

Understanding the Role of Personalized Learning Pathways in Enhancing Academic Confidence among ESL Students in Overseas Study Contexts

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Abstract: This paper reviews the role of personalized learning pathways in building academic confidence among ESL students studying in higher education abroad. With over 6.9 million tertiary-level students studying internationally and many in English-speaking contexts, language-related challenges remain common, particularly in academic communication. Confidence, closely tied to self-efficacy, is a key factor in whether students engage, persist, and succeed. Drawing on more than 20 peer-reviewed empirical studies, this review explores how personalized approaches ranging from differentiated classroom instruction to adaptive digital technologies affect confidence in second-language academic contexts. Findings suggest that when instruction addresses individual needs and offers scaffolded support, learners report higher motivation, reduced anxiety, and increased willingness to participate. Classroom strategies such as individualized projects, flexible assessments, and targeted skills workshops were found to foster a stronger sense of academic readiness. Similarly, technology-enabled personalization, including adaptive apps and AI-driven feedback systems, supported self-directed practice and improved language self-efficacy. However, limitations remain around the generalizability and long-term impact of such interventions. The paper concludes that embedding structured, needs-based personalization into mainstream academic provision may help ESL learners gain the confidence necessary to thrive, outlining areas for future study, including longitudinal outcomes, cultural responsiveness, and the role of human support in digitally mediated learning.

Keywords: Personalized Learning Pathways; ESL Learners; Academic Confidence; Overseas Study Contexts.

1. Introduction

In an era of unprecedented student mobility, English-speaking universities host millions of international students who speak English as a second language (ESL). According to the IIE (2024), in 2022 alone over 6.9 million tertiary-level students were studying outside their home countries, with over 45% enrolled in Anglophone countries such as the United States, Canada, Australia and the United Kingdom as shown in figure 1. For these learners, proficiency in academic English is often a decisive factor for success, yet language barriers and cultural adjustments pose significant challenges (Hossain, 2024). Moreover, many international ESL students report difficulty participating in class discussions, fears of making mistakes, and lower academic self-confidence due to limited English proficiency according to Wang et al.'s (2017) study. Even those who feel confident in general English usage can struggle in academic contexts, indicating a need for targeted support. Academic confidence, often understood in terms of academic self-efficacy (Bandura, 1977), or one's belief in their capability to achieve academic tasks, is of critical importance because it influences students' engagement, persistence and performance (Namaziandost et al., 2024). Glass & Westmont (2014) reinforced this and found that low confidence can lead to anxiety and withdrawal from learning opportunities, whereas high confidence correlates with greater participation and better achievement.

Consequently, personalized learning pathways have emerged as a promising approach to bolster ESL students' confidence and success. According to Fariani et al. (2023), personalized learning refers to tailoring the pace, content, and learning approach to individual students' needs and

preferences. Rather than the traditional "one size fits all" model, personalized learning pathways empower learners to follow a route that builds on their strengths and addresses their weaknesses, as this often includes individualized instruction, adaptive learning technologies, self-directed projects and other strategies that center the learner's goals (Fariani *et al.*, 2023). Such approaches are inherently student-centered and often draw on educational technology to adapt in real-time, whereby through optimizing instruction to each learner, personalized pathways aim to improve both academic outcomes and motivation, satisfaction, and self-confidence. According to Ryan & Deci's (2000) self-determination theory, when learners experience greater autonomy and support for their individual needs, their intrinsic motivation and confidence tend to increase. Similarly, Bandura's (2014) social-cognitive theory also posits that successful personalized learning experiences can serve as mastery experiences that strengthen self-efficacy, suggesting a strong potential for personalized learning to enhance ESL students' academic confidence, an area that is gaining attention but still under-researched in the context of higher education abroad.

