

A Study on the Cultivation of English Reading Character in High School Students Through the KWLS Teaching Model

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[**Abstract**] With the introduction of core competencies in English language learning, cultivating reading dispositions has become a key objective in senior high school English instruction. This study selected two parallel classes of Grade 11 at a high school in Bozhou City, Anhui Province, and conducted a four-month teaching experiment. The experimental class (N = 39) was taught using the KWLS instructional model, while the control class (N = 38) followed the traditional PWP approach. Employing tools such as an English reading literacy questionnaire and semi-structured interviews, the research examined the impact of the KWLS model on high school students' English reading dispositions—namely, reading habits, reading attitudes, self-regulation, and problem-solving skills. The findings indicate that the KWLS instructional model significantly enhances students' English reading dispositions. Among the four dimensions, reading attitudes improved most markedly, while reading habits and self-regulatory abilities also showed substantial gains, and problem-solving skills were substantially strengthened. The study confirms that the KWLS model, by activating prior knowledge, encouraging autonomous questioning, facilitating summarization and reflection, and promoting extended sharing, effectively fosters a shift from passive reading to active inquiry, offering a practical framework that can inform English reading instruction at the high school level.

[**Key words**] KWLS teaching model; reading disposition; senior high school English; metacognition; core competencies

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1 Introduction

Under the guidance of the “English Curriculum Standards for Ordinary Senior High Schools”, English instruction has shifted from merely imparting linguistic knowledge to fostering students' core competencies in a holistic manner. As reading serves as the primary channel for language input, its instructional objectives extend beyond enhancing students' reading comprehension; they also aim to cultivate reading dispositions that will benefit learners throughout their lives. Nevertheless, current senior high school English reading instruction still tends to prioritize skill training at the expense of character development. Students generally exhibit limited interest in reading, insufficient use of reading strategies, and weak self-monitoring and reflective abilities. The KWLS teaching model represents an extension of the traditional KWL (Know—Want to know—Learned) framework, adding a “Share” component to form a complete cyclical process: “Activate Prior Knowledge (K) - Generate Independent Questions (W) - Summarize and Reflect (L) - Share and Extend (S)”. Grounded in learners' existing knowledge and learning needs, this model seamlessly integrates motivation and reflective mechanisms, aligning with the core tenets of constructivism and metacognitive theory.

Although the KWL model has been widely adopted both domestically and internationally, empirical research examining the impact of the KWLS model on senior high school students' reading dispositions remains relatively scarce. This study seeks to conduct a rigorous instructional experiment to quantitatively assess the specific effects of

the KWLS model across four dimensions—reading habits, reading attitudes, self-regulation, and problem-solving—and, through qualitative interviews, to explore its underlying mechanisms in depth. The goal is to provide empirical evidence and theoretical support for reforming English reading instruction at the senior high school level.

2 Theoretical framework

The theoretical framework of this study is primarily grounded in schema theory, constructivist theory, and metacognitive theory. First, schema theory (Bartlett, 1932; Rumelhart, 1980) posits that reading comprehension involves the interaction between readers' pre-existing schemas and textual information. The "K" phase of the KWLS model is specifically designed to activate students' content schemas and formal schemas, thereby laying the groundwork for subsequent meaning construction.

Construction lays the foundation. Furthermore, constructivist theory (Vygotsky, 1978) emphasizes learners' active construction of meaning within socio-cultural contexts. The W stage of KWLS encourages students to generate questions independently, the L stage guides summarization and reflection, and the S stage fosters peer sharing—processes that fully underscore learners' role as active agents in knowledge construction. Lastly, metacognitive theory (Flavell, 1979; Baker & Brown, 1984) posits that metacognition involves the awareness and regulation of cognitive processes. By structuring inquiry and reflection activities, the KWLS model makes students' reading related thinking processes explicit, thereby enhancing their metacognitive monitoring and regulatory skills. With regard to the framework for English reading literacy, this study adopts the "Developmental Framework for English Reading Literacy among Chinese Primary and Secondary School Students" proposed by Wang Qiang and Chen Zehang (2016). This framework defines reading disposition across four core dimensions—reading habits, reading attitudes, self-regulation, and problem solving—providing clear indicators for observation and a solid basis for evaluation.

