

Aligning EFL Education With Digital Skills in Saudi Vision 2030: A Systematic Review

Ahmed Alshehri

Department of English Language & Literature, College of Arts and Letters, University of Bisha, Saudi Arabia

Khalid Khulaif Alshammari

Department of Languages and Translation, University College in Tayma, University of Tabuk, Tabuk, Saudi Arabia

Mohammad Jamshed*

English Department, College of Science & Humanities, Prince Sattam Bin Abdulaziz University, Saudi Arabia

Mohammad Rezaul Karim

English Department, College of Science & Humanities, Prince Sattam Bin Abdulaziz University, Saudi Arabia

Abstract—Saudi Arabia's Vision 2030 aims to diversify the economy by enhancing human capabilities and essential skills, highlighting the importance of EFL education in fostering international collaboration and improving digital competencies for success in the global digital economy. However, existing EFL curricula and teaching methods appear to be misaligned with these digital goals. This systematic review analyzed the integration of digital skills in Saudi EFL contexts by synthesizing empirical research published from 2013 to 2025, employing the PRISMA framework and data from major databases, including IEEE Xplore, Springer, Taylor & Francis, ERIC, ScienceDirect, and Wiley Online Library. The review highlights five main themes: (1) the conceptualization of digital skills in EFL education as per Saudi Vision 2030, (2) integration of these skills into curricula and teaching practices, (3) alignment with workforce demands, (4) distribution across educational levels, and (5) identification of gaps, challenges, and potential future directions. The findings revealed conceptual inconsistencies in the EFL curriculum, highlighting the need for a unified framework. Key issues include insufficient managerial support, unclear policies, and a misalignment between curriculum goals and labor market demands, further exacerbated by the absence of policies to empower learners' digital skills across all educational levels. The study highlights that to achieve the Vision 2030 goals, there must be a shift in language learning, viewing technology not just as a tool but as a core competency, which necessitates agile, digitally integrated EFL frameworks from policymakers and curriculum designers.

Index Terms—conceptual inconsistencies, curriculum designers, empowering digital skills, systematic review, workforce demands

I. INTRODUCTION

Digital literacy is becoming increasingly crucial in today's rapidly evolving digital landscape, playing a key role in promoting sustainable lifestyles (Bejaković & Mrnjavac, 2020; Donoso et al., 2020). The ongoing advancements significantly impact both everyday life and professional settings, leading to a decline in conventional workforce skills. This shift underscores the importance of individuals cultivating adaptability and advanced skill sets to thrive in the modern economy, where automation increasingly dominates (Kaczorowska-Spychalska, 2018; Tutar & Turhan, 2023; Goos et al., 2014; Autor, 2015). Digital learning utilizes ICT to transform access, engagement, and personalization in education, improving learner interactions with content and offering tailored learning experiences (Al Fraidan, 2024). As a result, it is crucial for instructors to become proficient in digital pedagogy. This expertise is essential for improving students' digital skills and literacy, thereby preparing them for future challenges and opportunities in a technology-driven environment (Ma & Ismail, 2025). Multiple studies highlight a shift from traditional education to online learning, emphasizing the importance of English proficiency and digital literacy as essential EFL skills for effective global communication and information access (Hemajothi & Jain 2022; Kumbo et al., 2023; Murcia et al., 2018).

Recent literature emphasizes the significance of digital skills and literacy in EFL education, enhancing student engagement and language learning. A synthesis of 20 studies by Sudirman (2025) underscored that tools such as media platforms and game-based learning can create interactive environments, though challenges such as limited infrastructure and inadequate teacher training impede implementation. Research by Palupi and Subianto (2024) revealed that 45% of EFL materials focused on functional skills, underscoring the need for improved digital literacy to evaluate information and overcome technological challenges. Pratolo and Solikhati (2020) emphasized the influence of teachers' attitudes on successful integration. Nguyen and Habók (2022) found increased digital literacy among university students linked to