Thus, this paper critically examines how personalized learning pathways contribute to academic confidence among ESL students in overseas higher education. The global and current situation of these learners calls for innovative solutions, as universities worldwide are actively seeking ways to help international students overcome language-related anxieties and thrive academically (Wang et al., 2017). While past studies have often focused on language proficiency or academic performance (Roessingh & Kover, 2003; Stephene et al., 2004), this paper focuses specifically on the affective outcome of academic confidence, defined as a learner's self-

assuredness in performing academic tasks in a second language. The novelty of this review lies in synthesizing recent empirical research from both classroom-based and digital domains to understand how personalized approaches affect ESL student confidence. Through integrating findings across disciplines (applied linguistics, educational technology, higher education), the paper provides a comprehensive picture of current strategies, their efficacy and implications for practice. Key questions include: What personalized learning strategies are being used with ESL international

students? What impact do these have on students’ confidence and self-efficacy? Are there notable differences across contexts or regions? Through a comparative analysis of studies from empirical studies, this paper seeks to address these questions and highlight emerging trends. The aims contribute to summarizing existing knowledge and also to identify gaps and inform future interventions that can empower ESL students as confident, autonomous learners in their host institutions.

TOP HOST DESTINATIONS

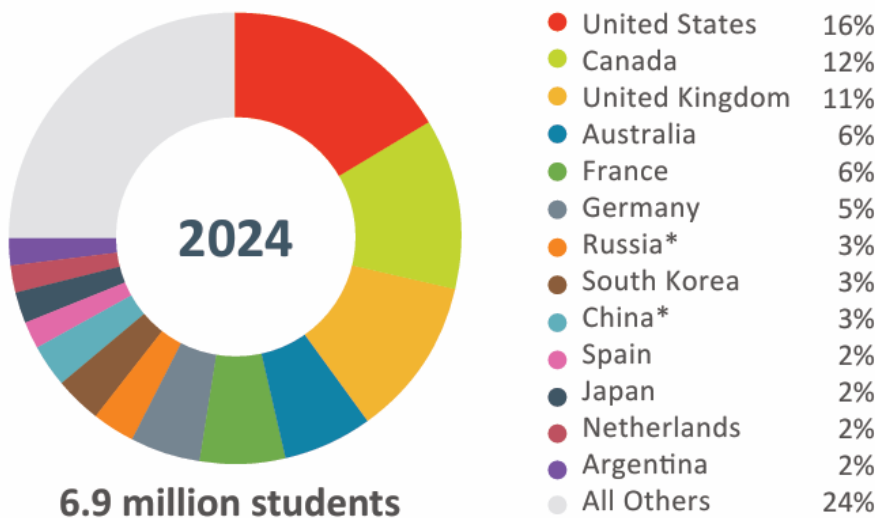


Figure 1. IIE, Top host destination of ESL students worldwide (IIE, 2024)

2. Methods

This paper reviews relevant empirical studies, beginning with a comprehensive search of academic databases including Scopus, Web of Science and Google Scholar for peer-reviewed articles published roughly in the last 10–15 years (2010–2025) that address personalized learning, ESL/EFL learners in higher education, and academic confidence or self-efficacy. Key search terms included combinations of “personalized learning,” “individualized instruction,” “adaptive learning,” “ESL” or “EFL” (English as a Foreign Language), “international students,” “higher education,” “confidence,” “self-efficacy,” and “self-esteem.” Over 20 sources were selected for in-depth analysis in this review with an emphasis on quality and relevance. The inclusion criteria required that studies: (1) involve adult or tertiary-level ESL/EFL learners, particularly those studying in an English-medium higher education setting outside their home country; (2) examine some form of personalized or learner-centered approach (instructional intervention, curriculum design, technology, etc. tailored to individual needs); and (3) report outcomes related to students’ confidence, self-efficacy, anxiety reduction, or related affective measures in an academic context. Both quantitative and qualitative studies were considered.

