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An AI-Enhanced Practical Teaching Framework for Foreign Language Majors in Vocational Colleges: Design, Implementation, and Reflective Evaluation

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Abstract

This study addresses the critical gap between theoretical potential and practical implementation of artificial intelligence (AI) in vocational foreign language ed-ucation. Drawing upon empirical data from 353 valid student questionnaires across 13 Chinese vocational institutions and a controlled semester-long pe-da-gogical experiment, it designs, implements, and evaluates a comprehensive AI-integrated practical teaching framework. Results demonstrate statistically sig-nificant improvements in students' language competencies (listening, speak-ing, reading, writing, translation) and transversal skills (cross-cultural com-mu-nication, critical thinking) within the experimental group utilizing the AI framework, compared to the control group using traditional methods. Key in-novations include context-aware intelligent tutoring, immersive VR/AR simu-la-tions, and AI-driven dynamic assessment. While validating AI's efficacy, the re-search critically examines persistent challenges in technical infrastructure, ed-ucator readiness, and ethical alignment. This work provides a replicable mod-el for systemic AI integration, grounded in the "Three Integrations" (voca-tion-al-academic articulation, industry-education fusion, science-education synergy) principle, contributing actionable insights to enhance the employabil-ity and global competitiveness of vocational foreign language professionals.

Keywords

Artificial Intelligence; Vocational Education; Foreign Language Teaching; Prac-tical Teaching System; Immersive Learning; Competency Assessment

1. Introduction

The imperative to align vocational education with rapidly evolving industry demands, particularly within globalized sectors requiring proficient foreign language (FL) communication, necessitates transformative pedagogical approaches (Wang and Yuan 78). China's "Three Integrations" reform framework—emphasizing vocational-academic articulation, industry-education fusion, and science-education synergy—provides a strategic mandate for such innovation (Ministry of Education, China, Action Plan 3). Concurrently, generative AI and immersive technologies present unprecedented potential to reshape FL acquisition, moving beyond static knowledge transfer towards dynamic, situated practice (Chen112). However, a significant disconnect persists between the theoretical promise of AI and its systematic, pedagogically sound implementation within vocational FL practical teaching systems. Surveys indicate widespread dissatisfaction among vocational FL students regarding the relevance of content, innovation in methodology, and effectiveness of assessment (see Section 4.1), highlighting an urgent need for evidence-based models.

This research, stemming from the project "Application Research of Artificial Intelligence Technology in the Practical Teaching System of Foreign Language Majors in Vocational Colleges", bridges this gap. It constructs, deploys, and critically evaluates an AI-integrated practical teaching framework specifically designed for vocational FL contexts. Leveraging robust empirical data—including a large-scale multi-institutional survey and a quasi-experimental study—the research answers pivotal questions: How can AI effectively address identified deficiencies in current vocational FL practical teaching? What measurable impact does a structured AI-integrated system have on core student competencies? What systemic and pedagogical challenges emerge during implementation, and how might they be mitigated?

2. Literature Review

The integration of AI into language learning is not novel, but its evolution and application within vocational FL contexts require focused examination. Early Computer-Assisted Language Learning (CALL) systems laid groundwork for individualized drill practice (Warschauer and Healey 719). Contemporary AI, particularly Natural Language Processing (NLP) and machine learning (ML), enables far more sophisticated interactions: intelligent tutoring systems (ITS) can diagnose learner errors, provide contextual feedback, and adapt learning paths in real-time (Heift and Schulze 45). Generative AI models further expand possibilities for creating authentic dialogue simulations and content (Kohnke, Moorhouse, and Zou 1025).

Research underscores AI's efficacy in specific skill domains. NLP-powered tools enhance writing through automated error correction and stylistic suggestions (Stevenson and Phakiti 89). Automatic Speech Recognition (ASR) facilitates pronunciation practice and speaking fluency development (Eskenazi 184). Machine Translation (MT), when pedagogically integrated, supports comparative analysis and boosts translation efficiency (Zou et al. 8). Crucially for vocational contexts, AI enables the creation of realistic, domain-specific scenarios—simulating business negotiations, customer service interactions, or technical documentation tasks—thereby strengthening the crucial link between classroom learning and workplace application (Pérez-Paredes and Bueno-Alastuey 456).

