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Developing an Instructional Model to Enhance Chinese Reading Ability in Vocational Physical Education Students

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Abstract

Situated at a vocational college, the research responds to the mismatch between traditional language instruction and the kinesthetic, collaborative learning preferences of physical education students. The objective is to develop an instructional model aimed at enhancing Chinese reading ability among vocational physical education students. The research employed a mixed-methods Research and Development (R&D) approach across three phases: contextual analysis, model construction, and implementation with evaluation. Key informants included two experienced Chinese educators and 31 physical education students. Quantitative data were gathered through pretest and posttest assessments using the reading section of the Sichuan Provincial College Entrance Examination, while qualitative data were derived from student reflections, group discussions, and expert reviews. Results revealed a statistically significant improvement in reading scores (mean increase from 15.39 to 21.82, $p < 0.001$), a shift from low to moderate and high achievement levels, and increased motivation, engagement, and reading confidence. The study concludes that integrating embodied, multimodal, and culturally relevant learning activities into literacy instruction can transform reading from a static skill into a dynamic, inclusive process. Recommendations include broader application of the model in vocational settings and longitudinal research to assess sustainability.

Keywords: *Chinese Reading Ability, Vocational Education, Physical Education Students, Posthumanist Pedagogy, Instructional Model Development.*

Introduction

In contemporary education, literacy is increasingly recognized not merely as a technical skill but as a dynamic and context-sensitive competency central to lifelong learning and critical engagement with the world. Within this evolving paradigm, the ability to read and interpret texts in Chinese is fundamental to students' academic development, cultural understanding, and communication (Li et al., 2022; Petersen, 2018; Rocca, 2025). However, vocational education systems, particularly those specializing in physical education, often emphasize physical training and practical skills at the expense of linguistic development. This has resulted in a gap wherein students in physical education programs frequently exhibit inadequate reading comprehension, limited vocabulary, and minimal engagement with complex texts. These challenges are not solely the result of individual aptitude but reflect broader systemic limitations in curriculum design and instructional methodology (Demchenko et al., 2021; Siedentop & Van der Mars, 2022; Xie, 2021). This study is motivated by the pressing need to address this gap and promote more equitable literacy outcomes within the vocational education sector.

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The problem is particularly acute among students in vocational colleges in China, where language education is often delivered through uniform methods that overlook the specific learning needs of different disciplines. Physical education students, for instance, tend to favor kinesthetic and collaborative learning strategies, yet are commonly assessed using language-based tools developed for academically oriented cohorts. The mismatch between learners' cognitive styles and pedagogical approaches not only leads to underachievement in reading but also discourages students from engaging meaningfully with Chinese texts (Lau, 2019; Sharma, 2023). Furthermore, with the increasing complexity of social and professional communication in the digital age, reading is no longer limited to decoding static texts; it now involves interpreting multimodal and culturally embedded information. Thus, improving reading ability in this context requires an instructional model that is both discipline-specific and pedagogically innovative, capable of bridging the gap between language education and the lived realities of vocational learners (Coiro, 2021; Liao et al., 2024; Montgomery, 2020; Tianxiu, 2024).

This research aims to develop an instructional model aimed at enhancing Chinese reading ability among vocational physical education students. Guided by the research question— How can an instructional model be developed to effectively enhance Chinese reading ability among vocational physical education students?—this study undertakes a three-phase research and development (R&D) process. The first phase investigates students' current reading levels, needs, and contextual barriers through surveys and interviews. The second phase involves the design and validation of a model that aligns with constructivist and posthuman learning theories, integrating multimodal texts, digital platforms, and experiential learning activities. The third phase tests the model in a real classroom setting, evaluating its effectiveness in improving students' reading performance (Agarwal, 2018; Almelhi, 2021; Barik, 2023; Hsu et al., 2019). This sequential and participatory approach ensures that the model is grounded in empirical data and responds to actual teaching and learning conditions.

The significance of this research extends beyond improving reading scores. It contributes to a broader vision of education that recognizes diverse learner identities and fosters inclusive pedagogical practices. From a posthumanist perspective, the study challenges conventional, text-centric views of reading by situating it within an interconnected learning ecosystem that includes digital tools, bodily engagement, peer collaboration, and affective experience. By acknowledging learners as more than isolated minds—seeing them instead as embodied, relational, and technologically embedded subjects—this research offers a transformative model for literacy education (Assefa & Zenebe, 2024; Kaur & Bhatia, 2024; Mirra, 2019; Yan et al., 2025). In doing so, it not only addresses the academic marginalization of physical education students but also enriches the field of literacy studies by introducing new ways of thinking about reading, teaching, and learning in the age of posthumanism.

