

Designing a Creative Problem-Solving-Based English Reading and Writing Curriculum for Chinese University Students

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Received: August 13, 2025

Accepted: September 28, 2025

Online Published: October 22, 2025

doi:10.5430/jct.v14n4p110

URL: <https://doi.org/10.5430/jct.v14n4p110>

Abstract

The cultivation of 21st-century competencies in higher education demands an integrated approach that simultaneously enhances language proficiency and problem-solving capability. In the Chinese English as a Foreign Language (EFL) context, however, traditional university English instruction remains predominately exam-oriented, offering few opportunities for students to engage in authentic problem-solving tasks. This study presents a design of a creative problem-solving (CPS)-based English reading and writing curriculum for Chinese university students. Grounded in a five-step CPS teaching approach, which includes identifying problems, defining problems, finding solutions, evaluating solutions, and implementing plans, the curriculum integrates thematic units addressing real-world topics such as unemployment, career choice, and career development. The development process drew on a literature review, expert evaluation, and iterative refinement based on feedback. The resulting curriculum features critical reading activities, collaborative brainstorming, structured debates, writing workshops, and reflective practices, supported by a combination of formative and summative assessments. Findings indicate the curriculum's potential to foster higher-order thinking, creativity, and linguistic competences, aligning with current calls for innovative, learner-centered approaches in EFL education. This work provides practical insights for curriculum developers, language educators, and higher education policymakers seeking to integrate CPS pedagogy into language learning.

Keywords: creative problem-solving, curriculum design, English reading, English writing, higher education, China

1. Introduction

The increasing demand for graduates capable of navigating cross-cultural contexts and addressing complex real-world challenges has positioned English as a Foreign Language (EFL) proficiency and creative problem-solving (CPS) competence as essential skills for the 21st-century workforce (Kolo et al., 2021; OECD, 2019). In China, these dual demands are amplified by national initiatives such as the Belt and Road and the Education Modernization 2035 agenda, which emphasize innovation, global competence, and interdisciplinary collaboration (Mobley, 2019). However, traditional university English instruction remains predominantly exam-oriented (Liu, 2017), focusing on grammatical accuracy and rote memorization rather than fostering critical literacy, creativity, and higher-order thinking (Song et al., 2025). This pedagogical approach often results in a disconnect between students' academic achievement in examinations and their ability to apply language skills effectively in authentic, problem-solving contexts.

Creative problem-solving (CPS) is a structured approach to generating, refining, and implementing solutions to complex problems (Isaksen & Treffinger, 1985). Originating in western education and widely adopted in STEM disciplines, the CPS model (Treffinger & Isaksen, 2013) guides learners through stages such as identifying problems, defining problems, finding solutions, evaluating solutions and implementing plans. While research has demonstrated the capacity of CPS to foster innovation, adaptability, and collaborative thinking, its application within EFL contexts remains underexplored, particularly in non-western educational settings. Integrating CPS principles into language instruction offers the potential to bridge the gap between linguistic competence and problem-solving ability by embedding authentic, scenario-based challenges into reading and writing tasks.

Chinese EFL learners often encounter challenges engaging in open-ended, inquiry-based activities due to teacher-centered pedagogical conventions and predominant emphasis on standardized test preparation. Consequently, they may lack the cognitive-linguistic synergy needed for tasks that require both language production and creative reasoning. Embedding CPS into EFL curriculum design offers a systematic method to address these challenges. This approach aligns with global education frameworks such as the OECD's definition of 21-st century competencies (OECD, 2020) and China's "Golden Course" initiative, which calls for high-order, innovative, and challenging undergraduate curricula (Ministry of Education the People's Republic of China, 2019).

The purpose of this study is to design a theoretically grounded, CPS-based English reading and writing curriculum for Chinese university students. The course design integrates the five-step CPS teaching approach into language tasks to enhance both EFL proficiency and creative problem-solving skills. This article outlines the theoretical rationale for integrating CPS into EFL instruction, describes the curriculum development process, and presents the resulting course structure and learning activities. By aligning CPS pedagogy with the needs of Chinese EFL learners, the study contributes to both curriculum design theory and practical innovations in higher education.