Moreover, personalized learning in this context spans a range of strategies from classroom-based pedagogies (differentiated instruction, autonomous learning projects, one-on-one tutoring) to digital platforms (adaptive learning software, AI-driven language tutors, virtual/augmented reality tools). To articulately analyze empirical literature, a thematic synthesis was conducted. Each study was coded for

key themes such as type of personalized intervention, context (country/region and educational setting), and reported impact on learner confidence or related variables. These themes were then compared and synthesized to identify patterns and differences across studies. All sources are cited in Harvard style (author, year) with supporting details, and a full reference list is provided at the end of this review. The methodological approach of this review is grounded in transparency and rigor to ensure that the conclusions drawn are based on a robust cross-section of the literature. This paper offers a qualitative synthesis and narrative integration of findings across diverse contexts, this enabled comprehensive understanding of not just whether personalized learning pathways work, but how and under what conditions they contribute to greater academic confidence among ESL students abroad. In the sections that follow, we organize the discussion thematically, while also noting regional case studies, to comprehensively address the multi-faceted relationship between personalized learning and learner confidence.

3. Personalized Learning Pathways

Personalized learning has been defined in the literature as an approach in which the instructional content, pacing, and learning processes are optimized for each learner’s needs and preferences. Fariani et al. (2023) describe personalized learning (PL) in higher education as moving away from a uniform curriculum toward adaptive, student-centered models, whereby learners often have more choice and voice in how they achieve learning objectives. Alternatively, learning pathways is widely defined as the individualized routes that students take through content and activities, these

can be tailored by the instructor or via technology to ensure each student can master material at their own pace (Nasir et al., 2020). Common elements of personalized learning models include assessing learner diversity (e.g. prior knowledge, learning style), offering a variety of learning materials and paths, and using data or feedback to continually adjust to the student (Fariani et al., 2023). A systematic review by Bernacki et al. (2021) identified that personalized learning implementations frequently improve learning outcomes and increase learners' satisfaction, motivation, and engagement. Although not all studies explicitly measure "confidence," increased engagement and satisfaction are often associated with greater confidence, as students feel more supported and capable when instruction aligns with their needs. Personalized learning aligns with theories that emphasize autonomy and competence as drivers of motivation. According to Deci & Ryan's (2000) self-determination theory, environments that support a student's autonomy (choice and personalization) and competence (appropriate challenge level) foster higher intrinsic motivation and confidence. Likewise, Bandura's (1977) self-efficacy theory suggests that experiences of success (mastery) and social persuasion in a supportive setting build one's belief in their abilities. Consequently, personalized pathways can provide more frequent mastery experiences by meeting learners at their current level and helping them progress, thereby incrementally building academic self-efficacy.

For ESL students in overseas universities, personalized learning pathways are particularly important given the apparent challenges faced by these learners in mastering

academic content and a foreign language simultaneously according to Singh & Kaur (2019). A generic curriculum often fails to account for the wide variance in ESL students' backgrounds, for instance, one international student may need intensive academic writing support while another struggles more with oral presentations. Thus, personalized approaches allow instruction to be needs-responsive, this is evidential in the form of classroom-based personalization which involve instructors differentiating tasks (e.g. offering simpler vs. more complex readings based on proficiency), providing scaffolded support or additional tutoring for those who need it, or creating individual learning plans focusing on language skill gaps (Oubibi, 2024). It can also include culturally responsive teaching, where examples and materials are tailored to students' cultural contexts to make learning more relatable. A study by Cullen & Oppenheimer (2024) found that such autonomy-supportive practices can enhance students' attendance, engagement, and mastery in higher education classrooms. When learners feel instruction is attuned to them, they develop a greater sense of ownership and confidence in the learning process. In a broad survey of pedagogical practices, Namaziandost et al. (2024) assert that it is a "critical goal" for language educators to build *academic self-confidence and autonomy* in students. Their study found that fostering learner autonomy (a key aspect of personalization) significantly correlates with higher willingness to communicate in English and with students' foreign language self-esteem, arguing that giving students more control and personalized support in their learning not only improves their skills but also how confident they feel using those skills.

