



Digital Transformation in Specialized Foreign Language Training: A Breakthrough Solution for Improving the Quality of Vietnam's Tourism Human Resources in the Industry 4.0 Era

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Abstract:

This paper examines digital transformation in specialized foreign language training as a strategic solution for improving the quality of Vietnam's tourism human resources in the Industry 4.0 era. Adopting a qualitative conceptual and document-based approach, the study synthesizes literature on English for Specific Purposes, technology-enhanced language learning, digital literacies, AI-supported language education, tourism workforce development, and Vietnam's digital transformation policies. The analysis shows that digital transformation should not be reduced to the adoption of digital tools or online platforms. Its real value lies in restructuring specialized foreign language training around the professional communication competence required by digital tourism work. The paper identifies key dimensions of this transformation, including ESP-based curriculum design, profession-oriented digital resources, workplace simulation, AI-supported feedback, digital performance assessment, and university–enterprise collaboration. It argues that these components can help develop tourism graduates' linguistic, digital, intercultural, and professional competence, thereby contributing to Vietnam's tourism workforce quality.

Keywords: digital transformation; specialized foreign language training; English for Specific Purposes; tourism human resources; Industry 4.0

1. Introduction

Digital transformation has become a strategic requirement for education and training, reshaping how curricula are designed, delivered, assessed, and connected with professional practice. In Vietnam, this orientation has been clearly reflected in national policies on digital transformation in education, including the digital transformation program in vocational education to 2025 with orientation to 2030 and the project on strengthening information technology application and digital transformation in education and training for the period 2022–2025, with orientation to 2030 (Prime Minister of Vietnam, 2021, 2022). For the tourism sector, this policy direction is especially important because workforce quality increasingly depends on the integration of professional knowledge, foreign language competence, intercultural communication, and digital skills.

In the Industry 4.0 era, tourism activities are strongly mediated by smart tourism systems, online booking platforms, digital marketing, customer-review channels, and AI-supported services. As a result, foreign language competence is no longer an auxiliary skill but a core element of professional performance. Tourism workers need to communicate with international visitors, explain destination values, handle service situations, promote tourism products, and interact through digital platforms. Specialized foreign language training, particularly English for Specific Purposes (ESP), is therefore essential because it links language learning with learners' professional needs, target contexts, and communicative tasks (Basturkmen, 2010; Dou et al., 2023).

However, specialized foreign language training for tourism students in Vietnam still shows a gap between classroom learning and workplace requirements. In many programs, instruction remains textbook-based, grammar-oriented, and weakly connected with authentic tourism scenarios. Students may acquire tourism-related vocabulary, but they often lack opportunities to practise realistic service encounters, use digital tourism tools, receive personalized feedback, or

engage with workplace-like communication tasks. In addition, digital materials tailored to Vietnam's tourism context and university-enterprise collaboration in language training remain limited. This suggests that the issue is not simply the number of language credits, but the way specialized foreign language training is designed and implemented in response to the digital transformation of tourism.

This paper argues that digital transformation can serve as a breakthrough solution for improving the quality of Vietnam's tourism human resources only when it renews specialized foreign language training at a systemic level. Such renewal should include profession-oriented digital learning resources, simulated tourism communication environments, AI-supported feedback, diversified assessment, and stronger links between educational institutions and tourism enterprises. These directions are consistent with recent developments in technology-enhanced language learning, digital literacies, and AI-supported language education, which emphasize flexible learning, authentic communication, personalized practice, and effective participation in digital environments (Hasumi & Chiu, 2024; Li et al., 2025; Pegrum et al., 2022; Tang, 2023).

The research gap addressed in this paper lies in the limited connection among three areas: digital transformation in education, specialized foreign language training, and tourism human resource development. Discussions of digital transformation often focus on infrastructure and platforms, while foreign language training is frequently treated as a matter of curriculum content or teaching method. Meanwhile, tourism human resource development tends to emphasize employability and professional skills, with less attention to the role of digitally transformed language training in improving workforce quality. Therefore, this paper aims to clarify the role of digital transformation in specialized foreign language training for tourism education in Vietnam, identify key limitations in current practices, and propose feasible solutions for enhancing tourism human resources in the Industry 4.0 era..