2. Literature Review

This section provides a focused review of literature that informs the design of the CPS-based English curriculum. It outlines the theoretical foundation of creative problem-solving (CPS), its application in EFL reading and writing instruction, the challenges of current English education in China.

2.1 Creative Problem-Solving (CPS) in Education

CPS integrates divergent thinking (idea generation) and convergent thinking (solution evaluation) to address complex, open-ended problems (Osborn, 1953). Models have evolved from Osborn's three-step process to modern multi-stage frameworks, including Puccio's Clarification, Transformation, Implementation model (Puccio et al., 2010), which embeds metacognition and collaborative elements. As a pedagogical framework, CPS moves beyond conventional problem-solving by blending creative and critical thinking in structured stages (Mumford et al., 2013). Effective instruction incorporates active learning, repeated practice (Craft, 2012). The five-step CPS teaching approach, including identifying problems, defining problems, finding solutions, evaluating solutions, and implementing plans, provides a coherent framework for curriculum design (Chen & Chang, 2024).

2.2 CPS in EFL Reading and Writing Instruction

Embedding CPS in language learning fosters creativity, motivation, and lifelong learning skills (Liao et al., 2018). Integrating problem-solving activities into reading and writing tasks develops higher-order thinking, analytical reasoning, and authentic communication skills (Budiharso, 2014; Harmer, 2007). In higher education, activities such as critical reading, comparative analysis, collaborative brainstorming, and reflective writing align naturally with CPS stages. When organized within the CPS framework, these activities create a closed-loop learning process linking comprehension, idea generation, evaluation, and language production.

2.3 English Reading and Writing in the Chinese EFL Context

University EFL instruction in China remains exam-oriented, prioritizing rote learning over critical thinking. Students often perform well on College English Test Band 4/6 (CET-4/6) but struggle with authentic communication and academic writing (Li et al., 2021). Reading requires decoding, comprehension, and critical engagement, while writing involves idea generation, organization, and revision, which parallel CPS processes. Integrating CPS into EFL can address these gaps by explicitly training students to identify and solve real-world problems in English.

3. Curriculum Design

This study adopts a conceptual framework that provides a structured approach to developing a CPS-based English reading and writing curriculum for Chinese college students. The present study adopts the five-step creative problem-solving (CPS) teaching approach developed by Chen and Chang (2024) as the core instructional model for curriculum design. Proven effective in fostering students' higher-order thinking and practical problem-solving skills, the model provides a structured framework that advances EFL instruction beyond rote learning to promote deeper cognitive engagement. Its structured yet flexible design supports a systematic progression from problem identification to implementation, making it especially suitable for EFL instruction that seeks to go beyond rote learning and foster deeper cognitive engagement. As China's national English curriculum reform increasingly emphasizes innovation, communication, and application, the CPS framework provides a pedagogically sound and contextually relevant basis for developing university-level English course. By adopting this approach, the present

curriculum seeks to integrate language instruction with creative thinking and problem-solving, equipping students with both linguistic competence and transferable 21-st century skills.

The present curriculum is grounded in the five-step creative problem-solving (CPS) teaching approach developed by Chen and Chang (2024). This structured pedagogical model guides learners through a cyclical process comprising a) identifying problems—learners analyze authentic contexts to detect underlying issues; b) defining problems—clarifying the scope, constraints, and objectives to ensure a precise problem statement; c) finding solutions—generating diverse and creative ideas through brainstorming and ideation techniques; d) evaluating solutions—critically assessing options against feasibility, effectiveness, and relevance; e) implementing plans—developing and executing concrete action steps. In this curriculum, these stages are embedded in thematic units through critical reading, collaborative discussions, and writing tasks, ensuring that language learning is integrated with cognitive and strategic thinking. The five-step CPS teaching approach as shown in Figure 1. The conceptual framework of the study can be found in Figure 2.

