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Interest in study abroad among underrepresented students: Insights from the case of Japan

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Abstract

This feature article aims to unpack the varying levels of interest in studying abroad among male students in science fields, a group often overlooked in the existing literature. Building on earlier empirical work that analyzed survey data from Japanese students across all majors and genders, this study draws on a subset of that dataset to examine whether male students in science programs display distinct patterns of interest. Ordered logit models reveal a similar pattern with minor differences. As in the previous work, factors such as academic global experiences, career prospects, and anticipated benefits significantly increase the interest of men in STEM degrees. At the same time, barriers to studying abroad have no significant bearing on this group's level of interest, suggesting a positive outlook toward international learning when appropriate recruitment strategies are employed.

Keywords Japan; study abroad; male, STEM students; gender gap; global learning

1. Introduction

Data and empirical evidence from multiple countries and prior research on international education exhibit a clear pattern: women are more likely than men to engage in study abroad (Di Pietro, 2022a; Di Pietro, 2022b; Pruitt, 2021; Rosenbaum et al., 2025; Sponseller, 2021). Existing research has explained the gender gap for two primary reasons. The first is differences in particular ways of thinking about culture and diversity. Studies show that women are more likely to be interested in cultural understanding, which increases the likelihood of their going abroad or intending to (Miller, 2017; Stroud, 2010; Vernon et al., 2017). Previous studies also suggest that the gender gap is partly explained by differences in students' choice of majors. Women are more frequently represented in the humanities, social sciences, and languages—fields where intercultural understanding is often emphasized in the curriculum. Men are more commonly found in STEM disciplines, where stricter program requirements tend to limit opportunities for international experiences (Loberg, 2012; Sponseller, 2021; Stroud, 2010; Walker, 2015).

This trend, of course, does not mean that male students especially in STEM fields lack interest in study abroad. In fact, some studies point out that surveys used in research tend to disproportionately include students who are already interested in studying abroad (Sponseller, 2021). The surveys are also often conducted in cultural and language learning classes, which leads to a higher proportion of female participants (Rosenbaum et al., 2025). As a result, the voices of male students, especially

those in the science fields, may not be as fully captured as those of female students. To address this concern, Rosenbaum et al. (2025) conducted an empirical analysis using survey data from over 640 Japanese students across various majors and showed the complex reality behind the differing levels of interest in studying abroad. They found that most male respondents appeared to have a certain level of interest, although empirical evidence indicates that female students were more likely to report the highest level of interest, while male students were more likely than female students to report little or no interest. Miller's work (2017), based on a male focus group in the United States, also highlights the variation in men's attitudes toward studying abroad. Some are interested, while others cite reasons for not participating, such as already receiving intercultural experience at home or being committed to study, sports, family, and friends.

This feature article aims to investigate the level of interest in studying abroad among male STEM students, a group underrepresented in existing research. Using a subset of Japanese student data developed by Rosenbaum et al. (2025), it examines factors influencing their interest and considers whether their patterns differ from those observed in studies that include female students and other majors. Ultimately, this paper seeks to offer suggestions, where appropriate, for recruitment and programs tailored to students who are less emphasized in study abroad research.

2. Research Design

According to Rosenbaum et al. (2025), the dataset was developed in the summer of 2023, when they surveyed over 640 students at a Japanese university regarding their interests in study abroad programs as well as intercultural programs on campus. The survey also collected information on gender, major, academic status, previous global experience, future career prospects, expected benefits, and concerns about studying abroad.¹ Participants were recruited through email invitations and classroom visits with approval. In total, the original dataset included 20 students from the School of Agricultural Science, 358 from the School of Engineering, 5 from the School of Medicine, 22 from the School of Science, 9 from the School of Informatics, 25 from the School of Economics, 25 from the School of Law, 159 from the School of Education and Human Development, and 39 from the School of Humanities. Among the respondents, there were 170 freshmen, 205 sophomores, 230 juniors, 30 seniors, and 27 students above the senior level. This research uses a subset of the dataset focusing on male students in STEM fields, who tend to be underrepresented in studies that often rely on small survey samples.

The dependent variable for this analysis represents students' level of interest in studying abroad. The values range from 1 to 4, where 1 = not at all interested, 2 = somewhat uninterested, 3 = somewhat interested, and 4 = very much interested. Approximately 13% of male students in STEM fields reported being not at all interested (=1), and 25% of them reported that they are somewhat uninterested (=2). About 40% of students indicated some level of interest in study abroad programs (=3), and 22% of students reported the highest level of interest in such learning (=4). The analysis then incorporates various independent variables, such as students' past experience, expected benefits, and concerns about studying abroad, to examine which factors influence the varying level of interest among this group of students.

Prior research suggests that exposure to global experiences, whether gained abroad or within one's home country, plays an important role in shaping students' interest in global learning and their eventual choices regarding study abroad (Di Pietro, 2022; Hansen & Loucky, 2010; Pruitt, 2021; Walker, 2015). To capture this dimension, the analysis incorporates three explanatory variables representing whether students have 1) lived or traveled overseas, 2) participated in a conventional study abroad program, and 3) taken part in intercultural exchange activities within Japan. Each of these variables is coded dichotomously, with 0 indicating no experience and indicating prior experience.

Students' expectations for the future also influence their outlook. Research has shown that many students perceive study abroad as a "worthwhile investment" that can open up career opportunities (Hansen and Loucky, 2010, p.40). In the Japanese context, the growing demand for graduates with foreign language abilities has further elevated the importance of study abroad and other

intercultural opportunities among college students (Rosenbaum, 2024; Howard, 2014). To capture this factor, the analysis includes a "career prospect" variable measured on a four-point scale. A score of 4 indicates that students regard study abroad as "very important" for their career after graduation, whereas values of 3, 2, and 1 represent "somewhat important," "somewhat unimportant," and "not at all important." Both the experience-based measures and the future-oriented variable are expected to be positively associated with students' interest in study abroad and intercultural exchange. In Rosenbaum et al.'s (2025) analysis of students across all genders and majors, the career prospect variable especially emerged as one of the most influential factors increasing interest in studying abroad.

The analysis includes several measures of barriers to studying abroad as well as expected benefits. Since these factors have been central to academic discussions of students' decisions about overseas learning, the study employs multiple variables to examine how students weigh the costs and benefits when forming their interest in global learning. The existing literature argues that barriers are among the most critical influences shaping students' willingness to participate (Nowlan & Wang 2018; Rosenbaum et al., 2025; Walker, 2015). If these obstacles are not overcome, students are unlikely to proceed in considering overseas programs (Loberg, 2012). Such barriers range from financial costs, curriculum constraints, fears of delayed graduation, separation anxiety, and insufficient information, to perceptions that studying abroad is not essential. Rosenbaum et al.'s original data also highlights the wide range of concerns expressed by Japanese students. Among the 95% of respondents who reported at least one concern, the most common was financial burden ($n = 568$). Other frequently cited issues were lack of confidence in foreign language ability ($n = 388$), tight schedules ($n = 380$), lengthy procedures ($n = 308$), insufficient knowledge about available programs ($n = 248$), curriculum restrictions ($n = 238$), and safety concerns ($n = 225$). Their empirical test confirmed that the greater the number of concerns students held, the lower their interest in studying abroad. This analysis follows that approach and uses the number of concerns expressed by respondents to represent the scale of barriers to studying abroad. In addition, a dichotomous variable is tested to assess whether students specifically reported financial concerns.