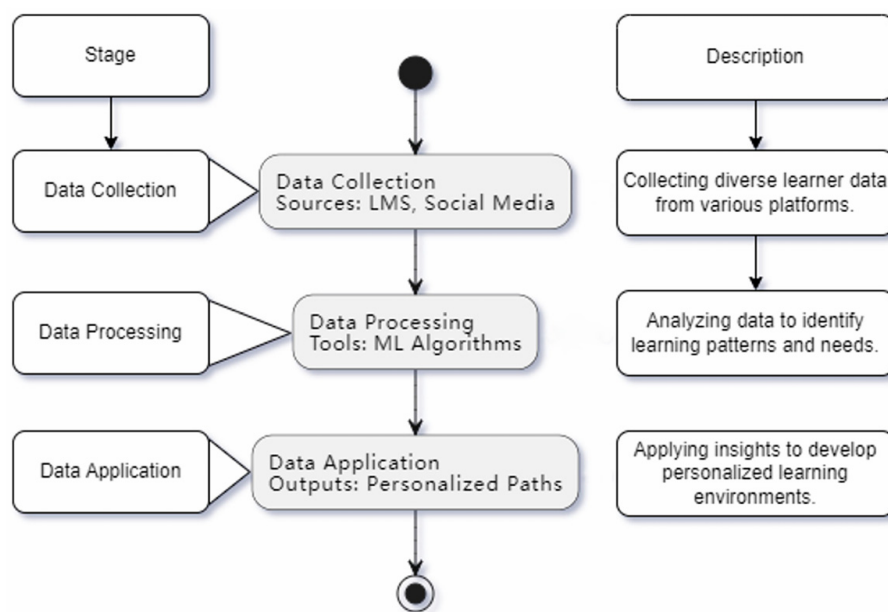


Figure 2. Framework for integrating big data into language education (Xia et al., 2024, p2)

Similarly, technology-enabled personalization has also expanded rapidly in recent years and offers new avenues for supporting ESL learners (Holmes et al., 2018), whereby adaptive learning systems and artificial intelligence (AI) can algorithmically tailor content difficulty, provide instant feedback, and even select topics of interest for learners. For example, Xia et al. (2024) introduced a data-driven personalized learning model (DDPLM) integrated into platforms like Edmodo and Duolingo, which dynamically adjusted to each learner's performance in real time. The framework (Figure 2, Xia et al., 2024) collects diverse learner

data, processes it with machine-learning algorithms to identify patterns and needs, then applies insights to personalize the learning path. The results were significant improvements in language learning efficiency and engagement, demonstrating how big-data analytics can enhance personalization. Although Xia et al. (2024) focused on outcomes like retention and proficiency gains, they emphasize the critical role of personalized feedback and adaptive challenges in maintaining learner motivation. These factors are also closely tied to confidence, whereby when a student sees continuous progress through tailored challenges,

their confidence in mastering the language grows. Similarly, Almayez et al. (2025) examined the use of online language learning applications (e.g. Duolingo and others) among 808 Saudi university EFL students. They found strong positive correlations between students’ motivation, use of self-regulated learning strategies, and English self-efficacy in these app-based environments. Additionally, their structural equation modeling showed that using personalized online applications significantly improved learners’ confidence and proficiency in English by facilitating motivation and self-regulation, suggesting that well-designed digital pathways allow flexible, on-demand practice tailored to one’s level that can ultimately bolster students’ belief in their English abilities.

4. Classroom-based Personalized Strategies and ESL Student Confidence

Classroom-based personalized learning refers to pedagogical strategies implemented by instructors (and institutions) to cater to individual student needs within traditional course structures (Cevikbas & Kaiser, 2022). In the context of ESL students in higher education, several such strategies have been explored including specialized language support courses, autonomous learning projects, differentiated instruction and focused skills interventions, as empirical research consistently shows that personalizing support in the classroom can improve ESL students’ confidence in using English academically (Noor & Islam, 2024; Ramzan et al., 2023; Othman et al., 2015). One key study focused in the country context of Australia, where universities have grappled with international students’ English language needs for decades, whereby Kim (2023) adopts a holistic personalized approach called the Personalized Autonomous (PA) model, implemented as a credit-bearing course at an Australian university. The course “Personalized English Language Enhancement (PELE)”, allowed each student to identify their own linguistic needs and develop an independent project to address those needs, with guidance from instructors (Kim, 2023). Over five years (2016–2020), data were collected from hundreds of international students who took PELE and the outcomes were striking, as the personalized course had significant impacts on students’ confidence in English, self-efficacy, motivation, and sense of belonging. Students improved in specific language skills and reported feeling more assured in using English both academically and socially. These affective gains led to observable behavioral changes as students became more participative in class and engaged more with local

