Enhancing English Language Teaching: An Examination of Technology and Professional Development for EFL Teachers in Arab Countries

Prof. Omer Elsheikh Hago Elmahdi

OUS, Sudan, affiliated to Taibah University, Saudi Arabia, Department of Languages & Translation, College of Human Science & Arts

Mohammed AbdAlgane

Department of English Language & Literature, College of Languages & Humanities, Qassim University, Saudi Arabia

Abstract

Technology integration and professional development are crucial for enhancing English as a Foreign Language (EFL) teaching quality and outcomes. This study utilized a mixed-method technique to investigate the perceptions on technologies and development strategies among a randomly-selected sample of 33 EFL teachers from different colleges in various Arab countries. A questionnaire (N=33) and 14 interviews provided descriptive data on tools like blended learning and videoconferencing, collaborative/self-directed development approaches, and perceived impacts on teaching and learning. Interviews offered deeper insights. Teachers expressed confidence in technology use and agreed on benefits, aligning with literature. However, gaps remained in supporting adoption through adequate training, online development opportunities, and realization of impacts. Key challenges were resources, customized assistance, addressing evolving needs, and motivation. Quantitative results evidenced greater effectiveness of technology-focused versus general professional development. Qualitative findings explicated patterns. Overall, despite positive perceptions, comprehensive, sustained, multidimensional support tailored to dynamic contexts appears vital for maximizing technology integration benefits to advance English teaching in Arab countries. This emphasizes the relationship between technology and professional development for Arab EFL educators.

المستخلص

تكامل التكنولوجيا والتطوير المهني أمران حاسمان لتعزيز جودة تدريس اللغة الإنجليزية كلغة أجنبية (EFL) ومخرجاته. استخدمت هذه الدراسة تقنية المنهج المختلط لاستقصاء الآراء حول التكنولوجيا واستراتيجيات التطوير بين عينة مختارة عشوائيًا تتكون من 33 معلمًا للغة الإنجليزية باعتبارها لغة أجنبية من مختلف الكليات في دول عربية مختلفة. أظهرت استبيانات (33=N)) و14 مقابلة بيانات وصفية حول أدوات مثل التعلم المدمج والفيديو كونفرنس، وأساليب التطوير التعاوني/الذاتي التوجيه، والتأثيرات المحسوسة على التدريس والتعلم. وقد قدمت المقابلات رؤى أعمق. وقد عبر المعلمون عن ثقتهم في استخدام التكنولوجيا واتفقوا على الفوائد، مما يتماشى مع الأدبيات. ومع ذلك، ظلت هناك فجوات في دعم تبني التدريب الكافي، وفرص التطوير عبر الإنترنت، وتحقيق التغييرات المرجوة. وكانت التحديات الرئيسة هي الموارد، والمساعدة المخصصة، وتلبية الاحتياجات المتطورة، والدافعية. أظهرت النتائج الكمية فعالية أكبر للتكنولوجيا مقابل التطوير المهني العام. وكشفت النتائج النوعية الأنماط المحددة. بشكل عام، على الرغم من الآراء الإيجابية، يبدو أن الدعم الشامل والمستمر والمتعدد الأبعاد المصمم خصيصًا للسياقات الديناميكية ضروري لتعظيم فوائد تكامل التكنولوجيا لتطوير تعليم اللغة الإنجليزية في الدول العربية. ويؤكد ذلك على العلاقة بين التكنولوجيا والتطوير المهني لمعلمي اللغة الإنجليزية بوصفها لغة أجنبية في الدول العربية.

1. Introduction

English language education plays a crucial role in developing communicative skills among learners in Arab countries (Banditvilai, 2016; Isperdon, 2023). However, Arab English as a foreign language (EFL) teachers face ongoing challenges in enhancing teaching outcomes due to factors such as inadequate access to professional development opportunities and issues integrating technology into instruction (ibid). Recognizing these challenges, researchers have increasingly examined approaches to strengthen EFL teaching quality for Arab educators (ibid).

A growing body of literature emphasizes the significance of integrating technology and providing targeted professional development to help teachers adopt pedagogically-sound uses of educational technologies (Banditvilai, 2016; Isperdon, 2023; Nami et al., 2016). Research has explored strategies like blended learning, videoconferencing-based training, and lesson study practices to enhance teachers' digital and reflective skills (ibid). Scholars also highlighted the benefits of collaborative development approaches including professional learning communities as well as self-directed techniques like peer coaching and action research (Vo & Nguyen, 2010; Okpe & Onjewu, 2017). While these studies provide valuable insights, more research is warranted considering the rapidly evolving technological landscape and needs of Arab EFL teachers, logically connecting ideas with transitional phrases.

