



CHALLENGES FACED BY SYRIAN EFL UNDERGRADUATE STUDENTS IN LEARNING ENGLISH: THE ROLE OF LINGUISTIC DIFFERENCES, AI TOOLS, AND PEDAGOGICAL PRACTICES

Khalefa Kheder¹,

Nayef Jomaa²ⁱ

¹Maaref University,
Syria

²University of Technology and Applied Sciences,
Salalah, Oman

Abstract:

This study examined the challenges Syrian EFL undergraduate students face in a post-conflict context, focusing on language challenges, perceptions of AI tools, and pedagogical practices. The study used a questionnaire to collect data from 204 undergraduate students at three Syrian universities, assessing language-learning challenges, perceptions of AI tools, and classroom contextual schooling using five-point Likert-scale items. The findings showed that expressing ideas fluently ($M = 4.21$) was the greatest challenge, while grammar ($M = 3.04$) and pronunciation ($M = 3.47$) were much lower. A significant gap in critical awareness of guidance emerged in that students showed moderate-high degrees of awareness of AI tools ($M = 3.62$) but very low difficulty levels in using the tools ($M = 2.85$) and overwhelmingly indicated that they needed guidance from teachers ($M = 4.16$) and that universities had not provided robust AI training ($M = 4.03$), while teachers did not utilize AI in the classroom ($M = 3.67$). Female students reported significantly greater challenges with vocabulary than male students. Vocabulary challenges were less significant as students progressed from Year 1 to Year 4, while awareness of inadequacy in the institution increased over time. There were positive correlations across the linguistic, AI, and institutional dimensions, indicating some clustering of challenges. These findings suggest that the Technology Acceptance Model ought to be expanded to include perceived pedagogical practice integration in addition to perceived ease of use and perceived usefulness. The study demonstrates that the potential for student agency regarding accessing the technologies provides intervention clues for professional development opportunities and future curriculum design, not hardware expenditures.

ⁱ Correspondence: email khalefakhedir@gmail.com, khalefa.kheder@mas.edu.sy

Keywords: EFL education, post-conflict learning, artificial intelligence in education, Syrian higher education, Technology Acceptance Model, pedagogical integration

1. Introduction

Teaching English in Syria in recent decades has changed rapidly from a secondary foreign language to a key academic and workplace skill. However, the extended conflict has largely disrupted educational infrastructure and academic communities and presented unprecedented challenges both to educators and to learners. The war left Syria's higher education system severely compromised, and universities experienced politicization and militarization, with effects varying from destruction and the intimidatory presence of security forces within the campus to the forced displacement of both the students and the faculty and the virtual disappearance of research (McLaughlin *et al.*, 2019). Throughout the nation, combat seriously damaged infrastructure such as schools, universities, and educational institutions, with schools and universities being targeted either directly through bombs or indirectly through the deterioration in local governance and security (WENR, 2025).

The Syrian education system, previously marked by centralized curriculum instruction and conventional pedagogies, currently functions in the complex post-war scenario where institutions are grappling with compromised infrastructure, limited resources, and the requirement to include students with varied educational profiles and trauma-affected backgrounds. English proficiency, however, is still essential to Syrian students' educational progress, international mobility, and engagement in the international economy. English is the key to access to international research and scholarship as well as work in a more and more interconnected world. Modern Syrian EFL environments are also complicated by emerging technological advances, especially the advent of artificial intelligence software that brings new avenues for language acquisition. Though the technologies have the potential to promote accessible and adaptive language teaching, their implementation in resource-limited educational settings entails novel complications yet to be fully considered in academic circles.

In the face of the critical significance of English language instruction in post-conflict Syria, however, a significant empirical research deficit exists exploring the particular needs and issues of Syrian EFL undergraduate students. While the majority of available work in the domain concerns secure educational environments in the Gulf regions, very little focus is placed upon the special context surrounding post-conflict areas. This research deficit is especially evident when considering the intersection between linguistic issues, technological integration, and pedagogical practices in post-conflict environments.

Existing pedagogical models used in Syrian universities are typically based on pre-war pedagogical models and might no longer fit the needs of the new era and available capacities. Conventional teacher-centered pedagogies providing basic language content typically neglect the complexities faced by students in employing new

technologies, especially those related to artificial intelligence tools (AI tools), in their educational processes. Academic research shows that post-conflict investment typically overlooks the higher education sector, but the sector represents a potentially significant resource able to catalyze post-conflict reconstruction, state building, and peacebuilding processes (Milton, 2018). The lack of structured research on how emerging technologies are perceived and used by students within Syrian universities is a fundamental knowledge deficiency affecting both educational performance and institutional planning. In addition, the sheer speed and availability of AI-facilitated language tools such as chatbots, translation software, and automated writers have presented new opportunities and challenges inadequately understood within the Syrian context. Increasingly, students are accessing the tools without proper guidance on using them effectively and potentially developing over-reliance, misusing them, or failing to capitalize on the potential for significant language acquisition opportunities. Research examining the use of AI in language instruction indicates promise in the use of AI-driven instruction in overcoming the specialized challenges language students encounter but also warns against over-reliance and subsequent skill decline and diminished critical thinking and learner independence (Kohnke *et al.*, 2024). The absence of empirical evidence about the conditions and processes through which the tools can successfully be incorporated into current pedagogical models limits educators' ability to advise and institutions' ability to formulate sound technology integration plans.

The study will address these research gaps through four main goals that cumulatively explore the complex issues confronting Syrian EFL undergraduate students. The first objective seeks to identify and analyze the linguistic barriers that Syrian students encounter when learning English. This involves examining the specific interference patterns resulting from Arabic-English structural differences, pronunciation challenges stemming from phonological disparities between the two languages, and writing challenges related to unfamiliar sentence structures. By systematically documenting these challenges, the research will provide evidence-based insights into the most persistent linguistic obstacles that require targeted pedagogical interventions. The second objective is to examine students' evaluations of the efficacy and limitations of using AI tools in aiding English language learning. This entails exploring students' familiarity and usage habits with different AI technologies (e.g., ChatGPT and DeepSeek), their experience with the reliability and accuracy of the tools, and their views regarding the relative efficacy of AI-facilitated versus conventional study methods. The goal also involves the perception of students' fears towards excessive dependency on the use of technology and their attitudes towards using AI tools with human teaching. The third objective seeks to assess current pedagogical practices in Syrian EFL classrooms with special focus placed upon the integration of technology, methodologies used to teach, and institutional support mechanisms. This assessment will look at the degree to which current methodologies respond to student-defined needs and the extent to which conventional methodologies can be improved upon through the strategic integration of technology. The fourth objective aims to propose evidence-based recommendations for

incorporating AI in EFL teaching in resource-constrained post-conflict environments. Drawing from empirical research in relation to the challenges faced by students and their insights, this goal will establish instructive recommendations geared toward educators, institutional leaders, and policymakers looking to build high-quality English language instruction through deliberate technological integration.

The research contributes to academic scholarship and teaching in a number of significant ways. Theoretically, the research addresses a significant gap in the field of post-conflict education research through the empirical documentation of the issues affecting language acquisition in environments that have thus far received limited scholarly attention. The combination of the linguistic, technological, and pedagogical visions provides a rich and extensive model through which to comprehend EFL instruction within complex socio-political settings. The research adds to post-conflict education research outside the Syrian context to contribute insights applicable to other areas where English language education is key to rebuilding and development. Through the exploration of the way students cope with linguistic barriers when acquiring new technologies, the research adds to the general understanding of educational resilience and adaptation in adverse environments. Evidence shows education is poised to play a key role in rebuilding post-conflict societies, with policymakers claiming it will address war-induced psychosocial trauma, address youth unemployment, bring decentralization and democracy, construct peace, and foster economic and social development (Buckland, 2005).