communities (Kim, 2023). Kim (2023) also argues that the PA model’s strength lies in its student-centered autonomy, to empowering students to personalize their learning tasks (such as choosing to focus on academic writing vs. speaking, depending on their own perceived weaknesses), it created a virtuous cycle of confidence and proficiency growth, demonstrating how a structured course can successfully embed personalized learning into the curriculum, yielding higher academic confidence.

Kim’s (2023) study also highlights the importance of sense of belonging, as many ESL students feel isolated or unsure in a foreign environment, but a personalized support program can foster community and reassurance that the institution cares about their progress, this in turn bolsters confidence to use English in various contexts. Another classroom-based strategy is explicit communication strategy training tailored for students with language anxiety, as evidential in Dag-Akbaş’ (2024) mixed-method case study with English majors who were reticent in speaking classes due to low confidence and high anxiety (common among EFL students). The intervention involved explicit training in communication strategies (e.g. how to paraphrase, ask for clarification, use fillers to keep a conversation going) as a form of personalized speaking support. After a semester-long program with pre- and post-tests, the results showed marked improvements, as students’ use of communication strategies increased, their spoken language output grew, and their classroom participation rose compared to before training. More importantly, qualitative feedback and anxiety scales indicated that this strategy training significantly reduced students’ speaking anxiety and increased their self-confidence in oral English (Dag-Akbas, 2024). Through equipping learners with tools tailored to overcome their specific communicative hurdles, the intervention personalized the path to speaking fluency. A study by Gaines (2015) explored how personalization through Intensive English Program (IEP) can target affective needs and improve confidence as shown in table 1. The findings demonstrates that after the IEP course, student confidence increased most in phone conversations (43.3%), directional inquiries (40.6%) and university office interactions (36.7%), with gains across nine contexts. Substantial improvements emerged in shopping (35.0%), ordering food (33.9%), small talk (31.7%) and queries (27.8%), reflecting the applicability of classroom based personalized interventions, confirming that tailoring instruction to communication challenges, instead of generic conversation classes, yields significant confidence improvements in English communication (Gaines, 2015).

Table 1. Reported increases in confidence levels for ESL students after an IEP elective course (Adapted from Gaines, 2015)

Situation of English Use with Native Speakers after IEP course	Average % Increase in Confidence
Talking on the phone	43.3%
Asking for/giving directions	40.6%
Asking for information at a university office	36.7%
Asking for help from a stranger	36.1%
Talking with a university staff member	35.6%
Shopping at a store	35.0%
Ordering food/drinks at a coffee shop/restaurant	33.9%
Meeting new people and making small talk	31.7%
Asking a professor a question outside of class	27.8%

Differentiated instruction within mainstream content courses is another avenue identified in empirical studies as professors can personalize learning by offering varied

resources or assignments based on English proficiency levels (Lynch et al., 2021). For example, an instructor might provide supplementary readings with glossaries to ESL students, or

allow alternative assessment formats (like oral presentations instead of lengthy essays) to play to individual strengths. While specific studies on differentiated instruction for ESL in higher ed are sparse, general education research supports its efficacy. A systematic review by Cullen & Oppenheimer (2024) found that in settings where instructors used *autonomy-supportive policies* (such as flexible attendance or multiple assignment options), student mastery and attendance improved. Thus, it can infer that ESL students, who often come with diverse educational backgrounds, similarly benefit when teaching is flexible and personalized. Even small adjustments like giving an international student additional time or feedback on a draft due to language issues can improve their academic confidence by assuring them that they can meet the course requirements with appropriate support (Cullen & Oppenheimer, 2024). Case studies in the United States also illustrate the value of personalized academic support on confidence. Wang et al.'s (2017), study of international students in an American university, examined three kinds of self-efficacy: English self-efficacy (confidence in English ability), using English to learn self-efficacy (confidence in doing academic tasks in English), and academic self-efficacy found that even students with decent general English confidence faced difficulties in academic tasks, and that English self-efficacy indirectly influenced academic self-efficacy through the mediator of using-English-to-learn efficacy. This implies that to make international students academically confident, it's not enough that they know English, they must feel confident *using* English as a tool for learning.

