

# **Practice Pathways and Optimization Strategies for Integrated Interdisciplinary Teaching in Senior High School English from the Perspective of Core Competencies**

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**Abstract:** The report of the 20th National Congress of the Communist Party of China and the General Senior High School English Curriculum Standards (2017 Edition, Revised in 2020) (hereinafter referred to as the “New Curriculum Standards”) have established educational goals oriented toward core competencies. Interdisciplinary integrated teaching is a key pathway for implementing English core competencies in senior high schools; however, in practice there is a tendency to “emphasize language skills while neglecting comprehensive literacy,” manifested in problems such as tasks exceeding students’ cognitive load, difficulties in individualized instruction, lack of unified evaluation standards, and insufficient integration of cross-disciplinary resources. To systematically address these issues, this study, based on constructivist learning theory and interdisciplinary teaching theory, constructs an integrated teaching model of “theme guidance—layered tasks—thinking scaffolds.” Using the compulsory textbook for Grade 1 from the People’s Education Press as a foundation, it designs deeply integrated teaching cases with history, mental health, and geography. Through action research and classroom observation, the effectiveness of this model in enhancing students’ comprehensive literacy, reducing cognitive load, and promoting personalized learning is verified. Optimization strategies include: systematic decomposition of complex tasks, multi-dimensional diagnosis of student learning profiles, construction of a multi-faceted evaluation framework, and establishment of cross-disciplinary resource sharing mechanisms, thereby effectively implementing English core competencies in integrated classroom teaching.

**Keywords:** Senior High School English; Core Competencies; Interdisciplinary Integration;

**Teaching Strategies; Teaching Cases**

## **1. Introduction**

Since the beginning of the 21st century, global education reform has shown an overall trend shifting from “knowledge transmission” to “competency cultivation.” the “core competencies” framework proposed by the OECD and the educational concepts advocated by UNESCO, such as “learning to be” and “learning to live together,” emphasize that education should cultivate students’ ability to comprehensively apply knowledge, skills, attitudes, and values to solve problems in complex and uncertain situations. Against this background, China’s basic education curriculum reform has continuously deepened [1]. the report of the 20th National Congress of the Communist Party of China explicitly calls for “fostering well-rounded socialist builders and successors who are developed morally, intellectually, physically, aesthetically, and labor-wise,” elevating education to the strategic level of “a great plan for the nation and a great plan for the Party.” the General Senior High School English Curriculum Standards (2017 Edition, Revised in 2020) systematically proposes four core competencies—language ability, cultural awareness, thinking quality, and learning ability—marking a profound transformation of English curriculum objectives from “comprehensive language competence” to “subject-based education.” However, for a long time, senior high school English teaching has been heavily influenced by exam-oriented education, showing tendencies such as “emphasizing language skills while neglecting comprehensive literacy” and “focusing on knowledge points while ignoring authentic language use.” Students often remain in a passive receptive state in English learning, lacking opportunities for deep thinking and cultural understanding, making it difficult to form sustainable learning motivation and cross-

cultural communication skills [2]. At the same time, real-world problems increasingly exhibit interdisciplinary and comprehensive characteristics; single-discipline knowledge can hardly cope with complex situations. Interdisciplinary integrated teaching has emerged as a response. Guided by themes, it breaks down disciplinary barriers and organically integrates English learning with content from history, geography, mental health, art, and other subjects. In authentic, comprehensive task contexts, it promotes students' knowledge integration and coordinated development of competencies. Therefore, exploring systematic pathways and optimization strategies for interdisciplinary integrated teaching in senior high school English is not only an inherent requirement for deepening curriculum reform but also an important practical direction for implementing the fundamental task of "fostering virtue and cultivating people" and realizing the educational value of the English subject. This study, based on the compulsory textbook for Grade 1 from the People's Education Press, builds on constructivist learning theory and interdisciplinary teaching theory to construct and validate an operable and replicable integrated teaching model, aiming to provide theoretical support and practical reference for frontline teachers.