3 Research methodology

This study employs a quasi-experimental research design, integrating both quantitative and qualitative methods. The participants comprise two parallel classes of Grade 10 students from a high school in Bozhou City, Anhui Province, totaling 77 students: 39 in the experimental class, which was taught using the KWLS instructional model, and 38 in the control class, which followed the traditional PWP (Pre-reading, While-reading, Post-reading) approach. The intervention lasted four months, from March to June 2026. Both classes were taught by the same experienced instructor and used identical textbooks, ensuring that all variables except for the instructional model remained consistent. The research instruments consisted of two main components: First, an English reading literacy questionnaire with 36 items, administered on a 5-point Likert scale; reliability analysis yielded a total Cronbach's α of 0.912 and an α of 0.913 for the reading disposition subscale, indicating good internal consistency and validity. Second, a semi-structured interview guide was used; following the intervention, six students from the experimental class were selected (each interviewed for approximately 15 minutes) to gain in-depth insights into their actual experiences and perceptions of the KWLS model. After data collection, SPSS 26.0 was employed to conduct independent-samples t-tests and paired-samples t-tests, while interview transcripts were analyzed using thematic coding.

4 Research process

Prior to the experiment, both classes completed a pre-test on reading disposition to confirm that there were no significant differences in baseline levels. During the experimental period, the experimental class engaged in two KWLS reading sessions per week, spanning a total of four months.

Taking the lesson "My Favorite Comedian" as an example: In the K phase, the teacher guided students in brainstorming what they already knew about comedians, activating their background knowledge; students then discussed within small groups the comedians they were familiar with and their performance styles, with the teacher mapping their responses on the blackboard using a mind map. In the W phase, building on the K phase content, students independently formulated questions they wished to explore, such as "How do comedians use body language

to convey humor?” or “What are the similarities and differences in comedic styles across different countries?” The teacher categorized and organized these questions as the guiding objectives for the reading activity. In the L phase, after completing the reading, students systematically addressed each of the W phase questions, summarizing their findings and reflecting on how well they had applied their reading strategies, while also filling out structured reflection journals. In the S phase, students shared their reading insights and any lingering questions within their groups, and the teacher facilitated a whole-class discussion, extending the conversation beyond the classroom by encouraging students to seek out and compare comedic works from diverse cultural contexts after class.

Meanwhile, the control group followed the traditional sequence of pre-reading prediction, in reading tasks, and post-reading exercises. At the conclusion of the experiment, a post-test on reading disposition was administered, and student interviews were conducted to gather qualitative data.

5 Research and analysis

5.1 Improvement of reading habits

Pre-test data indicated no significant difference in reading habits between the experimental and control groups (EC mean 15.90, SD=4.620 vs. CC mean 15.55, SD=4.662; $t=0.327$, $p=0.745 > 0.05$). Following a four-month KWLS instructional intervention, post-test results revealed a significant improvement in reading habits among the experimental group (EC mean 19.21, SD=3.009 vs. CC mean 16.47, SD=4.562; $t=3.090$, $p=0.003 < 0.01$). Paired-samples t -tests for the experimental group further confirmed this increase ($15.90 \rightarrow 19.21$; $t=-7.285$, $p<0.001$), with the standard deviation decreasing from 4.620 at pre-test to 3.009 at post-test, suggesting that intra-group variability in reading habits has narrowed. At the sub dimensional level, reading frequency (EC 4.69 vs. CC 3.82, $p = 0.008$), reading breadth (EC 5.05 vs. CC 4.37, $p = 0.041$), and reading planning (EC 5.56 vs. CC 4.68, $p = 0.018$) all reached statistical significance, indicating that the KWLS model effectively promotes the normalization and intentional planning of students' reading behaviors. This finding can be explained by Guthrie and Wigfield's (2000) theory of reading motivation: the autonomous questioning characteristic of Stage W endows students with a sense of purpose in their reading, shifting them from “being required to read” to “reading with questions”, thereby fostering more frequent and better-planned reading practices at the behavioral level.