One recommendation from Wang et al.'s (2017) study is to provide academic English support integrated into coursework, as universities have begun doing this through writing centers, language workshops and embedded language instructors. For instance, some UK and US universities run adjunct English for Academic Purposes (EAP) classes alongside mainstream courses, where students get personalized feedback on assignments or practice listening to lectures (Keefe, 2016). In a needs analysis by Wilson (2017), international students self-reported low confidence in skills like academic writing and class discussions and expressed that targeted workshops helped them feel more prepared. These findings align with broader recognition that providing tailored academic skills training improves ESL students' confidence and willingness to participate (Glass & Westmont, 2014). Importantly, personalized learning in the classroom often fosters a positive feedback loop: as students gain confidence, they participate more, which in turn provides more practice and feedback, further enhancing competence and confidence. Namaziandost et al. (2024) demonstrated this in an EFL context by increasing students' autonomy and engagement (through strategies like letting them choose project topics or encouraging collaborative learning), instructors observed higher *willingness to communicate* in English – an indicator of confidence. Willingness to communicate (WTC) is a key outcome because an ESL student with high WTC is more likely to speak up in class, ask questions, and seek help, all of which contribute to academic success. The study's SEM analysis confirmed that autonomy-support (a personalized approach) and academic engagement together fostered greater WTC, self-esteem, and even "L2 grit" (Namaziandost et al., 2024). Thus, the classroom climate and pedagogical style, if centered on personalizing and humanizing the learning experience, play a key role in confidence building. ESL

students often note that supportive instructors who recognize their individual struggles make them feel more confident to contribute. This suggests that teacher training should include developing skills for culturally responsive and personalized teaching, as emphasized by Pérez-Jorge et al. (2025) in their review which argues that teachers need to be equipped to adapt to diverse learners for technology or any pedagogy to be effective.

5. Digital Personalized Learning Strategies and Confidence Development

In the realm of ESL higher education, a variety of educational technologies from intelligent tutoring systems to immersive simulations have been deployed to provide customized learning experiences (Laksanasut, 2025). These technologies often allow students to practice English in a low-stress, self-paced manner, which can directly influence their confidence. One of the most common forms of digital personalization is through adaptive learning applications for language practice. As noted earlier, Almayez et al. (2025) investigated several popular online language learning apps (such as Duolingo) among university students and found that these apps' personalized features like adjusting difficulty based on performance and allowing flexible practice schedules, which contributed to higher self-efficacy in English. Duolingo emerged as the most used app in their sample due to its gamified, adaptive design that keeps learners engaged across reading, writing, speaking and listening tasks. Additionally, motivation and self-regulated strategy *use* were identified as mediators, as the app fosters motivation (through points, levels, and immediate feedback) and encourages learners to take charge of their progress, which in turn boosts their confidence in mastering English, finding that personalized, on-demand practice environments can significantly improve learners' confidence and proficiency in a foreign language (Almayez et al., 2025). The findings align with other research in the Gulf region showing that when learners can control aspects of their learning (time, content focus) via apps, they feel more competent and less anxious about their language skills (Al-Khateeb & Son, 2023).

