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Technology Integration, Cybersecurity Awareness, and Professional Development Among Saudi EFL Teachers in Special Education Settings

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***Abstract*—This study investigates technology integration, cybersecurity awareness, and professional development needs among English as a Foreign Language (EFL) teachers working with students with special educational needs (SEN). Using quantitative research design, an online questionnaire was administered to 328 elementary and intermediate school EFL teachers. Findings indicate that participants possess moderate levels of digital competency and security awareness, and that they unanimously recognize a need for further professional development. A significant gender-based distinction emerged: female teachers reported higher levels of both technology integration and security awareness than their male counterparts, despite comparable motivations for professional growth. The study concludes by identifying a clear readiness among educators for targeted training programs to enhance the efficiency, security, and effectiveness of technology use in inclusive EFL classrooms.**

***Index Terms*—EFL, special education needs, technology integration, security awareness, professional development**

I. Introduction

Technology has become an essential component of modern language education, transforming how teachers and learners engage with content. As Alenezi et al. (2023) and Mohamed (2025) note, this shift requires English language instructors not only to master diverse digital tools but also to safeguard students' privacy and security in online environments. Addressing these dual demands requires a closer examination of teachers' digital competencies, particularly their awareness of technological risks, to develop effective strategies that enhance overall digital literacy (Padilla-Hernández et al., 2019).

For technology to be successfully used in English language teaching, teachers need to be good with computers. Digital literacy encompasses the critical, ethical, and creative application of technology to augment learning (Ng, 2012; Shaaban & Mohamed, 2024). Security awareness is a very important part of this skill that is often ignored. Digital tools improve learning, but they also expose students to privacy violations, harmful content, and cyberbullying (Haleem et al., 2022; Johnson et al., 2016). As a result, teachers need specific training to ensure that technology is used safely and responsibly in schools (Morgan, 2013; Mohamed et al., 2024).

Digital literacy must be seen as an ongoing process supported by high-quality, ongoing professional development, as technology changes so quickly. These programs help teachers learn how to use new tools, improve their teaching methods, and adjust to changing learning environments (Mohamed, 2024; Kazmi et al., 2023).

In Saudi Arabia, English is a required subject, but it has always been taught in a traditional, teacher-centered way, which makes it harder for students to communicate (Al-Seghayer, 2014). The changes made by Saudi Vision 2030 have tried to bring English education up to date by using technology and new ideas in the classroom. Nevertheless, enduring challenges persist, including substantial class sizes, limited opportunities for English exposure beyond the classroom, and inadequate teacher training (Alhaisoni & Rahman, 2013; Al-Hazmi, 2003). Professional development is generally supported, but it is frequently disjointed and inconsistent, diminishing its effectiveness (Al-Seghayer, 2014). As technology becomes more common in classrooms, it is important for teachers to have both teaching and digital skills (Hakim, 2020).

This study investigates the digital literacy of Saudi EFL teachers instructing SEN students. It focuses on three connected areas: integrating technology, being aware of digital security, and the need for professional development. The research identifies significant deficiencies in teachers' readiness for technology-enhanced instruction and proposes recommendations for creating specialized training programs that foster secure, inclusive, and effective EFL teaching.

A. Research Questions

RQ 1: How does the proficiency of EFL teachers in the use of digital tools and the *technology integration* in English-language teaching impact students' learning outcomes and engagement?

RQ 2: How do EFL teachers' *security awareness*, protective measures, and awareness of special needs and students' privacy and safety interact when digital tools are used?

RQ 3: In what ways does *professional development* in digital skills and security awareness benefit EFL teachers and promote responsible technology use?

RQ 4: Are there gender differences in technology integration, security awareness, and professional development among EFL teachers?

B. Significance of the Study

Recently, educators have adopted learning management systems to deliver lectures, facilitate assessments, and administer quizzes (Al-Fraihat, 2020). Thus, educators have prioritized protecting students' information and ensuring secure online interactions (Walker et al., 2023). In regard to ensuring the security and privacy of students with special needs, EFL teachers' perceptions must be examined to determine whether they understand its significance and whether they are actively seeking training courses. Moreover, this study is important because it identifies areas for improvement by offering insights into the present degree of digital proficiency and security awareness among EFL teachers to students with SEN; examines the viewpoints of EFL teachers regarding the incorporation of technology into the classroom, guiding tactics that encourage the efficient use of digital resources; and helps create efficient professional development initiatives that improve EFL teachers' knowledge of security concerns and their proficiency with digital tools.