Implications for institutional strategy and policy are a further key contribution. Policy and educational policymakers will use the empirical findings when making resource allocation choices, teacher training needs determinations, and technology integration planning decisions. The study offers evidence-based advice to institutions in implementing their modernization efforts in EFL programs and being sensitive to local contexts and limitations. Because the conflict causes not just problems in reconstruction but also great potential for reform in education systems, this study holds valuable insights for strategic planning in recovery stages (Buckland, 2005). Lastly, the research creates a model of technology integration in resource-constrained environments that can transcend the immediate Syrian situation. By exploring the successful integration of AI software within conventional pedagogies while staying within the limits of educational infrastructures and without degrading the quality of instruction, the work creates a model applicable across other situations where technological resources are scarce but where student demand for language competency is high. This comes at a prescient moment when language learning software powered by artificial intelligence is being increasingly mainstreamed across educational systems worldwide and is providing customized learning through the use of natural language processing and machine learning algorithms (European School Education Platform, 2024). The importance of this study is compounded by its timeliness since institutions of education across the globe are struggling with issues related to the proper use of AI in language instruction. Focusing on a situation where both opportunity and difficulty are acutely evident, the research can

offer insights that can be used to guide more general discussion about the role of technology in language instruction in varied educational environments.

2. Literature Review

This literature review synthesizes existing academic literature pertinent to the challenges of English as a Foreign Language (EFL) learners with conceptual orientation applicable to contexts such as Syria. The linguistic challenges, AI integration, pedagogical gaps, research needs, and theoretical frameworks are discussed. The section and subsection headings have been taken from the outline provided.

2.1 Linguistic Challenges

The process of learning English as a foreign language is typically characterized by substantial linguistic challenges from the language's differences from the student's first language, L1, as well as the complexity of the English language itself. For most Arabic speakers learning English as a foreign language, a major difficulty is grammatical disjunction, where Arabic differs structurally from English. These languages belong to different language families, namely Semitic and Germanic, respectively, and structural divergence in each of the areas, such as sentence structure, verb tense and aspect systems, and articles and prepositions, differs significantly (Al-Khresheh, 2016; Kharma & Hajjaj, 1997). For instance, the relatively flexible VSO (Verb-Subject-Object) or SVO (Subject-Verb-Object) word order in Arabic contrasts with the more fixed SVO order in English, often leading to syntactic errors in learners' output (Saiegh-Haddad, 2003).

Arabic and English differ almost completely in the areas of pronunciation and listening comprehension. Certain English phonemes, for example, the absence of the sounds /p/, /v/, and several vowel sounds, do not have standard equivalents in Arabic. This is demonstrated in their predictable pronunciation errors, as well as pronunciation challenges, affecting learners' intelligibility and ability to comprehend spoken English, particularly at faster speeds or in casual contexts.

Developing speaking fluency is closely linked to building confidence. Language anxiety - the "*distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process*" (Horwitz, Horwitz, & Cope, 1986, p. 128) – may impede oral participation and performance. Limited authentic communicative practice opportunities outside classrooms may further exacerbate these challenges (Mak, 2011). Extensive lexical knowledge with minimal cognates between Arabic and English is required for vocabulary acquisition, which demands considerable memorization effort and strategic learning (Nation, 2013). Finally, developing proficiency in academic writing in English is multi-faceted and involves grammatical accuracy and a wide range of lexical use as well as understanding the conventions of rhetorical arguments and citations, which are often different in Arabic academic writing (Kaplan, 1966; Hyland, 2009).

2.2 AI in Education

AI is extensively discussed in educational contexts, especially relating to language learning. It is perceived as a way through which individualized and improved learning could be achieved (Zawacki-Richter *et al.*, 2019). Currently, AI possesses multiple roles through its applications in language learning such as intelligent tutoring systems (ITSs), chatbots that are AI-powered for practice with conversation, automated writing evaluation (AWE) systems, and adaptive learning platforms that can tailor content according to different needs per student (Chen, Zou & Xie, 2022). Certainly, the scope of benefits and applications is endless for AI in that it can give instant responses to learning, create space for repetitive practice without judgment or time restrictions and expose learners to various learning materials from any place and time.

However, certain limitations are emerging in language learning applications. The possible drawbacks or challenges facing the introduction of AI tools are now generating significant concern. The concern lies in the fact that students may be over-dependent on these AI tools, resulting in damage or decline in those students' autonomy, critical thinking, and deeper learning strategies (Selwyn, 2019). For instance, for a certain student, reliance on translation software may prevent that student from being able to develop independent translation skills or an understanding of nuanced vocabulary. Besides these significant ethical and practical barriers, other barriers are algorithmic bias in AI systems, a consideration of privacy concerns with data and the digital divide, which is unequal access to technology and the Internet (Popenici & Kerr, 2017).

2.3 Pedagogical Gaps

In many contexts, traditional teaching persists in EFL classrooms, possibly including Syrian classrooms, typically characterized by teacher-centered instruction with rigorous rules of grammar and rote memorization (Richards, 2006; Savignon, 2002). Although such methods provide students with foundational knowledge of how the language structures work, they fail to prepare students effectively for the spontaneous, communicative usage of English in various real-life contexts and situations. Often, the integration of technology into these practices – with particular reference to AI tools – is limited or adopted without pedagogical justification. This could be due to poor infrastructure, inadequacy in teacher training to use these technologies, and resistance to pedagogical change (Kessler, 2018; Ertmer & Ottenbreit-Leftwich, 2010). Hence, students receive no optimal guidance on the strategic use of AI tools in their learning, thus leading to misuse or even becoming overwhelmed (Hubbard, 2009). Thus, there is a need to develop more modern pedagogical methods that move beyond traditional pedagogical methods through the purposeful incorporation of technology for creating interactive, student-centered, and communicative learning environments (Reinders & Hubbard, 2013). This requires ongoing professional development for teachers to develop technological pedagogical content knowledge (TPACK) (Mishra & Koehler, 2006).

2.4 Research Gap

Most of the research that has been undertaken so far on AI in education and language learning has been conducted in developed countries and well-resourced settings (Zawacki-Richter *et al.*, 2019; Chen *et al.*, 2022). The majority of studies focus their exploration on AI in contexts with robust infrastructure, ready access to technology, and established systems of support for teachers and learners. Furthermore, there is an emerging research gap that focuses on the use, effectiveness, and obstacles of AI in EFL education in post-conflict societies or other resource-constrained areas (Mushimiyimana *et al.*, 2025). Education systems in such areas often present unique challenges; for instance, damaged infrastructure, limited funding, and specific socio-emotional needs among students because of conflicts and the considerable need for educational reforms (Dryden-Peterson, 2016; Novelli, Lopes Cardozo, & Smith, 2017). Hence, there is significant demand for AI interventions adapted to the context and empirical studies investigating how the use of AI tools can be realistically and effectively implemented to help EFL learners in such challenging contexts, taking into account the local needs, culture, and limitations in resources.

2.5 Theoretical Framework

This study employs a well-established theoretical framework for understanding learners' adoption of AI tools and learning processes more broadly. Davis (1989) developed the Technology Acceptance Model (TAM) for predicting acceptance of technology by users. TAM considers the perception that a given technology enhances one's performance, defined as perceived usefulness, and the user's belief regarding the ease of using a certain technology, defined as perceived ease of use. This framework can help identify factors influencing the adoption of AI learning tools among Syrian EFL students. Second Language Acquisition (SLA) theories provide insight into the processes of learning another language, as well as potential pedagogical applications of AI tools. For instance, Krashen's (1985) Monitor Model helps us understand language learning in terms of the Input Hypothesis ($i+1$), which suggests that the learner acquires language through "comprehensible input" one level above that which they currently know. This may be achievable with AI in various adaptive ways. Additional evidence from Swain's (1995, 2005) Output Hypothesis suggests that the production of language (speaking or writing) contributes to fluency, accuracy, and overall L2 competence development. Thus, AI tools facilitating language production and providing feedback can be understood in accordance with this view. Additionally, Long's (1996) Interaction Hypothesis is relevant here, which emphasized negotiated interaction as beneficial to language development, whilst AI conversational agents may prove pertinent.