Immersive technologies like Virtual Reality (VR) and Augmented Reality (AR) represent a potent subset of AI-driven tools. They construct "situated learning" environments (Brown, Collins, and Duguid 32), offering safe spaces for practicing high-stakes communication and cultural navigation without real-world consequences (Shadiev and Yang 102; Chen, "VR/AR" 78). Studies suggest VR/AR can significantly increase learner engagement, motivation, and cultural awareness (Lin and Lan 567).

Despite this potential, significant challenges hinder widespread, effective adoption in vocational FL education. Pedagogical integration often remains superficial, focusing on isolated tools rather than systemic redesign (Bax 8). Infrastructure limitations and costs pose barriers, especially for vocational institutions (Selwyn 56). Crucially, a deficit in teacher AI literacy—understanding both the capabilities and limitations of AI, and how to pedagogically harness it—is frequently cited as a major obstacle (Hockly 315; Kessler 45). Ethical concerns regarding data privacy, algorithmic bias, and the potential devaluation of human interaction in language learning demand careful consideration (Regan and Jesse 212; Yang et al. 10). Furthermore, the applicability of findings from general FL contexts or higher education to the specific needs and constraints of vocational FL programs is often unclear. This research directly addresses these gaps by developing and testing a holistic framework within authentic vocational settings.

3. Methodology

This study employed a mixed-methods design, combining quantitative surveys to map the current landscape and a quasi-experimental approach to evaluate the proposed AI-integrated framework's efficacy.

3.1. Phase 1: Diagnostic Survey

Objective: To comprehensively understand the status quo and perceived deficiencies in practical teaching systems for FL majors across diverse vocational colleges.

Instrument: A structured questionnaire was developed, covering six domains:

- Demographics: Institution, program, year of study.
- Teaching Objectives: Clarity, relevance, and satisfaction.
- Teaching Content: Diversity, practicality, alignment with industry needs.
- Teaching Methods: Effectiveness, innovation, engagement.
- Teaching Evaluation: Rationality, effectiveness, feedback utility.
- Technology (AI) Application: Awareness, current usage, expectations.

Questions utilized Likert scales (e.g., 1=Very Dissatisfied to 5=Very Satisfied) and open-ended items.

Procedure: The questionnaire was distributed electronically to FL majors in 13 vocational colleges across multiple provinces in China.
Participants: N = 353 valid responses were collected and analyzed using SPSS (v.28) for descriptive statistics (frequencies, means, standard deviations) and thematic analysis for open-ended responses.

3.2. Phase 2: Design & Development of AI-Integrated Framework

Informed by survey findings and literature, a comprehensive practical teaching framework was designed, incorporating AI across objectives, content, methods, and assessment (Detailed in Section 5). Key technological components included:

- Intelligent Speech Interaction Platform: Utilizing ASR and NLP for pronunciation feedback and dialogue practice (e.g., customized scenarios like "Hotel Check-in," "Technical Support Call").
- AI-Powered Writing Assistant: NLP-based tool for grammar/style checking and genre-specific feedback (e.g., business emails, reports).
- Adaptive Translation Trainer: Combining MT engines with error analysis and post-editing exercises focused on vocational domains (IT, business, tourism).
- VR/AR Cultural & Communication Simulators: Immersive modules replicating workplace interactions in target-language environments.
- Learning Analytics Dashboard: Tracking individual progress, identifying weaknesses, and recommending personalized resources/practice.

3.3. Phase 3: Quasi-Experimental Evaluation

Objective: To assess the impact of the AI-integrated framework on student competencies compared to traditional methods.
Design: A non-equivalent groups pretest-posttest design was employed.
Participants: Students from two comparable vocational colleges (similar program structure, entry requirements) were selected.

- Experimental Group (EG): N = 82 students (College A). Implemented the AI-integrated practical teaching framework for one semester (16 weeks).
- Control Group (CG): N = 78 students (College B). Continued with established traditional practical teaching methods.

Variables:

- Independent Variable: Teaching Approach (AI-Integrated Framework vs. Traditional Methods).
- Dependent Variables: FL Competencies (Listening, Speaking, Reading, Writing, Translation assessed via standardized tests and performance tasks); Transversal Skills (Cross-cultural Communication Competence - assessed via role-plays & case analysis; Critical Thinking - assessed via structured problem-solving scenarios).