Moreover, advanced AI-driven systems such as chatbots and intelligent tutoring systems have shown promise in personalizing language learning, as a literature review by Labadze et al. (2023) found that AI chatbots can simulate conversational practice tailored to a student's level, providing instant feedback on errors in a non-judgmental manner. Unlike a human classroom where an ESL student might be too shy to speak up, a chatbot allows practice without fear of embarrassment. Studies highlight that students interacting with AI tutors often report reduced anxiety and increased confidence in speaking, because the chatbot offers endless patience and personalized corrections (Kooli, 2023). More specifically, an AI system might notice a particular student consistently makes grammar mistakes in past tense and then personalize future exercises to focus on that grammar point, a level of individualized attention that boosts the student's mastery and confidence in that area (Kooli, 2023). A mixed-method experiment by Zhao et al. (2024) found that Chinese international students using an AI writing assistant (which gave tailored suggestions on academic essay drafts) felt more confident in their academic writing by the end of the term than those who only received generic teacher feedback. The

personalized AI feedback, being immediate and private, helped them iterate and improve without the usual fear of public criticism. However, these technologies also require careful implementation, as Pérez-Jorge et al. (2025) mentioned, teacher training is fundamental to ensure tools are effectively integrated and that students use them properly. When used well, AI-driven personalized learning tools act as a “digital mentor”, reinforcing students’ confidence through guided practice and positive reinforcement.

One of the most immersive personalized experiences come from Virtual Reality (VR) and Augmented Reality (AR) in language learning, as these technologies can create safe, simulated environments where ESL students practice English in contextual scenarios according to Huang et al.’s (2021) systematic review (a VR simulation of a classroom discussion or a laboratory meeting). Another systematic review by Pérez-Jorge et al. (2025) synthesized findings on VR, AR, and adaptive learning for ESL and found broadly that these technologies increase student motivation and engagement in language learning. More importantly, they address common challenges like low motivation and high anxiety, whereby VR, for example, offers a safe space to practice speaking. Peterson et al. (2024) observed that students using VR platforms to practice conversations could do so without the fear of making mistakes in front of peers, thereby fostering confidence and a positive attitude toward language use. Another study by Cowans (2018) described how shy ESL learners, who were hesitant in a real classroom, became much more talkative in a VR setting where only a virtual avatar represented them, as the removal of peer pressure and the game-like setting boosted their self-confidence to experiment with English. Zhao et al. (2024) also argued that immersive environments help students develop emotional resilience and a stronger connection to learning English, making them more willing to engage with the language beyond the simulation, as this emotional resilience is essentially the confidence to handle setbacks (e.g. misunderstanding a phrase) without feeling discouraged. Additionally, AR tools overlay helpful information in real time (for instance, showing subtitles or vocabulary annotations on real-world objects), which can personalize support as the student needs it (Lira-Gonzales et al., 2023). Chen also (2020) found AR video scaffolds improved both achievement and *motivation* in EFL learning, suggesting students felt more confident tackling tasks when AR provided on-the-spot assistance.

Gamification often goes hand-in-hand with these digital tools whereby many VR/AR language programs incorporate game elements (scores, competition, storylines) to engage learners. A study by Zhao et al. (2024) reported significant vocabulary gains in a gamified VR learning environment, and importantly noted that the interactivity and immediate feedback in the game played a crucial role in boosting retention and confidence. Students in the gamified VR group not only learned more words but also expressed greater *extrinsic motivation* and enjoyment, feeling more confident to use the new vocabulary in context, as the game required them to repeatedly use it to progress (Pérez-Jorge et al., 2025). Similarly, gamified VR environments was found to enhance students’ extrinsic motivation by leveraging interactive features, and this was linked to confidence in that students were willing to speak or write using the language elements practiced in the game. Essentially, success in the game translated to confidence in the real world, offering a clear example of how personalized digital experiences (the game

adjusting difficulty to ensure the student can eventually win) can lead to genuine skill confidence. However, the literature also indicates variability, as not all studies find uniformly positive effects and some point out that initial excitement might wane without long-term integration (Pérez-Jorge *et al.*, 2025). Nonetheless, the general consensus suggests that emerging technologies are seen as transformative by providing personalized, immersive learning experiences that traditional classrooms cannot easily offer, help to break down traditional barriers (like fear of public speaking or lack of immediate feedback), thereby empowering ESL students to practice and improve with confidence.