A set of independent variables is included to reflect the anticipated benefits of studying abroad, another element emphasized in earlier research (Iwaki, 2020; Rosenbaum et al., 2025; Sponseller, 2021; Walker, 2015). Like barriers, anticipated benefits can be diverse. These include opportunities for personal growth, developing or improving foreign language skills, cultivating cross-cultural interests, stepping away from the home environment, career advancement, gaining independence, and leisure (Sponseller, 2021). In Rosenbaum et al.'s

¹ In their original survey (Rosenbaum et al., 2025), students were given four options to choose from (male, female, other, or prefer not to answer). From the completed surveys, 414 students identified as male, 239 as female, and 9 selected "prefer not to answer." For

consistency with prior research that relies on gender or sex as a binary measure, they developed a new variable that excluded the "prefer not to answer" category.

survey, Japanese students also reported a wide range of anticipated benefits, including earning academic credit (n = 459), interacting with local peers (n = 406), improving foreign language proficiency (n = 353), attending research conferences or gaining research opportunities (n = 349), securing internships or career-related experiences (n = 336), and exploring different cultures and histories (n = 316). Based on these responses, the authors generated a variable counting the number of benefits each student expected. They also created a specific measure for the most frequently cited benefit—earning credit hours—to determine whether it independently affected interest levels. Their analysis of all majors and both male and female students showed that the greater the number of benefits, the higher the likelihood of interest in studying abroad. However, the most cited anticipated benefit (earning academic credits) alone did not influence interest levels. Building on this framework, this study not only tests these variables but also introduces two additional measures to further examine the impact of anticipated benefits on men in STEM: one indicates whether students

view improving foreign language skills as a benefit (yes or no), and the other, measured on a four-point scale, captures the length of time they would ideally like to study abroad (1 = within two weeks, 2 = three weeks to one month, 3 = a semester or two to three months, 4 = more than half a year).

3. Results and Discussion

Table 1 presents the results of two ordered logit models estimating the effects of independent variables on the varying levels of interest in studying abroad among male STEM students.² Model 1 examines the effects of students' prior experiences, career prospects, specific anticipated benefits, and the most commonly cited concern. Model 2 instead evaluates the overall impact of anticipated benefits and concerns by using variables that count the total number of benefits or concerns expressed by each respondent.

Table 1. Ordered Logit Model Results

Variables	Model 1	Model 2
Prior Experience Overseas	-.06 (.24)	.06 (.23)
Prior Study Abroad Experience	1.25** (.35)	1.08** (.36)
Prior Activity on Campus	1.36** .26	1.23** .25
Career Prospect	1.78** .18	1.74** .18
Financial Concern	-.55 (.50)	
Anticipated Benefits: Language Skill	.49* (.23)	
Anticipated Benefits: Academic Credit	-.06 (.11)	
Desired Length of Study Abroad	.49** .11	
The Number of Anticipated Benefits		.21** (.06)
The Number of Concerns		-1.11 (.06)
Observations	317	330
Pseudo R-squared	.25	.24

Standard errors in parentheses: **p<.01, * p<.05

Regarding experience, the estimated coefficients for students' prior study abroad and campus-based intercultural activities are positive and statistically significant at the 99% confidence level in both models. In contrast, the coefficient for general overseas experience (e.g., family trips) is not statistically significant in either Model 1 or Model 2. This indicates that international academic experiences, rather than general exposure abroad, are the factors that cultivate students' interest in study abroad. Both models also show that students'

perceptions of global learning in relation to their future careers are positive and significant at the 99% level. When students view global experience as an important part of career development, male STEM students are more likely to show interest in study abroad programs.

The estimated coefficient for financial concern is not statistically significant, nor is the estimated coefficient for the anticipated benefit of earning academic credit. By contrast, the anticipated benefit of improving language skills is positive and significant at the 95% level, and

² The Brant test and chi-square statistic showed no violation of the

proportional odds assumptions in these models.

desired program length is positive and significant at the 99% level. These findings suggest that, for male STEM students, anticipated benefits matter more than financial concerns when shaping interest in studying abroad, although cost may resurface as a factor when they ultimately decide whether to participate. While academic credit carries little weight, opportunities for language skill development and longer programs are especially valued, suggesting that students are willing to extend their academic timelines if provided meaningful opportunities abroad. Model 2 further supports this conclusion. The estimated coefficient for the number of anticipated benefits is positive and significant at the 99% level, while the coefficient for the number of concerns is not significant at either the 95% or 99% level. This indicates that recognizing more benefits strengthens students' interest in studying abroad, while noting more barriers does little to diminish it.

To understand the magnitude of these effects, it is useful to examine the predicted probabilities. Figures from both models illustrate how these probabilities change depending on the values of the independent variables. Figure 1 shows predicted probabilities by prior study abroad experience, while Figure 2 shows them by campus-based intercultural activity. Figure 3 depicts probabilities by career perceptions, and Figure 4 illustrates them by desired program length. These figures are derived from Model 1. Figure 5, based on Model 2, displays predicted probabilities by the number of anticipated benefits. In all figures, the Y-axis represents predicted probabilities, and the X-axis shows values of the independent variables.

The probability analysis highlights several key patterns. First, male STEM students with prior study abroad or campus-based intercultural experiences are less likely to be uninterested and more likely to express strong interest compared to peers without such experiences. The probability of being only somewhat interested is similar across groups, but the contrast is greatest at the high and low ends, indicating that prior exposure shifts students from disinterest toward enthusiasm. Second, students' career perceptions demonstrate a particularly strong influence. As Figure 3 shows, when global learning is seen as having little or no career value, strong interest nearly disappears, and disinterest rises sharply. By contrast, when it is seen as career-relevant, strong interest increases significantly. Third, preferred program duration also shapes interest. Figure 4 indicates that while being somewhat interested is the most common response across all durations, students who consider one- to two-month or longer-than-six-month programs are more likely to express strong interest compared to those preferring very short stays. Finally, anticipated benefits further differentiate interest. Figure 5 shows that when students see no benefits, interest levels cluster around "somewhat interested," with low probabilities of strong enthusiasm. In contrast, when multiple benefits are anticipated, strong interest rises sharply while disinterest becomes rare. This suggests that expectations of concrete academic or personal gains play a pivotal role in boosting enthusiasm for study abroad.