Procedure:

- Pretest: All participants completed standardized tests and performance tasks assessing target competencies at the semester start.
- Intervention: EG received practical instruction using the designed AI tools and methodologies integrated into their curriculum. CG continued standard practical sessions (e.g., language lab drills, textbook-based role-plays, teacher-led feedback).
- Posttest: Identical measures to the pretest were administered at semester end.
- Perception Survey: EG completed a survey on usability, usefulness, and satisfaction with the AI framework.

Data Analysis: Pretest scores were analyzed using independent samples t-tests to confirm baseline equivalence. Pretest-Posttest gains for each competency/skill were calculated for both groups. Analysis of Covariance (ANCOVA) was used, controlling for pretest scores, to determine significant differences in posttest performance between EG and CG. Qualitative feedback from EG was thematically analyzed.

Table 1. Research Design Overview

Phase	Objective	Method/Instrument	Participants/Analysis
1. Survey	Map current state & identify deficiencies	Structured Questionnaire (Online)	353 FL students (13 colleges); SPSS Descriptives & Thematic Analysis
2. Design	Develop AI-integrated framework	Literature synthesis & Survey insights	N/A (Framework Output)
3. Experiment	Evaluate framework efficacy	Quasi-Experiment (Pretest-Posttest CG/EG)	EG=82, CG=78; ANCOVA, Thematic Analysis

4. Current State of Vocational FL Practical Teaching: A Diagnostic Perspective

The initial survey provided a stark picture of student perceptions regarding practical teaching in their FL programs, revealing systemic issues that hinder the development of workplace-ready competencies.

4.1. Deficiencies Across Core Domains

Student satisfaction ratings across key practical teaching domains were consistently mediocre, indicating significant room for improvement (Table 2).

Table 2. Student Satisfaction with Practical Teaching Domains (Scale 1-5)

Domain	Mean Satisfaction	Key Issues (Open-Ended Responses)
Teaching Objectives	3.2	Perceived as vague, not clearly linked to future job roles; lack measurable skill targets.
Teaching Content	3.0	Criticized for lack of diversity (62.3%) and poor relevance to actual industry demands (60.6%). Content perceived as outdated or overly theoretical.
Teaching Methods	2.8	Dominated by teacher-centered instruction (58.1%) and repetitive drills (53.3%). Lack of interactive, scenario-based, or technology-enhanced methods.
Teaching Evaluation	3.1	Over-reliance on written exams; insufficient focus on practical performance assessment (71.4%); feedback often delayed and non-specific (67.2%).

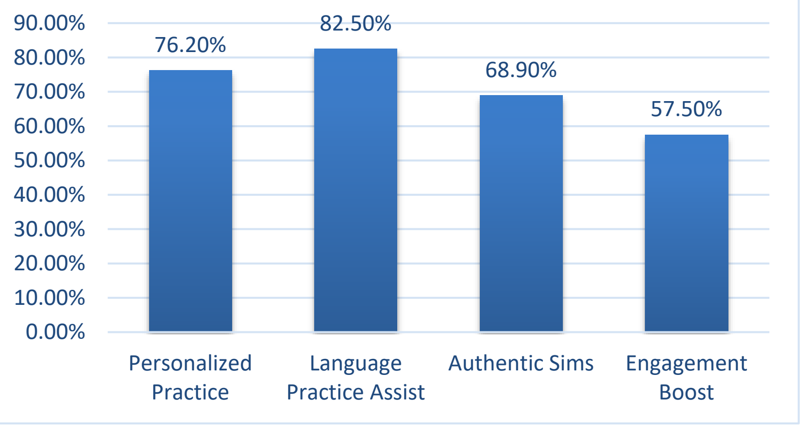
The thematic analysis of open-ended responses reinforced these quantitative findings. Students frequently lamented the disconnect between classroom activities and the communicative demands they anticipated facing in their future careers (e.g., "We practice dialogues from the book, but they don't sound like real conversations you'd have in a company"). The perceived lack of innovation in methodology was a major demotivator: "Most classes feel the same – listen, repeat, answer questions. It's boring and doesn't help me speak confidently." Concerns about assessment centered on its inability to capture actual communicative ability or provide actionable guidance for improvement.