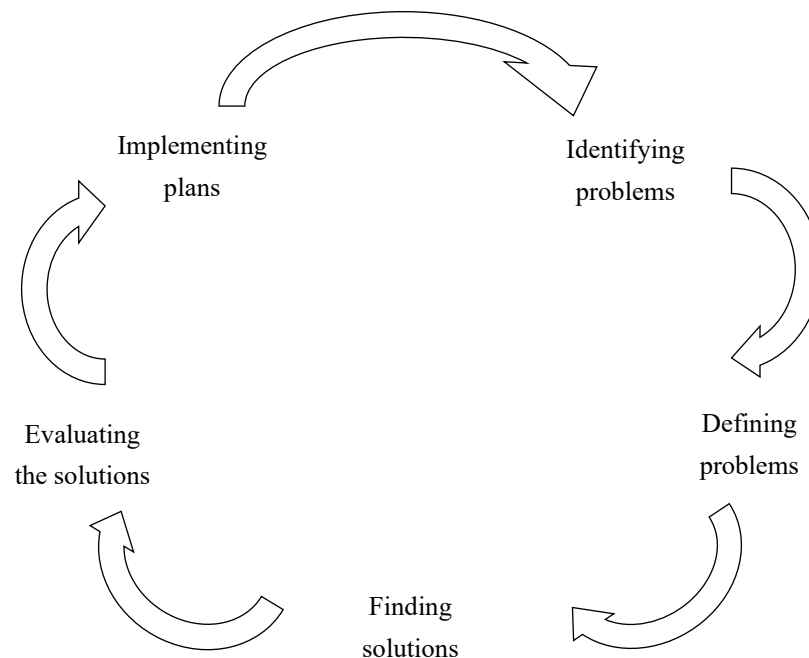


Figure 1. Five-step CPS Teaching Approach

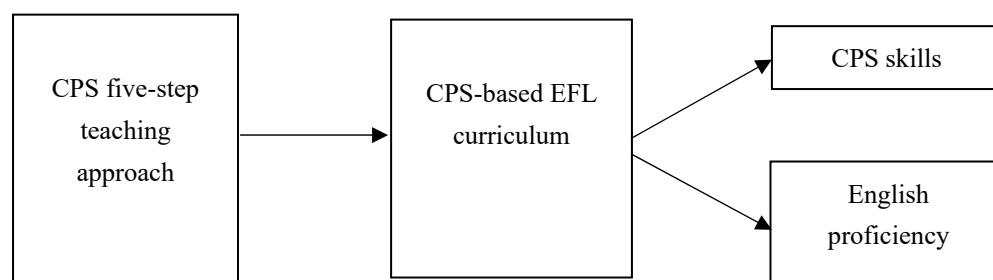


Figure 2. Conceptual Framework

4. Methodology

The development of the CPS-based curriculum followed a structured process that moved from conceptualization to finalization. It began with a comprehensive review of literature on creative problem-solving (CPS) pedagogy and EFL reading and writing instruction, which provided the theoretical foundations and informed the integration of language learning with CPS skills. Based on these insights, an initial framework was designed, adopting the five-step CPS teaching approach and organizing the content into thematic units relevant to real-world issues. The draft curriculum was then subjected to five experts for review. Subsequent refinements were made to align the framework with the intended learning outcomes, leading to the finalized version for implementation. The framework of CPS-based EFL curriculum development is shown in Figure 3.