However, from the dimension of reading depth, the between-group difference did not reach statistical significance (EC 3.90 vs. CC 3.61, $p = 0.309$), likely because enhancing reading depth requires higher-level cognitive engagement and sustained reading experience, and a four-month experimental period was insufficient to produce significant changes at the quantitative level. In interviews, Student A1 stated, “I didn't have a reading plan before, but now I proactively schedule time for reading”, while Student A3 noted, “KWLS helped me develop the habit of predicting before I read”, corroborating the findings from the quantitative data.

5.2 Shift in reading attitudes

Reading attitude was the dimension most significantly affected by the KWLS model intervention. At the pre-test, no significant difference was observed between the two groups (EC mean 20.51, SD = 5.605 vs. CC mean 19.87, SD = 5.508; $t = 0.503$, $p = 0.617 > 0.05$). At the post-test, the experimental group's reading attitude was highly significantly higher than that of the control group (EC mean 24.38, SD = 3.536 vs. CC mean 20.97, SD = 5.086; $t = 3.407$, $p = 0.001 < 0.01$). Within the experimental group, the improvement was extremely significant ($20.51 \rightarrow 24.38$; $t = -7.940$; $p < 0.001$), and the post-test standard deviation decreased from 5.605 to 3.536, indicating that not only did the group's overall reading attitude improve markedly, but it also became more homogeneous.

All four subdimensions showed significant improvement, with the greatest increase observed in reading engagement ($7.44 \rightarrow 9.64$, $t = -7.065$, $p < 0.001$), indicating that autonomous questioning during the W phase markedly boosted students' enthusiasm for classroom participation. From the perspective of Self-determination Theory (Deci & Ryan, 1985), the KWLS model satisfies learners' three basic psychological needs:

the K phase activates prior knowledge, fulfilling the need for competence; the W phase's autonomous questioning addresses the need for autonomy; and the S phase's group sharing nurtures the need for relatedness. Together, these elements successfully transform an external reading task into intrinsic reading motivation.

Interview data vividly illustrate this shift: Student A1 remarked, "I used to find reading tedious, but now I'm no longer afraid of long texts and am more willing to read proactively"; Student A5 reflected, "It's gone from 'having to read' to 'wanting to read'"; and Student A4 noted, "I've moved from 'fearing I won't finish' to 'enjoying the process of exploration'". These findings demonstrate that the KWLS model has successfully facilitated a shift in attitude—from instrumental reading to experiential reading.

5.3 Enhancement of self-regulation skills

There was no significant difference in the self-regulation dimension at the pre-test (EC mean 12.69, SD = 4.250 vs. CC mean 11.87, SD = 4.455; $t = 0.830$, $p = 0.409$). At the post-test, the experimental group performed significantly better than the control group (EC mean 14.10, SD = 3.050 vs. CC mean 11.97, SD = 4.340; $t = 2.482$, $p = 0.016 < 0.05$), and the experimental group also showed a significant improvement within itself (12.69 → 14.10; $t = -4.968$, $p < 0.001$).

Subdimensional analysis revealed that self-monitoring (EC 3.62 vs. CC 2.89, $p = 0.008$) and problem solving (EC 3.87 vs. CC 3.13, $p = 0.002$) reached significant or highly significant levels, whereas the between-group differences in self-planning ($p = 0.075$) and self-evaluation ($p = 0.072$) did not attain statistical significance. This suggests that the reflective mechanisms at Stage L effectively enhance students' real-time monitoring and problem-solving skills during reading, but the development of higher-order self-planning and self-evaluation abilities may require a longer period of cultivation.