* Corresponding Author.

greater engagement with technology. Rinekso et al. (2021) stressed that digital literacy practices enhanced language learning in postgraduate EFL students. Psychological barriers, such as computer anxiety, also affected student perceptions of digital skills (Katsarou, 2021). Further, research by Đorđević et al. (2025) revealed that both basic and advanced digital skills improved employability across Europe. Narendran et al. (2025) advocated for technology-enhanced, learner-centered approaches, stressed the importance of core digital literacies, identified systemic factors contributing to the skills gap, and proposed integrative solutions. These studies highlight the need to promote positive perspectives on digital literacy, address related psychological issues, and develop robust curricula to improve EFL learning outcomes in Saudi Arabia and other regions.

As Saudi Arabia pursues economic diversification, integrating EFL education with digital skills training becomes crucial. While platforms like Madrasati and Blackboard Collaborate enhance educational equity and help align local practices with global standards, the lack of empirical data on the effectiveness of EFL programs in developing digital skills complicates policymaking, as challenges remain in integrating EFL instruction with creative and critical thinking skills. A thorough evaluation of educational methods is necessary to meet the objectives of Vision 2030 concerning human capability. Therefore, this systematic review examines the intersection of EFL and digital skills development in relation to labor-market needs under Vision 2030, aiming to inform policy and educational reforms for a knowledge-based economy. The study addresses the following research questions:

- (a) How are digital skills conceptualized in EFL education within the framework of Saudi Vision 2030?
- (b) How are digital skills integrated into EFL curricula and pedagogical practices?
- (c) To what extent is EFL education aligned with digital skill demands and workforce readiness under Saudi Vision 2030?
- (d) How is digital skill integration in EFL education distributed across educational levels?
- (e) What gaps, challenges, and future directions are identified in digital skill-oriented EFL education?

II. METHODOLOGY

The study reviews EFL education in relation to the digital economy, focusing on the integration of English and digital skills, in line with Saudi Vision 2030, and follows PRISMA guidelines for methodological rigor (Page et al., 2021). The review process involved several structured stages: identifying the study's purpose, formulating research questions, developing a review protocol, conducting an extensive literature search, systematically screening and selecting studies, extracting relevant data, and synthesizing findings. Each stage focused on ensuring consistency, reliability, and alignment with the study's objectives.

A. Search Strategy

To conduct the systematic review, a literature search was conducted across various academic databases, including IEEE Xplore, Springer, Taylor & Francis, ERIC, ScienceDirect, and Wiley Online Library, targeting peer-reviewed studies on EFL education and digital skills integration. In addition, empirical studies from 2013 to 2025 were reviewed using Google Scholar and general Google searches, focusing on developments in EFL education and digital skills in accordance with Saudi Vision 2030.

B. Eligibility Criteria

Establishing clear eligibility criteria was essential for the systematic review's scope, involving explicit inclusion and exclusion criteria to select studies aligned with the research objectives. This framework ensured methodological rigor and relevance throughout the review process. The review's inclusion criteria required empirical research studies (quantitative, qualitative, or mixed-methods) in educational settings related to English as a Foreign Language (EFL). Key themes included digital skills, digital literacy, ICT integration, educational technology, and AI practices in EFL contexts. The focus was on EFL instruction, with emphasis on digital competence, curriculum design, pedagogy, and employability. Studies published between 2013 and 2025 were eligible, reflecting advancements in the integration of digital skills in line with Saudi Vision 2030. Exclusion criteria included non-empirical studies, such as conceptual papers and literature reviews, to ensure an empirical focus. Studies not in English and those that failed to explicitly address digital skills or technology use in an EFL context were also excluded, along with publications available only as abstracts, without full-text access, for complete data extraction and analysis.