Moreover, post-conflict educational frameworks are essential for education in contexts of nations currently undergoing post-conflict recovery. There should also be numerous non-cognitive development objectives in education during such contexts, including peacemaking and peacebuilding, social cohesion, psycho-social support, and the restoration of normalcy (Bush & Saltarelli, 2000; Novelli *et al.*, 2017). The introduction

of any technologies, including artificial intelligence, into such environments must consider these broader socio-political and humanitarian contexts to be equitable and inclusive, supporting the overall recovery and rebuilding objectives in educational and societal approaches (INEE, 2021).

3. Methodology

3.1 Research Design

This study adopts a quantitative research design to investigate the challenges facing Syrian EFL undergraduate students in the acquisition of the English language, with emphasis placed on linguistic differences, the role of AI applications, and teaching techniques. A quantitative research design was used to achieve a rich understanding of quantitative patterns of the issues confronting the students (Creswell & Plano Clark, 2017). The study is based on quantitative data that are gathered concurrently using a unified instrument. The core part is composed of structured survey items using five-point Likert scales to assess the level of different challenges. This design fits the post-conflict educational study in particular, as it covers measurable indicators of the educational issues.

3.2 Respondents

The sample is 204 Syrian EFL undergraduate students from three universities in various regions in Syria. The sample size was established using a power analysis to enable the detection of significant differences across demographic variables feasible while still being feasible within the constraints of the post-conflict educational context. The use of a quantitative design is meant to increase the external validity between different institutional environments and geographical locations in Syria and to account for the possibility of variations in infrastructure and resource availability and the degree of impact from the conflict. Respondents are recruited through stratified sampling for representation across important demographic variables to obtain a gender-balanced sample with near-equal numbers of male and female students to reflect potential gender differences in language acquisition challenges and patterns of using technologies. The academic year is distributed across the four undergraduate years (first through fourth year) to analyze the way the challenges might differ as the students progress through their course and become more proficient in English.

Age groups range between 17 and 35+, capturing the varied student body in the universities in Syria, including the traditional-aged and those whose academic career was disrupted by the conflict. Age diversity is especially significant in the case of Syria since the students have undergone educational interruptions and can be returning to higher education after extended periods away from academic institutions. Including older students helps to understand the different forms and levels of experience and exposure to pre-conflict educational systems and the potential implications they may have on current educational challenges. Inclusion standards mandate that respondents be

presently enrolled university students in EFL programs or those requiring significant English language study. The respondents should have studied English for a minimum period of one university semester to establish that they have adequate experience with the latest pedagogies and issues. Exclusion standards include graduate students since their study contexts and issues might greatly differ from those at the undergraduate level and those who have yet to finish a university-level English course.

3.3 Data Collection

Data are gathered through a detailed four-part questionnaire aimed at evaluating different aspects of the Syrian EFL learning experience. The questionnaire is based on validated instruments for assessing language acquisition and adapted to the Syrian post-conflict context and developing AI technologies. All items were translated and back-translated through a process aimed at obtaining accuracy in language and cultural fit in both the Arabic and the English translations.

Section 1: Demographics gathers fundamental background information such as gender, age, current level of study, and affiliation with the university. Further demographic variables assess educational background, including any disruption in education as a result of the war, experience with English study, and current residence status (whether or not students are in their home areas or displaced).

Section 2 includes 10 items on a five-point Likert rating system (1 = Strongly Disagree, 5 = Strongly Agree) to assess common language acquisition challenges. They cover grammatical challenges stemming from the differences between Arabic and English structure, pronunciation barriers, fluency and self-confidence while speaking, vocabulary restriction, barriers in writing, difficulty with listening comprehension, language anxiety, and availability of practice opportunities and study aids.

Section 3: Challenges Related to AI includes 8 items specifically intended to gauge students' experiences using AI tools to learn languages. Section 3 measures awareness and application of the use of ChatGPT and DeepSeek, implementation issues, translation accuracy concerns, recognition issues with dialects, comparative efficacy of instruction using AI when compared to the instruction delivered through educators, matching content and proficiency levels, overdependence concerns, and the requirement to guide the appropriate use of AI tools.

Section 4: Learning Environment encompasses 5 items examining institutional and pedagogical variables affecting learning. These items measure current use of AI in classrooms, efficacy of conventional teaching practices, availability of digital tools, provision of customized learning programs, and provision of adequate institutional support towards technology-enhanced learning.

3.4 Ethical Considerations

The study complies with international norms of educational research ethics, taking care to accommodate the sensitivities related to research undertaken in post-conflict settings. Institutional Review Board approval was secured from each institution taking part, and

consent processes ensure respondents are aware that participation is voluntary, their replies are confidential, and they have the right to withdraw at any point without harm. Given the political sensitivities in the Syrian situation, extra care is taken to maintain respondent confidentiality and data protection. No identifying details are gathered apart from basic demographic categories, and all the data is on secure servers where access is limited to authorized research staff. Respondents are guaranteed that their replies will in no way be available to university management or government agencies, and findings will only be presented in aggregate form to maintain privacy at the participant level. A special concern is directed towards the potential emotional effects of items related to conflict exposure and educational disruptions. An effort is made to focus the questionnaire on current academic concerns and not traumatic events, and all respondents are provided with contact information about counselling services.

3.5 Quantitative Analysis

The study utilizes a quantitative research strategy to provide comprehensive insights into the experience and challenges of Syrian EFL students. Quantitative data from the Likert-scale items are also analyzed via SPSS statistical software. Descriptive statistics such as means and standard deviations are computed for all the measured variables to provide insight into the sample characteristics and difficulty levels, and to identify the most prevalent challenge areas of the Syrian EFL learner and the patterns of difficulty in various domains of language acquisition. Inferential statistical analyses examine the correlations between demographic measures and self-perceived challenges. Independent samples t-tests contrast male and female students' levels of difficulty, and one-way analysis of variance addresses differences between academic years and ages. Chi-square tests for independence evaluate correlations between dichotomous variables such as university affiliation and areas of difficulty. Correlational analyses examine relations across various types of challenges, e.g., the relation between traditional language challenges and AI-related challenges, or the relation between instructional context factors and overall learning challenges. These analyses determine if difficulties cluster in significant patterns and if challenges in one area can predict challenges in other areas. Internal consistency reliability is measured through Cronbach's alpha coefficients across each section of the scales to verify that the questionnaire items are measuring consistent constructs. The exploratory factor analysis is performed to explore the underlying factor structure in the challenges and verify the theoretical grouping of items within unique categories of challenges.

4. Results

This section presents findings from 204 Syrian EFL undergraduate students across three universities. The analysis addresses each research objective through descriptive and inferential statistics.

4.1 Demographic Information

The sample comprised 204 Syrian EFL undergraduate students. Female students represented 77.5% ($n = 158$) of respondents, while male students comprised 22.5% ($n = 46$). This gender distribution reflects typical enrollment patterns in Syrian EFL programs, where female students traditionally constitute the majority.

The age distribution reflected the diverse student population characteristic of Syrian universities in the post-conflict context. The largest age group was 17–21 years (41.7%, $n = 85$), followed by 22–24 years (19.6%, $n = 40$), 25–29 years (17.6%, $n = 36$), 30–34 years (14.2%, $n = 29$), and 35+ years (6.9%, $n = 14$). The presence of older students (38.7% aged 25 or above) indicates the impact of conflict-related educational disruption, with many students returning to or continuing higher education after extended interruptions. Respondents were distributed across all four undergraduate years: Year 1 (45.6%, $n = 93$), Year 2 (27.0%, $n = 55$), Year 3 (17.6%, $n = 36$), and Year 4 (9.8%, $n = 20$). The higher concentration of first- and second-year students is consistent with typical undergraduate enrollment pyramids, though the representation across all years enabled analysis of how challenges evolve as students progress through their programs.