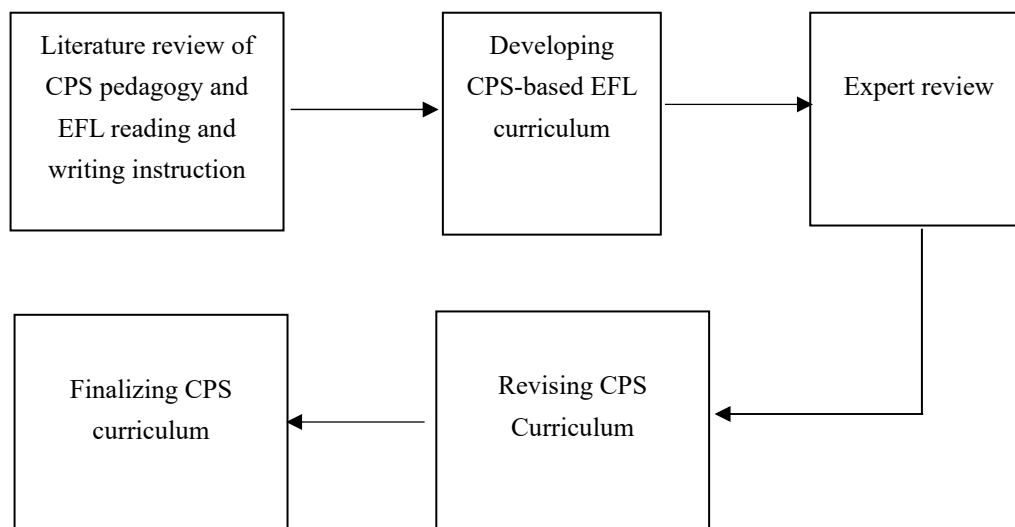


Figure 3. Research Framework
CPS-based EFL curriculum development

4.1 Expert Panel

A panel of five experts was convened to evaluate the draft syllabus and curriculum framework. The panel included two professors, two associate professors, and one lecturer, all specializing in English language teaching or curriculum design, with 15-35 years of teaching experience. Each expert independently reviewed the course objectives, unit designs, and instructional strategies. A meticulous examination of the document was conducted by these experts, as detailed in Table 1.

Table 1. Experts' Background Information

Experts	Field	Professional Title	Teaching Age
1	English Education	Professor	34
2	English Curriculum and Teaching Theory	Professor	35
3	English Literature	Associate Professor	16
4	English Education	Associate Professor	18
5	English Linguistics	Lecturer	15

The experts were tasked with evaluating the relevance, accuracy, and coherence of the curriculum content, as well as its alignment with the Common Europe Framework of Reference for Languages (CEFR) and CPS competency indicators. A structured evaluation form was used, combining a 5-point Likert scale for quantitative ratings and open-ended questions for qualitative feedback. Quantitative data were summarized to identify the level of agreement among reviewers, while qualitative comments were analyzed thematically to capture suggestions for improvement. Based on these analyses, the curriculum was revised and finalized to ensure the consistency between course

objectives and teaching methods, the integration of the theoretical principles with real-world applications, and the feasibility of lesson plans for classroom implementation.

4.2 Data Analysis Procedures

The analysis of expert feedback followed a process designed to capture both consensus and constructive criticism. Quantitative ratings from the 5-point Likert scale items were compiled into a summary table to identify the degree of agreement across experts regarding the curriculum's objectives, teaching methods, and assessment strategies.

Subsequently, the qualitative comments were examined and categorized thematically, focusing on recurring issues such as the clarity of learning objectives, the alignment of classroom activities with CPS competencies, and the appropriateness of assessment practices.

Based on the combined analysis, revisions were made to refine the draft curriculum. Elements that received consistent approval were retained as validated components, while those subject to critique were revised to integrate the most constructive suggestions. In cases of differing perspectives, a balanced solution was adopted that accommodated multiple viewpoints without compromising the theoretical integrity of the CPS framework. Through this analytic procedure, the curriculum was refined iteratively to achieve both pedagogical soundness and contextual adaptability in the Chinese EFL setting.

5. Results

This section presents the final design of the CPS-based English reading and writing curriculum developed for Chinese university students. The curriculum integrates the five-step CPS teaching approach into three thematic units, with each unit designed to enhance both EFL proficiency and creative problem-solving skills through authentic, task-based learning activities.

5.1 The Objectives of the CPS-based EFL Curriculum

The aim of the curriculum is to enhance college students' CPS skills while simultaneously improving their English reading and writing proficiency within the EFL context. To achieve this, the designed CPS-based English curriculum adopts CPS ability as the first core competency, encompassing five key skills: identifying problems, defining problems, finding solutions, evaluating solutions, and implementing plans (Chen & Chang, 2024).