2. Literature Review

2.1. ESP and Specialized Foreign Language Training

Specialized foreign language training is theoretically grounded in English for Specific Purposes (ESP), which emphasizes learners' target needs, professional contexts, and communicative tasks. Basturkmen (2010) argues that ESP course development should be based on a careful analysis of the language demands of specific academic or occupational situations. For tourism education, this means that foreign language training should prepare learners for professional tasks such as welcoming guests, introducing destinations, handling complaints, negotiating services, and communicating with international partners.

Recent studies indicate that ESP has moved beyond the teaching of technical vocabulary or fixed professional expressions. Dou et al. (2023) show that ESP has developed toward more flexible and context-sensitive approaches, while Yang et al. (2023) demonstrate that ESP research has become increasingly interdisciplinary, connecting needs analysis, professional communication, genre studies, and pedagogical innovation. These perspectives are important for tourism education because tourism communication requires not only linguistic accuracy but also intercultural awareness, service orientation, and situational flexibility.

However, traditional ESP models are not fully sufficient for the Industry 4.0 context. Tourism communication now takes place not only face to face but also through online booking systems, social media, customer-review platforms, digital marketing channels, and AI-supported services. Therefore, ESP for tourism needs to expand from workplace-based communication to digitally mediated professional communication. This shift provides the foundation for connecting specialized foreign language training with digital transformation.

2.2. Digital Transformation, Digital Literacies, and AI in Language Education

Digital transformation in language education should not be reduced to the use of online platforms or digital devices. It involves a deeper redesign of learning objectives, teaching methods, learning resources, assessment, and institutional connections. Hasumi and Chiu (2024) show that technology-enhanced language learning has become an important direction in English education, supporting more flexible, interactive, and learner-centered practices. For specialized foreign language training, such affordances are valuable because learners need authentic tasks, repeated practice, and feedback beyond the conventional classroom.

Pegrum et al. (2022) further emphasize that digital literacies are essential for contemporary language learners. These literacies include the ability to search, evaluate, create, communicate, and collaborate in digital environments. In tourism, this is particularly relevant because professional communication increasingly occurs through websites, social

media, online travel platforms, customer feedback systems, and multimedia promotional materials. Thus, specialized foreign language training should help learners communicate professionally in digital tourism environments, not merely master linguistic forms.

Recent developments in artificial intelligence have opened new possibilities for ESP-based training. Tang (2023) highlights the value of AI-supported needs analysis in ESP, while Li et al. (2025) show that generative AI can support personalized learning, automated feedback, conversational practice, and scenario-based language activities. These functions are useful for tourism students, who need opportunities to practise realistic service encounters and workplace communication. Nevertheless, AI should not be treated as an automatic solution. Without teacher guidance, pedagogical control, and contextual adaptation, AI-generated materials may be inaccurate, culturally inappropriate, or disconnected from Vietnam's tourism realities. Thus, the main challenge is not whether digital tools are available, but whether they are pedagogically aligned with the communicative demands of tourism work.

2.3. Tourism Human Resources and Vietnam's Policy Context

The quality of tourism human resources increasingly depends on the integration of professional skills, digital competence, foreign language ability, and intercultural communication. Stylianou and Pericleous (2025) emphasize that hospitality and tourism graduates need digital skills and work readiness to succeed in the contemporary labour market. This finding is highly relevant to Vietnam, where tourism competitiveness depends not only on destination resources but also on workers' ability to deliver high-quality services in international and digitally mediated environments.

Vietnam's policy framework provides an important basis for this transformation. The digital transformation program in vocational education and the project on strengthening information technology application and digital transformation in education and training both affirm the strategic role of digital transformation in improving training quality (Prime Minister of Vietnam, 2021, 2022). However, policy orientation does not automatically lead to pedagogical change. In the Vietnamese tourism education context, specialized foreign language training still faces practical constraints, including limited digital learning materials tailored to tourism occupations, insufficient simulation of real service encounters, and weak university-enterprise collaboration in designing workplace-based language tasks. These limitations make it difficult for learners to transfer classroom language knowledge into professional communication in hotels, travel agencies, tourist destinations, and online service environments.