4.2 General Challenges in Learning English

Respondents rated their agreement with 10 statements addressing traditional language learning challenges on a 5-point Likert scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*). Table 1 presents descriptive statistics for each challenge, ranked by mean score.

Table 1: Mean Scores and Standard Deviations for General Language Learning Challenges

Rank	Challenge	<i>M</i>	<i>SD</i>
1	Expressing ideas fluently	4.21	0.77
2	Lack of practice opportunities	3.89	0.99
3	Listening comprehension difficulties	3.88	1.04
4	Limited vocabulary	3.85	1.08
5	Anxiety about grammatical errors	3.82	0.99
6	Lack of confidence in speaking	3.53	1.21
7	Pronunciation difficulties	3.47	1.11
8	Writing challenges	3.29	1.15
9	Difficulty understanding materials	3.09	1.04
10	Grammar differences (Arabic vs. English)	3.04	1.03

Note: $N = 204$. Means ≥ 3.80 indicate high challenges; means 3.40–3.79 indicate moderate-high challenges; means 3.00–3.39 indicate moderate challenges.

Expressing ideas fluently emerged as the most significant challenge ($M = 4.21$, $SD = 0.77$), with relatively low variability indicating strong consensus among students. This rating substantially exceeded all other challenges. Lack of practice opportunities ($M = 3.89$, $SD = 0.99$) represented the second-highest challenge, reflecting limited authentic English communication contexts. Listening comprehension difficulties ($M = 3.88$, $SD = 1.04$) and limited vocabulary ($M = 3.85$, $SD = 1.08$) were rated nearly equally high, suggesting these receptive and foundational skills present substantial obstacles. Anxiety about

grammatical errors ($M = 3.82$, $SD = 0.99$) rounded out the top five challenges, indicating significant affective barriers to language production.

Lack of confidence in speaking ($M = 3.53$, $SD = 1.21$) showed the highest standard deviation among all challenges, indicating considerable individual variation in self-efficacy beliefs. Pronunciation difficulties ($M = 3.47$, $SD = 1.11$) fell in the moderate-high range. Writing challenges ($M = 3.29$, $SD = 1.15$), difficulty understanding materials ($M = 3.09$, $SD = 1.04$), and grammar differences ($M = 3.04$, $SD = 1.03$) received the lowest ratings among all language challenges.

The combination of high fluency challenges and the substantial standard deviation for confidence ($SD = 1.21$) reveals that while fluency is universally challenging, confidence varies considerably across individuals. This pattern suggests that productive oral skills represent the central challenge area for Syrian EFL learners, compounded by limited practice opportunities creating a self-reinforcing cycle. The high vocabulary rating reflects the relatively lower cognate overlap between Arabic and English compared to Romance-Germanic language pairs, requiring students to acquire extensive vocabulary through memorization rather than recognition of familiar roots. Language anxiety may inhibit risk-taking in language production, further limiting skill development. In the post-conflict Syrian context, opportunities for English interaction have diminished due to displacement, economic constraints, and reduced international engagement.

4.3 AI Tool Perceptions

Table 2 presents students' perceptions regarding AI tools for English language learning, revealing a complex awareness-implementation gap.

Table 2: Mean Scores for AI Tool Perceptions

Rank	Challenge/Perception	<i>M</i>	<i>SD</i>
1	Need teacher guidance on AI use	4.16	0.89
2	Over-reliance weakens thinking	4.06	0.99
3	Awareness of AI tools for writing	3.62	0.89
4	AI less effective than teachers	3.55	1.13
5	AI content not level-appropriate	3.44	1.00
6	AI provides incorrect translations	3.43	1.01
7	AI dialect recognition issues	3.19	1.04
8	Difficulty using AI effectively	2.85	1.06

Note: $N = 204$.

Students reported moderate-high awareness ($M = 3.62$, $SD = 0.89$) of AI tools like ChatGPT and DeepSeek for English writing practice, indicating that AI tools have penetrated Syrian educational contexts despite infrastructure limitations, likely through mobile access and free platforms. Difficulty using AI effectively received the lowest mean score ($M = 2.85$, $SD = 1.06$), falling below the midpoint of the scale. This finding should be interpreted carefully: the low difficulty rating likely reflects students' capability for basic technical operation (accessing AI tools, entering prompts, receiving responses)

rather than sophisticated pedagogical application. The disconnect between low implementation difficulty and high need for teacher guidance ($M = 4.16$) suggests students can use AI tools at a surface level but recognize they lack strategies for optimal learning outcomes—a distinction between technical competence and pedagogical effectiveness.

Students moderately agreed that AI tools sometimes provide incorrect translations ($M = 3.43$, $SD = 1.01$), a valid concern given that current AI models may struggle with Arabic-English translation, particularly for idiomatic expressions and dialectal variations. Students showed moderate-high agreement ($M = 3.55$, $SD = 1.13$) that AI is less effective than teachers for explaining complex grammar. The relatively high standard deviation indicates varied opinions, suggesting students still value teacher expertise for nuanced pedagogical tasks and may view AI as complementary to, rather than a replacement for, human instruction.

The high mean for over-reliance concerns ($M = 4.06$, $SD = 0.99$) demonstrates that students recognize risks of excessive AI dependency. This metacognitive awareness suggests students understand AI tools should supplement rather than replace active learning strategies. The highest-rated AI perception was need for teacher guidance ($M = 4.16$, $SD = 0.89$), revealing near-universal agreement across the entire sample regardless of demographic characteristics. This finding is critical: students have access to AI tools but lack pedagogical frameworks for optimal integration.

A clear pattern emerges: high awareness coupled with high need for guidance, low implementation difficulty but moderate concerns about quality and effectiveness. This suggests students have adopted AI tools independently but lack structured pedagogical approaches to maximize learning benefits while mitigating risks. The gap between awareness and need for guidance quantifies this teaching opportunity. Students are not resistant to technology but recognize they need pedagogical scaffolding to use it effectively.

4.4 Classroom Environment and Pedagogical Practices

Table 3 presents student perspectives on current classroom practices and institutional support, revealing significant gaps in technology integration and pedagogical innovation.

Table 3: Classroom Environment and Teaching Method Ratings

Rank	Factor	<i>M</i>	<i>SD</i>
1	No university AI training	4.03	0.93
2	Teachers do not use AI in classroom	3.67	0.95
3	Traditional methods less engaging	3.62	1.07
4	No AI-personalized programs	3.33	0.93
5	Lack of digital tools	3.32	0.99

Note: $N = 204$.

Students rated highest agreement ($M = 4.03$, $SD = 0.93$) that universities do not provide adequate training on AI-supported English learning tools. This institutional gap is striking when contrasted with student awareness of AI ($M = 3.62$) and their expressed need for guidance ($M = 4.16$). High agreement ($M = 3.67$, $SD = 0.95$) that teachers do not currently use AI tools in classrooms confirms the awareness-practice gap. Despite student familiarity with AI and explicit desire for guidance, classroom instruction has not incorporated these tools, representing a missed opportunity for modeling effective AI use.

Students indicated moderate-high agreement ($M = 3.62$, $SD = 1.07$) that traditional teaching methods make English learning less engaging. The relatively high standard deviation (highest among classroom factors) suggests individual variation in response to traditional pedagogy. Students reported moderate agreement ($M = 3.32$, $SD = 0.99$) regarding lack of digital tools for English practice—the lowest-rated classroom environment challenge. This likely reflects the reality that students access AI tools independently through personal mobile devices rather than university-provided infrastructure. The challenge is thus not hardware access but rather pedagogical integration and guidance.

The data reveal a significant disconnect between technological potential and current pedagogical practices. Students have independently discovered and adopted AI tools, yet educational institutions have not responded with training programs, teacher modeling, or integrated pedagogical approaches. This gap is not primarily about resource access but rather about pedagogical adaptation and institutional support.