II. Literature Review and Theoretical Framework

A. Literature Review

This section reviews prior studies related to technology integration, digital literacy, security awareness, and professional development among EFL teachers. It also explores research on SEN in technology-enhanced English instruction and concludes by presenting the theoretical framework and the research gap.

(a). Technology Integration in English Language Teaching

The use of technology and digital literacy in English language instruction has recently attracted much attention (Dashtestani & Hojatpanah, 2022). Studies have indicated that technology has the potential to enhance language learning results by providing tailored learning opportunities, real-world language resources, and greater student involvement (Chen, 2024; Wen, 2021; Zhang & Zou, 2022). Studies have also revealed obstacles that English language teachers must overcome to successfully incorporate technology into their lessons, such as a lack of suitable professional development opportunities, concerns about security and privacy, and limited proficiency with digital tools (Hu, 2023; Soyoof et al., 2023).

(b). The Concept and Scope of Digital Literacy

The concept of digital literacy has been discussed for many years, with earlier terms such as "computer literacy" lacking clear definitions and objectives. The justifications for computer literacy often rely on questionable claims about its vocational relevance or inherent educational value, which have faced criticism. In contemporary usage, digital or computer literacy typically refers to a minimal set of skills necessary for basic software use and information retrieval. For example, the British government's *Skills for Life* survey includes digital literacy alongside traditional literacy and numeracy, defining it as understanding common ICT terminology, using basic software features, and managing files (Buckingham, 2015).

Digital literacy goes beyond basic computer use and online searching. However, it is important to start with foundational skills, such as using browsers, hyperlinks, and search engines, to limit digital literacy to a functional level (Bahari, 2022). Children also need to develop skills in evaluating and critically using information obtained through digital media to transform it into knowledge. This involves questioning the sources of information, considering the interests of their producers, and understanding how technological advancements are influenced by broader social, political, and economic factors (Buckingham, 2015; Pangrazio et al., 2020).

(c). Frameworks and Competencies in Digital Literacy

Falloon (2020) explored the frameworks and literacies used in teacher education to help students develop their digital skills. Many of these frameworks focus on improving students' ability to use educational software. In today's classrooms, the limited methodologies currently used do not effectively prepare pupils for intricacies. As a solution to this problem, Falloon (2020) proposed a conceptual framework that emphasizes a comprehensive understanding of digital skills and knowledge. It discusses the interdisciplinary nature of the framework and the importance of faculty involvement.

In accordance with Tomczyk (2020), teachers' digital literacy levels were assessed in six areas: digital privacy, safe logging-in, digital ergonomics, information credibility evaluation, and intellectual property. Digital literacy was quantified by administering a knowledge and competence test to 701 primary school teachers in Poland. Teachers demonstrated the highest level of ergonomics knowledge and the lowest level of intellectual property law knowledge, indicating that DL is diverse. Gender did not affect knowledge or competencies. Teachers also showed a Dunning-Kruger effect when evaluating digital literacy in terms of digital safety. According to Tomczyk (2020), digital literacy is an important safeguard for school-based digital safety but identifying and supporting it are difficult.

(d). Security Awareness and Safe Technology Practices

For teachers to navigate digital classrooms safely, they must understand the associated security risks. This includes safeguarding student privacy and confronting issues like cyberbullying and exposure to harmful content. Educators require specific training to implement protective measures and to model responsible digital citizenship for their students (Hawamdeh et al., 2022; Lauricella et al., 2020).

(e). The Role of Professional Development

Targeted professional development is therefore essential. To be effective, such programs must move beyond theory, giving educators hands-on opportunities to learn new digital skills, grapple with security concerns, and test technology-enhanced pedagogies (Lu & Han, 2023). Ultimately, the success of these efforts depends on a foundation of ongoing support, collaboration, and ready access to practical resources (Baek & Sung, 2021; Chatterjee et al., 2023).

(f). Technology Integration and Special Educational Needs (SEN)

Studies have examined the integration of students with specific learning differences in EFL classrooms. Differentiated instruction is essential for teachers to be aware of and apply special-needs techniques in regular EFL (Padurean, 2014). Ismail and Al Allaq (2019) reported that teachers are reluctant to educate children with special needs in mainstream settings despite their ability to teach regular and mainstream children simultaneously. The use of mobile technology in a sociocultural, interactive manner is considered to help with language learning (Ma, 2017).