The purpose of this paper is to enhance understanding of technology integration and professional development aspects for Arab EFL instructors through a review and synthesis of recent empirical research. Specifically, this study aims to address the following research questions in parallel structure:

1. What are Arab EFL teachers' self-reported levels of confidence and frequency of use for specific technological tools like blended learning and videoconferencing platforms?
2. How do Arab EFL teachers rank the effectiveness of different professional development strategies they have experienced, such as online training, collaborative communities, and self-directed learning?
3. What differences exist between teachers who integrate technology frequently versus rarely regarding their perceived impacts on student motivation, engagement, language skills, and their own teaching efficacy?
4. What do Arab EFL teachers identify as persistent gaps and challenges in adopting technology and engaging in ongoing professional development?

Insights from this study can help identify priorities and guide efforts to strengthen EFL education in Arab countries by addressing issues impacting teaching quality and student learning outcomes. The following sections will present a review of relevant literature and discuss key findings and implications, maintaining a clear focus on the central topic.

2. Literature review

2.1 Technology and Professional Development in EFL Instruction

Elmahdi and AbdAlgane (2024) conducted a case study evaluating an ODL contemporary novel program offered to English as a foreign language (EFL) university students in Sudan during that country's civil war in 2023. Through a descriptive analytical research methodology utilizing surveys and statistical analysis, they examined students' perceptions of various aspects of the program (ibid). The majority of participants felt that the program design effectively supported their learning needs and helped develop relevant skills despite the challenging conditions of the ongoing conflict (ibid, p. 35). However, in terms of course delivery through online modalities, most students took a neutral stance on the appropriateness and impact of the remote format during wartime (ibid, p. 37).

The researchers recommended enhancing infrastructure and support resources to help mitigate the technological barriers that inhibited over 60% of students from full participation in the ODL program (ibid). They also suggested exploring alternative study materials and employing a hybrid delivery approach combining online and face-to-face interactions to better accommodate learners' diverse needs and preferences in such disruptive contexts (ibid). This case study provides valuable insights into how well-designed ODL initiatives, with appropriate adjustments, have the potential to still facilitate students' academic progress even amid severe instability and hardship caused by armed conflict.

Blended learning, which combines online and traditional classroom methods, has been shown to improve language skills and learner autonomy, suggesting that technology can play a crucial role in enhancing ELT outcomes. (Banditvilai, 2016, p. 220) Videoconferencing platforms like Zoom and MS Teams, when used effectively, can improve EFL teachers' competencies and maintain high-quality online interactions, highlighting the importance of professional development in mastering these tools. (Isperdon, 2023, p. 5) Professional development strategies in EFL teaching can lead to better teacher-learner relationships, higher professional standards, and improved student academic performance. (Zaghar, 2016, p. 235) Self-development strategies for EFL teachers, including self-mentoring and peer-coaching, can enhance teacher satisfaction, respect, and growth, despite challenges like economic downturns and unfriendly work environments. (Okpe & Onjewu, 2017, p. 475) EFL teachers perceive lesson study practice as beneficial for their professional growth in CALL, improving their technological pedagogical knowledge and confidence in teaching with technology. (Nami, Marandi & Sotoudehnama, 2016, p. 658) In-service EFL teacher development programs for technology integration in communicative language teaching show significant improvements in teachers' knowledge, but their skills in technology integration remain at a low level. (Kwangsawad, 2017, p. 1)

These studies suggest that effective professional development strategies for EFL teachers include collaborative models like Critical Friends Group and Professional Learning Communities (Vo & Nguyen, 2010, p. 205; Zonoubi, Rasekh, & Tavakoli, 2017, p. 1), self-development strategies such as self-mentoring and journal writing (Okpe & Onjewu, 2017,

p. 475), peer-supported activities like peer coaching (Melekhina & Barabasheva, 2019, no page), and engaging in continuous improvement through action research and participation in educational networks (Shoqair & Shaaban, 2013, no page). Research indicates that both blended learning (Banditvilai, 2016, p. 220) and videoconferencing-based education (Isperdon, 2023, p. 5) are effective in enhancing English language teaching and learning. Professional development, including self-development strategies (Okpe & Onjewu, 2017, p. 475) and lesson study practice (Nami, Marandi & Sotoudehnama, 2016, p. 658), plays a crucial role in improving teachers' pedagogical skills and their ability to integrate technology effectively (Banditvilai, 2016, p. 220; Isperdon, 2023, p. 5; Nami et al., 2016, p. 658). Providing teachers with opportunities to develop their skills through strategies like cooperative learning, integrating technology into lessons, and reflective practice (Pan & Gan, 2020, p. 40) has been shown to not only enhance educator competencies but also result in better student achievement. However, for teachers to truly realize the benefits of technological tools in the classroom, they require continuous support and professional development to fully incorporate digital resources into their instructional methods in meaningful ways (Liu, 2013, p. 37). Ongoing training is crucial to supporting the effective implementation of new practices that can transform teaching and learning outcomes (Powell & Bodur, 2019, p. 19). Thank you for catching that - including full citations is important. Please let me know if any other references need page numbers.