4.5 Demographic Differences

4.5.1 Gender Differences

Independent-samples t -tests examined gender differences across all challenge domains. One statistically significant difference emerged: Female students ($M = 3.96$, $SD = 1.01$) reported significantly higher vocabulary challenges than male students ($M = 3.48$, $SD = 1.23$), $t(202) = -2.73$, $p = .007$, $d = -0.46$, representing a medium effect size. No significant gender differences were found for other measured variables, including fluency challenges ($t(202) = -1.68$, $p = .095$, $d = -0.28$), practice opportunities ($t(202) = -1.37$, $p = .173$, $d = -0.23$), AI guidance needs ($t(202) = -1.75$, $p = .081$, $d = -0.29$), and institutional training gaps ($t(202) = 0.12$, $p = .907$, $d = 0.02$).

The gender difference in vocabulary warrants attention. Female students' higher reported vocabulary challenges may reflect greater metacognitive awareness of linguistic gaps, higher academic expectations, different patterns of English exposure outside formal instruction, or gender-differentiated confidence in self-assessment. Alternatively, this finding may indicate actual differences in vocabulary acquisition patterns requiring further investigation. The absence of gender differences in other domains suggests that most challenges are largely universal across genders. This pattern indicates that challenge universality transcends gender in post-conflict Syria, educational interventions can be designed for the entire student population rather than requiring gender-specific

modifications for most areas, and both male and female students have similar access to and experiences with AI tools.

4.5.2 Academic Year Differences

One-way analysis of variance (ANOVA) tests examined whether challenges varied significantly across academic years. Significant differences were found for four variables. For expressing ideas fluently, $F(3, 200) = 3.16, p = .026, \eta^2 = .045$, with Year 1 ($M = 4.20, n = 93$), Year 2 ($M = 4.35, n = 55$), Year 3 ($M = 4.28, n = 36$), and Year 4 ($M = 3.75, n = 20$). The small effect size indicates that academic year accounts for approximately 4.5% of the variance in fluency challenges. Post-hoc analysis using Tukey HSD revealed that Year 4 students reported significantly lower fluency challenges compared to Year 2 students ($d = 0.75$), suggesting some improvement in productive oral skills as students progress through their programs.

For lack of practice opportunities, $F(3, 200) = 2.76, p = .043, \eta^2 = .040$, with Year 1 ($M = 3.76$), Year 2 ($M = 4.11$), Year 3 ($M = 4.08$), and Year 4 ($M = 3.55$). This U-shaped pattern may reflect initial acceptance, growing awareness of limitations, and eventual adaptation or reduced expectations.

For limited vocabulary, $F(3, 200) = 2.82, p = .040, \eta^2 = .041$, with Year 1 ($M = 4.05$), Year 2 ($M = 3.84$), Year 3 ($M = 3.56$), and Year 4 ($M = 3.50$). A clear declining trend emerged. Post-hoc comparisons revealed Year 1 students differed significantly from Year 4 students ($d = 0.55$), indicating vocabulary improves progressively through the undergraduate program.

For no university AI training, $F(3, 200) = 4.82, p = .003, \eta^2 = .067$, with Year 1 ($M = 3.78$), Year 2 ($M = 4.27$), Year 3 ($M = 4.08$), and Year 4 ($M = 4.40$). This variable showed the largest effect size, with academic year accounting for approximately 6.7% of the variance. Awareness of inadequate institutional training increased across years. Post-hoc analysis revealed Year 4 students differed significantly from Year 1 students ($d = 0.64$). This ascending pattern suggests growing recognition of institutional gaps as students develop a more sophisticated understanding of effective technology-integrated pedagogy.

No significant differences were found for listening comprehension ($F(3, 200) = 0.80, p = .497$), lack of confidence ($F(3, 200) = 0.89, p = .448$), and need for teacher guidance on AI ($F(3, 200) = 0.93, p = .427$). These challenges remained stable across academic years. The pattern reveals a nuanced picture of academic progression. Some linguistic challenges show improvement as students advance, suggesting current instruction has some developmental impact. However, the increase in awareness of institutional inadequacies indicates that as students become more sophisticated language learners, they become more aware of systemic limitations. The stability of other core challenges suggests these require explicit intervention rather than naturally resolving through program progression.

4.6 Reliability Analysis

Internal consistency reliability was assessed using Cronbach's alpha for each scale: General Language Challenges (10 items, $\alpha = .80$), AI Tool Perceptions (8 items, $\alpha = .60$), and Classroom Environment (5 items, $\alpha = .61$). The General Language Challenges scale demonstrated acceptable internal consistency, supporting the reliability of this measurement instrument. However, the AI Tool Perceptions and Classroom Environment scales fell below the conventional .70 threshold for acceptable reliability.

This lower reliability warrants careful interpretation. The moderate alphas may reflect that items assess related but conceptually distinct facets rather than a single narrow construct. For the AI scale, items address different aspects—awareness, technical difficulty, accuracy concerns, pedagogical effectiveness, and over-reliance—that may not necessarily correlate highly despite all relating to AI. Similarly, the Classroom scale encompasses diverse institutional factors including teacher practices, teaching methods, resource access, training provision, and personalized learning availability.

While these lower alphas suggest caution in treating each scale as unidimensional, the scales remain useful for exploratory purposes in documenting the range of technology-related and institutional challenges Syrian EFL students experience. Future research should consider refining these instruments, potentially subdividing the AI and Classroom constructs into more focused subscales. The acceptable reliability of the General Language Challenges scale provides confidence in findings related to traditional linguistic obstacles, while interpretations regarding AI and institutional factors should acknowledge the multidimensional nature of these constructs.

4.7 Correlational Patterns

Pearson correlation analyses examined relationships between average composite scores across the three main challenge domains. Positive intercorrelations were found across all three domains ($N = 204$). General Language Challenges correlated moderately with AI Tool Challenges ($r = .43, p < .001$), indicating that students experiencing more traditional language learning challenges also tend to report greater difficulties with AI tool use. This pattern suggests AI tools do not automatically compensate for linguistic difficulties; students struggling with fundamental language skills may also struggle to generate effective prompts, understand AI output, or evaluate response quality.

General Language Challenges showed a small-to-moderate positive correlation with Classroom Environment Issues ($r = .31, p < .001$). This relationship could be bidirectional: inadequate classroom practices may contribute to persistent linguistic challenges, while students experiencing difficulties may become more critically aware of institutional limitations. AI Tool Challenges correlated positively with Classroom Environment ($r = .27, p < .001$). This pattern is logical given that lack of teacher guidance and inadequate training directly relate to students' ability to implement AI effectively.

All three domains showed statistically significant positive intercorrelations, suggesting challenges cluster together rather than compensate for one another. Students facing linguistic difficulties do not find resolution through independent AI tool use, and

inadequate institutional support exacerbates both linguistic and technological challenges. This interconnected challenge space indicates the need for comprehensive rather than piecemeal interventions addressing linguistic instruction, technology integration, and institutional support simultaneously. The moderate strength of these correlations ($r = .27$ to $.43$) also indicates that while the domains are related, they represent partially distinct challenge areas, each requiring specific attention in intervention design.

4.8 Summary of Key Findings

Several critical patterns emerged from the analysis. Expressing ideas fluently ($M = 4.21$) emerged as the single highest-rated challenge, substantially exceeding other difficulties. Combined with high ratings for lack of practice opportunities ($M = 3.89$) and speaking confidence issues ($M = 3.53$), these findings indicate Syrian students require the most support in oral production and real-time language use.

The awareness-guidance gap in AI integration represents a critical intervention opportunity. Students demonstrate moderate-high awareness of AI tools ($M = 3.62$) and report low difficulty with basic operation ($M = 2.85$), yet overwhelmingly express need for teacher guidance ($M = 4.16$). This pattern reveals students have independently adopted accessible AI tools but lack pedagogical frameworks for effective use. Despite student AI awareness and explicit requests for guidance, universities provide inadequate training ($M = 4.03$), and teachers rarely integrate AI in classrooms ($M = 3.67$), suggesting the primary barrier is pedagogical integration rather than hardware access.