According to Mazzoni et al. (2024), an organization developed an accessible online platform to support students with special educational needs during the COVID-19 pandemic. The participating teachers expressed their appreciation for the platform's accessibility and its positive impact on learner motivation and classroom interactions. The project also included a training program that promoted an inclusive approach. The results also indicated the possibility of integrating the platform into face-to-face teaching to increase student participation and inclusion, thereby highlighting the role of technology in teaching students with special needs.

Alenezi et al. (2023) examined EFL teachers' attitudes toward the use of AI technology for language learning among students with SEN. The findings revealed moderate attitudes toward AI technology, with it perceived as moderately effective and facing moderate barriers. However, female teachers expressed a greater willingness to use AI. Chaaban and Ellili-Cherif (2017) examined how individual characteristics and the classroom environment impact technology integration. It was widely perceived that technology integration was challenging, that there was high confidence in its use, and that technology was extremely important. Several factors can influence technological integration, including availability, importance, and formal training.

Furthermore, Palacios-Hidalgo and Huertas-Abril (2022) investigated the relationship between technology and teacher preparation by examining digital literacy in first-language English-as-a-foreign-language instruction at a Spanish distance university. The main subject of this study is how preservice English teachers perceive their digital literacy. The results show that participants, even those attending a distance-learning university, feel they have not received sufficient instruction in digital skills. Males and individuals with less university experience tend to have a more positive view of themselves. In addition, respondents are unaware of how to improve their digital literacy. The results highlight the importance of remote learning institutions in teacher preparation.

B. Theoretical Framework

This study rests on a core premise: successful technology integration for inclusive English language teaching requires three interdependent elements. It begins with digital literacy—moving beyond technical skill to include the critical judgment needed to navigate the digital world (Pangrazio et al., 2020). This foundation is secured by digital safety, where teachers act as essential guardians of student privacy and ethical online conduct (Hawamdeh et al., 2022). Ultimately, ongoing professional development bridges the gap between theory and practice, transforming knowledge into confident, classroom-ready applications (Falloon, 2020; Lu & Han, 2023). Ultimately, this triad is viewed through the lens of inclusive ELT. Technology's proven role in supporting SEN students makes the integration of digital literacy, security, and training not merely an enhancement but a necessity for equitable education (Mazzoni et al., 2024).

(a). Conceptual Model of the Study

Below is the conceptual model illustrating the relationships among the three key constructs examined in this study.

Figure 1. Conceptual Model of Technology Integration, Security Awareness, and Professional Development in Inclusive EFL Contexts

Interpretation:

- Digital literacy enables teachers to effectively integrate technology.
- Security awareness ensures that such integration occurs safely and ethically.
- Professional development reinforces both competencies, producing secure and inclusive EFL teaching practices for students with SEN.

The conceptual model (Figure 1) aligns directly with the study's four research questions. It posits that digital literacy forms the basis of technology integration (RQ1), security awareness mediates teachers' responsible technology use (RQ2), and professional development strengthens both competencies (RQ3). Together, these dimensions support inclusive EFL practices and allow exploration of potential gender differences (RQ4).

(b). Identification of the Research Gap

While the importance of digital literacy for educators is well-established (Falloon, 2020; Tomczyk, 2020) and the security challenges of digital classrooms are increasingly recognized (Hawamdeh et al., 2022), these conversations often occur in isolation. Similarly, research on the benefits of technology for students with special educational needs (Alenezi et al., 2023) has not been fully integrated into these critical domains. The existing literature leaves a crucial question unanswered: how do digital skills, security awareness, and professional development interconnect to equip EFL teachers for the realities of inclusive, technology-driven classrooms? This study addresses that gap by investigating the dynamic relationships between these elements in the specific context of teaching SEN students.

III. Methodology

This study utilized a quantitative methodology, specifically an online questionnaire, to collect data from EFL teachers regarding SEN students. The questionnaire assessed participants' digital competencies, security apprehensions, and professional development requirements regarding the integration of technology in English language instruction.

A. Participants

Our study draws on the experiences of 328 EFL teachers (172 females and 156 males) from Saudi elementary and intermediate schools, all of whom bring direct experience teaching English to SEN students. While we used a convenience sampling method (Leiner, 2016), our priority was their expertise, not just their availability. This unique position, straddling language teaching and special education, provided invaluable, ground-level insights.