4.2. AI Awareness and Expectations

While awareness of AI's potential in education was moderate (65.7% reported some familiarity), direct experience with AI tools integrated into their FL practical courses was minimal (only 18.4%). Crucially, students expressed strong, targeted expectations for how AI should be utilized (Figure 1):

- Personalized Practice & Feedback (76.2%): The most desired application, reflecting a need for tailored learning paths addressing individual weaknesses (e.g., specific pronunciation issues, grammar patterns) and timely, specific feedback beyond simple error marking.
- Assistance in Core Language Practice (82.5%): High demand for AI tools supporting speaking/conversation practice (especially outside class hours) and writing improvement.
- Access to Authentic Materials/Simulations (68.9%): Desire for exposure to real-world language use and immersive scenarios mirroring their vocational fields.
- Enhanced Engagement/Motivation (57.5%): Hope that interactive and novel AI applications would make practice more engaging.

Figure 1. Student Expectations for AI in Practical FL Teaching (Top Applications Requested)



These findings paint a clear picture: students perceive significant shortcomings in the relevance, methodology, and assessment of their practical FL training. Simultaneously, they possess a pragmatic optimism about AI's potential to directly address these gaps, particularly in providing personalized, accessible, authentic, and engaging practice opportunities. This diagnostic baseline directly informed the design priorities of the AI-integrated framework.

5. Constructing the AI-Integrated Practical Teaching Framework

Responding directly to the identified deficiencies and student expectations, the framework was architected around the core principle of "AI as Enabler" – augmenting pedagogical goals and teacher expertise, not replacing them. Its structure systematically integrates AI across all facets of the practical teaching system, guided by the "Three Integrations" principle.

5.1. Teaching Objectives: Competency-Driven & Industry-Aligned

Objectives were reframed using competency-based language, explicitly linking FL skills to vocational outcomes. AI supports this by:
Diagnostic Benchmarking: AI-powered initial assessments pinpoint individual strengths/weaknesses against target competencies (e.g., B2 listening for tourism, specific technical vocabulary mastery for IT support), informing personalized learning objectives within the broader program goals.
Mapping to Industry Standards: Utilizing NLP to analyze job descriptions and industry communication corpora, ensuring objectives reflect authentic workplace demands (e.g., "Negotiate service terms with a client in English," "Document a software bug report accurately").

5.2. Teaching Content: Dynamic, Contextualized & AI-Augmented

Moving beyond static textbooks, content leverages AI for dynamism and relevance:

Intelligent Resource Curation & Generation

AI algorithms aggregate and filter authentic materials (news, videos, industry documents) or generate practice scenarios tailored to vocational specializations and current events.

Domain-Specific Language Corpora

AI facilitates the creation and analysis of specialized corpora (e.g., "English for Hospitality," "Technical German for Automotive Engineering"), informing the development of targeted vocabulary lists, phrase banks, and genre-specific writing/translation exercises.

AI-Powered Practice Modules

Intelligent Speech Interaction: Simulates real-world conversations (e.g., handling customer complaints, technical troubleshooting calls) with AI partners providing

pronunciation, fluency, and appropriateness feedback.
Adaptive Writing Assistants: Go beyond grammar checks; provide feedback on genre conventions, tone, clarity, and conciseness relevant to business emails, reports, or technical documentation. Contextual feedback replaces generic error flags.
Smart Translation Trainers: Combine MT output with exercises focusing on post-editing accuracy, domain-specific terminology, and stylistic adaptation, moving beyond literal translation.

VR/AR Immersive Scenarios

Developed in consultation with industry partners, these simulate high-pressure vocational situations: conducting a factory tour for foreign visitors (VR), overlaying equipment labels and safety instructions in the target language (AR), or participating in a simulated international video conference.

5.3. Teaching Methodology: Interactive, Personalized & Data-Informed

AI enables a shift from teacher-centered instruction to active, student-centered learning.

Blended Learning Orchestration

AI platforms manage personalized learning paths. In-class time focuses on complex communication tasks, collaborative problem-solving in VR/AR sims, and teacher-facilitated reflection. AI tutors support asynchronous practice and preparation.

Personalized Learning Pathways

Based on diagnostic data and continuous performance analytics, the system recommends specific practice modules, resources, and difficulty levels for each student (e.g., focusing on past tense narratives for one student, technical vocabulary drills for another).

Intelligent Tutoring & Scaffolding

AI tutors provide on-demand hints, explanations, and corrective feedback during practice activities (speaking, writing, translation), adapting support based on learner responses.