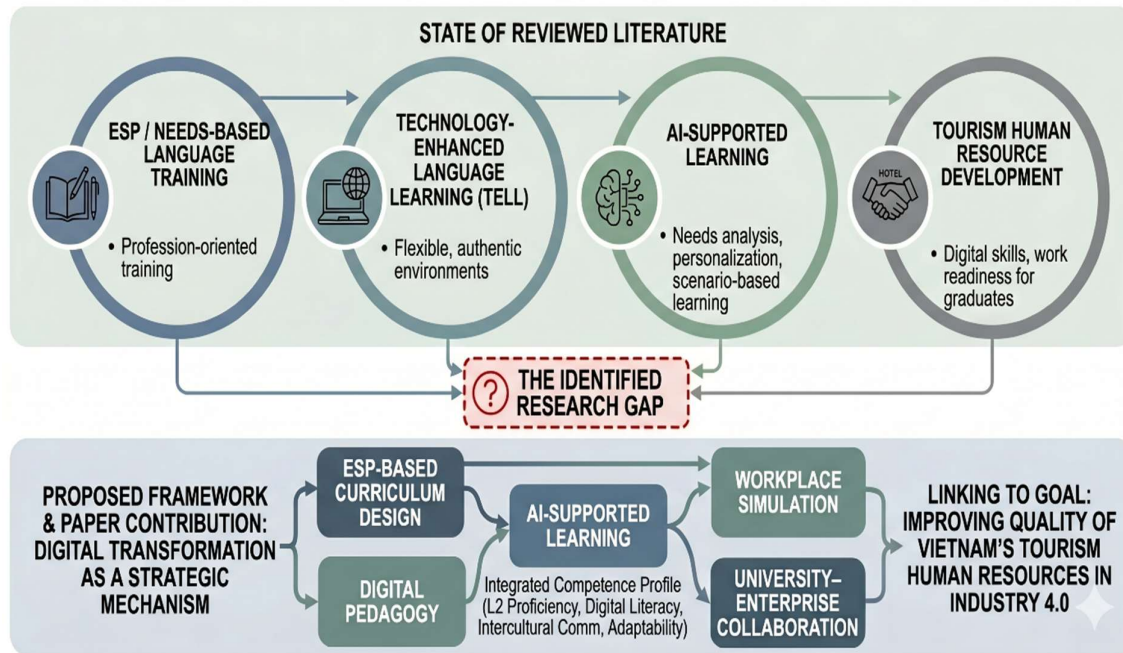
If digital transformation is limited to infrastructure investment, online course delivery, or the uploading of materials, it may have little impact on learners' professional competence. For tourism education, digital transformation must be linked directly to authentic language tasks, digital tourism tools, workplace simulations, and cooperation with enterprises. Only then can specialized foreign language training contribute meaningfully to the development of tourism human resources who are linguistically competent, digitally capable, and professionally adaptable.

2.4. Research Gap

The reviewed literature provides a strong basis for connecting ESP, digital language education, AI-supported learning, and tourism human resource development. ESP studies clarify the importance of needs-based and profession-oriented language training (Basturkmen, 2010; Dou et al., 2023; Yang et al., 2023). Research on technology-enhanced language learning and digital literacies highlights the value of flexible, authentic, and digitally mediated learning environments (Hasumi & Chiu, 2024; Pegrum et al., 2022). Studies on AI suggest new possibilities for needs analysis, personalized practice, and scenario-based learning (Li et al., 2025; Tang, 2023). Tourism research confirms the importance of digital skills and work readiness for graduates (Stylianou & Pericleous, 2025).

However, these areas are often discussed separately. ESP research has not fully addressed the digital transformation of tourism communication; technology-enhanced language learning often remains too general; and tourism human resource studies rarely examine specialized foreign language training as a direct mechanism for improving workforce quality. More importantly, existing discussions tend to view digital transformation as a set of technological tools or delivery platforms rather than as a mechanism for redesigning specialized foreign language training itself. This gap is particularly significant for Vietnam, where tourism students need an integrated competence profile that includes foreign language proficiency, digital literacy, intercultural communication, and adaptability to Industry 4.0 service environments.

Figure 1. Logical Flow from Literature Review to Identified Research Gap



Source: Compiled by the author, 2026

Therefore, this paper positions digital transformation not simply as technological support for language teaching, but as a strategic mechanism for restructuring specialized foreign language training in tourism education. Its contribution lies in linking ESP-based curriculum design, digital pedagogy, AI-supported learning, workplace simulation, and university–enterprise collaboration to the broader goal of improving the quality of Vietnam’s tourism human resources in the Industry 4.0 era.

3. Methodology

This study employs a qualitative conceptual and document-based research design. This design is appropriate because the paper does not aim to test a statistical relationship or measure the effectiveness of a specific training model. Instead, it seeks to interpret existing academic and policy evidence in order to clarify how digital transformation can renew specialized foreign language training and contribute to the improvement of Vietnam’s tourism human resources in the Industry 4.0 era.