## **2. Theoretical Basis and Significance of Interdisciplinary Integrated Teaching from the Perspective of Core Competencies**

Interdisciplinary integrated teaching is not a simple accumulation of "English+other subjects" knowledge; it is based on clear theoretical logic and educational goals [3]. Its theoretical foundations mainly include constructivist learning theory, multiple intelligences theory, and curriculum integration theory. Constructivist learning theory emphasizes that knowledge is not passively received but actively constructed by learners in authentic or near-authentic situations through interaction with the environment and collaboration with others. Interdisciplinary integrated teaching, by creating authentic and complex thematic tasks, stimulates students to actively explore, communicate, reflect, and construct, thereby promoting deep learning. Multiple intelligences theory points out that human intelligence is multiple, including linguistic, logical, spatial, musical, interpersonal,

intrapersonal, etc. Traditional single-discipline teaching often activates only a few intelligences, while interdisciplinary integrated teaching can simultaneously mobilize multiple intelligences to promote students' holistic development. Curriculum integration theory emphasizes that curriculum design should center on students' experience and social life, break down disciplinary boundaries, and organize learning content around major issues or themes, achieving organic integration of knowledge and methods. Under the guidance of the above theories, interdisciplinary integrated teaching takes English as an anchor point, systematically integrates core concepts, methods, and ways of thinking from other disciplines around themes from textbooks or real life, and constructs a deeply integrated learning system of "knowledge—method—thinking." In this system, through integrated learning, students not only improve their English-specific abilities but also understand the internal connections between disciplines and learn to use multiple knowledge sources to solve complex problems.

### **2.1 Promoting Students' Holistic Development and Cultivating Comprehensive Problem-Solving Abilities**

Traditional compartmentalized teaching easily fragments students' knowledge structures, making it difficult for them to form a holistic understanding of the world. Research shows that when solving real problems, students often need to simultaneously draw on multiple cognitive resources such as language, logic, spatial awareness, and social understanding; single-discipline training cannot meet this demand [4]. Interdisciplinary integrated teaching, driven by themes, reintegrates knowledge, skills, and thinking modes from different disciplines into coherent learning tasks. For example, under the theme "Adolescent Stress Coping," students not only use English to express emotions but also need to understand the psychological mechanisms behind stress, learn emotion regulation strategies, and engage in peer support practices. This process integrates language learning, mental health education, and social-emotional learning. Through specific activities such as information integration, comparison of viewpoints, and solution design, students acquire rich interdisciplinary knowledge and exercise their thinking abilities in analysis, synthesis, judgment, and creative expression based on

evidence, effectively enhancing their ability to use English to explore and solve problems in complex situations, thereby achieving coordinated development of core competencies.

## **2.2 Promoting Teachers' Professional Development and Reshaping Teaching Roles and Competence Structures**

For teachers, implementing interdisciplinary integrated teaching is both a challenge and an important opportunity for professional growth [5]. First, it prompts teachers to step outside disciplinary boundaries and actively learn basic knowledge and thinking characteristics of related disciplines. For example, when designing integrated teaching on "The Evolution of Chinese Characters," an English teacher needs to understand the development of Chinese history, basic knowledge of philology, and even cultural comparison theories. This process significantly broadens teachers' knowledge structures and deepens their understanding of the nature of the discipline and its educational value. Second, integrated teaching emphasizes collaboration among teachers. English teachers need to design tasks, integrate resources, and implement evaluations together with teachers of history, geography, mental health, and other subjects. This kind of interdisciplinary teaching and research activity not only promotes the sharing of teaching experience and wisdom but also transforms teachers from "knowledge transmitters" into "designers of interdisciplinary curricula" and "guides for students' core competency development." Finally, through continuous reflection, adjustment, and optimization in integrated teaching practice, teachers systematically improve their curriculum development, teaching research, and teamwork abilities.

## **2.3 Deepening Curriculum and Teaching Reform and Implementing the Fundamental Task of Fostering Virtue through Education**

Curriculum reform guided by the core competency concept is essentially a transformation from a "knowledge-based" to a "competency-based" paradigm. Interdisciplinary integrated teaching is an important lever for this transformation. It reconstructs curriculum content and reshapes teaching logic, transforming originally separated disciplinary knowledge into an organic whole. Teaching no longer focuses only on mastering language

points but pays more attention to how language learning can help understand culture, develop thinking, and learn how to learn. For example, in the theme "Hometown Tourism," students not only learn to introduce scenic spots in English but also understand the relationship between landscape characteristics and the geographical environment, analyze the impact of tourism development on the local economy, culture, and ecology, and even propose suggestions for sustainable development. This authentic problem-oriented, competency-development-focused teaching makes curriculum content closer to students' life experiences and growth needs, allowing the fundamental task of "fostering virtue through education" to be solidly implemented through specific teaching activities.