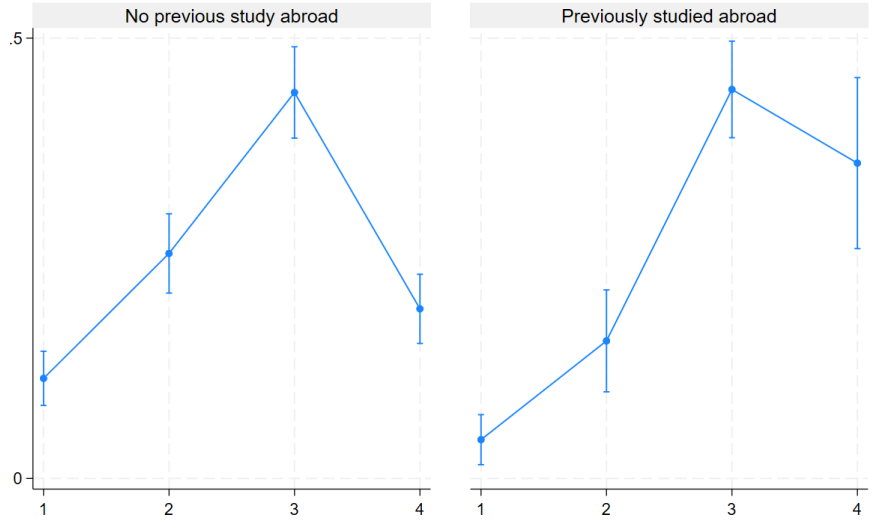


Figure 1. Predicted probabilities based on study abroad experience

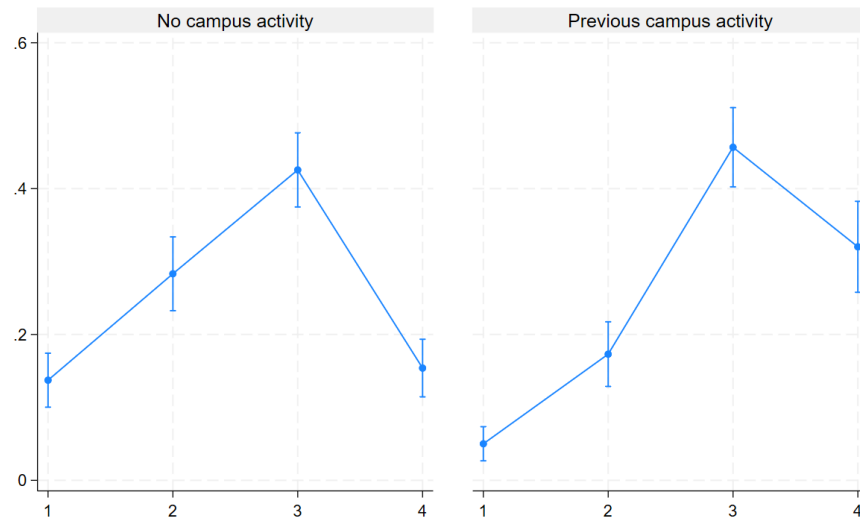


Figure 2. Predicted probabilities based on campus activity

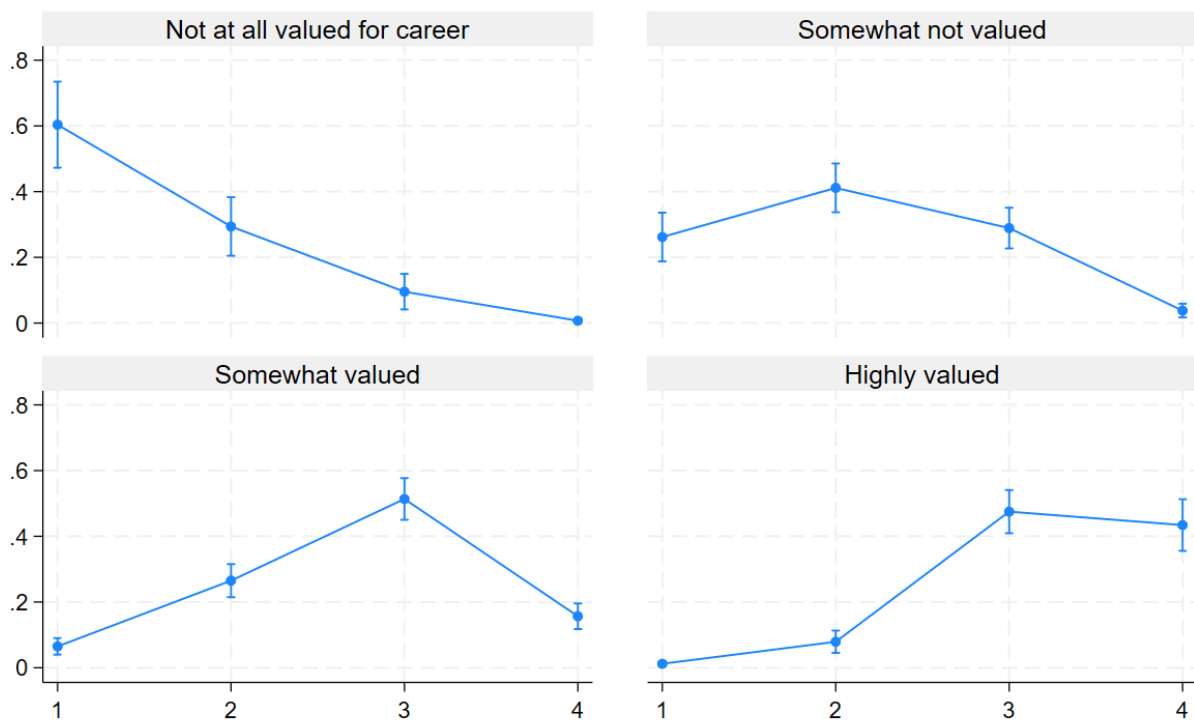


Figure 3. Predicted probabilities based on students' perception of global learning in career

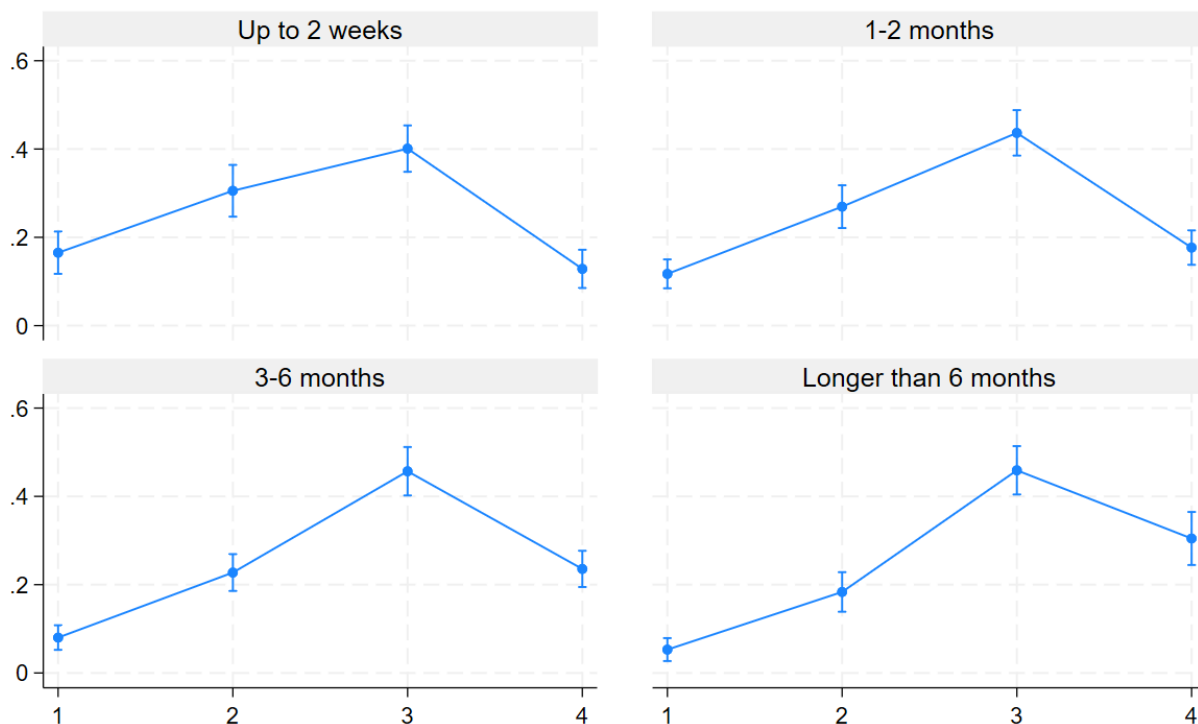


Figure 4. Predicted probabilities based on students' desired length of learning abroad