These teachers were crucial partners. Their frontline perspective helped us see how technology can foster true inclusivity and, critically, illuminated the distinct digital safety vulnerabilities of SEN students, a concern echoed in the

literature (Yeboah-Ofori & Hawsh, 2023). All participation was voluntary and confidential, and this robust cohort of 328 ensures our findings are deeply rooted in authentic classroom realities.

B. Instrument

To bridge the gap between theory and classroom reality, we developed a survey targeting the specific digital challenges faced by EFL teachers of SEN students. Informed by key literature (Falloon, 2020; Schmidt et al., 2009), the questionnaire was designed to probe three critical areas: technology integration, security awareness, and professional development.

Built using Google Forms, the instrument contained three thematic sections with five Likert-scale questions each. Rather than asking if teachers use technology, the Technology Integration section assessed how they create content, collaborate, and communicate digitally (Baek & Sung, 2021; Mohamed & Shaaban, 2024). The Security Awareness section focused on understanding data privacy and ethical digital practices, especially for vulnerable SEN learners (Tomczyk, 2020; Beck et al., 2021). Finally, the Professional Development section identified both the specific training needs and the real-world obstacles teachers face in accessing it (Nazari & Xodabande, 2022; Tondeur et al., 2017).

Recognizing that a robust instrument requires more than a solid theoretical foundation, we subjected the questionnaire to a multi-stage validation process. First, we consulted specialists in both EFL and special education, who provided critical feedback on the clarity and relevance of each item, ensuring the questions resonated with the target audience's daily experiences (Al-Seghayer, 2014). Following their revisions, we conducted a pilot study with a small group of practicing EFL teachers for SEN students. This step was invaluable, allowing us to refine ambiguous phrasing and confirm the survey's practical feasibility (Padurean, 2014; Starks & Reich, 2023). The final step involved statistical validation; analyses confirmed a normal data distribution and, more importantly, demonstrated high internal consistency, giving us confidence in the instrument's reliability for capturing meaningful data (Al-Fraihat, 2020).

TABLE 1
CORRELATION ANALYSIS OF ITEM SCORE, DIMENSION, AND TOTAL SCORE

Questionnaire's dimensions					
Technology integration		Security awareness		Professional development	
Item No	Correlation coefficient	Item No	Correlation coefficient	Item No	Correlation coefficient
1	.834**	1	.838**	1	.835**
2	.873**	2	.835**	2	.831**
3	.856**	3	.837**	3	.869**
4	.874**	4	.878**	4	.843**
5	.827**	5	.842**	5	.848**
The total score is .837**		The total score is.821**		The total score is.793**	

***. significant at the 0.01 level.*

A satisfactory level of internal consistency is indicated by Table 1's substantial correlation coefficients between the scale and total scores for the dimensions as well as between the items and total scores for the dimensions. Using techniques such as Cronbach's alpha coefficients, the scale's reliability and validity was evaluated. The results revealed an adequate degree of stability: 0.837 for the first dimension, 0.812 for the second dimension, and 793** for the last dimension. By splitting each subdimension into odd and even items and using the Spearman–Brown–Guttmann equation to compute the correlation coefficients between the two halves, the split-half reliability was assessed.

TABLE 2
THE VALUES OF THE RELIABILITY COEFFICIENT FOR EACH DIMENSION OF THE SCALE

Dimensions	Number of Items	Spearman-Brown	Guttman Split-Half
Technology integration	5	0.923	0.911
Security awareness	5	0.856	0.832
Professional development	5	0.915	0.891

The reliability coefficient values for each scale dimension are shown in Table 2. The three aspects are "technology integration", "security awareness", and "professional development. Two techniques were used to compute the reliability coefficient: Guttman split-half and Spearman-Brown. The reliability coefficient for the "technology integration" dimension was 0.911 for the Guttman split-half dimension and 0.923 for the Spearman–Brown dimension. The reliability coefficients for Spearman-Brown and Guttman split-half for the "security awareness" and "professional development" dimensions, respectively, were 0.856 and 0.832 for the former and 0.832 for the latter. 915 and 0.891, respectively. Higher values of these coefficients denote greater stability. They show the degree of stability of each scale dimension. Test-retest tests were also utilized to determine the scale's reliability coefficient. The test–retest method's reliability coefficient was 0.793, which means that the scale is appropriate for the application and has a level of stability that is acceptable.