## **3. Current Situation and Core Problems of Interdisciplinary Integrated Teaching in Senior High School English from the Perspective of Core Competencies**

To comprehensively understand the current implementation status and prominent problems of interdisciplinary integrated teaching in senior high school English, this study conducted a questionnaire survey and semi-structured interviews with 45 English teachers from three ordinary senior high schools in Guilin, and analyzed the teaching design texts of 12 public integrated teaching lessons. The survey results show that teachers have a high level of recognition of the value of interdisciplinary integration (92% of teachers consider it "necessary" or "very necessary"), but the following core problems still exist at the practical level.

### **3.1 Broad Value Recognition but Shallow Understanding of Connotation**

Although most teachers recognize the positive role of interdisciplinary integration in students' comprehensive literacy, there are thinking misconceptions regarding the implementation of national curricula and interdisciplinary integrated teaching. In actual teaching, some teachers simply simplify integration by adding examples or pictures from other subjects to English lessons, for instance, inserting a few historical pictures when explaining the theme "Festivals," without grasping the essence of deep integration that takes English as the main line, organically permeates interdisciplinary content,

and jointly serves core competencies. In interviews, one teacher admitted: “I don’t know how much integration is appropriate, and I’m afraid of taking up too much time and affecting teaching progress.” This confusion reflects a lack of systematic theoretical guidance and operable models, making it difficult for teachers to grasp the degree and effectiveness of integration, causing integrated teaching to degenerate into a simple piling up of subject knowledge, increasing students’ cognitive load and affecting teaching effectiveness.

### **3.2 Insufficient Adaptability of Existing Resources and Heavy Burden of Independent Development**

Although current mainstream English textbooks cover multiple subjects, in terms of depth and systematics, they still cannot support interdisciplinary integrated teaching. Interdisciplinary content in textbooks often appears sporadically in forms such as “culture corner” or “extended reading,” lacking task designs deeply integrated with unit themes. More importantly, integrated teaching resources suitable for interdisciplinary integration, such as reading texts incorporating multiple disciplinary perspectives, inquiry tasks, and evaluation tools, are extremely scarce. The survey shows that 85% of teachers said they “need to spend a lot of time searching, screening, adapting, and integrating resources themselves,” with an average of 3-4 more hours spent preparing each integrated lesson than a regular lesson. This is a huge challenge for teachers and is one of the key bottlenecks hindering the normalization of integrated teaching.

### **3.3 Local Highlights Observable but Lack of Normalization Mechanisms**

Some teachers have made creative attempts at interdisciplinary teaching and formed many excellent lesson examples, but these are isolated innovations by individual teachers or individual class periods, failing to transform into normal teaching practice in schools or teaching groups. Factors hindering normalization include: first, teachers’ lack of ability to design and implement interdisciplinary curricula, especially insufficient experience in goal integration, task layering, and evaluation design; second, the timetable is still divided by subject class hours, making it difficult to guarantee the flexible time and continuous class hours needed for

interdisciplinary inquiry; third, the teaching evaluation system has not kept up, and existing examination systems still focus on single-subject knowledge, lacking effective assessment of the outcomes of integrated teaching. Therefore, integrated teaching often remains at the level of open classes and demonstration classes, difficult to take root in daily teaching.

### **3.4 Inadequate Support Systems and Hindered Deep Development**

Systematic guarantee mechanisms are necessary conditions for the sustainable deepening of interdisciplinary integrated teaching. However, the survey found that at the school management level, relevant institutional guarantees such as the construction of interdisciplinary teaching and research groups, class hour coordination mechanisms, and teacher collaboration incentive policies are still imperfect; at the teaching evaluation level, evaluation methods are still dominated by paper-and-pencil tests, lacking scientific and effective assessment tools for soft literacy such as cultural understanding, depth of thinking, and cooperation ability demonstrated by students in the interdisciplinary learning process; at the teacher development level, targeted special training is scarce, with only 28% of teachers having participated in training related to interdisciplinary teaching, and teachers lack continuous professional guidance and support. The absence of guarantee systems leaves teachers’ exploration of integrated teaching in a state of isolated struggle, making it difficult to sustain and deepen.

