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DEVELOPING AND IMPLEMENTING AN INTERDISCIPLINARY EDUCATION MODEL FOR ENGLISH MAJORS IN THE DIGITAL INTELLIGENCE ERA[i]

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Abstract:
This study aimed to design and implement a blended interdisciplinary learning program for senior English majors in China, which integrates artificial intelligence (AI) assistance. The program focused on relevant themed micro courses, supplemented by real-time guidance from intelligent tools, real-life case exercises, group collaborative discussions, and real-time online interactive support from mentor teams. A comparative teaching experiment was conducted on selected classes over two complete semesters. Students who participated in the experiment voluntarily registered for the series of courses online, while students in parallel classes who did not take the electives followed their regular curriculum. Through systematic collection and analysis of questionnaire feedback and in-depth interviews with students in the experimental group and corresponding employers, the results showed that the experimental group generally reported that this model significantly strengthened their competencies in the use of artificial intelligence tools, applied English skills, and problem-solving in multiple fields, effectively enhancing their workplace adaptability and employability. As a result, many students successfully secured positions that were highly matched with their majors and offered better salaries. In contrast, the experimental group was significantly better than the control group in terms of job–major matching rate, overall evaluation by employers, and satisfaction with starting salary levels. The future curriculum reform of English majors in universities could highlight the actual needs of the job market, actively integrate practical skills and interdisciplinary knowledge modules of artificial intelligence, in order to improve students' interdisciplinary employment competitiveness and achieve high-quality career development.

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1. Introduction

In recent years, the development of English-related majors in Chinese universities has gradually revealed structural problems. Relatively homogenous curricula, outdated textbooks, and significant content homogenization across different institutions have led to limited knowledge structures, insufficient critical thinking, and a gap between students' comprehensive qualities and societal needs. The direct consequence is continuously increasing employment pressure on graduates, with some majors even being placed on the employment warning list (Jin, 2026; Shen, 2025). At a deeper level, this predicament is closely related to the ambiguity of professional positioning. Traditional "English majors" emphasize language itself but lack clear application orientation; teacher training programs are significantly affected by multiple factors such as educational policy adjustments and changes in the school-age population, resulting in a significant contraction in demand; applied majors such as Business English struggle to balance language skills and professional knowledge during training, making their graduates often less competitive in the job market compared to students majoring in international trade or e-commerce. Meanwhile, translation majors also face new challenges, especially against the backdrop of rapid technological development represented by large language models, leading to a significant decrease in basic translation positions and a continuous increase in the demand for composite abilities (Yan, 2025; Bao, 2025).

In contrast, with the continued advancement of the China's Belt and Road Initiative, enterprises are increasingly demanding talent with both foreign language and professional skills as they expand into overseas markets. Employers not only focus on language communication skills but also emphasize cross-disciplinary knowledge and practical abilities, such as comprehensive qualities in international market analysis, cross-cultural communication, trade processes, policies and regulations, and risk assessment. However, in reality, there has long been a mismatch in capabilities between related majors: graduates in economics and trade or e-commerce have limited foreign language proficiency, while English majors generally lack systematic economic and trade knowledge and practical experience, making it difficult for either to fully meet job requirements. For example, in the cross-border e-commerce sector, companies typically expect applicants to be proficient in a foreign language, understand the cultural background, policy environment, and business rules of the target market, and master basic foreign trade operation processes (Lin, 2025; Gong, 2025). On one hand, employers are struggling to find suitable candidates who are "*Quick to Learn And Capable Of Doing The Work*," while on the other hand, English majors, even undergraduate and master's graduates, still find it difficult to find jobs that match their majors after four or six years

of hard study. This structural contradiction has reached a critical point where it must be thoroughly reformed (Xu, 2025; Li, 2025).

If English majors are shifted towards the "language+cross-disciplinary ability" track that society truly needs, can the employment prospects of graduates significantly improve? Under the existing curriculum and system framework, it is extremely difficult to add interdisciplinary compulsory courses on a large scale, and it is difficult to implement them in the short term. So, how to effectively inject the cultivation of "English+Cross-disciplinary Literacy" without disrupting the original curriculum structure? This is precisely the core concern and focus of this study.