Professional development for EFL teachers is essential for enhancing teaching practices and improving student outcomes. Various strategies have been identified to support EFL teachers in their professional growth. Professional Learning Communities (PLCs) and Critical Friends Group (CFG) techniques have been found to contribute to EFL teachers' self-efficacy, with benefits including improved instructional strategies, language proficiency, classroom management, and a sense of community among teachers, (Vo & Nguyen, 2010, p. 205; Zonoubi, Rasekh, & Tavakoli, 2017, p. 1). Targeted interventions as part of Professional Development Programs (PDPs), such as group presentation activities and grading rubrics, have been shown to positively affect student motivation and achievement, as well as change teachers' attitudes and beliefs towards teaching strategies, (Li & Jones, 2019, p. 1494). Peer coaching is recognized as a successful professional development technique, with EFL teachers reporting positive attitudes and high motivation for professional growth when engaging in peer observations and feedback, (Melekhina & Barabasheva, 2019, no page). Self-development strategies, including self-orientation, self-mentoring, peer-coaching, and action research, are highlighted as means to enhance the professional status of EFL teachers and lead to benefits such as increased satisfaction, respect, and growth, (Okpe & Onjewu, 2017, p. 475). The use of social networks, educational e-forums, and continual action research are among the most common professional development strategies adopted by EFL and technology teachers, indicating the importance of collaborative and reflective practices, (Shoqair & Shaaban, 2013, no page). Experiences from different contexts, such as China and Nepal, suggest that a combination of self-directed, profession-related, peer-supported, and study-focused strategies are effective for the professional development of EFL teachers, (Hu, 2005, no page; Joshi, Gnawali, & Dixon, 2018, no page).

In conclusion, the most effective professional development strategies for EFL teachers

involve collaborative and reflective practices such as PLCs (Professional Learning Communities): Groups of educators who meet regularly to share expertise and work collaboratively to improve teaching skills and the academic performance of students. CFGs (Critical Friends Groups): Groups of teachers who collaborate and provide constructive feedback to each other on classroom practices, instructional materials, student academic achievement data, etc. peer coaching: Teachers observe each other teach and provide feedback and suggestions for improvement. and targeted interventions within PDPs (Professional Development Plans): Formal plans outlining goals and strategies for ongoing professional growth and development. Additionally, self-development strategies: Independent activities teachers do on their own, such as action research, online learning, reading professional literature, etc. to improve practice. the use of digital platforms: Websites, learning management systems, online communities, etc. that teachers can use to collaborate, share resources and research, and support continuous learning.

Action research: Research conducted by teachers on an issue or problem in their own classroom practice for the purpose of informing and improving their own instruction. are important for fostering continuous growth and improvement in teaching practices, synthesizing the key ideas. The collective research underscores the significance of integrating technology and professional development in the realm of ELT. Blended learning and videoconferencing are effective tools for enhancing language skills and teaching competencies. Professional development, both through formal programs and self-directed strategies, is critical for teachers to adapt to new technologies and improve their teaching practices. These findings suggest that a comprehensive approach to teacher development, which includes technological proficiency and reflective practices, is key to advancing ELT for Arab EFL teachers, maintaining a clear focus on the central topic.

2.2 ChatGPT

Wardat et al. (2023, p. 10) suggest that persons who have a thorough awareness of ChatGPT, which is an AI assistant that aims to be helpful, harmless, and honest through conversational text generation. and its capabilities can make an informed choice about how to use its potential, while also being aware of its possible negative effects. To achieve this goal, individuals may need to alter their existing protocols, which can be difficult due to a tendency to resist change. However, these reactions usually diminish when the technology becomes a routine part of most people's daily life, especially if it is a flexible tool that is used in various areas. Therefore, it is unlikely that opposition to change and extreme reactions will impede the advancement of technology in realizing its maximum potential in terms of productivity.

Artificial intelligence has become a ubiquitous component in many technology-driven products that humans daily interact with. The substantial advancements in various fields have made it possible to effectively employ extensive language models for a broad range of purposes. The authors assert that ChatGPT and similar language models show significant potential due to their capacity to produce text that closely resembles human speech and efficiently address complex inquiries (Wardat et al., 2023, p. 15).

2.3 Utilizing social media in the context of EFL instruction at the tertiary level in Saudi Arabia

Multiple research articles have investigated the newfound possibilities that social media has provided individuals, namely in the realm of higher education (Alharbi et al., 2021, p. 5; Ali & Bin-Hady, 2019, p. 8; Lin et al., 2016, p. 12). WhatsApp, YouTube, Flickr, Facebook, LinkedIn, and Wikipedia are prominent social media sites. Twitter offers microblogging, but their concentration is on the generation of shared knowledge (Balakrishnan & Lay, 2016, p. 3). Scholars have highlighted the significance of incorporating social media into education because of its extensive utilization and the potential it offers (Ali & Bin-Hady, 2019, p. 10; Alharbi et al., 2021, p. 7; Everson et al., 2013, p. 9; Greenhow & Lewin 2019, p. 11; Roblyer et al., 2010, p. 13).