Collaborative AI-Facilitated Tasks

Students work together on complex projects (e.g., creating a multilingual marketing proposal) using AI tools for research, drafting, and peer feedback, moderated by the teacher.

5.4. Teaching Evaluation: Continuous, Multidimensional & Objective

Replacing solely summative exams, the framework employs AI for richer assessment.

Formative Analytics

Continuous AI tracking of practice performance (e.g., speech fluency trends, writing error patterns, translation efficiency/accuracy) provides real-time dashboards for students and teachers, highlighting progress and areas needing attention.

Automated Performance Scoring

AI evaluates specific, defined aspects of performance: pronunciation accuracy (ASR), grammatical complexity/accuracy in writing (NLP), translation adequacy (comparison metrics against references). Crucially, this automates the quantifiable, freeing teacher time for complex qualitative assessment.

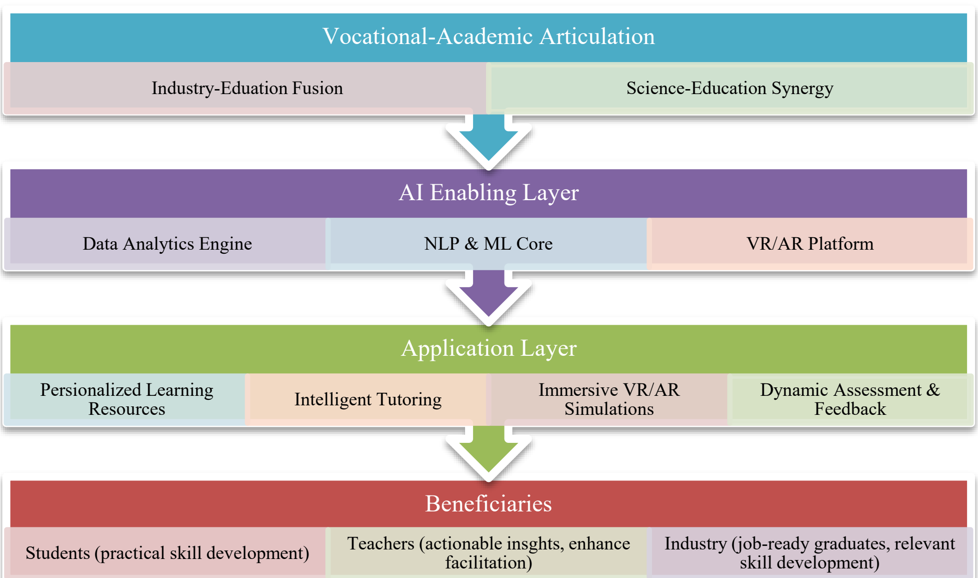
Multimodal Assessment

Combining AI-generated analytics on practice tasks with teacher evaluation of performance in immersive simulations, collaborative projects, and reflective portfolios provides a holistic competency profile.

Predictive Analytics

Identifying students at risk of falling behind based on engagement and performance trends, enabling proactive intervention.

Figure 2. Architecture of the AI-Integrated Vocational FL Practical Teaching Framework



This framework represents a systemic shift, leveraging AI not as an add-on, but as an integral component reshaping objectives, content, methodology, and assessment towards greater relevance, personalization, efficiency, and alignment with vocational outcomes.

6. Implementation and Impact: Experimental Findings

The quasi-experimental study provided robust evidence for the efficacy of the AI-integrated framework compared to traditional practical teaching methods.

6.1. Equivalence at Baseline

Independent samples t-tests confirmed no statistically significant differences ($p > .05$) between the Experimental Group (EG) and Control Group (CG) on any of the pretest measures (language skills or transversal competencies), establishing group comparability before the intervention.

6.2. Post-Intervention Outcomes

Analysis of Covariance (ANCOVA), controlling for pretest scores, revealed significant differences favoring the EG on all posttest measures (Table 3).