According to Zimmerman's (2002) self-regulated learning theory, self-monitoring and problem solving belong to the "execution phase" of regulatory processes and can be developed relatively quickly through structured reflection tools such as the KWLS chart; by contrast, self-planning and self-evaluation are advanced metacognitive skills associated with the "preparation phase" and the "reflection phase", respectively, and their development necessitates learners' acquisition of more mature metacognitive schemas—typically requiring over one year of sustained practice. In interviews, Student A1 remarked, "KWLS helped me clearly understand each step of the reading process", while Student A2 stated, "It helped me organize what I already know, formulate questions, and read with a clear purpose", illustrating an initial awakening of metacognitive awareness.

5.4 Enhancement of problem-solving skills

In the post-test, the experimental group demonstrated significantly higher problem-solving abilities than the control group (experimental group mean = 3.87, SD = 0.767 vs. control group mean = 3.13, SD = 1.189; $t = 3.236$, $p = 0.002$). Moreover, the experimental group itself showed a significant improvement (from 3.13 to 3.87; $t = -4.156$, $p < 0.001$). These findings indicate that the KWLS model not only enhances students' ability to extract surface-level information but also fosters the development of higher-order problem-solving skills, such as critical thinking. The open-ended questions posed during the W phase create situations of "cognitive conflict", while the group debates and sharing activities in the S phase provide a platform for "cognitive negotiation". Together, these elements facilitate a leap in problem-solving capabilities—from "low-level information retrieval" to "high-level critical evaluation". In interviews, Student A3 reported, "My skills in locating information, understanding main ideas, making inferences, and engaging in critical thinking have all improved"; and Student A4 added, "I can now quickly identify key information and even question its validity".

"Integrity" and "authorial stance". Notably, the post-test standard deviation in the experimental class decreased from 1.189 to 0.767, indicating that the improvement in problem-solving ability was fairly evenly distributed across the class, rather than being driven solely by a small number of students.

6 Research conclusions and pedagogical implications

This study confirms that the KWLS instructional model significantly promotes the development of English

reading dispositions among high school students. Its core mechanism lies in the following: the W stage (self-questioning) transforms reading from passive reception to active inquiry, serving as a key factor in enhancing reading attitudes; the L stage (summarizing and reflecting) and the S stage (sharing and extending), through social interaction and the externalization of metacognition, effectively foster the development of self-monitoring and problem solving skills. Among the four dimensions, the improvement in reading attitude is most pronounced, followed by reading habits, while self-regulation and problem solving also reach significant levels. However, higher order subdimensions such as reading depth, self-planning, and self-evaluation have not yet shown significant changes in the short term, highlighting the gradual and hierarchical nature of cultivating reading dispositions.

Based on the study's findings, the following pedagogical implications are proposed: First, teachers should place emphasis on the "K" and "W" phases prior to reading, giving students ample time to activate their schemata and formulate authentic questions, thus preventing these stages from becoming mere formalities. The quality of questions posed during the W phase directly influences the purposefulness and level of engagement in subsequent reading; teachers can employ a "question leveling" strategy to guide students from factual questions toward evaluative ones. Second, during the "L" and "S" phases, structured reflection scaffolds should be designed to encourage students not only to consider "what they have learned" but also to reflect on "how they learned it". Tools such as "reflection journals" and "peer assessment" can be used to make implicit metacognitive processes explicit. Third, cultivating reading dispositions is a gradual process; for higher-order skills like self-planning and self-evaluation, teachers must exercise patience and provide ongoing guidance and feedback. It is recommended that the implementation period of the KWLS model be extended to at least one academic year or longer, in order to facilitate a deeper transformation of students' reading dispositions.

7 Final remarks

Although this study has confirmed the effectiveness of the KWLS instructional model, certain limitations remain. First, the sample is confined to two classes at a single high school, so the generalizability of the findings requires further validation. Second, improvements in dimensions such as reading depth and self-planning did not reach statistical significance, suggesting that future research might explore longer term intervention protocols or integrate digital reading platforms to conduct blended learning experiments. Moreover, future studies could refine the analysis of how each phase of the KWLS model differentially affects students with varying levels of English proficiency, thereby providing a more precise theoretical foundation for personalized reading instruction. Overall, the KWLS model offers a robust practical framework for fostering core competencies in English and cultivating learners equipped with lifelong reading skills.

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