The study draws on selected published academic works and policy documents. The academic sources were chosen because of their direct relevance to five key areas: English for Specific Purposes (ESP), specialized foreign language training, technology-enhanced language learning, AI-supported language education, and tourism workforce development. Priority was given to recent studies published between 2023 and 2025 to reflect current developments in digital language education and generative AI, while foundational works on ESP and digital literacies were also included to support the theoretical basis of the study. Vietnamese policy documents on digital transformation in education and vocational training were used to situate the discussion within the national context.

The analysis was conducted in three steps. First, the selected documents were classified according to their main focus: ESP curriculum design, digital pedagogy, AI-supported learning, tourism human resources, and Vietnam’s digital transformation policy. Second, a thematic synthesis was carried out to identify convergences and gaps across these areas, with particular attention to the mismatch between classroom-based foreign language training and the communicative demands of digital tourism work. Third, the synthesized themes were used to develop an analytical framework linking ESP-based curriculum design, profession-oriented digital learning resources, workplace simulation, AI-supported feedback, digital assessment, and university–enterprise collaboration.

This methodological approach allows the study to move beyond a descriptive discussion of technology use in language teaching. Rather than treating digital tools as isolated teaching aids, the analysis examines digital transformation as a mechanism for restructuring specialized foreign language training in tourism education. The proposed framework

therefore serves as the basis for identifying feasible solutions to enhance learners' foreign language proficiency, digital literacy, intercultural communication, and professional readiness for Vietnam's tourism sector.

4. Results & Analysis

4.1. Digital Transformation as Systemic Training Redesign

The first finding is that digital transformation in specialized foreign language training should be understood as systemic training redesign. In many educational contexts, digital transformation is still associated with visible tools: online platforms, digital slides, learning management systems, video lessons, or electronic materials. These tools may improve access and convenience, but they do not necessarily improve professional language competence. A traditional course can be moved online and still remain traditional in its logic.

For tourism education, this distinction matters. If a specialized foreign language course remains textbook-based, grammar-oriented, and weakly connected with occupational tasks, digital tools may only modernize the surface of teaching. They do not solve the deeper problem: students may know tourism vocabulary, yet still struggle to communicate in real service situations. The analytical point is therefore clear: the breakthrough value of digital transformation does not lie in technology itself. It lies in the capacity of technology to support the restructuring of training around the actual competence profile required by digital tourism work.

From an ESP perspective, such restructuring begins with target needs and professional communication tasks (Basturkmen, 2010; Dou et al., 2023). In tourism, these tasks include welcoming guests, introducing destinations, handling complaints, promoting tourism products, responding to online enquiries, and communicating with international partners. In the Industry 4.0 era, these tasks are no longer limited to face-to-face interaction. They are increasingly performed through booking platforms, review channels, social media, digital marketing tools, and AI-supported customer services. This means that ESP for tourism must move from workplace-based communication alone to digitally mediated professional communication.

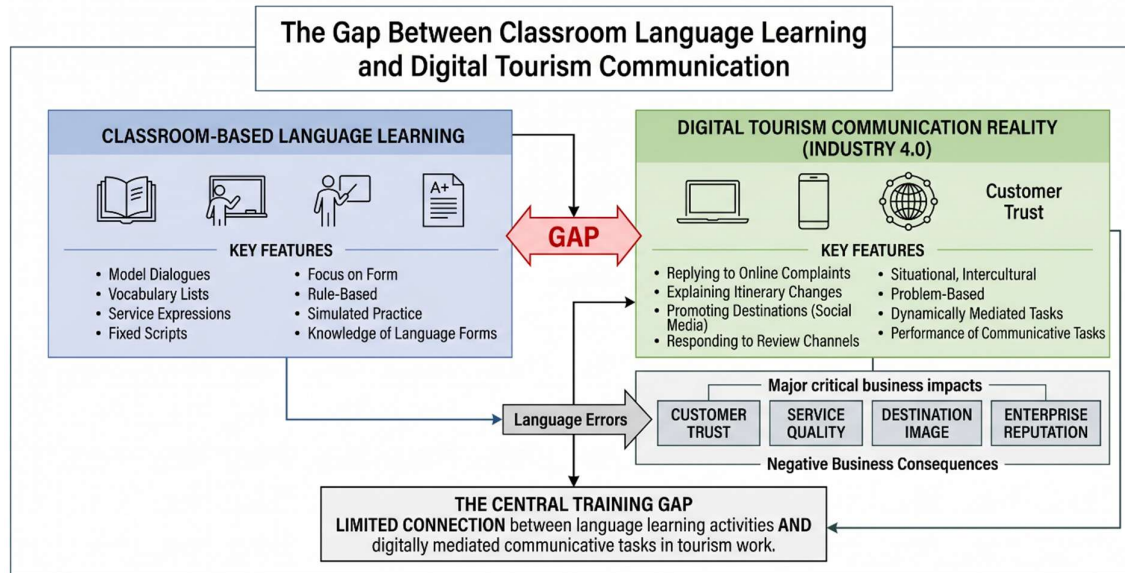
4.2. The Gap Between Classroom Language Learning and Digital Tourism Communication