Factor analysis was conducted to clarify the factor loadings of the study sample via the principal component method, and the orthogonal axes were rotated via the varimax method by Kaiser to maximize factor saturation, according to Guilford's criterion, which is 0.3, as shown in the following table.

TABLE 3
FACTOR LOADINGS OF THE ITEMS ON THE THREE FACTORS OF THE QUESTIONNAIRE

Technology Integration	Loading	Security Awareness	Loading	Professional Development	Loading
1	0.81	1	0.87	1	0.79
2	0.79	2	0.87	2	0.76
3	0.75	3	0.87	3	0.73
4	0.75	4	0.86	4	0.65
5	0.77	5	0.87	5	0.79

Note. All factor loadings are significant at $p < .001$. Loadings above 0.60 indicate strong item–factor relationships.

Table 3 shows that the first factor incorporates (5) items with a latent root of (11.546) and explains (25.523) the common variance. The first factor loading ranges from 0.751 to 0.812. Additionally, the second factor incorporates (5) items with a latent root of 8.497 and explains (16.845) of the common variance. For the second factor, the factor loadings range from 0.861-0.873. Finally, the third factor integrates (5) items with a latent root of (7.327) and explains (15.635) of the common variance. The third factor has loads ranging from 0.645 to 0.786. The items associated with this factor revolve around professional development.

IV. RESULTS

The first research question is "How does the proficiency of EFL teachers in the use of digital tools and the *technology integration* in English-language teaching impact students' learning outcomes and engagement?" To answer this question, standard deviations, means, and the order of each item were calculated as follows:

TABLE 4
MEANS AND STANDARD DEVIATIONS FOR THE TECHNOLOGY INTEGRATION DOMAIN

Item No.	Statement	Mean	SD	Rank	Level
4	I am aware of the benefits of using digital resources and multimedia in English language instruction.	3.20	1.59	1	Moderate
2	I regularly incorporate technology into my English language lessons.	3.16	1.59	2	Moderate
3	I believe that integrating technology enhances special needs students' learning experience in English language classrooms.	3.14	1.58	3	Moderate
5	I am comfortable troubleshooting basic technological issues that arise during my teaching.	3.13	1.59	4	Moderate
1	I feel confident in using digital tools and technologies in my English language teaching.	2.97	1.64	5	Moderate
Total (Technology Integration)		3.12	1.15		Moderate

Note. N = 328. Responses were measured on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

The means and standard deviations for the "technology integration" domain are shown in Table 4. Five items about teachers' attitudes and proficiency with technology integration in English language instruction are included in the table. There is moderate agreement among the participating teachers, as indicated by the mean scores per item, which range from 2.973 to 3.201. The standard deviations range from 1.577 to 1.643, indicating some variability in the replies. With a mean score of 3.201, Item 4, which concerns teachers' awareness of the advantages of using multimedia and digital tools in English language instruction, had the highest mean score. However, with a mean score of 2.973, Item 1, which addresses teachers' comfort levels with digital tools and technology, has the lowest mean score.

Based on the average scores across the five questions, the overall degree of technology integration was 3.118, with a standard deviation of 1.147. Teachers have a moderate level of competence in using digital tools and incorporating technology into their English teaching methods. Based on the aforementioned results, educators' proficiency and dispositions are critically important for integrating technology into language education.

The second research question is "How do EFL teachers' security awareness, protective measures, and awareness of special needs and students' privacy and safety interact when digital tools are used?" To answer this question, standard deviations, means, and the order of each item were calculated as follows:

TABLE 5
THE MEANS AND STANDARD DEVIATIONS FOR THE "SECURITY AWARENESS" DOMAIN

	Items	**Mean**	**SD**	**Order**	**level**
5	I am confident in my ability to address security concerns and handle incidents effectively when using technology in the classroom.	3.357	1.538	1	moderate
4	I am aware of the importance of teaching special needs students about online safety and responsible digital citizenship.	3.256	1.582	2	moderate
3	I regularly update my digital devices and software to ensure security against cyber threats.	3.238	1.577	3	moderate
2	I take necessary precautions to protect special needs students' personal information and maintain their privacy online.	3.131	1.604	4	moderate
1	I am knowledgeable about potential security risks associated with using digital tools and technologies in the classroom.	3.030	1.653	5	moderate
Total Degree		3.202	1.169	-----	moderate