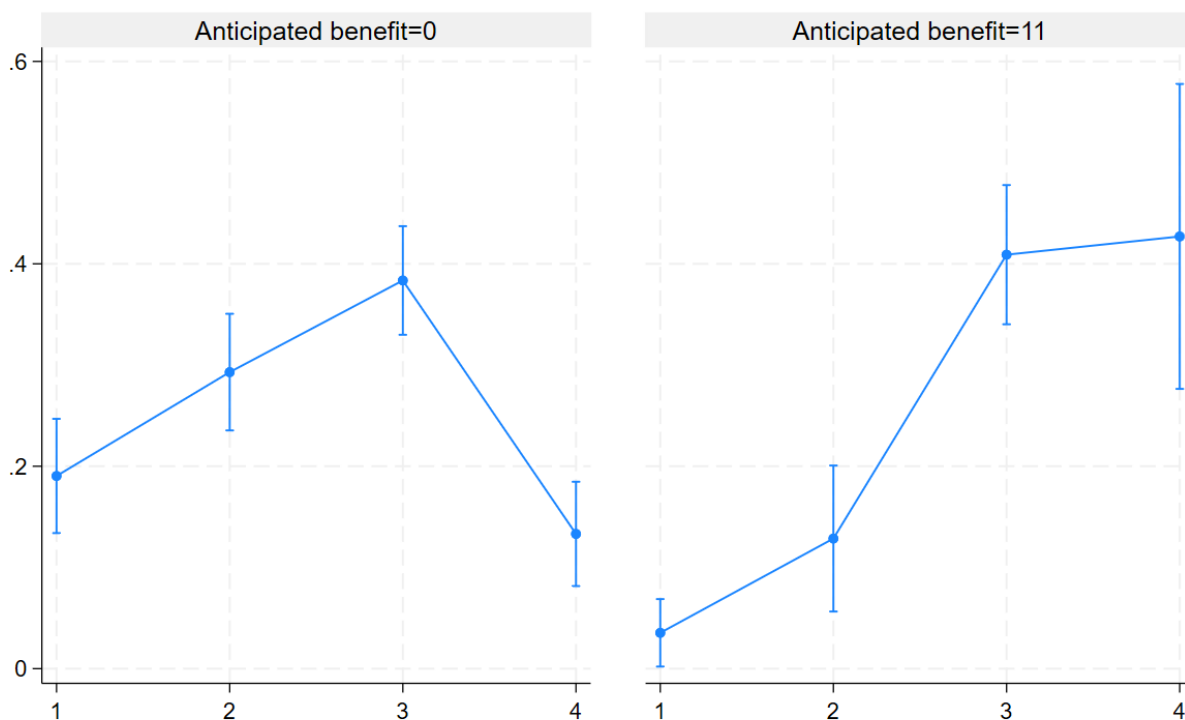


Figure 5. Predicted probabilities based on the number of anticipated benefits

The final and most important question is whether these findings about male science students differ from those identified in the broader sample of students which included both women and men across all majors. In terms of prior experience, the findings are consistent with those from the general sample: general overseas experience does not significantly affect interest, while specific academic experiences, such as studying abroad or participation in

campus-based intercultural exchange, are associated with varying levels of interest. Career prospects also play an important role for both the overall group and the subset of male science students. The critical difference, however, lies in how barriers are perceived. In the general study, obstacles to studying abroad emerged as some of the most influential factors reducing interest. By contrast, in the STEM male subsample, concerns about barriers are not

statistically significant, whereas anticipated benefits are highly influential in shaping their interest. This suggests that, for male science students, expectations of concrete gains are more decisive than worries about potential difficulties in determining their enthusiasm for global learning.

4. Concluding Remarks

This article has highlighted the factors shaping male STEM students' interest in study abroad, a group often underrepresented in existing research. The analysis shows that anticipated benefits—particularly language development, program length, and career prospects—carry greater weight than perceived barriers in shaping interest for this group. Unlike the broader student sample that included women and all majors, where financial concerns and other obstacles were influential even in the initial stage of interest formation, male STEM students show little sensitivity to such barriers at the outset. Their attraction to global learning is driven primarily by expectations of concrete academic and professional gains.

These findings suggest several directions for practice. Efforts to recruit male STEM students into study abroad programs may be most effective when they emphasize tangible benefits, such as language skill development, research opportunities, and career advancement, rather than framing programs primarily as cultural experiences. Highlighting how global learning fits into career trajectories, offering flexible program lengths that align with students' academic schedules, and providing on-campus intercultural opportunities as entry points can also help build stronger interest. By focusing on the benefits that resonate most with male science students, institutions can broaden participation and ensure that global learning opportunities are accessible to a wider range of students.

This study is not without limitations. While the purpose of this feature article was to highlight a particular perspective as a follow-up to the broader data analysis—and it has done so—drawing on survey data from a single Japanese university inevitably limits the generalizability of the findings. Cross-national studies suggest similar patterns, yet subtle differences and nuances may well stem from the cultural and academic environments of students in specific countries.

Another limitation is that the analysis focuses on stated interests rather than actual participation. Future research could investigate how these expressed interests translate into concrete decisions to study abroad. Cost considerations, which appear less influential at the initial stage of interest formation, may resurface once male students in the science fields move from curiosity to actual commitment. At that point, strategies addressing financial concerns and practical feasibility become especially critical.

Finally, although this study provides important insights into male STEM students, it does not fully capture the diversity within STEM disciplines or across different institutional settings. Future work could explore these dimensions in more detail to deepen our understanding of how student backgrounds shape interest in global learning opportunities.

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References

- Di Pietro, G. (2022a). Does an international academic environment promote study abroad? *Journal of Studies in International Education*, 26(1), 3–20. <https://doi.org/10.1177/1028315320913260>
- Di Pietro, G. (2022b). Changes in the study abroad gender gap: A European cross-country analysis. *Higher Education Quarterly*, 76(2), 436–459. <https://doi.org/10.1111/hequ.12316>
- Hansen, J., & Loucky, J. (2010). Global understanding through international study: Learning from experience at an American university. *Journal of Osaka Jogakuin College*, 40, 37–69.
- Howard, L. (2014). Why study abroad? An analysis of Kobe Kaisei students' rationale for studying abroad. *Kobe Kaisei Review*, 53, 11–15.
- Iwaki, N. (2020). Determinants of Japanese students' decision to engage in study abroad. *Nagoya Journal of Higher Education*, 20, 413–424.
- Loberg, L. (2012). Exploring factors that lead to participation in study abroad [Doctoral dissertation, University of California, Los Angeles]. *eScholarship*. <https://escholarship.org/uc/item/6jg575sg>
- Miller, S. (2017). Exploring men's motivations for studying, and not studying, abroad. *Academic Affairs Publications*, 5. College of Saint Benedict and Saint John's University. https://digitalcommons.csbsju.edu/academic_pubs/5
- Nowlan, A., & Wang, R. (2018). Study abroad self-selection amongst first-year Japanese university students. *Journal of International and Comparative Education*, 7(2), 65–81. <https://doi.org/10.14425/jice.2018.7.2.65>
- Pruitt, W. (2021). Academic experiences that impact the study abroad propensity of college students. *International Research and Review: Journal of Phi Beta Delta*, 11(1), 5–24.
- Rosenbaum, C. Y. (2024). When English education isn't what it seems: Outcomes from a pilot study in Japan. *Journal of Language Teaching*, 4(3), 11–16. <https://doi.org/10.54475/jlt.2024.016>
- Rosenbaum, C. Y., Iwaki, N., & Tatsumi, Y. (2025). What affects Japanese students' initial interests in studying abroad? Empirical analysis on the complex nature of determinants. *Discover Education*, 4, 90. <https://doi.org/10.1007/s44217-025-00467-w>
- Sponseller, A. C. (2021). Examining motivation to study abroad among Japanese undergraduates. *Journal of Osaka Jogakuin College*, 51, 255–279.
- Stroud, A. H. (2010). Who plans (not) to study abroad? An examination of U.S. student intent. *Journal of Studies in International Education*, 14(5), 491–507. <https://doi.org/10.1177/1028315309357942>
- Vernon, A., Moos, C., & Loncarich, H. (2017). Student

expectancy and barriers to study abroad. *Academy of Educational Leadership Journal*, 21(1), 1–9.

Walker, J. (2015). Student perception of barriers to study abroad (Honors thesis No. 1890). *University of Central Florida STARS*.

