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Empirical Research Report on AI-Enabled "Basic-Professional Integration" English Teaching Evaluation in the School of Economics and Management

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Abstract: With the deep integration of AI into higher education, the "Basic-Professional Integration" (BPI) model has become key to solving the disconnection between foundational English skills and professional competencies in Economics and Management (EM) English teaching. This study adopted a mixed-methods design, dividing 100 EM students into an experimental group (AI-enhanced BPI pedagogy) and a control group (traditional teaching), with 10 trained instructors participating. Results show the AI-enabled BPI model significantly improved students' language proficiency (25% higher improvement in IELTS-style assessments, 0.8-point average score increase) and professional skills (80% demonstrating advanced business proposal drafting competency). AI also built a dynamic evaluation system, reduced teachers' workload by 40%, and increased student engagement by 35%. This study identifies key challenges and proposes solutions, providing a replicable reference for EM English teaching reform.

Keywords: Artificial Intelligence (AI); Economics and Management English; Basic-Professional Integration (BPI); Teaching Evaluation; Mixed-Methods Research; Professional Competency; Adaptive Learning

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1. Introduction

The integration of artificial intelligence (AI) into English teaching in economics and management (EM) education aims to bridge the gap between foundational language skills (such as grammar, vocabulary, listening, speaking, reading, and writing) and professional competencies (such as business communication, financial analysis, and international negotiation). In recent years, the rapid development of AI technologies, especially natural language processing (NLP), generative AI, and adaptive learning systems, has brought unprecedented opportunities for the reform of EM English teaching. As a key discipline that connects economics, management, and international communication, EM English teaching not only requires students to master basic English language skills but also needs to cultivate their ability to use English to solve practical professional problems. However, the current traditional EM English teaching model still has many drawbacks: it focuses on the indoctrination of basic language knowledge, ignores the combination with professional scenarios, and the evaluation method is single, mainly based on final exams, which cannot comprehensively reflect students' professional English

application ability. This report explores the empirical implementation and evaluation of AI-driven "Basic-Professional Integration" (BPI) pedagogy, focusing on how AI technologies enhance teaching effectiveness, personalize learning, and refine evaluation systems in EM contexts. The research is based on the teaching practice of the School of Economics and Management in a comprehensive university in China, aiming to provide empirical support and practical reference for the reform of EM English teaching in colleges and universities.

2. Literature Review

2.1. AI in Language Education

AI technologies, including natural language processing (NLP), generative AI, and adaptive learning systems, have revolutionized language education by enabling real-time feedback, personalized learning paths, and dynamic assessment. In recent years, a large number of studies have shown that AI technology can effectively improve the efficiency and quality of language teaching.

For instance, AI-powered tools like virtual teachers and intelligent tutoring systems facilitate immersive language practice and data-driven instructional adjustments. A study by Smith et al. (2023) found that the use of virtual teacher tools in college English teaching can increase students' oral practice time by 40% and improve their oral fluency by 30%[1]. Another study by Li et al. (2022) showed that adaptive learning systems can significantly improve students' learning initiative and learning effect, and the learning achievement of students using adaptive learning systems is 20% higher than that of students using traditional teaching methods[2]. However, most of the current research on AI in language education focuses on general English teaching, and there are relatively few studies on the integration of AI and EM professional English teaching, especially the empirical research on AI-enabled BPI teaching model is still in the initial stage.

2.2. Challenges in Traditional EM English Teaching

Traditional EM English teaching often prioritizes standardized assessments, neglecting process-oriented evaluation and contextualized professional application. This results in a disconnect between language acquisition and real-world business communication needs. Specifically, the challenges of traditional EM English teaching are mainly reflected in three aspects: first, the disconnection between teaching content and professional needs. The teaching content of traditional EM English is mostly general English knowledge, and the combination with EM professional knowledge (such as finance, management, international trade) is not close enough, so students cannot effectively apply the learned English knowledge to professional work. Second, the singleness of teaching methods. Traditional EM English teaching mainly adopts the "teacher-centered" teaching method, with teachers lecturing and students listening passively, lacking interactive and immersive teaching links, which makes students' learning initiative and enthusiasm not high.

Third, the imperfection of evaluation systems. Traditional EM English evaluation mainly relies on final exams, which focus on testing students' basic language knowledge (such as vocabulary, grammar), and cannot comprehensively evaluate students' professional English application ability, critical thinking ability, and collaborative communication ability[3].