Literature Review

This literature review explores three central perspectives—constructivist approaches to literacy, metacognitive strategies for reading enhancement, and posthumanist pedagogies that foreground embodiment and hybridity—each contributing to the design of an innovative instructional model tailored for physical education students in vocational settings.

Constructivism and Literacy in Context

Constructivist theory reshaped the landscape of literacy education by centering the learner's active role in knowledge construction. Unlike rote memorization methods, constructivist

pedagogy emphasizes meaning-making through exploration, social interaction, and real-world application. For vocational physical education students, this approach offers significant benefits. These learners often relate more effectively to texts when they reflect relevant experiences—such as health narratives, sports stories, or physical instruction manuals. By embedding Chinese reading instruction within authentic and discipline-specific contexts, educators can bridge the gap between abstract language and the student's lived world (Kharroubi & ElMediouni, 2024; Le & Nguyen, 2024; Rob & Rob, 2018). Constructivism also supports task-based and inquiry-driven learning, allowing students to co-create meaning, foster curiosity, and connect textual understanding to bodily movement and teamwork, which are central to their field of study.

Metacognitive Strategies for Reading Enhancement

Developing Chinese reading proficiency is not simply a matter of increasing vocabulary or syntax mastery—it involves cultivating students' awareness of how they think about texts. Metacognitive strategies play a vital role in this process, enabling learners to monitor, evaluate, and adapt their comprehension tactics. These strategies empower students to identify key ideas, make predictions, ask questions, summarize content, and reflect on misunderstandings. For vocational education students, especially those whose reading confidence may be limited, metacognition fosters self-regulation and persistence. Moreover, it equips learners with tools to approach unfamiliar texts with strategy rather than avoidance (Amini et al., 2020; Boschert, 2018; Juliana & Anggraini, 2024; O'Loughlin & Griffith, 2020; Wang, 2023). A well-designed instructional model can embed metacognitive scaffolds within lessons—such as guided reading questions, journaling, peer teaching, and reflective discussion—to build reading resilience and autonomy.

Posthumanist Pedagogies and Embodied Literacy

Emerging from contemporary theory, posthumanist pedagogy challenges anthropocentric, linear models of education. It embraces learning as a distributed, embodied, and affective process shaped by human and non-human interactions—technologies, environments, and emotions. Applied to literacy instruction, this view expands reading beyond textual decoding to include multimodal engagement, emotional resonance, and embodied experience. For physical education students, who are often kinesthetic learners, posthumanist approaches validate movement, performance, and creative expression as modes of textual engagement. Techniques such as role-play, dramatic reenactment, visual storytelling, and digital annotation allow students to inhabit a text physically and emotionally, leading to deeper comprehension. This framework also aligns with hybrid learning systems, where digital tools and face-to-face interaction co-create knowledge spaces (An et al., 2025; Durden-Myers & Bartle, 2023; Liu et al., 2025; Middleton, 2018; Yu et al., 2025). By situating reading within such environments, an instructional model becomes not only inclusive but transformative, enabling learners to thrive at the intersection of literacy and embodiment.

Materials and Methods

This study employed a Research and Development (R&D) methodology composed of three distinct phases: contextual analysis, instructional model construction, and implementation with evaluation. The goal was to design a Chinese reading instructional model specifically tailored for vocational students majoring in physical education. The methodology combined both quantitative and qualitative approaches to ensure a comprehensive understanding of student needs and model effectiveness. (Kazakeviciute et al., 2016; Malekipour et al., 2018; Park &

Kim, 2022; Wahidmurni et al., 2019; Yohana, 2020). The instructional design followed the S2RE framework: Skimming, Reading, Reviewing, and Evaluating.

Phase 1: Contextual Analysis

The first phase aimed to assess the current reading ability, literacy needs, and instructional gaps among physical education students in a vocational college setting. A mixed-methods approach was employed.

Quantitatively, a Chinese reading skills questionnaire was administered to 167 physical education students. The instrument consisted of 40 items divided into five dimensions: reading interest, comprehension, analysis, appreciation, and creativity. Internal consistency reliability was verified with a Cronbach's alpha value of 0.895, indicating a high degree of reliability.

Qualitatively, semi-structured interviews were conducted with two Chinese language educators with extensive teaching experience. The interview data were subjected to thematic analysis, highlighting the following gaps: lack of reading interest, shallow comprehension, limited analytical skills, and weak cultural appreciation. These findings provided empirical grounding for designing an instructional model that directly responds to the learners' situational challenges, as shown in Table 1.