<https://stars.library.ucf.edu/honorstheses1990-2015/1890>

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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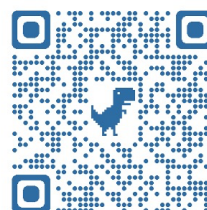
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Design and implementation of the SMART learning support services model in digital EFL classrooms at a vocational university

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Abstract

With information technology deeply integrated into modern education, learning support services are increasingly recognised as crucial for facilitating digital transformation in English-as-a-foreign-language (EFL) classrooms. These digitally-enabled services play a vital role in engaging students across online and in-class settings, providing smart learning environments, enabling interactive instructional activities, and fostering lifelong learning capacities. Drawing on the theories of learning support services and smart education, this study presents a SMART learning support services model, designed to address the specific teaching and learning needs of higher vocational EFL education in the digital era. The SMART model comprises five key components: 'S' for Space, 'M' for Methodology, 'A' for Assessment, 'R' for Resources, and 'T' for Teacher development. Taking a vocational university in China as an example, this model was implemented to support EFL teaching and learning in vocational higher education institution through the integration of digital learning spaces, constructivist blended teaching methodologies, technology-assisted formative and summative assessment approaches, digital learning resources, and enhanced teacher digital literacy and pedagogical competencies.

Keywords SMART model, learning support services, smart education, EFL education, higher vocational education

1. Introduction

As digital technologies become fundamental to contemporary educational practices, English-as-a-foreign-language (EFL) education has entered the digital era, with classroom interactions and instructional methods undergoing dramatic transformation. While traditional educational contexts featured one-way knowledge transfer from teachers to students in physical classrooms, EFL education in the digital era has been redefined by flexible learning environments, interactive teaching strategies, and innovative assessment methods powered by information technology, particularly artificial intelligence (Wen, 2024). This shift is driven by the societal demands for job-qualified graduates and enabled through technology integration (Gu et al., 2021). These changes necessitate corresponding adjustments in how language teaching and learning are organised and supported, calling for learning support services aligned with emerging student needs. Currently, higher vocational EFL education in China has witnessed curricular reforms and pedagogical innovations powered by digital platforms and specialised software incorporating learning management and student response systems (Cui, 2023). However, the design of

contextually appropriate EFL learning support mechanisms remains under-explored in the literature.

This study presents a SMART learning support services model designed to guide the digital transformation of higher vocational EFL education. Starting with an introduction to the theoretical context of learning support services, the paper outlines the construction of the SMART learning support services model, which is informed by the smart education theory. The model provides a structured framework to enhance EFL learning by addressing the digital learning spaces where education occurs, the pedagogical methodologies employed by teachers, the implementation of technology-assisted assessment, the digital learning resources available, and the development of teachers' digital literacy and pedagogical competencies. To validate its practical application, the model was implemented at a Chinese vocational university, demonstrating the significant role learning support services play in facilitating effective EFL education in the digital era.

2. The Theoretical Context of Learning Support Services

This research is supported by the following grants: Special Foreign Language Project of the Guangdong Provincial Philosophy and Social Sciences Planning in 2023 (Grant No.: GD23WZXCo2-17), 2024 Shenzhen Philosophy and Social Science Planning Project (Grant No.: SZ2024B037), the 12th China Foreign Language Education Fund (Grant No.: ZGWYJYJJ12A084), and Phase III Program of the Economic and Social Development Research Institute at Shenzhen Polytechnic University (Grant No.: 6025310002Q).

The concept of learning support services originated and developed from distance teaching and learning practices (Ding, 2002). It referred to the comprehensive range of informational, resource-based, personnel, and infrastructural assistance provided to students throughout their learning process (Dai et al., 2021). In recent decades, learning support services have gained widespread recognition alongside the increasingly close integration of evolving technologies and education (Wu et al., 2017). Research on the construction of learning support services models has primarily focused on distance education practices and subject-specific teaching in blended learning contexts (Wang et al., 2019). For example, Shi and Cheng (2013) analysed challenges in open and distance education, proposing a five-dimensional framework, including teaching staff, instructional resources, pedagogical processes, educational facilities, and administrative support, to design learning support systems. Bai et al. (2018) constructed a four-dimensional model, including personnel, resources, interactive activities, and assessment support, for blended learning, applying it to various courses and deriving strategic insights for support services. Li and Wu (2024) developed an intelligent learning space model to facilitate learning, integrating virtual and physical environments with modern technologies, which ensured that students activated prior knowledge, actively processed learning content, and enhanced problem-solving skills.

In the EFL context, researchers have investigated the incorporation of learning support services into EFL teaching in the digital era, with focused attention on pedagogical innovations arising from instructional practices. These include the deployment of digital learning platforms, strategies for fostering student autonomy, and integration of virtual and physical resources. For instance, Gong (2024) conducted a comparative study of two intelligent education platforms implemented in higher vocational EFL classes, revealing that platform infrastructures significantly influenced the effectiveness of instructional interactions, particularly in learning resource development and sharing, the organisation of group work, and the delivery of formative and summative assessment. Song (2020) investigated how a public platform on WeChat, China's predominant social media application, was designed to facilitate self-directed learning among adult EFL learners, revealing that digitally delivered resources, combined with teacher guidance, feedback, and progress monitoring, effectively stimulated students' motivation for English acquisition and strengthened their self-regulated learning competencies.

Studies have also been conducted to explore how digital transformation in EFL classrooms can be achieved through systematic learning support frameworks. Yang (2022) established a four-dimensional learning support framework for higher vocational EFL instruction in a SPOC-based blended learning environment, incorporating support from teaching personnel, learning resources, online and in-class interactions, as well as classroom assessment. Gao and Shao (2024, p. 10) argued that digital

transformation in EFL teaching should embody five characteristics: "self-directed, motivated, adaptive, resources-enriched, and technology-embedded", from which they derived the 'SMART' learning path. This framework adopted a more learner-centred approach, incorporating generative activity design, intelligent assessment systems, multi-modal teaching resources, and learning support technologies. Both frameworks made valuable contributions to understanding how learning support services enhanced pedagogical procedures in a digital context. However, their scope left critical gaps by insufficiently addressing how digital spaces could drive systemic digital transformation of teaching environments and overlooked the role of teacher development, both of which served as vital roles in building a sustainable, smart EFL educational context. These gaps necessitate a more comprehensive model, prompting the present study to introduce the SMART learning support services model.

3. The Design of the SMART Learning Support Services Model

The SMART learning support services model is informed by the smart education theory proposed by Gu et al. (2021), who argued that the integration of digital technology and education is more than simply adopting digital tools in classroom teaching – it requires the building of an educational ecosystem that enables teachers to teach efficiently using innovative pedagogy and assessment, and empowers students to learn effectively through diverse learning tools and materials (Zhu, 2018). Such a smart education environment requires modern learning spaces supported by technologies that cater to students' educational needs and offer abundant accessible digital resources and tools; teaching methodologies that provide students with access to learning opportunities anytime, anywhere, and on-demand; assessment approaches that intelligently assess and provide feedback on learning processes; and a culture that fosters students who possess competence in human-machine collaboration, uphold sound values, and exhibit qualities in action, thinking, and creativity (Zhu & Wei, 2017).

Drawing on this theoretical perspective, the SMART learning support services model comprises five components that address the essential keys to the digital transformation of smart EFL educational contexts: 'S' for Space, which denotes the online and in-class digital spaces where learning takes place; 'M' for Methodology, which represents the constructivist blended teaching methodologies that facilitate language acquisitions in digital environments; 'A' for Assessment, which signifies technology-assisted assessment approaches; 'R' for Resources, which highlights accessible digital learning resources; and 'T' for Teacher development, which stresses the enhancement of teacher digital literacy and pedagogical competencies (see Figure 1). These components are further elaborated in the following sections.