## **4. Teaching Strategy Research and Case Validation of Interdisciplinary Integrated Teaching in Senior High School English from the Perspective of Core Competencies**

To solve the above problems, this study systematically designed three interdisciplinary integrated teaching cases based on the core framework of “theme guidance—layered tasks—thinking scaffolds,” and conducted an eight-week action research study in two Grade 1 classes (experimental class and control class) of an ordinary senior high school. The experimental class adopted the integrated teaching model, while the control class adopted the conventional teaching model. Data were collected through pre-tests, post-tests, classroom observations, and student interviews to verify the effectiveness of the teaching strategies.

#### **4.1 Integration of English and History: The Case of “The Evolution of Chinese Characters”**

This case, based on Unit 5 “Languages Around the World” of the compulsory textbook for Grade 1 from the People’s Education Press, centers on the theme “The Evolution of Chinese Characters,” focusing on comparing the evolution of Chinese and English languages, cultivating students’ interdisciplinary ability to use English for cultural analysis. the integrated teaching objectives include: language objective—master core vocabulary and sentence patterns describing language evolution; cultural objective—understand the historical and cultural logic behind the evolution of Chinese characters; thinking objective—through comparative analysis, initially establish an analytical framework of “language form—cultural logic.” the teaching process design includes: activation (5 minutes) —play an animation showing the evolution of Chinese characters from oracle bone script to regular script, guiding students to describe the changes in English; background input (10 minutes) —provide simplified English reading materials introducing the historical background of dynastic changes and character simplification in China; layered inquiry (20 minutes) —basic level: complete a comparison table of Chinese and English language forms (e. g., alphabetic vs. logographic scripts) and describe basic differences; advanced level: analyze the promoting effect of historical events (e. g., Qin Shihuang’s “standardization of writing,” the impact of the European Renaissance on language) on language evolution; extension level: discuss “whether language influences thinking style” and write a short argumentative essay; presentation and reflection (10 minutes) —groups present their results, with teacher follow-up questions guiding deep thinking. Implementation results: in the post-test, students in the experimental class scored significantly higher than the control class in the dimension of cultural awareness ( $p < 0.05$ ), especially on the indicator “able to explain the cultural reasons behind language phenomena,” where the experimental class showed a 32% improvement in accuracy. In student interviews, one student said: “Before, I thought learning English was just memorizing words; now I find there are so many stories behind language, it’s very interesting.”

#### **4.2 Integration of English and Mental Health: The Case of Adolescent Stress**

This case centers on the self-compiled theme “Stress Management and Emotional Expression,” integrating mental health education content to cultivate students’ comprehensive ability to use English to address actual psychological needs. the integrated teaching objectives include: language objective—master communicative sentence patterns for expressing emotions and seeking help; mental health objective—identify stressors and learn basic emotion regulation strategies; social-emotional objective—cultivate empathy and peer support awareness. the teaching process design includes: situational introduction (5 minutes) —play a short English video about the current stress situation of high school students, guiding students to share their own stress experiences; language input (10 minutes) —learn vocabulary for expressing emotions (e. g., anxious, overwhelmed, frustrated) and sentence patterns for seeking help (e. g., “I feel.. because..”, “Could you please.. ?”); layered tasks (20 minutes) —basic level: role-play—students work in pairs, one expresses stress and the other gives comfort and advice; advanced level: group collaboration—compile a “list of stress coping strategies” and write a “class mental health initiative” in English; extension level: design a “emotion management” themed poster and display it in class; summary and extension (5 minutes) —teacher summarizes healthy ways to cope with stress and provides contact information for the school counseling center. Implementation results: in the post-test, the experimental class’s score on the “confidence in expressing emotions” questionnaire increased by 41% compared to the pre-test. Classroom observation showed high participation and genuine emotional engagement during role-play. One student wrote: “I never talked to anyone about my stress before; today, saying it in English made me feel much better.”

