the experiment, the experimental group's total score for textual coherence rose to 70.333, an improvement of 7.791 points compared with the pre-experiment baseline, whereas the control group showed only a marginal increase of 0.178 points (to 62.178). The difference between the two groups was highly significant ($p=0.002$). In the dimension of content coherence, the experimental group advanced from 31.979 to 34.833 ($p=0.007$); in the dimension of structural coherence, the largest gain was observed, amounting to 4.937 points (from 30.563 to 35.500, $p=0.001$). This outcome was attributable to the use of an introductory question chain for plot prediction and a summarizing question chain for structural self-checking, which enabled students to establish a clear narrative framework prior to continuing the text and to consistently refer back to the original text's foreshadowing throughout their writing, thereby achieving a dual alignment of both content and structure.

6 Research conclusions

6.1 Main research findings

Question chain instruction effectively fosters vocabulary synergy grounded in meaning construction. By conducting an in-depth analysis of the rhetorical effects of original-text vocabulary through diagnostic question chains, students move beyond merely reusing words; instead, they actively seek diverse expressions using cognates and synonyms, thereby achieving a qualitative leap in vocabulary synergy—from quantity to quality.

Question-chain instruction has facilitated the shift of syntactic coordination from formal imitation to creative reconstruction. Inquiry-based question chains compel students to draw on the original text's syntactic resources when developing their narratives, transforming syntactic coordination from a mechanical "fill-in-the-blank" exercise into a context-driven, creative reconstruction that reflects the internalization of linguistic competence.

Question-chain instruction serves as a crucial scaffold for achieving deep-level textual coherence. The closed-loop design of introductory and summarizing question chains enables students to construct a predictive framework before continuing the text and to conduct a structural self-check afterward, thereby effectively addressing the issues of logical discontinuity and structural disconnection between the continuation and the original text.

6.2 Pedagogical implications

Design a hierarchical, interconnected sequence of questions to guide in-depth textual analysis. Teachers should avoid fragmenting questions and structure them according to the logical progression of "introduction-diagnosis-exploration-summary", ensuring that each question contributes to fostering synergistic effects.

Strengthen logical thinking and discourse structure training to construct a narrative framework. In the design of inquiry-based question sequences, more "if... then..." type reasoning questions should be included to guide students to attend to foreshadowing and textual coherence in the original text, thereby fostering discourse awareness.

Deepen the synergy between style and emotion, fostering a profound dialogue with the author. The design of question sequences should not be confined to the level of linguistic form; it must also attend to the original text's emotional tone and narrative style. By posing questions that evoke emotional resonance, the continuation can remain consistent with the original in its underlying spirit.

7 Final remarks

Although this study has demonstrated that question chain instruction can effectively elicit synergistic effects across vocabulary, syntax, and discourse in continuation tasks, limitations remain in both the research design and the evaluation framework, leaving room for further exploration. First, the homogeneity of the sample constrains the external validity of the findings. The present study was conducted solely with two classes from a single secondary school, failing to adequately represent a broader population spanning diverse academic levels and instructional contexts. Future research should adopt a multi-center, stratified sampling approach, extending the participant pool to schools across different regions and educational tiers, thereby assessing the generalizability and adaptability of question chain instruction within heterogeneous groups. Second, the brevity of the experimental period precludes long-term evaluation. While the 12-week intervention allowed observation of immediate effects, it falls short of revealing the model's enduring impact on students' language development—particularly its capacity to foster autonomous learning and cultivate critical thinking skills. Subsequent studies could implement longitudinal tracking to determine whether students maintain elevated levels of collaborative awareness and creative reconstruction abilities after the intervention concludes. Finally, the quantitative assessment framework for synergistic effects remains incomplete.

This study primarily focuses on explicit linguistic-formal coordination, while neglecting implicit dimensions such as emotional tone and cultural imagery. Future research should strive to develop a multidimensional evaluation model, incorporating qualitative analytical methods to probe the micro-psychological mechanisms underlying students' emotional resonance and stylistic imitation, thus providing a more comprehensive account of the underlying logic by which question chain instruction promotes deep learning.

References:

[1] Atkinson D., Churchill E., Nishino T., et al. Alignment and Interaction in a Sociocognitive Approach to Second Language Acquisition[J]. *The Modern Language Journal*, 2007, 91(2): 169-188.

[2] Bock J. K. Syntactic Persistence in Language Production[J]. *Cognitive Psychology*, 1986, 18(3): 355-387.

[3] Pickering M. J., Garrod S. Toward a Mechanistic Psychology of Dialogue[J]. *Behavioral and Brain Sciences*, 2004, 27(2): 169-226.

[4] Hua Wei. A Study of Synergetics in Foreign Language Teaching[J]. *Journal of Qiqihar University (Philosophy and Social Sciences Edition)*, 2001(4): 88-90.

[5] Lian Caizhen. An Exploration of Teaching Strategies for Post-reading Continuation Writing in Senior High School English from a Collaborative Perspective[J]. *English Teacher*, 2024, 24(17): 117-122.

[6] Lyu Runwen. On the Synergistic Effects of the Teaching Process[J]. *Journal of Qiqihar Normal University (Philosophy and Social Sciences Edition)*, 1991(3): 85-86.

[7]Pei Song. The Application of Question Chains in Senior High School English Reading Instruction[J]. *Journal of the School of Foreign Languages, Shandong Normal University (Basic English Education)*, 2011, 13(6): 75-79.

[8]Qian Hongyan. An Exploration of the Application of Question Chains in Senior High School English Writing Instruction[J]. *Foreign Language Teaching in Schools (Middle Version)*, 2016, 39(10): 56-58.

[9]Wang Chuming. Interaction and Collaboration in Foreign Language Teaching[J]. *Foreign Language Teaching and Research*, 2010, 42(4): 297-299.

[10]Wang Chuming. Post-reading Continuation Writing: An Effective Approach to Enhancing Foreign Language Learning Efficiency[J]. *Foreign Languages*, 2012(5): 2-7.

[11]Wang Min, Wang Chuming. The Synergistic Effect of Continuing Writing after Reading[J]. *Modern Foreign Languages*, 2014(4): 501-512, 584.

[12]Wang Chuming. Why Does Continuing Writing Promote Learning Effectively? [J]. *Foreign Language Teaching and Research*, 2015, 47(5): 753-762, 801.

[13]Wang Chuming. From "Writing to Promote Learning" to "Continuation to Promote Learning"[J]. *Foreign Language Teaching and Research*, 2017, 49(4): 547-556, 639-640.

[14]Wang Chuming. How to Enhance Interaction in Continuation Task[J]. *Foreign Languages*, 2018(5): 40-45.

[15]Wang Duqin. *Theory of English Teaching Strategies*[M]. Beijing: Foreign Language Teaching and Research Press, 2015.

[16]Wang Houxiong. Types and Pedagogical Functions of "Question Chains"—A Case Study in Chemistry Instruction[J]. *Educational Science Research*, 2010(5): 50-54.

[17]Ye Ruhua. A Study on the Impact of Interactive Reinforcement Strategies on Synergy in High School Students' English Continuation Task[D]. Nanjing: Nanjing Normal University, 2021.

[18]Ministry of Education of the People's Republic of China. *English Curriculum Standards for Senior Secondary Schools (2017 Edition)*[M]. Beijing: People's Education Press, 2018.