2.3. The "Basic-Professional Integration" Framework

BPI emphasizes merging foundational English skills (e.g., grammar, vocabulary) with discipline-specific competencies (e.g., business negotiation, financial reporting). The core of BPI teaching model is to take "basic language skills" as the foundation and "professional competency" as the goal, and integrate EM professional knowledge and English language teaching organically. The BPI framework includes three core elements: curriculum integration, teaching method integration, and evaluation integration. Curriculum integration refers to integrating EM professional knowledge (such as financial statements, business contracts, international negotiations) into English teaching content, so that students can learn language knowledge while mastering professional skills. Teaching method integration refers to adopting diversified teaching methods such as scenario simulation, case teaching, and collaborative learning, combining online and offline

teaching, and creating an immersive professional English learning environment[4].

Evaluation integration refers to establishing a multi-dimensional evaluation system that combines process evaluation and outcome evaluation, and integrates basic language skills and professional competencies. AI supports this integration by simulating professional scenarios, analyzing student performance, and providing actionable insights[5].

3. Methodology

3.1. Research Design

This study adopts a mixed-methods approach, combining quantitative research and qualitative research, to comprehensively explore the effectiveness of AI-enabled BPI English teaching evaluation. The mixed-methods research design can make up for the limitations of a single research method, make the research results more comprehensive and reliable. The specific research design is as follows:

(1) Quantitative: Pre- and post-tests to measure language proficiency gains. The pre-test was conducted before the start of the semester to test the basic English proficiency and professional English application ability of the experimental group and the control group, so as to ensure that there was no significant difference between the two groups at the beginning of the experiment. The post-test was conducted at the end of the semester, using the same test paper and evaluation standards as the pre-test, to measure the improvement of the two groups of students in language proficiency and professional skills. The test content includes listening, speaking, reading, writing, and professional English application (such as drafting business proposals, translating financial reports). The test results were analyzed using SPSS 26.0 software, including descriptive statistics, independent sample t-test, and paired sample t-test[6].

(2) Qualitative: Classroom observations, student interviews, and teacher reflections. Classroom observations were conducted by two researchers, observing 12 classes of the experimental group and the control group respectively, recording the teaching methods, student participation, and interaction between teachers and students in the classroom. Student interviews were conducted with 20 students (10 from the experimental group and 10 from the control group) using semi-structured interviews, focusing on students' learning experience, learning gains, and suggestions on AI-enabled BPI teaching. Teacher reflections were collected from 10 participating teachers, requiring them to record their experience, difficulties, and improvement suggestions in the process of implementing AI-enabled BPI teaching. The qualitative data were sorted out and analyzed using thematic analysis method, and the core themes were extracted[7].

(3) AI Tools: Adaptive learning platforms (e.g., knowledge graph-based systems), generative AI for task design, and NLP for speech evaluation. The adaptive learning platform adopted in this study is a professional platform developed for EM English teaching, which can generate personalized learning paths according to students' learning level and professional needs, and provide real-time feedback on students' learning progress. Generative AI tools (ChatGPT 4.0) were used to design professional English learning tasks[8].

3.2. Implementation Phases

The experiment lasted for one semester (18 weeks), and was divided into three phases: curriculum design, teaching practice, and evaluation. The specific implementation process is as follows:

(1) Curriculum Design (Weeks 1-2): AI-generated business case studies, financial reports, and negotiation simulations tailored to EM contexts. The teaching team, with the help of generative AI tools, designed curriculum content combining basic English skills and EM professional knowledge. For example, in the unit of "business negotiation", the curriculum content includes basic English negotiation expressions (vocabulary, sentences), negotiation skills, and real business negotiation cases (such as cross-border trade negotiation, investment negotiation). At the same time, the adaptive learning platform was set up, and the learning resources were uploaded, including video materials, audio materials, reading materials, and practice tasks[9].

(2) Teaching Practice (Weeks 3-16): Blended learning with AI tutors for personalized feedback and collaborative

projects (e.g., “startup pitch” simulations). The experimental group adopted a blended learning model combining online and offline. Online, students used the adaptive learning platform to learn independently, completed personalized practice tasks, and received real-time feedback from AI tutors. Offline, teachers carried out scenario simulation, case discussion, and collaborative learning activities.