#### **4.3 Integration of English and Geography: the Case of “Hometown Tourism”**

This case, based on Unit 2 “Travelling Around” of the compulsory textbook for Grade 1 from the People’s Education Press, centers on the theme “Introducing Hometown Scenery and Geographical Culture,” cultivating students’ ability to integrate geographical knowledge and

express coherently in English. the integrated teaching objectives include: language objective—master vocabulary and structures for introducing scenic spots; geography objective—understand the relationship between landscape characteristics and geographical environment (topography, climate, hydrology, etc.); cultural objective—enhance hometown cultural identity and pride. the teaching process design includes: activation (5 minutes) —display pictures of Guilin scenery, Li River, Longji Rice Terraces, etc., guiding students to describe them using adjectives; knowledge integration (10 minutes) —provide a short English passage introducing the formation of karst landforms and learn relevant geographical vocabulary; layered tasks (20 minutes) —basic level: complete a basic information card for scenic spots (location, features, best travel season); advanced level: write a 120-word introduction of a scenic spot, including an explanation of geographical features; extension level: design a “hometown tourism promotion plan, ” including route, highlights, cultural tips, and give an oral presentation; presentation and peer evaluation (10 minutes) —groups present, other groups score and ask questions based on evaluation rubrics. Implementation results: in written expression, the experimental class’s average score in the content dimension was 0.8 points higher than that of the control class (out of 5 points), especially outstanding in “being able to naturally integrate geographical knowledge into language expression. ” One student said: “Before, when I wrote about scenic spots, I just piled up adjectives; now I know I need to explain why this place is special. ”

### **5. Deep-Seated Problems in Interdisciplinary Integrated Teaching in Senior High School English from the Perspective of Core Competencies**

Based on the above teaching practice and action research data, even with careful design, the large-scale promotion of integrated teaching may still face the following common challenges.

#### **5.1 Task Complexity Easily Leads to Cognitive Overload**

Interdisciplinary integrated teaching involves concepts and thinking from multiple disciplines simultaneously. If task design does not fully consider students’ “cognitive load, ” it can easily lead to frustration due to information overload.

Cognitive load theory points out that working memory has limited capacity; when the amount of information processed simultaneously exceeds its capacity, learning effectiveness significantly decreases. In the “Evolution of Chinese Characters” case of this study, students needed to simultaneously handle multiple cognitive tasks such as language form comparison, influence of historical events, and cultural difference analysis, demanding high integration of thinking skills. Classroom observation found that about 35% of students showed confusion, stagnation, or help-seeking behavior during advanced-level tasks, indicating that task complexity exceeded the current level of some students.

#### **5.2 Student Diversity Increases Difficulty of Implementing Individualized Instruction**

Within a class, students’ English proficiency, subject knowledge bases, and learning styles vary significantly. Pre-test data showed that the standard deviation of English scores in the experimental class was 12.3 (out of 100), and the standard deviation for the geography knowledge test was 15.8, indicating large differences in student backgrounds. Unified teaching tasks often only cater to average students, leaving high-achieving students “underfed” and struggling students “unable to keep up. ” For example, in the “Hometown Tourism” task, high-achieving students could fluently integrate geographical knowledge for creative expression, while struggling students could not even master basic scenic spot vocabulary and could not effectively participate in group discussions. Without targeted layered support, integrated teaching may instead exacerbate gaps among students.

#### **5.3 Competency Dimensions Difficult to Quantify, Inconsistent Evaluation Standards**

Core competencies such as thinking quality and cultural awareness are implicit, higher-order abilities that are difficult to accurately measure through traditional standardized tests. In this study, although an evaluation rubric was developed including dimensions such as language accuracy, content integration, depth of thinking, and cooperation participation, in practice, different teachers still showed large differences in scoring the same student work. For example, during the group presentation session of the “Evolution of Chinese Characters”

case, three observing teachers gave scores of 82, 75, and 88 (out of 100) to the same group, indicating low inter-rater reliability. This shows the lack of recognized, operable evaluation rubrics, leading to subjective evaluation that cannot provide precise feedback for teaching improvement, and also affecting teachers' motivation to engage in integrated teaching.

#### **5.4 Scarcity of High-Quality Integrated Resources, Exhausting Teachers' Development Efforts**

High-quality integrated teaching depends on high-quality integrated resources. Currently, no systematic, directly usable interdisciplinary English teaching resource library is available. Teachers spend time and effort developing resources from scratch, and the quality of individually developed resources varies, making sharing and iteration difficult. During the action research period of this study, teachers in the experimental class spent an average of an extra 6 hours per week searching for and adapting resources. One participating teacher admitted: "I strongly agree with the concept of integrated teaching, but if I have to prepare every lesson like this, I cannot persist for one semester." This problem restricts the overall quality improvement and sustainable development of integrated teaching.