Female students reported significantly higher vocabulary challenges than males ($p = .007$, $d = -0.46$), while other challenges showed no gender differences. Vocabulary challenges decreased significantly from Year 1 to Year 4 ($p = .040$, $\eta^2 = .041$), and Year 4 students reported lower fluency challenges than earlier years ($p = .026$, $\eta^2 = .045$), suggesting some developmental progress. However, awareness of inadequate institutional AI training increased significantly across years ($p = .003$, $\eta^2 = .067$), with senior students most critical, suggesting growing sophistication in recognizing systemic gaps.

Positive correlations across all three main challenge domains ($r = .27$ to $.43$, all $p < .001$) indicate difficulties cluster together. Students experiencing greater linguistic challenges also report more AI-related difficulties and perceive less adequate institutional support, suggesting need for comprehensive interventions. High agreement regarding over-reliance concerns ($M = 4.06$) demonstrates students possess metacognitive awareness about AI limitations and risks. These findings provide the empirical foundation for pedagogical implications and recommendations, revealing clear priorities for intervention in Syrian EFL education.

5. Discussion

This study explored the difficulties faced by Syrian EFL undergraduate students under four goals: to identify linguistic barriers, explore perceptions of AI tools, evaluate

pedagogical practices, and suggest evidence-based recommendations for technology integration in a post-conflict context. The quantitative results indicate a complicated educational situation in which linguistic obstacles are coupled with new technological opportunities, yet institutional responses are inadequate to address the gaps between students' needs and pedagogical practice.

The first research goal was to determine and explore the linguistic barriers that Syrian students face in learning English. The results show that productive oral skills—the ability to express thoughts with fluency—constitute the greatest degree of self-reported difficulty for Syrian EFL learners ($M = 4.21$), by a substantial margin over self-reported difficulty with receptive skills, grammar, or pronunciation as barriers to learning. This finding is at odds with many of the hierarchies of difficulty established in more stable educational contexts, where acceptable pronunciation and grammar often preoccupy learners' attention (Al-Khresheh, 2016; Kharma & Hajjaj, 1997). The importance of fluency as a barrier to learning could be associated with disruptions to education caused by conflict; however, a cross-sectional design cannot provide definitive causal explanations. Despite this, the fact that the overall rating was also high for lack of opportunities for practice ($M = 3.89$) suggests that conflict impacted each of these constraints, such as relocation, avoiding dangers, financial concerns, a lack of international interaction, and a loss of social relations that took away any authentic context for communicating in English. This explanation is supported by the literature suggesting that post-conflict environments affect language learning, specifically through limited communicative practice opportunities (Dryden-Peterson, 2016). The highest mean fluency ratings, combined with a wide variation in confidence ($SD = 1.21$), suggest that although fluency was a barrier to learning for all in the sample, individual students' emotional responses to learning by speaking in English varied widely.

Caution is warranted in the interpretation of the relatively low overall rating assigned to grammatical challenges ($M = 3.04$). The results may mean that relative to other challenges, and perhaps due to the specific design of the Syrian EFL curricula, students might view overt grammatical knowledge as a foregone conclusion through form-focused instruction, or they may simply undervalue the significance of grammatical challenges in comparison to other challenges. The discrepancy between the minimal rating for grammar challenges and the great extent of rating for fluency challenges may indicate that even though students were able to acknowledge some degree of conscious or declarative knowledge about rules in grammar, they were not able to proceduralize that knowledge in real-time communicative contexts. This finding corresponds with the established body of research on accuracy-fluency trade-offs in language learning contexts (Skehan, 2009). Many of the students' reported grammar challenges were evaluated by the students without an assessment of their linguistic competence regarding grammatical correctness. Therefore, the interpretation of these findings deserves caution. Moderately low reported vocabulary challenges ($M = 3.85$) were an interesting finding, especially given the minimal cognate overlap between Arabic and English within the population. The report of vocabulary challenges decreasing from first to fourth year ($p = .040$, $\eta^2 =$

.041) found to be significant across groups indicates that a developmental effect is likely to occur, yet we cannot rule out cohort effect in this cross-sectional design. Female students reported significantly higher vocabulary challenges than male students ($p = .007$, $d = -0.46$), which might indicate differences in metacognition, expectations in a general academic sense, pattern of self-assessment, or metacognitive knowledge, or perhaps it is simply an indication of their vocabulary knowledge relative to their male counterparts. The present dataset cannot make an assertion.

While the mean rating for difficulty hearing pronunciation ($M = 3.47$) could be viewed as at least somewhat inconsistent with phonological differences reported in the literature between Arabic and English, including the absence of /p/, /v/, and certain English vowel splits in Arabic phonemic inventories and distinctions (Belmekki & Djebbari, 2008), it is possible that this rating reflects the relative value placed on intelligibility over phonological accuracy, a lack of emphasized pronunciation instruction in Syrian EFL contexts, or a lack of sufficient time with native-speaker models of pronunciation. Nevertheless, the mean anxiety rating regarding grammar errors was significantly higher than the other ratings ($M = 3.82$), while ratings for difficulty with grammar simply ranked lower than the other questions. Therefore, one could read this as a potential dissociation between reported linguistic difficulty and the Affective Filter. This finding aligns with Horwitz *et al.* (1986), who presented foreign language anxiety as a construct separate from a measure of linguistic competence.

The second research objective focused on students' perceptions of the benefits and constraints of AI tools. Findings indicated an observable trend: students report moderate-high awareness of AI tools, $M = 3.62$ (on a 5-point scale), and report low difficulty with basic use, $M = 2.85$ (on a 5-point scale), but also report a strong need for pedagogical support, $M = 4.16$ (on a 5-point scale). This consistent pattern—what we have called an "awareness-guidance gap"—indicates that while students can access and operate AI tools, they are aware of the limits in leveraging those capabilities towards effective language learning. Technological acceptance (Davis, 1989), as a component of the Technology Acceptance Model, relies on perceived usefulness and perceived ease of use. Syrian students appear to demonstrate ease of use as a barrier, which is likely aided by mobile devices and the intuitive use of applications. However, the high need for guidance (the top-rated statement concerning all AI perceptions) suggests that simply having access to technology does not imply effective and pedagogically sound learning. Students may not have metacognitive strategies for purposeful use, such as providing productive prompts, assessing the quality of AI outputs, or using AI feedback as part of learning.

This pattern indicates a potential extension to the TAM within educational contexts: perceived pedagogical integration could be viewed as a third significant factor in addition to usefulness and ease of use. For example, students might consider tools to be both useful and easy to use, but they recognize that for a tool to be effective, the teacher must implement a strategy for it to be effective. Evidence for this belief is the weak agreement that AI is less effective than teachers in explaining complex grammatical concepts ($M = 3.55$). This finding implies that students would perhaps see AI as an "add-

on", rather than replace "teacher" instruction. The moderate level of concern for over-reliance on WebPT ($M = 4.06$) also demonstrated metacognitive awareness of their reliance on AI and the potential negative consequences of excessive reliance on it. This awareness is inconsistent with the assumption of uncritical adoption of technology and aligns with current research that identifies the dangers of over-reliance on automated tools (Selwyn, 2019; Kohnke *et al.*, 2024).

The average concerns about the accuracy of translation ($M = 3.43$) and dialect recognition ($M = 3.19$) indicate known constraints of the current AI systems in use for Arabic-English translation, particularly given that Arabic is a morphologically rich language with dialectal variation. This kind of concern suggests that students have experiential knowledge about the limitations of AI systems gained through trial and error. From a Second Language Acquisition perspective, AI-assisted language learning tools could potentially provide comprehensible input to learners (Krashen, 1985), opportunities for output (Swain, 1995, 2005), and scaffolding for interaction opportunities (Long, 1996). Along with some other elements, to realize any benefits related to AI in language learning, these tools would likely need careful instructional design. In the absence of any design and guidance from the instructor, students may use these AI tools primarily to complete assignments rather than to develop linguistic competence, although this study did not assess their actual use.