The "security awareness" domain's means and standard deviations are shown in Table 5, which also examines the interactions among teachers' security awareness, preventative measures, and students' privacy and safety when digital tools are used in the classroom. Five items about teachers' attitudes and actions regarding security and safety considerations are included in the table. There is moderate agreement regarding security awareness among the participating teachers, as indicated by the mean scores for each item, which range from 3.030 to 3.357. The standard deviations, which range from 1.538 to 1.653, imply that responses can vary somewhat. In addition, the item with the highest mean score, 3.357, is item 5, which focuses on teachers' confidence in addressing security concerns and resolving occurrences successfully. On the other hand, Item 1, which concerns teachers' awareness of possible security hazards related to the use of digital tools and technology, had the lowest average score (3.030).

On the basis of the average scores of the five items, a total degree of security awareness of 3.202 with a standard deviation of 1.169 was determined. This suggests that teachers have a moderate level of awareness of security. Teachers appear to be moderately confident and aware of security measures when using digital tools. Online safety and responsible digital citizenship must be taught to special needs students; computers and software must be updated regularly for security purposes; and students' personal information must be protected online.

The third research question is "In what ways does professional development in digital skills and security awareness benefit EFL teachers and promote responsible technology use?" To answer this question, standard deviations, means, and the order of each item were calculated as follows:

TABLE 6
MEANS AND STANDARD DEVIATIONS FOR THE "PROFESSIONAL DEVELOPMENT" DOMAIN

	Items	Mean	SD	Order	level
4	I feel encouraged to experiment with new digital tools and technologies in my English language teaching.	3.351	1.525	1	moderate
2	I believe that continuous professional development in digital literacy is essential for effective English language instruction.	3.262	1.569	2	moderate
3	I receive adequate support and resources from my institution to improve my digital skills.	3.174	1.577	3	moderate
1	I actively seek opportunities to enhance my digital skills and knowledge related to English language teaching.	3.015	1.607	4	moderate
5	Educators must keep up-to-date on digital security awareness to protect special needs students.	3.009	1.588	5	moderate
Total Degree		3.162	1.144	-----	moderate

With a focus on how professional development in digital skills and security awareness benefits EFL teachers and encourages responsible technology use, Table 6 shows the means and standard deviations for the "professional development" area. Five factors related to EFL teachers' attitudes and experiences in professional development regarding digital literacy and security awareness are presented in the table. There is moderate agreement among the participating teachers regarding the advantages of professional development, as indicated by the mean scores per item, which range from 3.009 to 3.351. The responses appear to vary somewhat, as indicated by the standard deviations, which range from 1.525--1.607.

The item with the highest mean score, item 4, concerns teachers being encouraged to try out new digital tools and technology. It had a score of 3.351. However, Item 5, which highlights the importance of teachers staying current with digital security knowledge to safeguard pupils with special needs, has the lowest mean score (3.009).

On the basis of the average scores of the five items, the overall degree of professional development was determined to be 3.162, with a standard deviation of 1.144. This suggests that teachers perceive moderate benefits in professional development related to digital skills and security awareness.

The fourth research question is "Are there gender differences in technology integration, security awareness, and professional development among EFL teachers?" To examine the correlation among technology integration, security awareness, and professional development by gender, the mean differences were assessed using an independent-samples t-test.

TABLE 7
T-TEST RESULTS FOR GENDER-BASED DIFFERENCES IN TECHNOLOGY INTEGRATION, SECURITY AWARENESS, AND PROFESSIONAL DEVELOPMENT

Dimension	Gender	N	Mean	SD	df	T	Sig. (2-tailed)
Technology integration	Male	156	2.89	1.10	326	3.42	0.001**
	Female	172	3.32	1.16			
Security awareness	Male	156	3.02	1.09	326	2.73	0.007**
	Female	172	3.37	1.21			
Professional development	Male	156	3.08	1.10	326	1.31	0.192
	Female	172	3.24	1.18			

Note. N = 328. p < .01**, p < .05*.

The results of an independent t-test investigating gender disparities in technology integration, security awareness, and professional development among EFL teachers to students with SEN in Saudi Arabia are presented in Table 7. These findings indicate that there is homogeneity between males and females.