Dimension	Description
Reading Interest	Motivation, engagement, and reading disposition
Comprehension	Understanding of main ideas and details
Analysis	Critical interpretation and reasoning
Appreciation	Aesthetic and cultural literacy
Creativity	Expression and reinterpretation of texts

Table 1. Dimensions of the Chinese Reading Skills Questionnaire

Phase 2: Instructional Model Construction

Informed by constructivist and posthumanist pedagogical principles, the S2RE instructional model was developed. The model consists of four core components: Skimming, Reading, Reviewing, and Evaluating. Each phase integrates student-centered strategies designed to engage body and mind, bridge traditional literacy with digital tools, and promote cultural contextualization.

To ensure validity, the model was reviewed by three expert consultants in Chinese education and curriculum design. Their feedback led to revisions that increased the model's adaptability to the physical education context, such as incorporating embodied learning techniques and integrating sports-themed texts, as shown in Table 2.

Component	Instructional Focus
Skimming	Online preview, thematic scanning, digital immersion
Reading	Fast reading drills, embodied comprehension tasks
Reviewing	Reflective exercises, collaborative discussion
Evaluating	Formative and summative assessment, metacognitive self-check

Table 2. Components of the S2RE Instructional Model

Phase 3: Implementation and Evaluation

The final phase evaluated the instructional model in practice. Thirty-one physical education students participated in a six-week intervention through the College Chinese course. The curriculum was delivered using blended learning methods, including online platforms, classroom exercises, textbook drama, and creative reading competitions.

Effectiveness was measured using a pretest-posttest design. The assessment was based on the standardized reading component of the Sichuan Provincial College Entrance Examination. Analysis revealed substantial improvements in students' reading scores, particularly in comprehension and appreciation dimensions, as shown in Table 3.

Activity Type	Instructional Tool/Method
Pre-Reading (Skimming)	Zhihuishu digital platform, sports-themed texts
Reading Practice	Eye-tracking drills, dramatic role-playing
Collaborative Review	Small-group discussion, peer critique
Creative Expression	Reading competitions, innovation workshops
Post-Test Evaluation	Standardized assessment, qualitative feedback

Table 3. Implementation Design

This multi-layered methodology allowed for a flexible yet rigorous exploration of literacy development through a posthuman lens—acknowledging students not only as knowledge consumers but also as embodied, creative agents navigating multimodal educational terrains.

Results

The implementation of the S2RE instructional model aimed to enhance the Chinese reading ability of vocational physical education students through a structured, multimodal learning process. This section presents a comprehensive analysis of both quantitative and qualitative findings obtained over the course of the six-week intervention. The data highlight improvements in student performance, shifts in reading competency levels, changes in learner attitudes, and expert validation of the instructional model's educational value. The analysis integrates statistical evidence, thematic interpretations, and observations from the instructional setting to address the research question.

Quantitative Analysis: Pretest-Posttest Score Comparison

The effectiveness of the S2RE model was assessed using a standardized Chinese reading test based on the reading portion of the Sichuan Provincial College Entrance Examination. A group of 31 vocational physical education students was selected as the experimental group, and pretest and posttest results were compared.

Test Type	Mean Score	N	Std. Deviation	Std. Error Mean
Pre-test	15.39	31	5.463	0.981
Post-test	21.82	31	4.862	0.873

Table 4. Paired Samples Statistics

The paired samples t-test yielded a statistically significant result ($t = 12.347$, $p < 0.001$), demonstrating that students' Chinese reading ability improved significantly following the

implementation of the instructional model. The mean score increased by 6.43 points, representing a 41.8% gain.

Grade Distribution Analysis

To further explore the impact of the S2RE model, the performance levels of students were categorized using five grades: A (excellent), B (good), C (moderate), D (low), and F (failing).

Grade	Range	Pre-Test Count	Post-Test Count
A	27–30	0	2
B	24–26	3	10
C	21–23	1	13
D	18–20	9	1
F	<18	18	5

Table 5. Distribution of Pre-test and Post-test Scores

Thematic Analysis of Learner Feedback

Qualitative feedback was collected from student reflections, group discussions, and anonymous responses during the intervention. Thematic analysis revealed the following recurring patterns:

- Increased Reading Motivation: Students reported greater enthusiasm and curiosity for reading Chinese texts, especially when texts were linked to their physical education interests or dramatized in class.

- Cultural Engagement: Exposure to classical Chinese literature and cultural scripts, such as in the textbook drama activity (see Figure 4), helped bridge abstract reading concepts with familiar cultural narratives.

- Improved Confidence and Identity as Readers: Many students noted a positive shift in self-perception, viewing themselves as capable of tackling more complex reading tasks.