The second finding concerns the gap between classroom-based language learning and the communicative reality of tourism work. Specialized foreign language training often provides learners with vocabulary, model dialogues, and service expressions. These elements are useful, but insufficient. Tourism communication is not a fixed script. It is situational, intercultural, problem-based, and increasingly digital.

This gap becomes more visible when tourism work is viewed through the lens of Industry 4.0. A hotel receptionist may need to reply to an online complaint in English; a travel consultant may need to explain itinerary changes through a digital platform; a tour operator may need to promote local destinations through bilingual social media content; a destination officer may need to respond to international visitor feedback on public review channels. In these situations, language errors are not merely linguistic problems. They may affect customer trust, service quality, destination image, and enterprise reputation.

The implication is that specialized foreign language training should be evaluated by learners' ability to perform professional communication tasks, not only by their knowledge of language forms. The analysis therefore shows that the central training gap is not simply a shortage of learning time or teaching materials. It is the limited connection between language learning activities and the digitally mediated communicative tasks of tourism work.

Fig. 2. A conceptual model of the gap between classroom language learning and digital tourism communication.



Source: Compiled by the author, 2026

4.3. Digital Literacies and AI-Supported ESP Practice

The third finding is that digital literacies and AI-supported learning should be integrated into ESP practice, but not in a mechanical way. Digital literacies are part of professional foreign language competence in tourism because workers must search, evaluate, create, communicate, and collaborate through digital media (Pegrum et al., 2022). A tourism student who can speak English in a classroom role play but cannot write an appropriate online response to an international customer is only partially prepared for work.

Artificial intelligence adds another layer to this issue. AI can support ESP training by generating scenarios, assisting needs analysis, providing formative feedback, simulating conversations, and increasing opportunities for individualized practice (Li et al., 2025; Tang, 2023). For tourism students, these functions can be valuable because classroom time is limited, while professional communication requires repetition and adjustment.

Still, AI must be treated with caution. AI-generated language may be fluent but generic. It may not reflect Vietnamese destinations, local service norms, regional tourism products, or culturally appropriate communication. If used without teacher mediation, AI may even reinforce superficial learning: students produce polished language without understanding the professional context behind it. The result is that AI should be placed inside an ESP-based pedagogical design. It is useful when it helps learners practise specific tourism tasks, receive feedback, and revise their performance. It is weak when it replaces contextual judgment.

4.4. University–Enterprise Collaboration and Vietnam-Specific Constraints

The fourth finding is that university–enterprise collaboration is a necessary condition for meaningful digital transformation. Tourism enterprises possess practical knowledge that educational institutions often lack: real customer interaction patterns, current service standards, digital tools used in daily operations, and the types of foreign language communication required in different positions. Without this input, specialized foreign language training risks being academically well organized but professionally outdated.

This issue is particularly relevant in Vietnam. Many tourism-oriented foreign language courses are still designed mainly within institutional boundaries. Digital learning materials tailored to Vietnamese tourism occupations remain limited. Workplace simulation is often insufficient. Cooperation with hotels, travel agencies, tourist destinations, and tourism service platforms has not always been deep enough to shape course objectives, learning tasks, and assessment criteria. As a result, students may complete foreign language courses without enough exposure to the communicative conditions of actual tourism work.

The analysis suggests that the Vietnamese case makes digital transformation more concrete, and also more demanding. It is not enough to provide digital infrastructure or online learning systems. Tourism education needs authentic digital

materials, enterprise-informed scenarios, and assessment tasks that reflect workplace communication. Otherwise, digital transformation may become administrative modernization rather than pedagogical change.