In addition to CPS skills, two further competencies, reading and writing, are targeted to address participants' English proficiency. Corresponding performance indicators were selected from the Common European Framework of Reference for Languages (CEFR) according to the learners' proficiency levels. For this study, A2 and B1 levels were set as the objectives. Reading indicators are denoted as RA2 and RB1, while writing indicators are coded as WrA2 and WrB1. The detailed descriptions of each core competency indicators are presented in Table 2.

Table 2. Learning Objectives of CPS-based EFL Curriculum

Core competencies	Capacity indicators
1. CPS capacity	CPS1 Identifying problems: Students can explore and understand challenges related to the problem. CPS2 Defining problems: Students can critically clarify these challenges through systematic observation. CPS3 Finding solutions: Students can generate ideas and construct opportunities for action to transform current circumstances. CPS4 Evaluating solutions: Student can bridge the gap between problem and solution spaces to plan rigorous and context sensitive solutions. CPS5 Implementing plans: Students can provide practical guidance for turning strategic plans into effective action.
2. English reading	RA2 Students can understand short, simple texts on familiar matters. RB1 Students can read straightforward factual texts on subjects.
3. English writing	WrA2 Students can give their impressions and opinions. WrB1 Students can produce a text by giving and justifying their opinions.

5.2 Application of CPS in the EFL Curriculum

The integration of the CPS approach into EFL reading and writing instruction provides a structured pathway to enhance students' language proficiency and CPS skills. Grounded in Chen and Chang's (2024) five-step CPS teaching approach, this curriculum design combines critical reading, analytical writing, and collaborative tasks to foster a closed-loop learning process. The Table 3 shows the EFL curriculum applied CPS teaching approach.

5.2.1 Unit Content

The curriculum is organized around three instructional topics that are relevant to the lives and future aspirations of college students in China: Unemployment, Career Choice, and Career Development. These topics are designed to engage students in meaningful problem-solving activities while developing their English language skills (English & Sriraman, 2010).

Unit 1 Unemployment: This topic introduces students to the complex issue of unemployment, encouraging them to explore its causes, consequences, and potential solutions. Through authentic texts and critical reading activities, students develop the ability to identify and articulate problems related to unemployment. This topic serves as a foundation for building students' awareness of societal issues, preparing them to navigate the complexities of career planning in a globalized context (Li & Sun, 2025).

Unit 2 Career Choice: Building on the previous topic, this section focuses on the personal and societal factors influencing career decisions. Students engage with texts presenting diverse perspectives on career choice, enabling them to define problems and generate solutions tailored to individual circumstances (Li et al., 2023).

Unit 3 Career Development: The final topic emphasizes long-term career sustainability and personal growth. Students explore strategies for continuous learning and adaptation in dynamic job markets, learning to evaluate and implement plans for career advancement. This topic reinforces students' ability to apply CPS skills in real-world scenarios while developing advanced language skills for academic and professional communication (Savitskaya et al., 2018).

Table 3. The EFL Curriculum Applied CPS Teaching Approach

Unit theme	Teaching Objectives	Teaching Methods	Teaching Contents	Assessments	Teaching week
Unemployment	CPS1 and CPS2 RA2 and WrA2;	Identifying problems; Defining problems	1. Identifying the problem: Unemployment 2. Defining the causes of unemployment	Class engagement; Reading comprehension quiz; Presentations; Reflective journal	Week 1-4 4 classes (6 hours)
Career choice	CPS2 and CPS3; RA2 and RB1; WrA2 and WrB1	Finding solutions; Evaluating solutions	1. Finding solutions to deal with unemployment: having a successful career choice (CPS3, RA2, RB1, WrA2, WrB1). 2. Evaluating the career choices (CPS4, RA2, RB1, WrA2, WrB1)	Class engagement; Reading comprehension quiz; Presentations; Reflective journal	Week 5-9 5 classes (7.5 hours)
Career development	CPS5; RB1 and WrB1	Implementing plans	Implementing the career plan (CPS5, RB1, WrB1)	Class engagement; Reading comprehension quiz; Presentations; Reflective journal	Week 10-12 3 classes (4.5 hours)

5.2.2 Teaching Methods

The pedagogical framework is based on the five-stage CPS teaching approach (See Figure 1). In practice, each stage is integrated with targeted reading and writing activities. Students begin by reading and analyzing topic-related

materials to identify and define problems. They then work collaboratively to generate and evaluate solutions, drawing on textual evidence and peer feedback. Finally, they present their solutions and submit a reflective journal documenting the problem definition, solution process, and rationale. The approach simultaneously develops students' CPS skills and enhances their English proficiency through authentic, task-based learning.