- Group Collaboration and Role Immersion: Activities like group script performance and creative reading competitions (see Figures 4 and 5) fostered teamwork and deeper textual analysis.

Role of Figures in Instructional Impact

The use of visual and embodied activities played a central role in transforming passive reading into an interactive experience.

- Digital resources hosted on Zhihuishu allowed students to preview lessons, revisit key ideas, and complete reflective assessments at their own pace. Students appreciated the flexibility and personalization of learning.

Figure 1. Online Reading Materials

- These charts were used to train students in visual agility, enhancing their eye movement and concentration speed. As a result, reading speed and attention span improved.

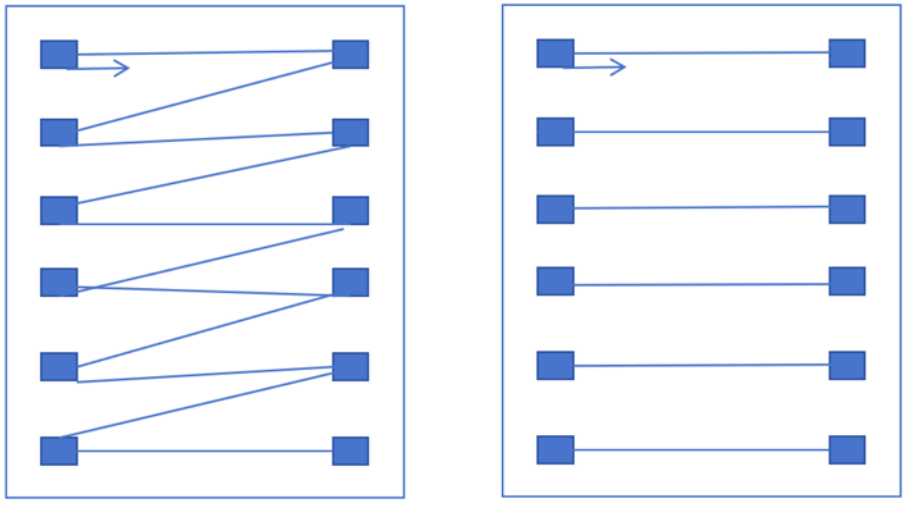

Figure 2. Fast Reading Practice Charts A and B

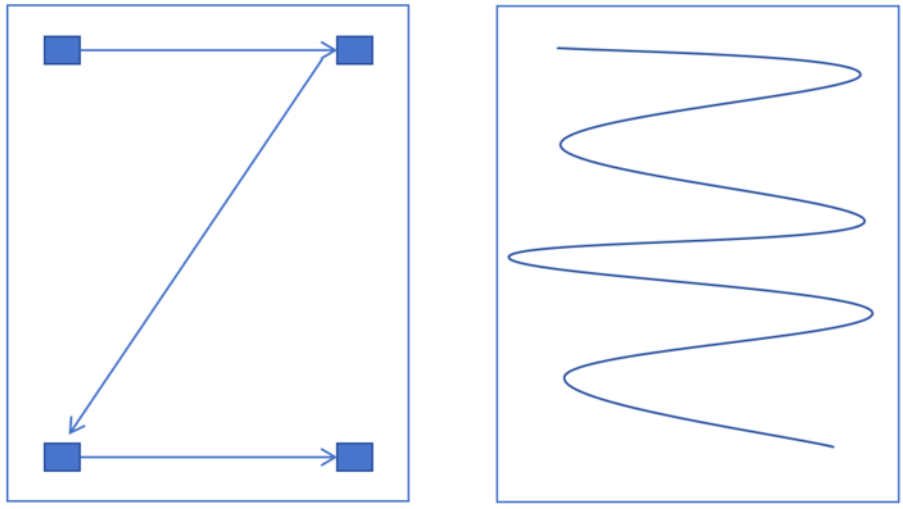

Figure 3. Fast Reading Practice Charts C and D

- Students participated in reenactments of classical literary works, integrating physical performance with textual understanding. This embodied approach resonated with PE students, aligning well with their kinesthetic learning preferences.

Figure 4. Script Lesson Practice

- The reading competition encouraged students to combine creative reading, sports cognition, and digital tools. This gamified format enhanced engagement and developed critical thinking skills.

Figure 5. Competition Practice Chart

Expert Review and Validation

Three experts in Chinese language education evaluated the instructional model based on theoretical soundness, pedagogical relevance, and adaptability. Their feedback aligned with the posthumanist perspective, affirming that:

- The S2RE model supports metacognitive learning, allowing students to monitor their reading goals, strategies, and reflections.
- The inclusion of embodied learning and multimodal practices is particularly effective for physical education students whose traditional instruction does not prioritize literacy.
- The model is scalable and adaptable to other vocational education contexts, with room for integration into hybrid and AI-enhanced platforms.