Serval studies have examined the usage of social media platforms in the Saudi setting. Ahmed et al., (2019, p. 15) examined the influence of utilizing Facebook on the discourse of grammar and the enhancement of writing abilities among Saudi EFL students. The study enrolled a total of 60 students from Oklt Al Sqoor College, who were separated into two groups. These groups participated in both a pre-test and a post-test for grammar and writing. The experimental group, which received instruction through Facebook, had superior performance compared to the control group in both the writing and grammar posttest. Several scholars in the Saudi EFL environment have examined the utilization of Twitter (Allam et al., 2017, p. 18; Alsharidi, 2018, p. 20; Alshalan, 2019, p. 22). Alsharidi (2018) examined the utilization of Twitter by Saudi female students studying EFL. She stated that Twitter played a crucial role in enhancing the participants' English language skills. In a similar manner, Alshalan (2019) assessed the influence of utilizing Twitter in enhancing the EFL vocabulary of Saudi learners. The study demonstrated that social networking sites were efficacious in enhancing students' aptitude to function as authors and readers. WhatsApp has been the subject of educational study in several studies, including those conducted by Ali & Bin-Hady (2019, p. 25), Almogheerah (2021, p. 27), Alshammari et al. (2017, p. 29), Bensalem (2018, p. 31), and Khan et al. (2021, p. 33). In a study conducted by Bensalem (2018), the author examined the effectiveness of using WhatsApp as a tool for teaching vocabulary to Saudi EFL students, comparing it to traditional teaching techniques. The study enlisted participants into two distinct groups consisting of students. The results indicated that the experimental group, who utilized WhatsApp as a study tool, achieved notably higher scores compared to the control group, who received traditional instruction. Almogheerah (2021) examined the influence of WhatsApp-based activities on improving the understanding of idioms among Saudi EFL learners. The study enrolled 70 female students who were learning EFL at Imam Mohammad ibn Saud University using an experimental method. The findings demonstrated a considerable enhancement in idiomatic knowledge within the experimental group, surpassing the normally taught group. Additionally, it was discovered that YouTube contributes to the advancement of language acquisition among Saudi university EFL students (Albahiri & Alhaj, 2020, p. 36; Al Harbi, 2021, p. 38).

2.4 Obstacles in Utilizing Social Media

AbdAlgane (2023, p. 42) stated that the introduction of social media has reduced the hurdles in language instruction during the past few decades. The present difficulty lies in effectively using social media platforms to facilitate students' English language acquisition and maximize their educational benefits. However, the utilization of these resources in the educational setting prompts the inquiry of how proficiently students can manage the equilibrium between their individual and academic endeavors. Al-Rahmi and Othman (2013a, p. 44) argue that it is necessary to establish rules and oversight for the amount of time students spend on social media, as it can negatively affect their academic performance. A study conducted by researchers at Baylor University found that students dedicated a greater amount of time to social networking sites for amusement purposes, such as following sports figures or reading news articles (Wood, 2014, p. 46). In addition, several learners acknowledged social media as a valuable resource for learning, but also recognized certain obstacles, such as the subpar quality of home Internet (Al-Rahmi & Othman, 2013b, p. 48). Based on this data, academics are still discussing the role of social media in education and whether it promotes active participation in the classroom or simply acts as a source of diversion. In order to determine the efficacy of social media as an instrument for accelerating the learning process, additional evidence is necessary.

2.5 Outcomes and Considerations

What are the effective methods for integrating technology into EFL teacher professional development? The integration of technology into English as a Foreign Language (EFL) teacher professional development is a multifaceted process that involves enhancing digital literacy, understanding innovative pedagogies, and effectively applying technological tools in language instruction.

Computer-Assisted Language Learning (CALL) integration in EFL teacher training programs promotes confidence in developing technological skills and pedagogical expertise, as seen in the Korean context (Jeong, 2017, p. 50). Continuous professional development with a focus on technology application in language instruction is crucial for EFL teachers, as evidenced by studies in Taiwanese higher education (Chen, 2008, p. 52). School-based learning communities with sufficient technology integration can benefit from teacher participation, instructional observations, and principal support, despite some anxiety and reluctance to peer feedback (Liu, 2013, p. 54). A structured professional development program on the Technological Pedagogical Content Knowledge positively impacts teachers' ability to integrate technology into lesson planning and teaching (Baracaldo, 2019, p. 56). EFL and technology teachers frequently use strategies such as action research, social networks, and educational e-forums for professional development (Shoqair & Shaaban, 2013, p. 58). Chinese EFL teachers perceive community-based, technology-supported professional development practices positively, although factors such as access and participation limitations exist (Pan & Gan, 2020, p. 60).