Table 3: I Posttest Performance Comparison (ANCOVA Results Controlling for Pretest)

Competency / Skill	EG Mean (Adj.)	CG Mean (Adj.)	F	p	Effect Size (η^2)	Interpretation
Overall Language Proficiency	82.7	75.1	28.65	< .001	.16	Large, Significant EG Advantage
Listening Comprehension	84.3	77.5	18.92	< .001	.11	Moderate-Large, Significant
Speaking Fluency & Accuracy	80.5	70.2	35.41	< .001	.19	Large, Significant EG Advantage
Reading Comprehension	85.1	80.3	8.76	.004	.06	Moderate, Significant
Writing Quality	81.9	73.8	22.17	< .001	.13	Moderate-Large, Significant
Translation Adequacy	79.6	71.4	19.83	< .001	.12	Moderate-Large, Significant
Cross-Cultural Competence	83.2	76.0	15.67	< .001	.09	Moderate, Significant
Critical Thinking (Applied)	81.0	74.5	12.45	.001	.08	Moderate, Significant

Effect sizes (η^2) ranged from moderate (.06) to large (.19), indicating educationally meaningful improvements attributable to the AI-integrated framework. The most substantial gains were observed in Speaking Fluency & Accuracy and Overall Language Proficiency, precisely the areas where traditional methods showed the weakest student satisfaction (Section 4.1) and where AI tools like intelligent speech interaction offer unique support. Significant, though slightly less pronounced, gains were also evident in Writing Quality and Translation Adequacy, bolstered by AI feedback tools. Crucially, the framework also positively impacted Cross-Cultural Competence and Critical Thinking, skills essential for vocational success but often underdeveloped in standard curricula, facilitated by the immersive VR/AR scenarios and complex, AI-supported collaborative tasks.

6.3. Student Perceptions (EG Only)

Qualitative feedback from the EG survey revealed high levels of engagement and perceived value.

Enhanced Practice Opportunities

Students overwhelmingly valued the ability to practice speaking and writing frequently with immediate AI feedback, especially outside class hours ("I could practice presentations anytime and get feedback on my pacing, not just grammar").

Personalization & Relevance

The tailored exercises and industry-aligned scenarios were frequently cited as major motivators ("Finally practicing things that feel like my future job," "The system knew I struggled with articles and gave me extra practice that actually helped").

Increased Confidence

Many reported reduced anxiety about speaking and making mistakes due to the non-judgmental AI practice environment ("Less scared to talk in class after practicing with the AI first").

VR/AR Impact

The immersive simulations were consistently rated as highly engaging and effective for learning cultural nuances and practicing high-stakes communication ("The VR meeting felt real, and I learned more about body language than from any video").
Challenges noted included occasional technical glitches, the initial learning curve for some tools, and a desire for even more nuanced feedback, particularly on pragmatic appropriateness beyond grammar/vocabulary.

7. Critical Reflections and Challenges

While the results demonstrate clear efficacy, implementation revealed significant challenges demanding ongoing attention for sustainable integration.

Infrastructure & Resource Inequity

The framework's effectiveness hinges on reliable high-speed internet, adequate computing devices, and access to specialized software/VR equipment. Disparities in institutional funding create a "digital divide," potentially exacerbating educational inequalities (Selwyn 59; Xiao 7). Cost-effective solutions and institutional commitment are essential.

Teacher Agency & Professional Development

The most critical factor. Success requires shifting teachers from solely "knowledge deliverers" to "learning designers" and "facilitators" adept at leveraging AI insights. Intensive, ongoing PD is non-negotiable, focusing not just on tool usage, but on pedagogical integration strategies, data interpretation, and ethical considerations (Hockly 318; Kessler 48). Resistance stemming from fear of displacement or increased workload must be addressed through clear communication about AI's role as an augmentative tool and support structures. "The dashboard showed me exactly where the class was struggling, so I could target my lesson – but I needed training to understand the data," noted one participating teacher.

Pedagogical Dilution & Over-Reliance

There's a risk of technology overshadowing pedagogy – using AI for its own sake rather than to serve defined learning objectives. Constant vigilance is needed to ensure AI tools enhance, rather than replace, essential human interaction, critical dialogue, and deep cultural exploration (Regan and Jesse 215; Yang et al. 12). Tasks must be designed to leverage AI's strengths (personalization, feedback, simulation) while fostering higher-order thinking.

Ethical Imperatives

Robust data governance policies protecting student privacy are paramount (GDPR/regional equivalents). Algorithmic bias in AI tools (e.g., favoring certain accents, syntactic structures) must be audited and mitigated to ensure fairness (Noble 25; Benjamin 68). The potential for AI to reinforce instrumental views of language learning (solely for employability) at the expense of humanistic and critical perspectives requires careful curriculum balancing.