5.2.3 Assessments

Classroom assessment significantly influences students' learning and academic achievement (Broadbent et al., 2017). In this curriculum, both formative and summative approaches are employed. Formative assessment monitors learning process through classroom observation, group task evaluation, and timely feedback, enabling instructional adjustments and supporting student improvement (Hurskaya et al., 2024). Summative assessment evaluates final achievement via examinations and project presentations, measuring the extent to which students meet the objectives.

6. Discussion

The present study developed a CPS-based English reading and writing curriculum that integrates language instruction with systematic problem-solving practice. Anchored in the five-step CPS teaching approach, the curriculum was organized around thematic units on pressing social issues. This approach resonates with previous research emphasizing that CPS is a systematic framework for guiding creative and critical thinking (Isaken et al., 2000). At the same time, it extends earlier work by situating CPS in an EFL curriculum design, a context where its application has been relatively underexplored (Puccio & Cabra, 2010).

Within the curriculum, CPS stages were closely aligned with English reading and writing tasks. Identifying and defining problems encouraged learners to engage in critical reading, while finding and evaluating solutions required them to articulate arguments and explore perspectives through writing and discussion. Similar to findings in task-based language teaching (Ellis, 2018), the design demonstrates how language development can be embedded in meaningful problem-solving tasks. Unlike traditional exam-oriented EFL approaches in China (Song & Cheng, 2006), which prioritize accuracy and test preparation, this curriculum emphasizes authentic engagement with texts and issues, supporting the development of both linguistic competence and higher-order thinking.

The curriculum also contributes to research on embedding transversal skills in language learning. Prior studies have shown that CPS fosters creativity, adaptability, and teamwork in higher education settings (Chaiyarat, 2024; Chen & Chang, 2024). This study extends previous research by demonstrating how these competences can be systematically fostered within Chinese college English classroom. While previous EFL research has highlighted the importance of critical thinking (Atkinson, 1997; Cots, 2006), few models have offered concrete strategies for integrating it with structured problem-solving stages. The CPS-based design thus provides a clearer operational pathway for fostering both language proficiency and 21-st century competencies.

The significance of the study lies in presenting a theoretically grounded and pedagogically viable framework that integrates problem-solving processes with language instruction. By aligning with prior calls for innovation in EFL pedagogy (Nunan, 2004; Richards, 2015) while addressing the specific challenges of Chinese higher education, the curriculum design offers a step toward bridging the gap between language learning and competency-based education.

7. Conclusion

This study contributes to the growing body of research on integrating innovative pedagogical models into EFL instruction by designing a CPS-based English reading and writing curriculum for Chinese college students. The curriculum demonstrated the potential in fostering students' problem-solving competencies alongside their linguistic development, aligning with the broader educational goal of cultivating 21-st century skills.

At the same time, challenges may rise when introducing this curriculum into existing university English programs. Potential resistance could include limited teacher preparedness for CPS-based instruction, constraints from exam-oriented teaching traditions, and students' initial unfamiliarity with open-ended, collaborative tasks. Addressing these challenges will require targeted teacher training, gradual integration of CPS activities into existing syllabi, and instructional support for curriculum innovation.

Future research should include broader empirical testing of the curriculum across diverse institutions and student populations. Longitudinal studies may further explore how CPS-based instruction impacts learners' autonomy, adaptability, and long-term academic success.

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Acknowledgments

We gratefully acknowledge the valuable contributions of all those who assisted during the review process, which significantly strengthened the quality of our final manuscript.

Authors contributions

Not applicable

Funding

Not applicable

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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