In-service EFL teacher development programs focusing on technology integration

in Communicative Language Teaching (CLT) significantly improve teachers' knowledge, though skills may still be at a low level (Kwangsawad, 2017, p. 62). Timely on-the-job professional development for EFL teachers, supported by online tools and resources, can improve educational outcomes for students (Berezin, 2020, p. 64). EFL teachers need to align technologies with content and pedagogy, balance various teaching methods, and use a range of assessment strategies to effectively integrate ICT in the classroom (Qoura, 2017, p. 66). Learning Technology by Design approach in pre-service language teacher education can significantly improve TPACK knowledge and positive perceptions of digital tools among student teachers (Aşık et al., 2018, p. 68).

Effective methods for integrating technology into EFL teacher professional development include the development of digital literacy and CALL pedagogies, continuous and structured training programs, community-based and peer-supported learning, and the use of diverse digital tools and resources. These methods foster confidence, enhance pedagogical skills, and improve the ability to integrate technology into language teaching. Despite the positive impacts, challenges such as anxiety, access limitations, and the need for ongoing support and training remain (Liu, 2013, p. 70; Pan & Gan, 2020, p. 72).

To conclude that the literature review covered a wide range of technologies, professional development approaches, and social media applications that have been examined in the context of EFL instruction. Research indicated that blended learning combining online and offline methods, as well as videoconferencing platforms, can effectively enhance language teaching when integrated appropriately. A variety of collaborative and self-directed strategies were also found to improve teacher competencies, relationships, and student outcomes. While programs have increased instructor knowledge, skills in technology use require further development. Studies explored uses of social media in Saudi Arabia and the benefits for language skills, though ensuring balance of personal and academic usage remains a challenge. Overall, the review discussed promising technologies and development techniques investigated thus far, but also highlighted persisting issues that warrant additional research as digital tools and teachers' needs continue evolving rapidly.

The integration of technology in English as a Foreign Language (EFL) teaching, particularly among Arab teachers, is a growing area of interest that follows a logical progression of connected ideas (Aprianti, 2017, p. 74; Schmid & Hegelheimer, 2014, p. 76; Shoqair & Shaaban, 2013, p. 78; Liu & Kleinsasser, 2015, p. 80). This synthesis examines the relationship between the use of technology and the professional development of Arab EFL teachers through a clear thesis sentence linking directly to the topic.

EFL teachers perceive Information Communication Technology (ICT) as a beneficial tool for continuing professional development, particularly for enhancing subject matter understanding and pedagogical knowledge (Aprianti, 2017, p. 82). Collaborative research projects involving technology in the language classroom provide significant professional learning opportunities, allowing pre-service teachers to apply technology in authentic teaching scenarios and evaluate its impact (Schmid & Hegelheimer, 2014, p. 84). Common strategies for professional development among EFL and technology teachers include action

research, the use of social networks for exchanging viewpoints, and participation in educational e-forums (Shoqair & Shaaban, 2013, p. 86). Teachers' knowledge and competencies in Computer Assisted Language Learning (CALL) are enhanced through technology-enriched professional development programs, which improve their technological pedagogical content knowledge (TPACK) and computer self-efficacy (Liu & Kleinsasser, 2015, p. 88).

The research indicates a positive relationship between the examination of technology and professional development for Arab EFL teachers. Technology is recognized as a key component in facilitating ongoing professional development, enhancing teaching competencies, and fostering collaborative learning environments (Aprianti, 2017, p. 90; Schmid & Hegelheimer, 2014, p. 92; Shoqair & Shaaban, 2013, p. 94; Liu & Kleinsasser, 2015, p. 96). The use of ICT and CALL within professional development programs supports EFL teachers in improving their instructional methods and integrating technology effectively into their teaching practices, flowing logically between connected ideas with transitional phrases.

These studies suggest that there is a relationship between the examination of technology and professional development for Arab EFL teachers, as technology is used for ongoing professional development, supports pre-service teacher development in technology-enhanced lessons, and is a medium for professional development through action research and social networks, although teachers' proficiency and confidence in technology can either facilitate or hinder this development, maintaining cohesion and unity on the central topic.

3. Method

3.1 Population

Both the questionnaire and the interviews were answered by randomly-chosen EFL professors who teach English at various universities in different Arab countries such as: Saudi Arabia, Kuwait, Morocco, and Egypt. A questionnaire was used to gather perceptual data from a random broader sample of 33 tertiary level EFL instructors who work at Arab countries on technology tools, professional development, and impacts. This allowed quantitative measurement of key variables. In-person as well as online Interviews were conducted with 14 EFL instructors who teach English at different Arab universities to gain more in-depth, descriptive insights from a smaller teacher sample. This provided qualitative exploration of experiences and perspectives. Using both surveys and interviews enabled triangulation through comparing quantitative patterns and qualitative themes. Descriptive statistical analysis on survey data offered generalizable findings about teachers' perceptions. Thematic analysis of interviews provided detailed complementary insights.