C. The Screening Process

The systematic review followed PRISMA guidelines, starting with a search that identified 3,462 records. After deduplication, 2,118 records were screened for relevance to EFL education, digital skills, and Saudi Vision 2030, resulting in 156 eligible articles. A full-text review removed 116 studies without empirical evidence, a clear EFL focus, or adequate digital skill integration. In total, 40 empirical studies met the inclusion criteria and addressed the research questions. The complete list of included studies is shown in Table 1, and the search strategy and screening process are illustrated in Figure 1.

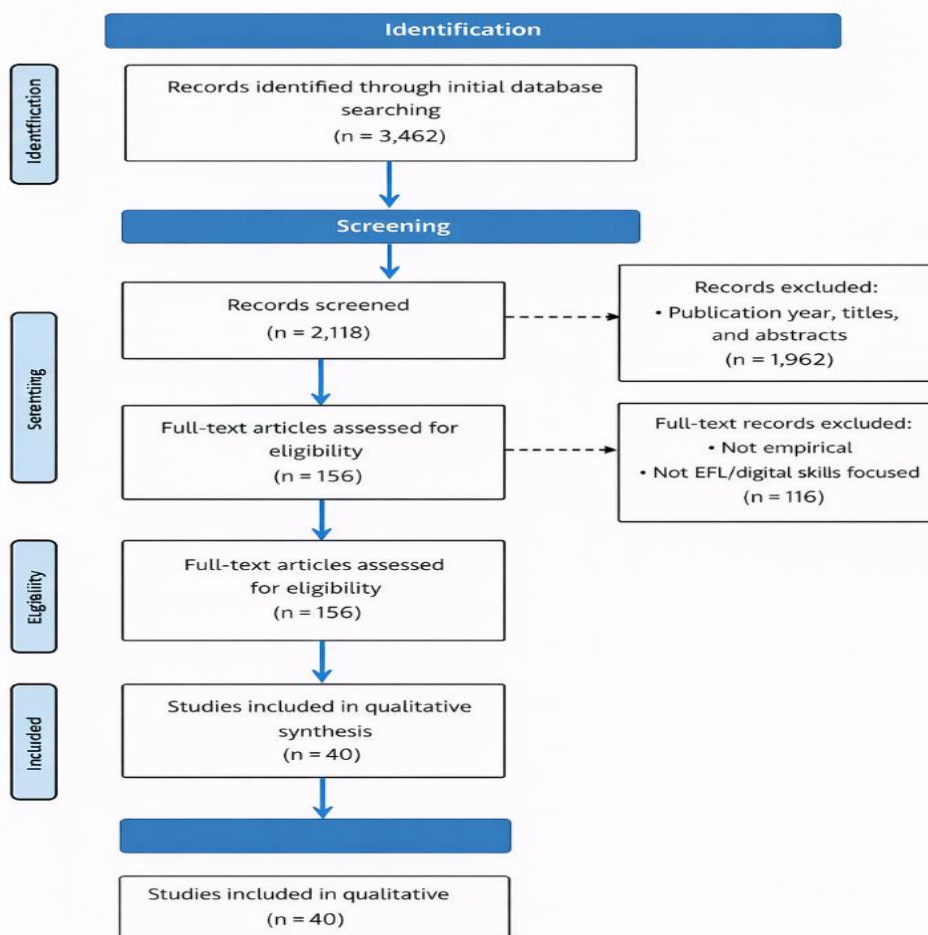


Figure 1. PRISMA Review Process

TABLE 1
ARTICLES INCLUDED IN THE SYSTEMATIC REVIEW (N = 40)