4.5. Analytical Framework for Tourism Human Resource Quality

The fifth finding is that digital transformation in specialized foreign language training can improve Vietnam's tourism human resources when six elements are connected in one framework: ESP-based curriculum design, profession-oriented digital resources, workplace simulation, AI-supported feedback, digital performance assessment, and university–enterprise collaboration. These elements should not be viewed as separate innovations. Their value lies in their interaction.

ESP-based curriculum design defines what learners need to do in specific tourism occupations. Profession-oriented digital resources provide realistic language input from tourism websites, online reviews, booking interfaces, destination videos, and promotional materials. Workplace simulation allows students to practise service encounters, complaint handling, tour consultation, destination presentation, and online customer communication. AI-supported feedback increases the frequency and personalization of practice, provided that teachers control accuracy and contextual relevance. Digital performance assessment shifts evaluation from memorized knowledge to communicative ability in realistic tasks. University–enterprise collaboration anchors the whole process in current industry needs.

Table 1. Analytical framework for digital transformation in tourism-oriented specialized foreign language training

Component	Role in specialized foreign language training	Digital transformation focus	Contribution to tourism human resources
ESP-based curriculum design	Defines communication tasks in target tourism occupations	Aligns learning outcomes with digital tourism work	Improves job-specific language competence
Profession-oriented digital resources	Provides authentic tourism language input	Uses websites, booking platforms, online reviews, destination videos	Builds familiarity with real tourism communication
Workplace simulation	Enables practice of service encounters and problem situations	Uses digital scenarios, role plays, virtual tasks	Develops professional communication performance
AI-supported feedback	Supports repeated and individualized practice	Provides formative feedback under teacher control	Improves accuracy, fluency, and confidence
Digital performance assessment	Evaluates task-based communication ability	Uses online responses, digital content, simulated customer interaction	Measures work readiness more realistically
University–enterprise collaboration	Connects training with industry requirements	Integrates enterprise cases, tools, and service standards	Enhances employability and industry relevance

Source: Compiled by the author, 2026

The framework indicates that digital transformation produces educational value only when its components operate as an integrated system. ESP-based curriculum design defines the professional communicative outcomes, while digital resources and workplace simulation provide the authentic conditions in which those outcomes can be practised. AI-supported feedback adds individualization, but its usefulness depends on teacher control and contextual accuracy. Digital performance assessment then verifies whether learners can transfer language knowledge into tourism-related tasks. University–enterprise collaboration functions as the external quality filter, ensuring that classroom practices remain aligned with current industry standards. In this sense, the framework shifts specialized foreign language

training from content delivery to competence formation, making it directly relevant to tourism human resource development in Vietnam's Industry 4.0 context.

5. Conclusion

This paper has argued that digital transformation becomes a breakthrough solution for Vietnam's tourism human resources only when it reshapes specialized foreign language training itself. Drawing on ESP theory, digital language education, AI-supported learning, tourism workforce studies, and Vietnam's policy context, the study shows that the core value of digital transformation lies not in technological adoption, but in restructuring training around the professional communication competence required by digital tourism work (Basturkmen, 2010; Prime Minister of Vietnam, 2021, 2022).

One clear implication is that tourism-oriented foreign language training in Vietnam can no longer remain at the level of textbook-based instruction, grammar-focused practice, and isolated classroom dialogues. Learners need to communicate with international visitors, handle service situations, produce digital tourism content, and interact through booking systems, review platforms, social media, and AI-supported services. Foreign language competence should therefore be developed as an integrated capacity combining linguistic accuracy, intercultural awareness, digital literacy, service communication, and professional adaptability (Pegrum et al., 2022; Stylianou & Pericleous, 2025).

The study further indicates that ESP-based curriculum design, profession-oriented digital resources, workplace simulation, AI-supported feedback, digital performance assessment, and university–enterprise collaboration must operate as a connected system. As a conceptual and document-based study, this paper does not measure learner outcomes or evaluate a specific institutional model. Future research may test digitally transformed ESP training models, assess learner performance, or examine the perspectives of students, lecturers, and tourism enterprises. Its main contribution is to frame digital transformation not as a technological add-on, but as a strategic mechanism for building the linguistic, digital, intercultural, and professional competence of Vietnam's tourism workforce in the Industry 4.0 era.

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