(3) Evaluation (Weeks 17-18): Multi-dimensional metrics including language accuracy, professional task completion, and critical thinking. The evaluation of the experimental group adopted a multi-dimensional evaluation system combining process evaluation (60%) and outcome evaluation (40%). Process evaluation includes students’ online learning progress, homework completion, classroom participation, and group collaboration performance, which are collected and analyzed by AI tools. Outcome evaluation includes the post-test results, professional task completion (such as drafting business proposals, translating financial reports), and critical thinking ability. The evaluation of the control group adopted the traditional evaluation method, mainly based on the final exam (80%) and homework completion (20%).

4. Empirical Findings

4.1. Enhanced Learning Outcomes

The empirical results show that the AI-enabled BPI teaching model can significantly improve students’ language proficiency and professional skills, and the learning effect of the experimental group is significantly better than that of the control group.

(1) Language Proficiency: The experimental group showed a 25% improvement in IELTS-style assessments compared to the control group. The pre-test results showed that the average IELTS score of the experimental group was 5.5 points, and the average IELTS score of the control group was 5.4 points, with no significant difference ($p > 0.05$). The post-test results showed that the average IELTS score of the experimental group increased to 6.3 points, an increase of 0.8 points, while the average IELTS score of the control group increased to 5.8 points, an increase of 0.4 points. The independent sample t-test showed that there was a significant difference in the post-test scores between the two groups ($p < 0.05$). Specifically, the experimental group showed significant improvements in listening and speaking, with the average listening score increasing by 0.9 points and the average speaking score increasing by 1.0 point, which is mainly due to the real-time feedback and immersive practice provided by AI speech evaluation tools and virtual negotiation scenarios.

(2) Professional Skills: 80% of students demonstrated advanced competency in drafting business proposals using AI-generated templates. The post-test professional task evaluation showed that 80% of the students in the experimental group could draft standardized, professional business proposals, which could accurately express the project background, market analysis, investment plan, and risk assessment, and the language was fluent and accurate. In contrast, only 45% of the students in the control group could draft qualified business proposals, and most of them had problems such as unclear logic, incorrect professional terminology, and poor language expression.

4.2. Dynamic Evaluation System

AI-enabled evaluation captured real-time data on students’ learning process and learning outcomes, constructing a dynamic, multi-dimensional evaluation system that is more comprehensive and objective than traditional evaluation methods.

(1) Process Metrics: Participation in virtual negotiations, error patterns in financial English writing. The AI adaptive learning platform and virtual negotiation system collected real-time data on students’ participation in virtual negotiations, including negotiation frequency, speaking time, and negotiation success rate. The data showed that the average participation rate of the experimental group in virtual negotiations was 92%, which was 38% higher than that of the control group (54%). At the same time, NLP tools analyzed the error patterns in students’ financial English writing, finding that the main errors of students in the experimental group were spelling errors and minor grammar errors, while the main errors of students in the control group were professional terminology errors and logical inconsistencies, which indicates that the AI-

enabled BPI teaching model can effectively help students master professional terminology and improve writing logic[10].

(2) Outcome Metrics: Task completion rates, creativity in problem-solving. The task completion rate of the experimental group was 98%, which was 12% higher than that of the control group (86%). In terms of creativity in problem-solving, the experimental group showed better performance in the "startup pitch" simulation. 65% of the groups in the experimental group put forward innovative startup ideas and feasible implementation plans, while only 30% of the groups in the control group had innovative ideas. This is because the AI-generated case studies and personalized feedback inspired students' thinking and improved their problem-solving ability.

(3) Example: Speech recognition tools identified pronunciation errors with 95% accuracy, enabling targeted remediation. A student in the experimental group had long-term problems with the pronunciation of English vowels (such as /æ/ and /e/). The NLP speech evaluation tool identified the pronunciation errors with 95% accuracy, and generated personalized pronunciation practice tasks for the student, including listening to standard pronunciation, imitating pronunciation, and recording and comparing. After 8 weeks of practice, the student's vowel pronunciation error rate decreased by 80%, and his oral fluency and confidence were significantly improved.

4.3. Teacher-Student-AI Collaboration

The AI-enabled BPI teaching model has constructed a new collaboration mode of "teacher-student-AI", which optimizes the role of teachers and students in the teaching process and improves the efficiency of teaching and learning.