6. Conclusion & Implications for Future Studies

To conclude, the evidence across the reviewed literature suggests that personalized learning strategies can play a contributing role in improving academic confidence among ESL students in higher education. These strategies whether classroom-based or technology-mediated, consistently appear to reduce anxiety, support skill development and foster greater learner autonomy. When students are given structured opportunities to focus on their individual needs, whether through tailored feedback, differentiated tasks, or adaptive learning tools, they tend to engage more actively with academic content. This shift is particularly important for students working in a second language, where the risk of disengagement or silence is higher due to concerns about accuracy, fluency, or misunderstanding. What emerges from these studies is a clear pattern indicating that confidence grows when learners feel that their difficulties are acknowledged and that instruction meets them at their level of readiness. The reported outcomes from empirical studies go beyond short-term satisfaction, as students become more likely to ask questions, participate in discussions, and take initiative in coursework, all of which are linked to long-term academic success. Programs such as Kim’s (2023) PELE model or adaptive mobile learning applications studied by Almayez et al. (2025) provide concrete illustrations of this process. They show that personalization is not simply about learner preference, it influences how students view their capacity to cope with academic challenges in English. For international learners, this matters not just for language proficiency but for broader academic integration. Universities aiming to support retention and achievement among ESL students should thus consider embedding personalization into curricular and co-curricular structures. This could take the form of early needs assessments, scaffolded support mechanisms, or accessible language development modules aligned with degree requirements. Based on the reviewed evidence, this paper argues that confidence is not built in isolation as it is developed through consistent signals from institutions where students’ linguistic and academic efforts are recognised, supported and expected to succeed.

While the existing research offers valuable insights, several limitations restrict the strength of the conclusions that can be drawn. One key issue concerns the short duration of many interventions. Several studies examined outcomes across just a few weeks or a single academic term. As a result, we have limited understanding of whether gains in academic confidence persist over time. It remains unclear if students who participate in personalized learning modules maintain higher levels of engagement or academic achievement in

subsequent semesters. There is an apparent absence of longitudinal studies that track ESL learners across multiple stages of their degree programs. Addressing this would allow future research to assess whether personalized strategies lead to sustained improvements in confidence, or whether their effects are more transient and context-dependent. Another issue is related to sampling and context. Many studies are conducted within individual institutions or language support programs, often involving small cohorts of students from specific cultural or disciplinary backgrounds. This limits generalisability, particularly when applying findings across different national or institutional settings. Cultural norms around autonomy and teacher-student interaction may also influence how personalization is received. For instance, learners accustomed to teacher-led instruction may initially feel uncertain when asked to self-direct their learning. Moreover, measurement practices across the literature vary. Some studies rely on well-established self-efficacy scales, while others infer confidence from indirect indicators such as participation or willingness to communicate. This inconsistency creates difficulties in comparing results or synthesizing findings across studies. There is a clear need for a validated and context-sensitive scale that captures academic confidence in second language learning environments, especially for students in overseas degree programs.

Practical barriers to implementation should also be acknowledged. Designing and delivering personalized instruction requires additional time, training, and resources. Many instructors may not have the capacity to adjust lesson content or assessment formats for individual learners, especially in large classes. On the technology side, adaptive tools and digital platforms vary in quality and accessibility. Some require strong internet infrastructure or assume high levels of digital literacy. Others may produce unclear or generic feedback, which risks undermining the very confidence they are intended to support. Thus, future research should focus on addressing these gaps. There is scope for controlled comparative studies testing personalized models against traditional instruction using standardised outcome measures. Mixed-methods designs would also be helpful in capturing both quantitative shifts in confidence and qualitative reflections on student experience. Greater attention should be given to regional diversity, particularly under-researched settings such as EMI (English-medium instruction) programs in non-Anglophone countries. Additionally, the growing role of AI-driven tools in educational settings demands critical evaluation. Researchers should examine whether these tools improve proficiency and to what extent they influence learners' confidence, sense of control, and motivation. Given that confidence in a second language context is shaped by how students experience their progress, respond to setbacks and interpret institutional feedback, future studies must treat confidence as both a measurable construct and a meaningful part of academic life for international students.

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