The research group has attempted an AI-driven path to enhance the interdisciplinary competence of English majors: launching a series of "AI Assisted Interdisciplinary Modules" micro-courses, totaling 6 courses (application of intelligent language tools, AI-driven academic writing and translation, artificial intelligence and global communication, AI in foreign-related legal affairs, AI-assisted cross-border e-commerce practice, and international enterprise operation and financial foundation module), with each course controlled at around 32 hours. Due to the urgency of class hours, these courses do not pursue comprehensive professional depth, but focus on teaching students how to proficiently use generative models to quickly self-learn unfamiliar field knowledge, obtain interdisciplinary information in real time, and continuously strengthen their comprehensive English application ability in real scenarios through AI tools, thereby significantly improving their workplace adaptability and job competitiveness. To test the practical effectiveness of this approach, a two-semester "English+Cross-disciplinary" teaching experiment was conducted involving English major students to preliminarily evaluate and optimize the interdisciplinary ability training program supported by AI.

2. Literature Review

In recent years, discussions around the transformation and development of foreign language majors have attracted increasing attention, and "English+" has gradually become an important direction for curriculum reform. Many frontline teachers, relying on information technology, have made various attempts at the classroom level, such as introducing micro course resources, online open courses, and multimedia methods, to improve teaching effectiveness and enhance students' language practice abilities (Zou, 2025; Li et al., 2024). At the same time, teaching objectives are quietly changing, gradually extending from traditional general English teaching to more application-oriented professional English and academic English (He & Liu, 2026; Cao & Liu, 2025). In the specific implementation path, the integration of task-driven concepts and blended online and offline teaching models is gradually increasing, such as combining task-based teaching with small-scale online courses and academic English to enhance classroom interactivity and learning engagement (Liu, 2025; Shi, 2024). Overall, such reforms have achieved certain results in improving language proficiency, but their scope is still mainly

limited to language skills, and provide insufficient support for cultivating students' cross-disciplinary abilities (Cai, 2023; Zhang, 2023). From the perspective of talent cultivation, the true development of interdisciplinary abilities often relies on the overall adjustment of curriculum structure, rather than just the improvement of teaching for individual courses. However, the reconstruction of the curriculum system involves various factors such as training programs, teacher backgrounds, and resource allocation, which are difficult to comprehensively promote in the short term. The rapidly developing generative artificial intelligence technology in recent years has provided new possibilities for foreign language education, but in actual teaching, the understanding and application of related tools by the teacher community is still in its infancy. Previous studies have mostly focused on theoretical or conceptual exploration, mainly focusing on the potential impact of technology on teaching methods, and lacking systematic teaching practice and effectiveness evaluation (Zhao, 2026; Zou, 2026; Xu, 2026).

Most of the existing relevant literature adopts literature review or qualitative description methods, focusing on the integration of technology in the general teaching of college English, with less direct collection of feedback from teachers and students or quantitative indicators, and limited support for conclusions. Meanwhile, there is still a lack of research on how the interdisciplinary curriculum reform guided by the job market specifically affects the career performance of graduates.

This study aims to provide empirical evidence to similar explorations by introducing an AI-assisted interdisciplinary competence training program and collecting quantitative and qualitative data through comparative teaching experiments. It further analyzes the diverse effects of generative tools combined with interdisciplinary content on the employment paths of English major students, and provides actionable experience references and reference ideas for curriculum adjustments of foreign language majors in universities towards interdisciplinary transformation.

3. Research Design

3.1 Experimental Plan

This study selected senior students majoring in English from a university in the eastern coastal region as samples, and conducted a two-semester experimental study in their senior year (7th and 8th semesters) to test the actual effectiveness of the "English+Cross-disciplinary Literacy" cultivation path assisted by artificial intelligence technology. Specifically, by offering an online elective course on "AI-Driven Employment Comprehensive Ability Enhancement", students could strengthen their proficiency in using AI tools in translation and writing, while also gaining systematic exposure to core knowledge and practical operations in fields such as international trade, cross-border e-commerce, foreign-related legal affairs, and global marketing. This was expected to enhance their adaptability and job competitiveness in the workplace.

3.2 Research Methods

The study selected 61 students from two existing classes in the fourth year of an English major at a university in the eastern region as participants, and conducted a comparative study from the seventh to eighth semesters. One class served as the experimental group (30 students) and participated in the interdisciplinary course learning mentioned above. The other group was the control group (31 students), who studied according to the original training plan and did not receive any relevant teaching interventions.

This study adopted a comparative analysis method, combined with questionnaire surveys and interview data, to track and compare the ability changes and internship employment situation of two groups of students before and after the experiment, in order to evaluate the actual effectiveness of the teaching program. This study focused on the development of students' interdisciplinary English application abilities, as well as their differences in job matching and job performance.

Set the following specific questions around the research objectives:

1) Are there significant changes in cross-disciplinary English application ability and employment performance between the two groups of students before and after teaching intervention?
2) What is the level of acceptance and learning experience of students participating in the course towards this teaching mode?
3) How do employers evaluate the comprehensive ability performance of experimental group graduates in practical work?