S. No.	Author(s)	Year	S. No.	Author(s)	year
1	Alahmari	2013	21	Siambi	2023
2	Al-Maini	2013	22	Al-Mwzaiji & Muhammad	2023
3	Gitsaki & Alabbad	2013	23	Al-Shakhis & Banks-Santilli	2023
4	AlMegren & Yassin	2013	24	Rahimi	2023
5	Gaballa	2014	25	Alharbi et al.	2023
6	Alenezi	2015	26	Qutub et al.	2023
7	Albugami & Ahmed	2015	27	Faisal	2024
8	Sofi, L. A.	2015	28	Ndiaye et al.	2024
9	Alresheed et al.	2016	29	Al Fraidan & Alaliwi	2024
10	Altawil	2016	30	Renno	2025
11	Al-Harbi & Alshumaimeri	2016	31	Althobaiti	2025
12	Al Khateeb	2017	32	Mubarak	2025
13	Alhababi	2017	33	Abdulhaleem et al.	2025
14	Albedah & Lee	2017	34	Al-Khresheh et al.	2025
15	Alshammari et al.	2017	35	Elmahdi et al.	2025a
16	Almalki	2017	36	Nazim & Alzubi	2025
17	Al-Bareghi	2018	37	Elmahdi et al.	2025b
18	Assulaimani	2019	38	Banafí, N.	2025
19	Alamri	2020	39	Mohamed et al.	2025
20	Salem et al.	2022	40	Salh & Alshewter	2025

D. Coding and Analysis

A systematic review employed qualitative and quantitative content analysis to synthesize empirical study findings. Coding reliability was established through independent assessments of 20 articles by multiple raters, achieving an inter-rater reliability coefficient of over 92%. A dataset analysis subsequently examined study characteristics, including country, publication outlet, thematic focus, educational level, and relevance to digital skill integration in EFL education in line with Saudi Vision 2030.

III. RESULTS AND DISCUSSION

In this systematic review of forty empirical studies, the relationship between EFL education and digital skill demands under Saudi Vision 2030 was analyzed. The studies, published from 2013 to 2025, employed various methodologies and highlighted 2025 as the peak year for publications, indicating a growing academic interest in EFL's role in the digital economy. In 2023 and 2024, each year had six studies, while 2017 also saw notable research activity; however, several years reflected minimal engagement in this area. For a detailed illustration of the year-wise publication trend, see Fig. 2.

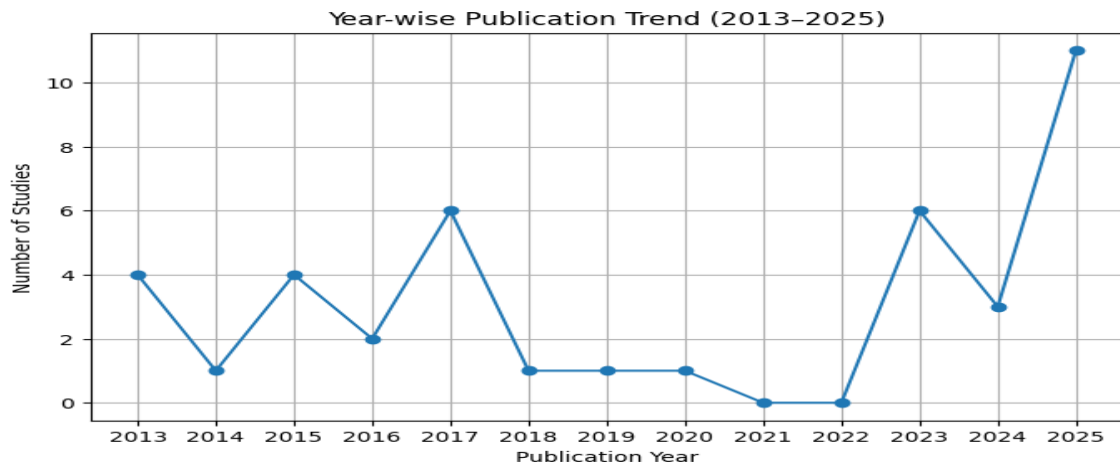


Figure 2. Year-Wise Publication Trend of Studies on EFL Education and Digital Skill Integration Aligned With Saudi Vision 2030 (2013–2025)