There were notable gender differences in terms of security awareness (t=2.730, p=0.0007) and technology integration (t=3.415, p=0.001). In these areas, female teachers outperformed their male colleagues in terms of mean scores. The means of males and females in the professional development category did not differ; nevertheless, there were no statistically significant gender differences in this area (t=1.306, p=0.192). The findings show statistically significant gender differences in technology integration and security awareness that favor women. On the other hand, no appreciable gender disparities were observed in professional development.

V. DISCUSSION

The data indicate that participating EFL teachers perceive themselves as moderately proficient in using digital tools. A key finding is their consistent integration of technology into daily instruction, suggesting that digital resources have transitioned from supplemental aids to fundamental components of classroom practice. Teachers further demonstrated a strong appreciation for the pedagogical value of technology, particularly its role in enhancing and individualizing learning for students with special educational needs (SEN). This aligns with recent research (Starks & Reich, 2023; Sankoh et al., 2023) confirming that technology is now central to inclusive language education.

Furthermore, educators displayed a practical awareness of digital security risks. Their reported practices, such as safeguarding student data, maintaining updated software, and instructing vulnerable learners in online safety, reflect a proactive approach to digital citizenship. This pattern corroborates studies by Beck et al. (2021) and Chalghoumi et al. (2019), suggesting that concerns for data privacy and online safety are now embedded within teachers' professional ethics, rather than being treated as abstract concerns.

A key finding from this study is the high value teachers' place on technology- and security-focused professional development. Participants demonstrated strong motivation to improve their digital literacy and stay current with evolving cybersecurity practices. This eagerness for training aligns with the work of (Shaaban & Mohamed, 2024; Nazari & Xodabande, 2022), reinforcing that targeted professional development is a vital catalyst for teacher empowerment and pedagogical innovation. Such training not only builds educator confidence but also fosters more responsible and creative uses of technology in the classroom.

The analysis also revealed a compelling gender-based trend. Female EFL teachers reported moderately higher levels of technology integration and security awareness than their male colleagues, though both groups shared equally positive attitudes toward professional development. This nuance enriches ongoing discussions on gender and educational technology (Hashemi et al., 2022; McGill & Thompson, 2021), suggesting that while adoption patterns may differ, a shared recognition of the need for continuous learning exists across genders.

In summary, the findings depict a teaching corps that is digitally competent, security-conscious, and actively committed to professional growth. Educators are demonstrably integrating technology into their pedagogy, maintaining vigilant digital safety practices, and expressing a clear demand for further training (Tomczyk et al., 2023). These results strongly advocate sustained, high-quality professional development focused on advancing both digital proficiency and cybersecurity awareness, thereby promoting more equitable and effective technology use in inclusive EFL environments.

Acknowledging limitations, this study's dependence on self-reported data may introduce social desirability bias. Future research would benefit from a mixed-methods approach, incorporating classroom observations and interviews to provide a more nuanced and objective assessment. Additionally, longitudinal studies examining the efficacy of professional development programs across varied cultural and institutional contexts would significantly strengthen the generalizability and practical application of these findings.

Pedagogical Implications

These findings translate into clear, actionable steps for enriching inclusive EFL education. Teacher training must deepen its focus on digital pedagogy and accessibility, ensuring technology actively supports differentiated learning for SEN students. Concurrently, digital safety and ethics must be woven into the curriculum itself, empowering teachers to model responsible practices. To sustain this, professional development should be continuous and collaborative, creating

spaces for educators to experiment and share practical strategies. Ultimately, school leaders must foster a supportive digital culture that provides both the technical resources and professional trust necessary for teachers to thrive.

VI. Conclusion

This study reveals a teaching corps navigating the complexities of technology in inclusive EFL classrooms with moderate proficiency and a clear desire for growth. While educators demonstrate a foundational understanding of digital tools and security, their varying skill levels and the identified gender differences in practice underscore a universal need for more robust, targeted support. Our findings highlight that effective technology integration hinges on intertwining digital literacy, security awareness, and continuous professional development.

However, these insights are tempered by the study's reliance on self-reported data. To build upon this foundation, future research should embrace mixed methods approaches, combining surveys with classroom observations and interviews to capture the lived reality of digital teaching. Furthermore, investigating the long-term impact of tailored professional development programs across different cultural contexts would offer invaluable, actionable strategies for empowering teachers.

Ultimately, this research contributes a practical roadmap for supporting EFL teachers in special education. By equipping educators with the right skills, resources, and collaborative culture, we can move closer to truly inclusive, secure, and effective digital learning environments for all students.

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