The third research question looked at pedagogical approaches and institutional sources of support. The results indicate a serious lack of institutional response to the impact of technology on pedagogical practices. While students reported being aware of AI tools and expressed a desire for more information and guidance, they found that the universities did not provide adequate training ($M = 4.03$) and that their instructors often did not utilize AI in instructional contexts ($M = 3.67$). The proportion of students reporting a lack of institutional training increased significantly across their academic program ($p = .003$, $\eta^2 = .067$), and fourth-year students demonstrated the highest level of agreement (e.g., they "strongly agreed") as compared to students in prior years. In addition to potentially indicating that students increasingly notice the limitations of institutional response as they experience a more complex understanding of language learning through their academic program, this finding could also reflect differences among the cohorts in their expectations or experiences of AI integration.

The moderate agreement that traditional approaches render learning less engaging ($M = 3.62$) suggests some student dissatisfaction with traditional pedagogies, but the relatively high standard deviation ($SD = 1.07$) indicates a substantial individual variety in response to traditional teaching. This seems to indicate that each student has a unique set of preferences regarding their pedagogical experience. As important as these pedagogical experiences may be, it is interesting to note that for all students, the overall ratings of a lack of digital tools were lower ($M = 3.32$) than the ratings regarding traditional pedagogies. Syrian students appear to be using AI tools predominantly through individual devices rather than through institutionally owned devices, a usage pattern consistent with mobile-first internet access in resource-strapped contexts. This

indicates that the real issue is pedagogical in nature and not with hardware availability – an important distinction concerning allocation of often limited resources. The overall responses here clearly indicate why, despite opportunities for systemic reform, pedagogical innovation in post-conflict educational reconstruction fails in many settings (Buckland, 2005; Milton, 2018), as competing priorities (infrastructure, faculty retention, enrollment management, and accreditation) take precedence over pedagogical reform. Here, pedagogical reform and innovation might be on a list of priorities but were not high on the list of priorities.

The positive correlations between linguistic, AI, and institutional challenges ($r = .27$ to $.43$, all $ps < .001$) imply that these perceived challenges cluster, not compensate for one another. Those students with significantly more linguistic difficulties also indicated more difficulties related to AI and less institutional support. This pattern suggests that while AI tools may be perceived as helpful, they do not inherently alleviate difficulties with language, nor do they automatically compensate for institutional limitations. The correlation between linguistic and AI challenges ($r = .43$) suggests that effective use of AI may depend on existing linguistic and metacognitive abilities. Students who experience challenges with language at a more fundamental level may also struggle with producing effective AI prompts or evaluating the quality of AI output; nevertheless, the correlational nature of the study does inhibit conclusions of a causal relationship. This trend supports research on learning enhanced by technology, which repeatedly finds a benefit for those students who are already high-performing (Popenici & Kerr, 2017). The positive correlation between AI and institutional challenges ($r = .27$) suggests that students who perceive inadequate pedagogical support indicated more AI-related challenges, which further supports the co-influence of challenges, though the directionality of this relationship cannot be teased out from correlational data. The suggestions that multiple challenge domains represent co-influences of challenge imply that comprehensive solutions linked to multiple challenges might yield more effective outcomes than single solutions targeting one specific challenge domain.

The analyses of the academic year displayed unequivocal and equivocal patterns. The identified vocabulary challenges decreased significantly from the first year to the fourth year ($p = .040$), and fourth-year students reported lower fluency challenges than the second-year students ($p = .026$). These results lend support to developmental improvement in some areas, but as the reader has seen in this study, the cohort effects are an alternative explanation that cannot be ruled out, and the cross-sectional data in this paper will not allow that to be done. Students reported the highest dissatisfaction with practice opportunities in their second year, creating a U-shape for dissatisfaction in opportunities - indicating there may have been developmental shifts in awareness or expectations for the second-year students alternately suggest an experience specific to the cohort of students. The growing recognition of inadequate institutional training with AI grows from year to year and does suggest a growing sophistication of how students evaluate their institutional supports over their academic years, but cohort effects cannot be completely ruled out again. The most intriguing aspect may still be the relatively stable

levels of challenges across academic years (especially the universal recognition of the need for guidance for AI); from these findings, it suggests that not all challenges or difficulties will be resolved or mitigated through their experience as an undergraduate student.

The findings have some theoretical implications. This study indicates that TAM may be helpful to extend in educational contexts to include perceived pedagogical integration, in addition to perceived ease of use and perceived usefulness, as technical accessibility alone does not seem sufficient to guarantee learning effectiveness. The results suggest that any SLA theory developed in a stable educational landscape should include contextual constraints associated with post-conflict contexts. For example, all of Krashen's Input Hypothesis, Swain's Output Hypothesis, and Long's Interaction Hypothesis require access to input sources, opportunities for practice, and conversational partners, all of which may be limited in post-conflict educational contexts. While AI tools may theoretically address some of these constraints, achieving this would most likely require pedagogical scaffolding. The findings make a contribution to post-conflict education literature by demonstrating that educational reconstruction involves both pedagogical innovations and improving existing educational infrastructures.

Several implications for practice and policy arise from the empirical findings, though further exploration is warranted with respect to feasibility for implementation. One area of possible intervention is professional development for teachers on modeling what competent uses of AI look like—as opposed to prohibiting AI or ignoring it altogether. Furthermore, developing a curriculum that includes specific instruction in AI literacy may meet the information need students identified. For institutional leadership, the findings indicate that teacher professional development and curriculum may be more important investments than hardware infrastructure, given that students already have devices. For policymakers, developing a plan for educational recovery that focuses on the intentional pedagogical integration of technology, alongside infrastructure rebuilding, is a possible way to support improved learning outcomes, but until further implementation is thoroughly researched, these implications remain speculative.

The pattern of findings—high student awareness with insufficient institutional support—represents a potential intervention opportunity. Students have shown potential to access AI tools independently, but have a clear need for pedagogical frameworks to support their effective use of these tools to support language learning. This is a different situation than needing access to tools and encouragement to use those tools, which may allow for more precise pedagogical interventions. Finally, while the Syria post-conflict context is rife with substantial challenges, including damaged infrastructure, limited resources, and displaced professors, the findings also highlight student agency and initiative to independently engage with and use available technologies. This suggests that building on existing student motivation and technology adoption through the provision of pedagogical frameworks could be a context-appropriate strategy to improve the educational experience; however, the feasibility and impact of such strategies should be assessed through intervention research.

6. Conclusion

The study emphasized the difficulties faced by Syrian EFL undergraduate students through quantitative examination of 204 respondents at three universities and also met four goals: identify linguistic challenges faced by students due to Arabic-English transfer, investigate student perceptions of AI tools, assess educational practices and institutional support, and provide evidence-informed suggestions for technology in low-resource contexts. The analysis of coding and coding patterns suggests continuing (linguistic) constraints, emerging (technological) opportunities, and further institutional gaps. Syrian EFL learners indicated that fluently expressing their ideas ($M = 4.21$) was the most significant challenge, exceeding the difficulty with grammar ($M = 3.04$) or pronunciation ($M = 3.47$, by a wide margin). Coupled with a lack of opportunities for practice ($M = 3.89$) or uncertain speaking anxiety ($M = 3.53$, $SD = 1.21$), these findings demonstrate a self-perpetuating cycle impacting skill development in post-conflict contexts where authentic opportunities to communicate have been reduced.