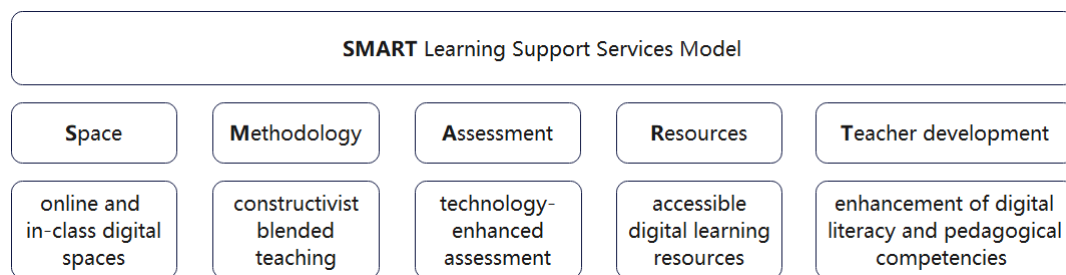


Figure 1. The SMART learning support services model

3.1. Space

As Jin et al. (2022) pointed out, digital spaces have emerged as vital pillars underpinning effective teaching and learning in the digital era. These spaces are anchored in smart education platforms, which teachers and students can use both in the classroom to support instructional dialogues and after class to facilitate online autonomous learning (Zhao et al., 2022). They could assist teachers in identifying students' learning needs and adapting to their diverse requirements, and offer digital environments where students can access a broader range of educational resources and engage in personalised learning experiences (Hu et al., 2016; Yan & Li, 2024). The effects of these functions have been confirmed in recent studies, where various online platforms and apps have been found to assist students in understanding and engaging with academic content, boost group collaborations, and provide practical feedback (Bersamin et al., 2024; Huang et al., 2021; Yeo et al., 2025). Jin et al. (2022) noted that digital spaces fulfil multiple roles, including the provision of digital courses, assessment support, high-quality digital learning resources, and training materials for teacher development. This indicates that digital spaces serve as the foundation for digital transformation in EFL classrooms, shaping teaching and assessment methods, providing classroom materials, and determining whether teachers have the conditions to develop their digital literacy and pedagogical competency in digital educational contexts.

3.2. Methodology

Digital learning environments mark a shift in teaching methodologies, moving from the traditional “sage on the stage” model toward a “guide from the side” approach (Enwereji & Van Rooyen, 2025, p. 76). This transformation reflects constructivist views of learning, which consider that learning happens in two dimensions: cognitive processes, where individuals develop mental frameworks to interpret the knowledge they receive, and contextual actions, where they engage in collaborative efforts within real-world tasks (James, 2008). Among diverse teaching methodologies, blended teaching, which integrates the strengths of real-time interactions with the flexibility of online settings, has emerged as a methodology that reflects the constructivist call and meets teachers' instructional needs in a digital environment (Heilporn et al., 2021). Such an approach contributes to cultivating students with skills in learning, analysing, creating, collaborating, communicating, and solving real-life complex problems through assigning optimally tailored learning tasks and activities (Gu et al., 2021). For vocational EFL contexts,

workplace-related communication activities function as student-centred tasks, which help students recognise the practical relevance of their learning and strengthen intrinsic motivation. Recent studies have explored constructivist approaches to blended EFL teaching. For example, Zhang (2024) reviewed relevant literature in the recent decade about AI applications in mobile-assisted language learning, discovering that AI was utilised in EFL classrooms to adapt content to students' needs, facilitate self-directed study, and foster immersive social contexts for language practices, enabling learning through social interaction and situated contexts. Nusong and Watanapokakul (2025) examined blended learning in Thai EFL classrooms, where self-paced online activities were structured to encourage students to construct knowledge through active participation, while in-class discussions promoted peer collaboration, allowing students to seek feedback and co-construct meaning. These pedagogical methodologies enable students to develop their self-monitoring, self-regulated, and collaborative skills, which are not only beneficial in their EFL learning, but also instrumental in fostering their life-long learning capacities.

3.3. Assessment

With teaching methodologies aligned with constructivist principles, assessment approaches need to correspond to these pedagogical perspectives. In the digital age, assessment extends beyond testing students' recall of factual knowledge; it probes deeper conceptual understandings, progresses to more complex problem-solving tasks, and underscores its significant role in enhancing learning (James, 2008). Scholarly discourse on classroom assessment revolves around its formative and summative dimensions. Formative assessment involves ongoing, often informal, evaluations to gauge students' comprehension, enabling teachers to determine the most effective ways to foster further understanding; by contrast, summative assessment entails more formal evaluations that consolidate a student's progress, serving purposes from communicating with educational stakeholders to certification within formal examination programmes (Mansell et al., 2009). In recent years, technology-assisted assessment has been found to assist teaching and learning in EFL classrooms. For instance, technology-aided formative assessment platforms have been applied in EFL classrooms in a Chinese university to facilitate teaching, classroom management, and assessment through recording student performance and providing individual feedback (Huang et al., 2021). Additionally, digital summative assessment platforms, such as automated speech recognition systems and writing evaluation

programmes, have been implemented in EFL classrooms to auto-score speaking and writing tasks, providing feedback channels that allow students to track their progress independently and enable teachers to provide constructive comments in a timely manner (for example, Daniels, 2022; Zhang & Hyland, 2018). The integration of these technology-assisted assessment approaches ensures that students' language proficiency can be assessed effectively from multiple aspects and that the assessment results can be utilised efficiently to enhance their learning.

3.4. Resources

The successful implementation of teaching and assessment in digital EFL classrooms hinges on the foundation provided by appropriately designed digital learning resources. Churchill (2017) defined digital learning resources as technology-driven multimedia materials created specifically for educational needs in digital educational contexts. From his perspective, when effectively utilised, digital learning resources function as tools within learning activities that empower students during their learning process (Churchill, 2017). They are capable of addressing students' individual learning requirements, boosting their motivation through interactive activities, and encouraging students to put in greater effort and participate actively in learning tasks (Wu et al., 2025). In contemporary EFL classrooms, a diverse array of digital learning resources has been applied. For instance, digital textbooks and multimedia courseware have been used in EFL education contexts with guided learning strategies to increase students' engagement, motivation, and comprehension (Chen et al., 2023); massive open online courses (MOOCs) have been used in EFL contexts to foster learner autonomy, as students can exercise control over the learning content they engage in (Ding & Shen, 2022); digital learning tasks, such as games-based activities, have also been found to be incorporated in classes to effectively improve EFL students' learning (for example, García-Pinar, 2024; Song & Sparks, 2019). These digital resources have helped transform EFL classrooms by creating refreshing, engaging, and interactive learning experiences for students, laying a solid foundation for quality learning, teaching, and assessment that meet the demands of the digital education era.

3.5. Teacher Development

The final key to the digital transformation of EFL education lies in teachers' digital literacy and pedagogical competency, which serves as the foundation and driving force for empowering teachers to skilfully utilise digital teaching platforms, employ digital resources, and conduct teaching and assessment that align with students' learning needs. To achieve such transformation, teachers' continuing professional learning and development, which provides them with learning opportunities to drive their growth, institutional changes and sustainable development, is essential (Xie et al., 2022). These learning opportunities should target teachers' capacities in effectively integrating digital technologies into teaching, assessment, and digital materials management and development, aligning with current curriculum standards

and supporting diverse learning requirements through inclusive practices, as highlighted in the UNICEF *Educators' Digital Competence Framework* (UNICEF Regional Office for Europe and Central Asia, 2022). The effective acquisition and application of such capacities can foster meaningful communication between teachers and students, and support collaboration and knowledge sharing among teachers via communities of practice (Foulger et al., 2017). This plays a significant role in enhancing continuous professional growth, fostering constructive dialogues, and cultivating a culture of collaborative professionalism (UNICEF Regional Office for Europe and Central Asia, 2022). With a well-structured mechanism for developing teachers' digital literacy and pedagogical competency, EFL teaching in digital environments will become more sustainable, as teachers are enabled to develop more creative and technology-adaptive approaches to teaching and assessment, rather than merely adhering rigidly to coursebooks to deliver instructions.