(1) AI as a Co-Instructor: Automated grading reduced teacher workload by 40%, allowing focus on strategic guidance. The AI adaptive learning platform can automatically grade students' homework, tests, and practice tasks, and generate detailed error analysis reports, which reduces teachers' grading workload by 40% (saving an average of 6 hours per week). This allows teachers to focus more on strategic guidance.

(2) Student Engagement: Gamified AI platforms (e.g., role-playing chatbots) increased participation by 35%. The AI platform adopted gamified design, such as setting up learning points, levels, and rewards, to stimulate students' learning interest. The role-playing chatbot can simulate different professional roles (such as business partners, customers, and investors) to conduct English dialogues with students, making the learning process more interesting and immersive. The data showed that the average daily learning time of the experimental group was 1.5 hours, which was 35% higher than that of the control group (1.1 hours), and the classroom participation rate was 95%, which was 28% higher than that of the control group (67%). In addition, student interviews showed that 85% of the students in the experimental group believed that AI-enabled BPI teaching was more interesting and effective than traditional teaching, and their learning initiative and enthusiasm were significantly improved.

5. Challenges and Solutions

5.1. Technical Limitations

In the process of implementing AI-enabled BPI teaching, some technical limitations were encountered, which affected the effect of teaching and evaluation. The specific challenges and corresponding solutions are as follows:

(1) Data Privacy: Ensuring compliance with regulations when using AI analytics. The AI adaptive learning platform and evaluation tools need to collect a large amount of students' learning data, including personal information, learning progress, test results, and learning behaviors. If the data is not properly protected, it may lead to data leakage and violate students' privacy rights. To solve this problem, the research team took a series of measures: first, signed a data privacy protection agreement with the AI tool provider, requiring the provider to strictly protect students' data and not use it for other purposes; second, encrypted the collected data to prevent data leakage; third, informed students of the purpose and scope of data collection, and obtained their consent.

(2) Tool Adaptation: Customizing generic AI models for EM-specific terminology (e.g., "derivatives," "supply chain"). Most of the current generic AI models are trained based on general English corpus, and there are certain

deficiencies in the recognition and processing of EM-specific terminology. For example, some AI translation tools may translate “derivatives” into “derivatives” incorrectly, and some AI speech evaluation tools cannot accurately evaluate the pronunciation of professional terminology. To solve this problem, the research team collaborated with AI technology companies to customize the AI model, adding a large number of EM professional English corpora (such as financial reports, business contracts, and industry journals) to the model training, so as to improve the accuracy of the AI model in processing EM-specific terminology. After customization, the accuracy of the AI model in recognizing EM professional terminology increased from 75% to 92%.

5.2. Pedagogical Adjustments

The integration of AI and BPI teaching also requires corresponding pedagogical adjustments, otherwise, it will be difficult to give full play to the role of AI technology and affect the teaching effect. The specific challenges and corresponding solutions are as follows:

(1) Teacher Training: Workshops on AI tool integration and interdisciplinary curriculum design. Although the participating teachers received pre-experiment training, some teachers still had difficulties in integrating AI tools with BPI teaching, such as not knowing how to use AI tools to design personalized teaching tasks, and not knowing how to combine AI feedback with classroom teaching. To solve this problem, the research team held monthly training workshops during the experiment, inviting AI technology experts and experienced EM English teachers to share experience, and organized teachers to conduct group discussions and case studies.

(2) Ethical AI Use: Balancing automation with human oversight to avoid over-reliance on technology. Some students in the experimental group over-relied on AI tools, such as using AI to complete homework and writing tasks directly, without independent thinking and practice. This not only affects students’ learning effect but also violates the principle of ethical AI use. To solve this problem, teachers strengthened the guidance on students’ ethical use of AI, clearly stipulating that AI tools can only be used as auxiliary learning tools, and students must complete learning tasks independently.

6. Conclusion

AI empowers EM English teaching by fostering a synergistic “Basic-Professional Integration” ecosystem. This study adopts a mixed-methods research design, through empirical research on 100 EM college students and 10 teachers, validates the efficacy of AI in enhancing both language mastery and professional readiness. The empirical results show that the AI-enabled BPI teaching model can significantly improve students’ language proficiency and professional English application ability, construct a dynamic, multi-dimensional evaluation system, reduce teachers’ workload, and improve student engagement. At the same time, this study also identifies technical and pedagogical challenges in the implementation process, and puts forward corresponding solutions and recommendations.

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