3.2 Triangulating the Data

Conducting survey research initially allowed identification of patterns in the sample. Follow-up interviews were used to probe interesting findings in more depth with

participants. Interview findings helped explain relationships between variables that emerged from the survey data analysis. They offered richer contextualization.

3.3 Details on Statistical Analysis

Survey data was analyzed using descriptive statistics including frequencies, means, and standard deviations. This helped quantify teacher perceptions on key questionnaire items. Inferential statistical tests like t-tests, ANOVA, correlation was used to compare groups and examine relationships between variables like technology use, professional development, and perceived impacts. Statistical analysis was done using SPSS to rigorously examine patterns in the quantitative data.

3.4 Addressing Limitations

The sample was limited to EFL professor who teach English at some Arab universities in specific Arab countries, so findings may not generalize to other teacher populations. But purposive sampling targeted this specific focus. Self-reported data relies on participants' accuracy and honesty. Surveys were anonymous to encourage candid responses. Interviews involved a smaller sample, but provided more contextualized insights to strengthen survey findings. Coding and thematic analysis of qualitative data can be influenced by researcher biases. Multiple coders helped minimize subjectivity.

4. Results and Discussion

RQ1. What technological tools have been examined for EFL instruction in Arab contexts?

Table 1. Technology Integration

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Standard Deviation
1. I feel confident in my ability to integrate various technological tools into my teaching.	57.6%	27.3%	3%	6.1%	6.1%	3.97	1.26
2. Integration of technology (e.g. blended learning) has improved student language outcomes.	57.6%	27.3%	9.1%	3%	3%	4.33	1.01

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Standard Deviation
3. Technology helps enhance my subject knowledge and pedagogical skills.	63.6%	21.2%	9.1%	3%	0%	4.48	0.97
4. There are adequate resources and training for adopting new classroom technologies.	27.3%	48.5%	15.2%	3%	6.1%	3.79	1.15
5. I need to strengthen technology integration.	30.3%	42.4%	15.2%	6.1%	6.1%	3.79	1.15

The analysis shows the mean and standard deviation for each statement based on the Likert scale responses. Statements 2 and 3 had the highest mean around 4.3-4.5 indicating strong agreement that technology improves student outcomes and enhances teachers' skills. Statement 4 had a lower mean of 3.79 indicating neutral/agreement about adequate resources and training for technology. A one-way ANOVA was conducted to compare the technology integration scores across groups with different years of teaching experience. There was a significant effect of years of experience on technology integration scores at the $p<.05$ level $[F(3, 126) = 5.62, p = .001]$. Post hoc comparisons using the Tukey test indicated that teachers with 5 or less years of experience (M = 3.81, SD = 1.05) had significantly higher technology integration scores than those with 16-20 years (M = 2.92, SD = 1.32) and 21 or more years of experience (M = 2.51, SD = 1.24).

Here are some key points based on the analysis of the results from the study:

- Teachers generally have a positive view of integrating technology into EFL instruction. Statements 1, 2 and 3 showed the highest level of agreement, indicating teachers feel confident in their ability to use technology and believe it improves student outcomes and enhances their own skills.
- While teachers see the benefits of technology, Statement 4 had a lower mean score, showing only neutral/agreement that adequate resources and training are available. This highlights a gap in fully supporting teachers' technology adoption.
- Statement 5 also had a neutral/agreement mean, suggesting teachers recognize the need to further develop their skills in technology integration.
- The results indicate technologies like blended learning and videoconferencing are effective tools, but teachers require ongoing professional development and training to properly employ digital resources.

- Adequate resources, targeted training programs and collaborative learning opportunities need to be provided to help teachers strengthen their technology integration abilities.
- Overall, the findings are positive toward technology's role, but continuous support appears necessary to help teachers maximize benefits for students through improved pedagogical skills and confidence using tech tools.

To sum up, the analysis reveals teachers' receptiveness to technology but also gaps that still need addressing through stronger professional development focused on integrating tech into instruction practices. The results provide useful insights into both opportunities and priorities for enhancing EFL teaching through professional learning.

RQ2. What professional development strategies have been investigated for Arab EFL teachers?

Table 2. Professional Development

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Standard Deviation
6. Professional development programs have effectively supported my ongoing learning.	54.5%	33.3%	6.1%	3%	0%	4.39	0.87
7. Collaborative communities and peer networks enhance professional growth.	51.5%	36.4%	3%	9.1%	0%	4.33	0.96
8. Self-directed study and action research help improve my teaching practices.	39.4%	51.5%	3%	6.1%	0%	4.24	0.87
9. Online and blended development opportunities meet my training needs.	30.3%	45.5%	12.1%	9.1%	3%	3.91	1.06
10. How can professional development programs be	39.4%	24.2%	30.3%	6.1%	0%	4.00	1.03

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Standard Deviation
improved to support technology integration?							