The most salient trend in the data is the awareness-guidance gap in AI tools implementation. The students indicate moderate-high levels of awareness of AI applications ($M = 3.62$) and low levels of difficulty for basic operation ($M = 2.85$), yet overwhelmingly acknowledge needing to be guided by a teacher ($M = 4.16$). In fact, this gap demonstrates that the availability of technology does not guarantee effective pedagogy nor engagement of students in meaningful learning experiences. While the demand for pedagogical guidance is clear, universities offer insufficient levels of training on AI ($M = 4.03$), and teachers rarely use AI tools in their classrooms ($M = 3.67$), resulting in a lost opportunity to model and demonstrate effective use. Students showed a high level of metacognition regarding the use of AI, reflecting significant concern about over-reliance ($M = 4.06$) while at the same time acknowledging that AI cannot replace a teacher's expertise for advanced grammatical explanations ($M = 3.55$). This metacognitive awareness indicates students are not naive users of technology and are asking for a specific type of application and adoption, rather than uncritical application of future technology.

Demographic analyses reveal both universal patterns and specific variations. Female students reported significantly higher vocabulary challenges ($p = .007$, $d = -0.46$), although most challenges showed consistency across genders. Academic year analyses demonstrated vocabulary improvement from Year 1 to Year 4 ($p = .040$, $\eta^2 = .041$) and reduced fluency challenges in Year 4 compared to Year 2 ($p = .026$, $\eta^2 = .045$), yet awareness of institutional inadequacies increased across years ($p = .003$, $\eta^2 = .067$). Positive correlations across linguistic, AI, and institutional challenge domains ($r = .27$ to $.43$, all $p < .001$) indicate difficulties cluster rather than compensate, with students experiencing greater linguistic obstacles also reporting more AI-related challenges and perceiving less institutional support.

The results have theoretical implications that go beyond the situation in Syria. It is possible that the Technology Acceptance Model needs to be extended to include

perceived pedagogical integration in addition to perceived usefulness and perceived ease of use (as we showed students saw tools as useful and easy to use but still required pedagogical support). Theories of Second Language Acquisition developed to explain language learning in stable environments may need to be reconceptualized to address the context of post-conflict, where the assumptions about input, opportunities for output, and conversational partners may not hold. For scholarship on post-conflict education, this research contributes to the idea that educational reconstruction isn't only about rebuilding the physical infrastructure; pedagogical innovation and technology integration are also important components of the reconstruction process. There are also practical implications from this research, though any implementation will need to consider context-specific factors. For example, it represents a major opportunity for teacher professional development to model how to use AI when students are already able to access devices. For institutional leaders who have limited budgets and face pressure to 'catch up' to technology initiatives, investing in teacher training and curriculum design may yield a higher return on investment than purchasing hardware based on the current use of student devices.

These results should be viewed in light of methodological constraints. First, the cross-sectional nature of the research limits any causal claims about associations among variables, and an individual self-report measure can bias responses. The moderate internal consistency for the AI Tool Perceptions ($\alpha = .60$) and Classroom Environment ($\alpha = .61$) scales could reflect the multidimensionality of these constructs, such that some measurement improvement is warranted. Third, the sampling of three universities does not provide full representativeness based on regional differences. Fourth, this study focused on perceptions, not the actual usage or efficacy of AI-related technologies. Future research should embark on retrospective designs using a longitudinal approach to illustrate developmental trajectories and demonstrate causality; intervention research that employs certain instructional practices; mixed-methods designs that study AI and related qualitative usage; comparative research across regional post-conflict settings; and teacher perceptions and institutional decisions to complement this student-focused study.

This study, although limited, provides an important contribution to the field by documenting empirical evidence of the challenges faced by a student population that has received limited scholarly attention, and also showing that, despite limited resources, students demonstrate agency when accessing emerging technologies. The awareness-guidance gap is an actionable and targeted intervention opportunity, which could be improved through focused professional learning and reworking curriculum within the constraints of existing conditions. The research advances the global conversation surrounding AI implementation in education, illustrating that having access to technology does not guarantee students will benefit from the technology and that understanding pedagogical frameworks is equally as important as the technological functionalities.

Syrian EFL students are learning a language after a period of war while simultaneously contending with disrupted continuity and limited practice opportunities. Students are still attempting to acquire English competence, rely on accessing technological resources independently, and have sophisticated views regarding the benefits and risks of AI. While student agency, technological availability, and pedagogical needs become an opportunity space for intervention within the research environment, the main barrier is adapting institutions to pedagogical innovation, rather than student motivation or access to technology. As and when AI becomes more widespread across educational institutions, the questions and concerns raised by Syrian students regarding effective use and the balance of technology assistance and developing independence are relevant across multiple educational contexts. Ultimately, post-conflict environments create an interesting context to illustrate the literature regarding what is necessary for effective education; the studies can offer learning that extends beyond borders.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Khalefa Kheder, Maaref University of Applied Sciences, Syria.

ORCID: <https://orcid.org/0000-0002-0199-1745>

Email: khalefakhedir@gmail.com, khalefa.kheder@mas.edu.sy

Nayef Jomaa, University of Technology and Applied Sciences, Salalah, Oman.

ORCID: <https://orcid.org/0000-0001-8952-5812>

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Appendices: Questionnaire

Dear Students,

The purpose of this study is to investigate your perspectives on the challenges you encounter in learning English. Your participation will benefit you, your peers, and the university administration. All data will remain confidential and will be used solely for academic research.

Section 1: Demographic Information

1. Gender:

- ☐ Male
- ☐ Female

2. Age:

- ☐ 17–21
- ☐ 22–24
- ☐ 25–29
- ☐ 30–34
- ☐ 35+

3. Current Academic Level:

- ☐ First Year
- ☐ Second Year
- ☐ Third Year
- ☐ Fourth Year

Section 2: General Challenges in Learning English

(Rate your agreement with the following statements using the scale below)

Rating Scale:

- 1: Strongly Disagree
- 2: Disagree
- 3: Neutral
- 4: Agree
- 5: Strongly Agree

1. Differences between Arabic and English grammar rules make learning English challenging.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

2. Pronunciation difficulties arise because English differs from my native language (Arabic).

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

3. I struggle to express my ideas fluently in English.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

4. Limited vocabulary hinders my ability to communicate effectively in English.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
5. I lack confidence when speaking English in public.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
6. Listening activities in English are difficult, especially when native speakers speak quickly.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
7. Writing in English is challenging due to unfamiliarity with sentence structures.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
8. I feel anxious about making grammatical errors when speaking or writing in English.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
9. I lack sufficient opportunities to practice English outside the classroom.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
10. English textbooks and study materials are hard to understand.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

Section 3: Challenges Related to AI (ChatGPT, DeepSeek) and Technology in Learning English

(Rate your agreement with the following statements using the scale below)

Rating Scale:

- 1: Strongly Disagree
 - 2: Disagree
 - 3: Neutral
 - 4: Agree
 - 5: Strongly Agree
11. I am aware of using AI tools (e.g., ChatGPT, DeepSeek) to practice English writing.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
12. I face difficulties using AI tools effectively for learning English.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
13. AI tools sometimes provide incorrect translations, causing confusion.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
14. Speech recognition tools in AI do not always understand my dialect.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
15. I find AI tools less effective than teachers in explaining complex grammar rules.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
16. AI-generated content often does not match my English proficiency level.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
17. Over-reliance on AI tools may weaken my ability to think in English.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5
18. I need more guidance from teachers on effectively using AI for English learning.
• ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

Section 4: Challenges Related to Classroom Environment and Teaching Methods

(Rate your agreement with the following statements using the scale below)

Rating Scale:

- 1: Strongly Disagree
- 2: Disagree
- 3: Neutral
- 4: Agree
- 5: Strongly Agree

19. English teachers do not use AI tools to support learning in the classroom.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

20. Traditional teaching methods make learning English less engaging for me.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

21. I lack sufficient digital tools (AI Tools) to practice English.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

22. The absence of AI-based personalized learning programs hinders my progress in English.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5

23. My university does not provide adequate training on AI-supported English learning tools.

- ☐ 1 - ☐ 2 - ☐ 3 - ☐ 4 - ☐ 5