### **6. Improvement Measures and Optimization Strategies**

In response to the above problems, this study proposes systematic optimization strategies from four dimensions: teaching design, learning profile analysis, evaluation reform, and support systems.

#### **6.1 Systematically Decompose Tasks and Build Cognitive Scaffolds**

The key to coping with cognitive overload lies in systematically decomposing and sequentially designing complex interdisciplinary tasks. The cognitive rule of "from language to content, from appearance to essence, from simple to comprehensive" should be followed, breaking large tasks into a series of interlocking subtasks. Specific strategies include: pre-input strategy—before starting the integrated task, provide necessary language and subject background knowledge; for example, before teaching "The Evolution of Chinese Characters," spend 10 minutes explaining core vocabulary and a

historical timeline to lower the language threshold of subsequent tasks; staged output strategy—break the final product into multiple intermediate products; for example, the "Hometown Tourism" introduction can be completed in three stages: first complete scenic spot information cards, then write a first draft and do peer review, and finally revise and do oral presentation; thinking visualization tools—provide tools such as mind maps, comparison tables, and timelines to help students externalize their thinking processes and reduce working memory load; for example, in a language comparison task, provide a pre-made comparison table template for students to fill in keywords. Action research data show that after adopting the above strategies, the completion rate of complex tasks among experimental class students increased from 62% to 84%, and self-reported learning anxiety scores decreased by 27%.

#### **6.2 Strengthen Learning Profile Diagnosis and Implement Precision Teaching**

To truly implement "teaching based on learning," a whole-process mechanism of learning profile diagnosis and differentiated support needs to be established. Specific strategies include: pre-assessment—before starting integrated teaching, use short questionnaires or quizzes to understand students' existing knowledge backgrounds in relevant subject areas; for example, before the "Adolescent Stress" theme, survey students' common stressors and existing coping methods; dynamic grouping—based on diagnostic data, divide students into basic, developing, and extension groups, and design differentiated learning objectives, tasks, and support strategies; grouping is not fixed but should be dynamically adjusted according to task type and student performance; diverse scaffolds—provide different forms of support for students at different levels; for example, in writing tasks, provide sentence frameworks for the basic group, keyword prompts for the developing group, and open-ended questions for the extension group; personalized feedback and portfolio tracking—provide written or oral personalized feedback after class, establish learning profile portfolios, record each student's performance and progress in different integrated tasks, providing a basis for subsequent teaching. After implementing differentiated teaching, the task participation rate

of struggling students in the experimental class increased from 51% to 78%, and the completion rate of higher-order thinking tasks among high-achieving students increased from 68% to 85%.

### **6.3 Develop Multi-Dimensional Rubrics and Focus on Competency Development**

To construct a core competency-oriented multi-faceted evaluation framework, the following aspects should be addressed: regional teaching research leadership in rubric development—district or municipal teaching research departments should take the lead, in collaboration with subject experts and frontline teachers, to develop evaluation rubrics suitable for interdisciplinary integrated classrooms; rubrics should clearly specify observable indicators and performance level descriptions (e. g., excellent, good, acceptable, needs improvement) for dimensions such as language ability, cultural awareness, thinking quality, and learning ability; diverse evaluation subjects—combine teacher evaluation, student self-evaluation, and peer evaluation; for example, after group presentations, students score other groups according to the rubric and write at least one strength and one suggestion; this not only reduces teacher scoring burden but also promotes students' metacognitive development; combination of formative and summative evaluation—use methods such as learning portfolios, classroom observation records, reflection logs, and project products, focusing on students' performance during the learning process to achieve process-oriented, comprehensive assessment of competency development; use evaluation results for teaching improvement—regularly analyze evaluation data, identify common weak points, and adjust subsequent teaching strategies; for example, if multiple evaluations show that students score low on the “depth of cultural comparison” dimension, teachers can add instruction on cultural analysis frameworks in subsequent tasks. In the post-test of this study, using the new rubric, the intraclass correlation coefficient (ICC) of the three teachers' scores increased from 0.52 to 0.79, significantly improving evaluation reliability.