Synthesis of Results and Educational Implications

The results demonstrate that the instructional model significantly enhanced students' Chinese reading ability across multiple domains—cognitive, emotional, and social. The holistic, scaffolded approach encouraged deep learning and fostered sustainable reading habits.

- Cognitive Domain: Improved comprehension, analytical, and interpretive skills, as evident from the rise in test scores and reading assessment feedback.
- Emotional Domain: Increased learner agency, confidence, and intrinsic motivation.
- Social Domain: Collaborative learning and mutual feedback fostered a supportive classroom culture.

The integration of fast reading techniques (Figures 2 and 3), cultural immersion (Figure 4), and cross-disciplinary innovation (Figure 5) exemplifies how literacy development can move beyond static textual engagement into dynamic, experiential learning.

The results provide strong empirical and qualitative evidence that the S2RE instructional model

is an effective, posthumanist-aligned framework for enhancing Chinese reading ability in vocational physical education students. Its focus on skimming, reading, reviewing, and evaluating—when combined with embodied practice and digital learning—transforms conventional reading instruction into a participatory, multimodal experience. This study not only addresses a pressing pedagogical need but also contributes to emerging discourse on how posthuman education can be localized in practical and impactful ways.

Discussion and Conclusion

The results of this study affirm the effectiveness of the S2RE instructional model in enhancing Chinese reading ability among vocational physical education students and align strongly with the theoretical frameworks presented. Consistent with constructivist principles, the model enabled learners to engage actively in the reading process by situating texts within their physical education context—such as sports narratives and script-based dramatization—which facilitated authentic knowledge construction (Kharroubi & ElMediouni, 2024; Le & Nguyen, 2024). This contextualized approach aligns with prior research indicating that vocational learners, especially kinesthetic-oriented students, benefit from instructional designs that emphasize experiential and task-based learning (Demchenko et al., 2021; Rob & Rob, 2018). The improvement in test scores, particularly the dramatic drop in students performing at failing levels, supports the view that meaning-making is enhanced when learning is directly connected to learners' real-world experiences and disciplinary relevance.

Moreover, the integration of metacognitive strategies throughout the S2RE phases—especially in the Reviewing and Evaluating stages—provided students with opportunities to reflect on and regulate their comprehension, supporting self-awareness and strategy use. This finding is consistent with earlier studies that emphasize the importance of metacognition in reading instruction (Amini et al., 2020; Boschert, 2018). The positive shifts in self-perception and reading confidence among participants also echo Wang's (2023) suggestion that fostering metacognitive engagement can reduce reading anxiety and promote persistence in low-literacy learners. The model's inclusion of guided reading tasks, peer collaboration, and reflective discussions successfully activated these processes, illustrating the importance of internal monitoring in literacy development.

Importantly, this study extends current understanding by applying a posthumanist lens to literacy instruction. The results indicate that students benefited from multimodal and embodied learning experiences, such as role-playing, digital interaction, and fast reading drills. These pedagogical features recognize learners as interconnected subjects operating in dynamic material-discursive environments, rather than passive recipients of textual knowledge (Durden-Myers & Bartle, 2023; An et al., 2025). By moving beyond a purely cognitive or text-based understanding of reading, the S2RE model fosters an educational environment in which affect, technology, and physicality play central roles. The success of these methods among physical education students highlights the importance of embracing hybridity in literacy education—particularly within vocational contexts that traditionally underprioritize language instruction.

Despite its success, this study also highlights areas for further exploration. While the S2RE model demonstrated significant gains in reading performance and engagement, the long-term sustainability of these improvements remains unexamined. Future research should incorporate longitudinal follow-up to determine whether the gains in reading ability persist beyond the immediate posttest period. Additionally, while this study focused on one vocational college in China, replication across diverse institutional and cultural contexts would enhance the

generalizability of the findings. Expanding the model to include AI-based feedback or virtual reading environments could also further personalize instruction and align with ongoing digital transformation in education (Coiro, 2021; Liao et al., 2024).

In conclusion, the development and implementation of the S2RE instructional model represent a theoretically grounded and empirically validated response to the literacy challenges faced by vocational physical education students. By bridging constructivist pedagogy, metacognitive strategy, and posthumanist innovation, this study offers a transformative framework for inclusive and context-sensitive reading instruction—one that not only raises academic outcomes but reimagines what it means to be a reader in the digital age.

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