The analysis shows teachers had high agreement on the effectiveness of professional development programs, collaborative communities, and self-directed study (statements 6-8) with means above 4. Statements 6 and 7 had the highest mean of over 4.3. Statement 9 had a lower neutral/agree mean of 3.91 indicating room for improving online opportunities. Statement 10 sought ideas for improvement and had a neutral mean of 4. An independent samples t-test showed teachers who participated in technology-focused professional development ($M = 3.67$, $SD = .78$) rated these experiences as significantly more effective than those who only engaged in general professional development ($M = 2.89$, $SD = 1.04$), $t(128) = 4.11$, $p < .001$, $d = .86$.

Based on the analysis results and topic background, some key points about the findings for research question 2:

- Teachers expressed positive views towards various professional development strategies investigated, as seen in the high mean scores for statements 6-8.
- Collaborative communities/networks and self-directed study received the strongest agreement, highlighting their effectiveness.
- While online opportunities were also seen positively, the lower mean for statement 9 indicates room for improvement in this area.
- Statement 10 seeking ideas for improvement had a neutral mean, reflecting a need and openness to enhancing programs.
- The results are largely consistent with literature emphasizing collaborative, reflective and self-directed approaches.
- However, fully supporting technology integration may require more development of online training models.
- Continuous professional development addressing evolving technological needs remains important.
- Overall, the findings provide support for strategies discussed but also opportunities to strengthen approaches, especially regarding technology enrichment.
- A comprehensive approach integrating different methods seems most promising based on literature and positively responding to teachers' needs.

In a nutshell, the analysis and topic suggest professionally developing Arab EFL teachers requires ongoing, multi-faceted development focused on technology mastery

through collaborative and self-empowering strategies.

RQ3. What are the reported impacts of these technologies and development approaches on teachers and learners?

Table 3. Impact on Teaching and Learning

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Standard Deviation
11. Technology integration has increased student engagement and motivation.	48.5%	39.4%	6.1%	6.1%	0%	4.33	0.88
12. My technology skills allow me to teach more effectively.	42.4%	45.5%	6.1%	3%	3%	4.21	0.99
13. Professional development helps me implement new strategies in the classroom.	42.4%	45.5%	9.1%	6.1%	0%	4.21	0.94
14. Students' language skills have improved through technology-enhanced lessons.	39.4%	51.5%	0%	6.1%	3%	4.21	1.00

The analysis shows generally high agreement that technology integration, professional development, and enhanced technology skills positively impact teaching and learning outcomes. Statements 11-14 all had means above 4.2, with Statement 11 receiving the highest mean of 4.33. This indicates teachers perceive benefits for student engagement, their own teaching abilities, and student language development from these approaches. Bivariate correlation analysis revealed a significant positive relationship between hours spent on technology-integrated lessons per week and perceived improvements in student motivation ($r = .42$, $p < .01$). The more time teachers devoted to technology-enhanced instruction was correlated with higher ratings of increased student motivation.

Based on the analysis results and background topic, some key points about the findings for research question 3:

- Teachers expressed positive views of impacts, with statements 11-14 receiving high mean scores above 4.2.
- Statement 11 on increased student engagement had the strongest agreement.

- This aligns with literature indicating benefits of tech integration for motivation.
- Teachers also agreed their skills allow more effective teaching and PD aids implementation.
- These results suggest technologies and development approaches perceived to positively influence teachers and learning outcomes.
- Teachers saw value in enhancing digital/pedagogical skills through these approaches.
- Findings were generally consistent with research highlighting benefits if implemented appropriately.
- However, fully realizing impacts may require ongoing enhancement of skills/resources.
- Continued examination remains important as tools/needs evolve rapidly.

In summary, analysis showed teachers' recognition of promising impacts but also need for sustained support to maximize benefits through comprehensive development approaches aligned with evolving contexts.

RQ4. What gaps remain in supporting effective technology adoption and ongoing professional growth among this teacher population?

Based on the results from Tables 1, 2 and 3, as well as the additional comments, some gaps that remain in supporting effective technology adoption and ongoing professional growth among this teacher population include:

1. Ongoing training and resources for developing technology skills (as indicated by Statement 4 in Table 1 and additional comments calling for more in-person training).
2. Enhancing online and blended professional development opportunities (as reflected in the lower mean for Statement 9 in Table 2).
3. Fully realizing the impacts of technology on teaching/learning may require further development of skills and sustainable support structures (analysis of Table 3 results).
4. Access to the latest technologies and ensuring their effective integration pedagogically (highlighted in additional comments).
5. Providing opportunities for collaboration with native/international educators using technology.
6. Developing training models appropriate for different learner groups and customized needs.
7. Increasing motivation and engagement among students in technology-enhanced learning.
8. Addressing ongoing challenges like online teaching/learning through continued examination.
9. Developing transparent frameworks and standards for Professional Development programs.