A. Conceptualization of Digital Skills in EFL Education Within the Framework of Saudi Vision 2030

The study's first research question investigated the conceptualization of digital skills in EFL education within the framework of Saudi Vision 2030, highlighting that empirical research defines these skills in diverse contexts to enhance English language learning via ICT and multimedia integration (Alahmari, 2013; Al-Maini, 2013; Gitsaki & Alabbad, 2013; AlMegren & Yassin, 2013), enhancing learner engagement and interaction through blended and online learning environments (Alenezi, 2019; Asa et al., 2025; Alresheed et al., 2016; Al-Harbi & Alshumaimeri, 2016), promoting innovation and motivation, communication skills; addressing challenges of low proficiency, student involvement, and improving listening comprehension (Ndiaye et al., 2024; Alshumaimeri & Alhumud, 2021; Hamouda, 2020; Basal, 2015; Shahid & Ali, 2017), and fostering communicative competence, collaboration, and learner autonomy in digitally mediated contexts (Alshammari et al., 2017; Albedah & Lee, 2017). Digital skill-oriented EFL practices are increasingly aligning with educational and workforce objectives, highlighting the importance of academic English proficiency, digital literacy, critical thinking, and professional communication in higher education (Assulaimani, 2019; Alamri, 2020; Rahimi, 2023). These studies highlight English as the dominant language in digital platforms and global communication, indicating that digital skills are crucial for employability and engagement in the digital economy (Alharbi et al., 2023; Qutub et al., 2023). Recent studies highlight the importance of digital skills in EFL education, emphasizing competencies such as AI-supported learning environments, data-driven instructional practices, and digitally mediated workplace skills (Siambi, 2023; Faisal, 2024; Ndiaye et al., 2024; Renno, 2025). Digital skills are essential for curriculum reform, national educational transformation, and the development of human capital aligned with Vision 2030, as highlighted by policy-oriented and cross-level studies (Banafi, 2025; Mohamed et al., 2025; Saleh & Alshewiter, 2025). These findings highlight the importance of EFL education in developing digital competence in line with Saudi Vision 2030, stressing the necessity to resolve conceptual inconsistencies and create unified frameworks that connect English language education with digital skills and national development objectives.

B. Integration of Digital Skills Into EFL Curricula and Pedagogical Practices

The second research question assesses the integration of digital skills in EFL curricula and practices within Saudi Vision 2030. Findings suggest a gradual incorporation of digital skills, evolving from technology-enhanced teaching to structured, outcome-oriented approaches. Early studies identified digital tools as supplementary resources for enhancing language exposure, learner engagement, and classroom interaction, and facilitating intentional language learning beyond conventional classrooms (Alenezi, 2019; Albugami & Ahmed, 2015; Altawil, 2016). Digital integration focused on teacher-directed instruction rather than digital competence goals. Research indicated that blended learning models, online discussion platforms, and collaborative digital tasks enhanced communicative language teaching, increased learner engagement, and the students' grammar performances (Al-Harbi & Alshumaimeri, 2016; Alhababi, 2017; Alshammari et al., 2017). Recent studies emphasize the importance of integrating digital skills into EFL curricula in higher education and teacher training. They call for curriculum redesign to align with digital competence frameworks, incorporating essential skills such as digital research, academic writing, and professional communication, as well as

improving vocabulary and speaking skills (Assulaimani, 2019; Alamri, 2020; Rahimi, 2023; Alharbi et al., 2023). Advanced pedagogical practices, including AI-supported instruction and project-based learning, are establishing digital skills as essential curricular outcomes from 2023 to 2025 (Siambi, 2023; Faisal, 2024; Ndiaye et al., 2024; Nazim & Alzubi, 2025). The findings underscore the connection between EFL curriculum design, pedagogical innovation, and national digital transformation goals, particularly highlighting the need for greater consistency in curriculum implementation across educational levels to support the digital skill integration objectives of Saudi Vision 2030. However, some studies have noted certain challenges, such as inadequate managerial support, along with time constraints, training issues, negative perceptions, unclear policies, resistance to change, limited resources, and insufficient infrastructure and evaluation, that impede success (Alenezi, 2019; Albugami & Ahmed, 2015; Nazim & Alzubi, 2025).