Sustainability & Scalability

Maintaining and updating AI platforms, VR/AR content, and ensuring compatibility with evolving institutional systems pose long-term challenges. Scalability beyond pilot projects requires institutional buy-in, dedicated technical support, and sustainable funding models.

Table 4. Key Implementation Challenges and Mitigation Strategies

Challenge Category	Specific Issues	Proposed Mitigation Strategies
Infrastructure & Access	Cost of hardware/software; Bandwidth limitations; Device access inequality	Phased rollout; Leveraging cloud solutions; Institutional investment plans; Exploring BYOD models with support; Government/industry partnerships.
Teacher Readiness	Lack of AI literacy; Fear of displacement; Increased workload perception; Need for pedagogical redesign skills	Mandatory, ongoing PD programs; Showcasing time-saving benefits (e.g., automated grading); Creating teacher communities of practice; Redefining roles emphasizing facilitation & mentorship; Providing curriculum design support.
Pedagogical Integrity	Risk of superficial tech use; Over-reliance on AI; Neglect of human interaction & critical discourse	Clear pedagogical design principles focused on learning outcomes; Using AI for lower-level tasks to free time for higher-order activities; Intentional design of collaborative, discussion-based tasks; Teacher as critical guide.
Ethics & Equity	Data privacy concerns; Algorithmic bias; Potential for surveillance; Widening digital divide	Transparent data policies & student consent; Regular bias audits of AI tools; Strong institutional cybersecurity; Prioritizing equitable access to technology; Critical digital literacy education for students.
Sustainability	Cost of maintenance/updates; Technical support needs; Integration with existing systems	Developing open educational resources (OER) where possible; Securing dedicated technical staff/contracts; Long-term institutional budgeting; Modular design for easier updates.

8. Conclusion and Implications

This research successfully transitioned from diagnosing systemic weaknesses in vocational FL practical teaching to constructing, implementing, and empirically validating an AI-integrated framework. The results are unequivocal: a pedagogically structured integration of AI—encompassing intelligent tutoring, immersive simulations, personalized pathways, and dynamic assessment—significantly enhances student outcomes across core language competencies (listening, speaking, reading, writing, translation) and critical transversal skills (cross-cultural communication, critical thinking) compared to traditional methods. The framework directly addresses the deficiencies identified by students: irrelevance of content, passivity of methods, and inadequacy of assessment. By grounding the use of tools like VR/AR, NLP-driven feedback, and adaptive learning within the "Three Integrations" principle, it fosters stronger vocational-academic alignment, facilitates industry-education fusion through authentic scenario design, and embodies science-education synergy through data-informed pedagogy.

However, this study is not merely a validation of AI's potential; it is a critical exploration of the path towards its responsible and effective integration. The identified challenges—infrastructure gaps, the imperative for comprehensive teacher professional development, risks of pedagogical dilution, ethical dilemmas, and sustainability concerns—are not mere footnotes but central considerations for any institution embarking on this transformation. Success hinges on viewing AI not as a magic bullet, but as a powerful set of tools requiring careful pedagogical orchestration, robust support systems, and ongoing ethical scrutiny.

The implications are significant:

- For Institutions: Strategic investment in infrastructure and, crucially, in teacher development is paramount. Creating supportive ecosystems (technical support, communities of practice, time for curriculum redesign) is essential.
- For Educators: Embracing the role of learning designer and facilitator, developing AI literacy, and focusing on leveraging AI to enhance human-centric pedagogy are critical new competencies.
- For Policymakers: Funding initiatives must prioritize equitable access and teacher PD alongside technology. Ethical guidelines for AI use in education need development and enforcement.
- For Research: Longitudinal studies tracking career outcomes, deeper dives into AI's impact on specific sub-skills and motivation, exploration of effective PD models, and development of bias-mitigation strategies are crucial next steps.

The AI-integrated practical teaching system presented here offers a replicable blueprint for enhancing the quality, relevance, and effectiveness of vocational foreign language education. By navigating the challenges with foresight and commitment, vocational institutions can harness AI's power to truly equip students with the sophisticated language and intercultural competencies demanded by the globalized workforce, fulfilling the promise of the "Three Integrations" and shaping a more responsive and impactful future for vocational FL education.

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