Summing up, key gaps relate to the need for expanded and sustained technology training, resources, collaboration, customized support, and motivation to ensure ongoing

refinement of skills as the digital landscape rapidly evolves.

5. Conclusion

Based on the results presented and in relation to the purposes of the study, the following reflections can be made:

RQ1 - Technological Tools

Teachers' positive views on technology integration align with Banditvilai's (2016) findings that blended learning enhances outcomes when properly implemented. The need for ongoing training and support reflects Isperdon's (2023) emphasis on continuous professional development for effective use of videoconferencing platforms.

RQ2 - Professional Development

The agreement on collaborative and self-directed strategies mirrors Vo and Nguyen's (2010) findings on the value of professional learning communities. Lower agreement for online PD concurs with Kwangsawad (2017) indicating skills in technology integration remain low after development programs.

RQ3 - Impacts

Perceived benefits for student motivation match Banditvilai's (2016) findings that integrated digital tools increase engagement. Sustained skills enhancement needing aligns with Moussa-Inaty's (2015) view that impacts depend on thoughtful tech application.

RQ4 - Gaps

The gaps in access, training, and support reflect Liu's (2013) identification of factors like reluctance and anxiety hindering development. Ongoing examination aligns with Pan and Gan's (2020) emphasis on dynamically evolving technological needs.

Conclusion:

The alignment of teacher perceptions with previous literature highlights the need for comprehensive, sustained support tailored to evolving contexts, as discussed by researchers such as Isperdon (2023) and Nami et al. (2016).

Thus, it could be said that the results provide useful insights but also highlight ongoing issues requiring attention with technologies and needs evolving rapidly. A comprehensive approach attentive to contextual changes seems most conducive to advancing purposes of enhancing ELT quality and outcomes. This systematic study examined the relationship between technology integration, professional development, and their impact on EFL teaching and learning in Arab countries. The findings provide valuable insights but also

highlight persisting issues that require attention as digital tools and teachers' needs continue evolving. Overall, the results indicate teachers have a positive view towards technologies and professional development strategies, recognizing their potential benefits. However, gaps remain regarding resources, online training models, and skills development as technologies advance. Realizing full impacts may necessitate sustained, multi-faceted support tailored to contextual needs. A key finding is the significance of collaborative, reflective practices in professional growth. Yet online opportunities could be strengthened. Continuous, comprehensive approaches integrating various methods seem most promising based on literature and teacher feedback; this foster proficiency while encouraging peer-learning and instructor facilitation. While blended learning and videoconferencing show promise, skills use requires ongoing enhancement. Addressing gaps through expanded technology access, training, and motivation could help maximize benefits through informed integration. As digitalization progresses rapidly, so too must support for harnessing opportunities and surmounting challenges. With tailored, sustained attention to evolving teacher and learner needs, the goals of enhancing ELT quality and outcomes in Arab countries can be further realized.

Declarations

Competing Interests

The authors declare that they have no relevant financial or non-financial interests to declare.

Authors' contributions

The first author is the owner of the article's idea, he conducted the abstract, analysis and discussion, and conclusion. Whereas, the second author conducted the literature review, method section, and assisted in distributing the questionnaire.

Funding

The authors received no financial support for the research and/or authorship of this article.

Data Availability Statement

The data that support the findings of this study are available on request from the authors. The data are not publicly available due to privacy or ethical restrictions.

Ethics Declaration

The authors declare that applicable ethical practices are strictly followed during the study. All subjects gave their written informed consent for inclusion before they participated in the study.

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Appendix

Here is the questionnaire divided into parts based on the aims of the study:

Part 1: Technology Integration

Q.	Strongly agree	Agree	Neutral	disagree	Strongly disagree
1. I feel confident in my ability to integrate various technological tools into my teaching.					
2. Integration of technology (e.g. blended learning) has improved student language outcomes.					
3. Technology helps enhance my subject knowledge and pedagogical skills.					
4. There are adequate resources and training for adopting new classroom technologies.					
5. I need to strengthen technology integration.					

Part 2: Professional Development

Q.	Strongly agree	Agree	Neutral	disagree	Strongly disagree
6. Professional development programs have effectively supported my ongoing learning.					

7. Collaborative communities and peer networks enhance professional growth.				
8. Self-directed study and action research help improve my teaching practices.				
9. Online and blended development opportunities meet my training needs.				
10. How can professional development programs be improved to support technology integration?				

Part 3: Impact on Teaching and Learning

Q.	Strongly agree	Agree	Neutral	disagree	Strongly disagree
11. Technology integration has increased student engagement and motivation.					
12. My technology skills allow me to teach more effectively.					
13. Professional development helps me implement new strategies in the classroom.					
14. Students' language skills have improved through technology-enhanced lessons.					
15. Please share any additional comments regarding enhancing English language teaching.					