### **6.4 Build Collaborative Platforms and Improve Support Systems**

The sustainable development of interdisciplinary integrated teaching requires systematic

management, resource, and training support. Specific strategies include: inter-school or regional resource sharing mechanism—establish an interdisciplinary integrated teaching resource library at the district, county, or school district level, encouraging teachers to upload, share, and evaluate quality lessons, materials, task sheets, and evaluation rubrics; digital platforms such as DingTalk, WeChat Work, or Tencent Docs can be used for accumulation and sharing; special funds should be allocated to reward outstanding resource developers; interdisciplinary teaching research communities—organize English teachers and teachers of history, geography, mental health, art, and other subjects into collaborative communities, holding interdisciplinary joint teaching research every two weeks to discuss theme selection, goal integration, task design, evaluation methods, etc.; meetings should have clear agendas, records, and output; teacher training system—incorporate interdisciplinary teaching ability into teacher training systems, offering practical training such as case studies, collaborative lesson planning, classroom observations, and workshops; training content should include interdisciplinary curriculum design principles, cognitive load management strategies, differentiated instruction techniques, and rubric development; school management system support—schools should incorporate interdisciplinary integrated teaching into teaching research group assessments and teacher professional development evaluation systems; in timetable arrangements, reserve double periods or flexible class hours for interdisciplinary projects; provide incentives in evaluations and promotions for teachers who actively participate in integrated teaching and achieve results. In subsequent follow-up of this study, teachers participating in the collaborative mechanism reported an average 40% reduction in resource acquisition time, the participation rate in interdisciplinary teaching research increased from 35% to 72%, and teacher self-efficacy significantly improved.

### **7. Conclusion**

This study systematically explored the practice pathways and optimization strategies for interdisciplinary integrated teaching in senior high school English from the perspective of core competencies, reaching the following main conclusions: First, interdisciplinary integrated teaching is an effective pathway for

implementing core competencies in English, with theoretical foundations including constructivist learning theory, multiple intelligences theory, and curriculum integration theory. Through the integrated teaching model of “theme guidance—layered tasks—thinking scaffolds, ” it can effectively promote the coordinated development of language ability, cultural awareness, thinking quality, and learning ability. Second, current integrated teaching still faces significant challenges in cognitive load adaptation, individualized implementation, evaluation standards, and resource integration. Action research data show that without systematic intervention, about one-third of students may encounter difficulties in complex integrated tasks, and teachers’ lesson preparation burden increases significantly. Third, systematic optimization strategies—including layered task decomposition, precise learning profile diagnosis, multi-dimensional evaluation construction, and collaborative platform building—can significantly improve the effectiveness and sustainability of integrated teaching. In the post-test, the experimental class scored significantly higher than the control class in comprehensive literacy, teacher preparation time cost decreased, and teaching satisfaction improved.

Admittedly, this study still has limitations: the integrated disciplines are mainly concentrated in the humanities and social sciences, with insufficient exploration of integration with natural sciences (e. g., physics, chemistry, biology) and arts; at the same time, the conclusions are mainly based on action research in one school, two classes, over eight weeks, with a small sample size, lacking large-scale, long-term empirical data support, and generalizability needs further verification. Future research can deepen in the following directions: first, expand the boundaries of integrated disciplines, explore diversified integration models such as “English+STEM” and “English+Arts, ” and develop corresponding teaching cases and resources; second, strengthen quasi-experimental studies, longitudinal tracking studies, and other empirical designs, using more rigorous statistical methods (e. g., hierarchical linear models, propensity score matching) to

scientifically evaluate teaching effectiveness; third, pay attention to the differential needs of different regions (urban vs. rural) and different types of schools (key schools vs. ordinary schools) in implementation, developing differentiated implementation guides; fourth, explore the application of artificial intelligence, big data, and other technologies in integrated teaching resource development, learning profile diagnosis, and personalized feedback, to enhance the intelligence level of integrated teaching. In summary, interdisciplinary integrated teaching is a key pathway for implementing core competencies and an important direction for English curriculum reform. Only through the coordinated advancement of theoretical research, practical exploration, and institutional support can the fundamental task of “fostering virtue through education” be truly achieved, cultivating well-rounded talents capable of adapting to the complex challenges of future society.

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