3.3 Interdisciplinary Curriculum

The interdisciplinary courses adopted in this research were independently designed and integrated by the research group, including multiple modules closely related to practical applications, such as language intelligent processing, academic writing and translation practice, international communication, foreign-related legal foundations, cross-border e-commerce operations, and cross-border business management. Each module is set with corresponding class hours, and students can choose some of the content to study according to their personal career plan.

In terms of teaching organization, the course uses fragmented learning resources as a carrier, combined with case analysis and interactive discussions, to build a diversified learning environment. In addition to the course content itself, intelligent tools are also introduced as learning support methods, combined with online Q&A and group communication, to form a more flexible learning mechanism. Students can arrange their learning time according to their own progress, strengthening the connection between knowledge acquisition and practical application.

The focus of course implementation is not on systematically teaching a certain subject knowledge, but on training students to use intelligent tools to acquire, organize, and apply information, so that they can quickly supplement relevant knowledge when facing different tasks, and gradually improve their interdisciplinary problem-solving ability and career adaptability.

3.4 Testing Content and Tools

The research team independently designed two main tools: a questionnaire covering 7 dimensions and a total of 28 questions on "Cross-disciplinary Foreign Language Practice and Employment Internship Status of English Major Students", and a set of "In-depth Interview Guidelines for Cross-disciplinary Foreign Language Use and Career Development of English Major Students" covering 7 topics. These tools aim to comprehensively capture changes in students' interdisciplinary foreign language skills, internship experiences, and employment outcomes before and after the experiment. After a pilot test and multiple rounds of expert reviews, revision and adjustments, the internal consistency reliability (Cronbach's alpha) of the questionnaire reached 0.85, indicating that the tool is overall reliable and effective.

The pre-test is scheduled to be conducted at the beginning of the first semester (seventh semester) of the senior year to establish a baseline; The post test will be postponed until the end of the second semester of the senior year (eighth semester), by which time the graduates have basically completed their off campus internships and preliminarily determined their employment prospects, in order to obtain more authentic career feedback.

Researchers also contacted multiple employers to understand the actual performance of two groups of students in internships and formal positions through on-site or online methods, focusing on their use of AI tools, cross-disciplinary foreign language application, professional matching, supervisor evaluation, salary level, and overall job satisfaction.

4. Results and Analysis

During the two-semester teaching practice, the experimental group students participated in extended learning centered on interdisciplinary micro courses while completing regular course learning. Due to the implementation of the experiment coinciding with students' off-campus internships, many students attempted to apply the content learned in the course in real-life work situations. From the feedback, it can be seen that most students are able to combine their learned knowledge with specific work tasks, and their understanding of relevant concepts is no longer limited to the surface, but gradually forms a more systematic understanding through practice. This process has played a significant role in improving their language and professional integration ability, and has also enhanced their job-seeking confidence to a certain extent.

The data presented in Table 1 reflect the changing trends of the two groups of students in multiple dimensions. Firstly, from the perspective of course participation, students in the experimental group generally showed a high interest in interdisciplinary content. The modules related to "Academic Writing and Translation" and "International Communication" achieved full participation, while the proportion of elective courses in other courses remained at a high level.

Table 1: Comparison of Interdisciplinary English Application Competence and Internship/Employment Outcomes between the Experimental Class and the Control Class

Survey / Comparison Item	Experimental Class (N=30)	Control Class (N=31)	Difference (Experimental – Control) (%)
Number of students who selected each interdisciplinary micro-course (persons, %)			
1. Practical Operation of Intelligent Language Tools	23 (76.67%)		
2. AI-Driven Writing and Translation Practice	30 (100.00%)		
3. Application of Artificial Intelligence in Global Communication	30 (100.00%)		
4. AI-Supported Foreign-related Legal Practice	19 (63.33%)		
5. AI-Assisted Cross-Border E-Commerce Operations	26 (86.67%)		
6. Fundamentals of International Business Operations and Finance	22 (73.33%)		
Self-rated strong practical competence in AI + English			
Before the experiment (persons, %)	10 (33.33%)	11 (35.48%)	–2.15
After the experiment (persons, %)	23 (76.67%)	13 (41.94%)	34.73
Improvement (%)	43.34	6.46	
Self-rated strong interdisciplinary competence			
Before the experiment (persons, %)	4 (13.33%)	5 (19.35%)	–6.02
After the experiment (persons, %)	23 (76.67%)	6 (22.58%)	54.09
Improvement (%)	63.34	3.23	60.11
Perceived helpfulness of the micro-course series			
Very helpful (persons, %)	28 (93.33%)		
Moderately helpful (persons, %)	2 (6.67%)		
Slightly helpful / Not helpful (persons, %)	0 (0.00%)		
Proportion of students whose interdisciplinary competence was highly recognized by employers during internship (persons, %)	19 (63.33%)	5 (16.13%)	47.20
Proportion of graduates obtaining employment in a field matching their major (persons, %)	22 (73.33%)	7 (22.58%)	50.75
Average starting salary (¥)	7,352.41	4,547.33	61.69
Salary satisfaction level			
High satisfaction (persons, %)	19 (63.33%)	5 (16.13%)	47.20
Low satisfaction (persons, %)	7 (23.33%)	8 (25.81%)	–2.48
Dissatisfied (persons, %)	4 (13.33%)	18 (58.06%)	–44.73