4. The Implementation of the SMART Learning Support Services Model

The SMART learning support services model was implemented at a Chinese vocational university to drive the digital transformation of the *General English* course, a mandatory EFL module for all first-year non-English majors. The target students of this course exhibit varied English proficiency levels: some had continuous EFL learning experiences during their basic education, while others from vocational secondary education backgrounds had limited prior exposure to EFL instructions. A majority of these students aim to enhance their spoken English proficiency and pass the College English Test Band-4 (CET-4) before graduation to boost their employability. Therefore, communicative skills and test-taking skills are their two primary learning needs. Additionally, digital competencies for EFL learning are also essential skills students need to master in the digital era. Students should be able to retrieve, comprehend, process, and apply the knowledge they gain via accessible digital technologies. More importantly, they should be empowered to take ownership of their learning and develop collaborative skills that support peer learning, which are the foundations that enable them to generate and innovate new knowledge.

In this vocational university, digital transformation was initiated through the integration of five digital platforms and tools, which collectively established the digital spaces where EFL teaching and learning unfolded. These platforms and tools included SuperStarLearn, China University MOOC, iWrite, FiF, and iTest, each tailored to specific scenarios within EFL learning, teaching, and assessment. The first two platforms, SuperStarLearn and China University MOOC, were utilised by EFL teachers at this vocational university as in-class teaching platforms for organising instructional activities and as after-class repositories for supplementary e-learning resources. SuperStarLearn, a mobile learning platform with

integrated learning management system (LMS) and student response system (SRS) functions, supported a range of operational features that facilitated interactions between teachers and students, as well as peer collaboration. For instance, teachers could utilise the platform to hold in-class instructional dialogues via live-streaming functions such as random selection and polls, which enhance students' motivation and engagement during lessons. Group discussions could be easily initiated within the platform by assigning random groups or allowing students to form their own, thereby promoting collaborative learning. Additionally, the platform offered digital reports for students to monitor their learning progress, review their performance, and identify areas requiring improvement.

In contrast to SuperStarLearn's focus on in-class engagement, China University MOOC functioned as a knowledge-sharing platform, disseminating e-learning materials to both students in the university and broader external audiences. Since 2018, the *General English* course has been adapted into a MOOC titled *English for Careers* and hosted on China University MOOC. Teachers in the *General English* teaching team developed video lectures based on their daily instruction, created online tasks and discussion prompts as supplementary resources, and opened access to external learners, thereby cultivating a larger, more diverse learning community. Together, these two platforms constructed interactive learning spaces where students engaged in technology-enhanced activities, such as online discussions, group projects, and reflective blogs, enabling them to actively co-construct knowledge. The e-learning resources hosted on these platforms also empowered students to preview or revisit course content according to their individual needs, strengthening interactions within the learning community and ultimately supporting improved learning outcomes.

Beyond instructional support, three additional digital tools, iWrite, FiF, and iTest, were incorporated into the assessment practices of the *General English* teaching team. iWrite, a web-based writing support platform equipped with an AI-driven marking system, was adopted to assess students' writing performance. The platform could conduct multi-dimensional analyses of grammar and vocabulary use, delivering instant-scored feedback that allowed students to promptly identify and revise errors while enabling teachers to provide targeted guidance for improvement. FiF, a mobile application incorporating speech synthesis, recognition, and assessment technologies, was employed to enhance students' oral proficiency by analysing their pronunciation, fluency, and task completion, and generating detailed diagnostic reports that highlighted areas for development. iTest, a digital platform for test creation and distribution with intelligent automated scoring, facilitated the administration of class-wide and institution-wide assessments, including unit tests, mid-term tests, final tests, and even language skills competitions. Collectively, these technology-assisted tools enhanced both summative and formative assessment in the *General English* course: for summative purposes, they automated scoring and feedback in a timely manner, boosting assessment efficiency and reducing teachers' workload; for formative

assessment, they supported targeted, constructive feedback from teachers and enabled students to self-reflect through automated insights, thereby driving self-regulated and continuous learning.

To sustain the digital transformation initiatives, the management team of the *General English* course organised regular peer exchanges, where teachers shared their experiences of integrating these platforms and tools into daily instructions. Additionally, technical specialists from the companies that developed these digital platforms and tools were also invited regularly to deliver periodic training sessions to the *General English* teaching team, equipping teachers with technological knowledge and skills of how to make better use of platform functionalities, enhancing their digital literacy, and refining their instructional design capabilities. To further address real-time technical challenges, these specialists also set up dedicated Q&A groups, where they provided timely support to both teachers and students, offering quick solutions to issues such as platform access errors, functional operation confusion, or resource retrieval problems whenever they arise. These efforts not only strengthened teachers' digital competencies and pedagogical skills but also underpinned the sustainable digital transformation of the *General English* course. Furthermore, these exchanges fostered potential for technological innovations, as shared insights could spur collaborations between teachers and technical specialists to refine platform features, ensuring they remained aligned with the unique demands of digital EFL instruction.

5. Conclusion

This paper reports on the design and implementation of the SMART learning support services model in digital EFL classrooms at a Chinese vocational university. The model not only expands the research scope of learning support services theory within the EFL field but also offers practical insights into enhancing EFL education through integrated advancements in digital spaces, teaching methodologies, assessment approaches, digital learning resources, and teacher development. By operationalising these dimensions, the model demonstrates how systematic digital transformation can be facilitated in higher vocational EFL educational contexts, fostering more engaging and adaptive language learning environments. However, the model is not without limitations. Firstly, its implementation was confined to a single vocational university, limiting the generalisability of findings to larger or more diverse institutional contexts. Secondly, the model's effectiveness relies heavily on the availability and functionality of digital platforms, which may pose barriers to replication in settings where such tools are inaccessible or inadequately provided.

Future research could build on the foundation of this study by exploring several issues. Firstly, investigating teachers' practical experiences with the SMART learning support services model, including their perceptions of its usability, challenges encountered in implementation, and professional development needs, would shed light on factors influencing its sustained adoption. Additionally,

examining how the model reshapes specific teaching and assessment practices, such as the redesign of formative feedback or the adaptation of collaborative learning strategies, could reveal deeper insights into its pedagogical impact. Finally, further inquiry into how the model affects students' learning trajectories, including changes in motivation, self-regulated learning behaviours, and language proficiency gains, would clarify the model's effects on student learning outcomes, contributing to a more holistic understanding of its value in EFL education.

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References

- Bai, Q., Zhang, S., & Shen, S. (2018). Learning support service system design and practice in blended learning. *China Educational Technology*, 8, 107-115.
- Bersamin, A. E., Ulla, M. B., Saripa, A., & Suebsom, K. (2024). Exploring social presence through group collaboration in blended learning. *Teaching English as a Second or Foreign Language--TESL-EJ*, 28(1), 1-16. <https://doi.org/10.55593/ej.28109int>
- Chen, M.-R., Hwang, G.-J., Majumdar, R., Toyokawa, Y., & Ogata, H. (2023). Research trends in the use of E-books in English as a foreign language (EFL) education from 2011 to 2020: A bibliometric and content analysis. *Interactive Learning Environments*, 31(4), 2411-2427. <https://doi.org/10.1080/10494820.2021.1888755>
- Churchill, D. (2017). *Digital resources for learning*. Springer.
- Cui, H. (2023). Exploration and practice of a digital instructional model for higher vocational English education. *English Teacher*, 12, 168-171.
- Dai, Y., Fu, L., & Wan, F. (2021). Exploring the application of MOOCs in open education from the perspective of precision learning support services. *Higher Education Exploration*, 6, 89-94.
- Daniels, P. (2022). Auto-scoring of student speech:

- Proprietary vs. open-source solutions. *TESL-EJ*, 26(3), 1-15. <https://doi.org/10.55593/ej.26103int>
- Ding, X. (2002). Support for student learning services in distance education. *China Educational Technology*, 3, 55-59.
- Ding, Y., & Shen, H. (2022). Delving into learner autonomy in an EFL MOOC in China: A case study. *Computer Assisted Language Learning*, 35(3), 247-269. <https://doi.org/10.1080/09588221.2019.1681464>
- Enwereji, P., & Van Rooyen, A. (2025). Exploring the barriers to online student learning support services: A review. *South African Journal of Higher Education*, 39(1), 75-99. <https://doi.org/10.20853/39-1-5116>
- Foulger, T. S., Graziano, K. J., Schmidt-Crawford, D. A., & A., S. D. (2017). Teacher educator technology competencies. *Journal of Technology and Teacher Education*, 25(4), 413-448.
- Gao, Z., & Shao, X. (2024). Current situation, problems and paths of intelligent transformation in English education majors at normal universities from the perspectives of learning support services. *Modern English*, 5, 10-12.
- García-Pinar, A. (2024). Throttel, throttel, trottel or trottel: Engineering undergraduates' perception of the use of Kahoot! to review course content. *TESL-EJ*, 28(3). <https://doi.org/10.55593/ej.28111int>
- Gong, X. (2024). Research on smart learning platforms based on blended learning support service practices. *Overseas English*, 6, 216-219.
- Gu, X., Du, H., Peng, H., & Zhu, Z. (2021). The theoretical framework, development and future prospect of smart education. *Journal of East China Normal University (Educational Sciences)*, 8, 20-32. <https://doi.org/10.16382/j.cnki.1000-5560.2021.08.002>
- Heilporn, G., Lakhali, S., & Bélisle, M. (2021). An examination of teachers' strategies to foster student engagement in blended learning in higher education. *International Journal of Educational Technology in Higher Education*, 18(1). <https://doi.org/10.1186/s41239-021-00260-3>
- Hu, Q., Zheng, K., Hu, X., & Lin, N. (2016). Research on the systematical technology analysis and integration path of smart education. *China Educational Technology*, 1, 49-55.
- Huang, E., Jiang, L., & Yang, M. (2021). The affordances of a technology-aided formative assessment platform for the assessment and teaching of English as a foreign language: An ecological perspective. *Educational Technology Research and Development*, 69(6), 3391-3412. <https://doi.org/10.1007/s11423-021-10047-y>
- James, M. (2008). Assessment and learning. In S. Swaffield (Ed.), *Unlocking assessment: Understanding for reflection and application* (pp. 20-36). Routledge.
- Jin, Y., Tang, L., Wang, R., & Zhang, Y. (2022). Research on the path and countermeasures for the provincial promotion of the national smart education platform for primary and secondary schools. *China*

Educational Technology, 9, 30-37.

- Li, T., & Wu, N. (2024). Smart space for servicing deep learning: Concept, model and implementation path. *Modern Educational Technology*, 6, 133-142. <https://doi.org/10.3969/j.issn.1009-8097.2024.06.014>
- Mansell, W., James, M., & Assessment Reform Group. (2009). *Assessment in schools: Fit for purpose? A commentary by the teaching and learning research programme*. Economic and Social Research Council, Teaching and Learning Research Programme.
- Nusong, K., & Watanapokakul, S. (2025). Evaluating the effectiveness of blended learning in an EFL undergraduate classroom. *LEARN Journal: Language Education and Acquisition Research Network*, 18(1), 320-351. <https://doi.org/10.70730/jhii1331>
- Shi, C., & Cheng, H. (2013). A study on the construction of open and distance education learning support service system: Practice and exploration of Shanghai Open University. *Open Education Research*, 19(5), 112-120.
- Song, Y. (2020). The construction of English learning support service system for distance education based on WeChat public platform. *Journal of Huainan Normal University*, 22(3), 144-148.
- Song, Y., & Sparks, J. R. (2019). Building a game-enhanced formative assessment to gather evidence about middle school students' argumentation skills. *Educational Technology Research and Development*, 67(5), 1175-1196. <https://doi.org/10.1007/s11423-018-9637-3>
- UNICEF Regional Office for Europe and Central Asia. (2022). *Educators' digital competence framework*. UNICEF <https://www.unicef.org/eca/reports/educators-digital-competence-framework> (accessed July 15, 2025)
- Wang, X., Xi, H., Liu, Y., Liao, H., & Huang, C. (2019). Research on construction of learning support service based on SPOC blended learning model. *E-education Research*, 40(3), 48-53. <https://doi.org/10.13811/j.cnki.eer.2019.03.007>
- Wen, Q. (2024). English education in the age of artificial intelligence: Explicating the new curriculum model of four elements. *Foreign Languages in China*, 3, 11-18. <https://doi.org/10.13564/j.cnki.issn.1672-9382.2024.03.001>
- Wu, W., Jiang, L., Fang, L., Xu, Y., Zhou, H., & Yu, H. (2025). The relationship between digital learning resource quality, attention control, academic self-efficacy, and college students' learning engagement: The moderating role of metacognition. *Asia Pacific Journal of Education*, 1-19. <https://doi.org/10.1080/02188791.2024.2444294>
- Wu, X., Qiu, Y., Xie, Y., Zhang, H., & Wu, L. (2017). Research on open university online courses learning support service (OCLSS) from the perspective of ubiquitous learning. In S. Cheung, L. Kwok, W. Ma, L. Lee, & H. Yang (Eds.), *Blended Learning. New Challenges and Innovative Practices* (pp. 412-424). https://doi.org/10.1007/978-3-319-59360-9_36
- Xie, P., Liu, Q., & Wang, X. (2022). The connotation, condition and evaluation of teachers' continuing professional learning and development: An interview with emeritus professor Christopher Day at University of Nottingham. *Teacher Development Research*, 6(1), 13-22. <https://doi.org/10.19618/j.cnki.issn2096-319x.2022.01.002>
- Yan, D., & Li, G. (2024). Students' internal driving force or environment external driving force? Configuring digital learning power heterogeneity in a smart education environment. *Interactive Learning Environments*, 32(10), 6509-6533. <https://doi.org/10.1080/10494820.2023.2266496>
- Yang, Q. (2022). Exploring the construction of SPOC blended teaching mode in the general course of college English from the perspective of learning support service. *Journal of Shenzhen Polytechnic University*, 21(2), 73-78. <https://doi.org/10.13899/j.cnki.szptxb.2022.02.014>
- Yeo, M. A., Moorhouse, B. L., & Wan, Y. (2025). From academic text to talk-show: Deepening engagement and understanding with Google NotebookLM. *Teaching English as a Second or Foreign Language-TESL-EJ*, 28(4), 1-14. <https://doi.org/10.55593/ej.28112int>
- Zhang, M. (2024). Enhancing MALL with artificial intelligence: Personalized learning paths in EFL teaching. *Research and Advances in Education*, 3(8), 49-61. <https://doi.org/10.56397/rae.2024.08.07>
- Zhang, Z., & Hyland, K. (2018). Student engagement with teacher and automated feedback on L2 writing. *Assessing Writing*, 36, 90-102. <https://doi.org/10.1016/j.asw.2018.02.004>
- Zhao, X., Shao, M., & Su, Y.-S. (2022). Effects of online learning support services on university students' learning satisfaction under the impact of COVID-19. *Sustainability*, 14(17), 1-17. <https://doi.org/10.3390/su141710699>
- Zhu, Z. (2018). Education calls for data wisdom. *People's Education*, 1, 29-33.
- Zhu, Z., & Wei, F. (2017). Innovative paths for teacher development in smart education. *Journal of the Chinese Society of Education*, 9, 21-28. <https://www.jcse.com.cn/CN/Y2017/Vo/19/21> (accessed July 29, 2025)

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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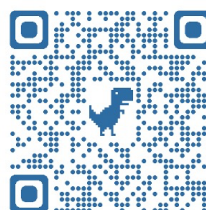
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