As shown in Table 1, the vast majority of students in the experimental group took all or most of the micro-courses, with full coverage of "AI-Driven Writing and Translation

Practice" and "Application of Artificial Intelligence in Global Communication." The selection rate for "AI-Supported Foreign-related Legal Practice" was relatively low (63%), while the remaining modules maintained a range of 63%-87%. The control group had no similar selection experience.

In terms of self-assessment of interdisciplinary abilities, the control group initially had a slight advantage (19.35% vs 13.33%), but after the experiment, the experimental group significantly surpassed it to 76.67%, while the control group was only 22.58%, and the gap between groups widened to 54.09%. In terms of improvement, the experimental group increased by 63.34%, while the control group only increased by 3.23%, with a difference of 60.11% in improvement. This indicates that targeted micro course learning has significantly enhanced students' abilities in using AI tools, interdisciplinary English practice, and problem-solving in multiple fields.

Ninety-three percent of students in the experimental group showed high satisfaction with these micro-courses and believe that they have a significant effect on improving their abilities. In the internship feedback, the proportion of employers recognizing the interdisciplinary foreign language application ability of the experimental group students reached 63.33%, much higher than the control group's 16.13%.

The employment results also showed a sharp contrast: the proportion of professional matching positions in the experimental group was 73.33%, while the control group was only 22.58%; The average starting salary for the experimental group was 7, 352 yuan, while for the control group it was 4,547 yuan, with a difference of 61.7%; The experimental group had a high level of salary satisfaction, accounting for 63.33%, while the control group had only 16.13%. The dissatisfaction rate in the control group was as high as 58.06%.

Overall, this experiment shows that micro courses that integrate AI tools and interdisciplinary content can effectively address the traditional shortcomings of English majors, help graduates build stronger workplace competitiveness in the AI era, and achieve higher professional matching and salary returns. In the future, foreign language majors in universities should pay more attention to employment orientation, actively explore and promote such practical and flexible course modules.

5. Conclusions and Implications

This teaching experiment for senior English major students adopts a flexible online blended learning path: in addition to the original professional courses, six micro-elective modules focusing on interdisciplinary knowledge are provided, combined with AI intelligent assistance, real case exercises, group interactive discussions, and remote guidance support from the mentor team. The experimental group students voluntarily registered for these contents, while the control group continued with the regular teaching pace unchanged. Through collecting multi-source data such as questionnaire feedback and in-depth interviews from participating students and employers, the study observed the following findings:

1) Although there was no significant difference in the cross-disciplinary English practical proficiency between the two groups of students at the beginning of the experiment, the experimental group showed high recognition of this AI-driven interdisciplinary learning program after the experiment. 93.33% of students in the experimental group clearly stated that these modules effectively strengthened their comprehensive abilities in AI tool application, applied English skills, and multi-domain problem solving, not only enhancing their market competitiveness in job hunting, but also directly helping them obtain opportunities with higher professional matching and more attractive salaries in internships and formal positions.
2) The feedback from employers also shows a clear difference. Among the graduates in the experimental group, 63.33% were evaluated by employers as having outstanding interdisciplinary foreign language application abilities, while only 16.13% in the control group. This is further reflected in the employment results - the proportion of job–major matching positions, overall employer evaluation, and satisfaction with starting salary in the experimental group were significantly higher than those in the control group, demonstrating the obvious advantages of this path in bridging traditional English education with practical workplace needs.
3) From a broader perspective, the curriculum adjustment of foreign language majors in universities should be more closely anchored to the actual demands of the job market for graduates, actively integrating AI practical skills and cross disciplinary knowledge content. This integration model of "language+intelligent tools+professional practice" has been preliminarily verified by this experiment as a feasible path to effectively improve the employment matching and overall career quality of foreign language majors, and is worth promoting and deepening exploration on a larger scale.

Conflict of Interest Statement
The authors declare no conflicts of interest.

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