C. Alignment Between EFL Education, Digital Skill Demands, and Workforce Readiness

The third research question evaluated the alignment of EFL education with workforce digital skills as outlined in Saudi Vision 2030. Findings indicate that EFL education plays a vital role in preparing learners for the requirements of a digital economy. English proficiency is a key skill that facilitates access to digital tools, global communication, and professional knowledge, underscoring the importance of language education for employability and workplace competence (Assulaimani, 2019; Alamri, 2020; Rahimi, 2023). Higher education EFL programs integrate digital research skills, online collaboration, and professional communication tasks to better prepare graduates for technology-intensive workplaces. (Alharbi et al., 2023; Qutub et al., 2023). Recent studies emphasize aligning EFL education with national workforce priorities and Vision 2030. Research post-2023 aims to integrate digitally mediated employability skills, including critical digital literacy and problem-solving, into EFL instruction, as well as AI-supported professional practices. (Siambi, 2023; Faisal, 2024; Ndiaye et al., 2024; Renno, 2025). Policy-oriented and cross-level studies underscore the role of EFL education in supporting entrepreneurship, innovation, and lifelong learning, framing digital skill development as a strategic response to labor-market transformation under Vision 2030 (Banafi, 2025; Mohamed et al., 2025; Saleh & Alshewter, 2025). These findings highlight the role of EFL education in linking language learning to workforce readiness in the digital economy, while identifying discrepancies between curriculum goals and labor-market demands, underscoring the need to improve alignment between EFL curriculum design, industry needs, and national digital skill frameworks.

D. Educational-Level Distribution of Digital Skill Integration in EFL Education

The study's fourth research question examined the integration of digital skills into EFL education aligned with Saudi Vision 2030. A review of the literature revealed a strong focus on higher education, with 15 studies (37.5% of the total) focusing on university-level programs. Key topics included digital competence, artificial intelligence in education, academic English proficiency, and employability skills, emphasizing the essential role of higher education in advancing national digital transformation and preparing a workforce for the digital economy. Teacher education and professional development emerged as the second-largest focus in the literature, with 9 studies (22.5%) centered on EFL teachers' digital pedagogical skills and professional development via online and AI methods. Secondary education was the focus of 7 studies (17.5%), which addressed digital pedagogy and learning models for middle and high school EFL students. In contrast, primary education was notably less studied, with only three studies (7.5%) discussing early EFL instruction and ICT integration. Additionally, six studies (15.0%) adopted a cross-level or policy-focused perspective, analyzing curriculum reforms in line with Vision 2030 and national educational frameworks. These findings reveal a research focus on higher education and teacher development in digital skills for EFL education, while primary-level contexts are underexplored. This imbalance aligns with Vision 2030's workforce readiness goals but exposes a significant gap in early digital–linguistic development. There is a pressing need for a more inclusive research agenda that fosters digital skills across all educational levels, promoting EFL-related competencies from foundational to advanced stages.

TABLE 2
EDUCATIONAL-LEVEL DISTRIBUTION OF THE INCLUDED STUDIES (N = 40) ON DIGITAL SKILL INTEGRATION IN EFL EDUCATION ALIGNED WITH SAUDI VISION 2030

Educational Level	Description	Number of Studies (n)	Percentage (%)
Primary Education	Studies focusing on elementary/primary EFL learners, early digital literacy, and ICT integration at foundational levels	3	7.5
Secondary Education	Studies examining middle and high school EFL instruction, digital pedagogy, blended/online learning, and learner skills	7	17.5
Higher Education	University-level EFL contexts, foundation programs, undergraduate learners, digital competence, AI use, and employability skills	15	37.5
Teacher Education & Professional Development	Pre-service and in-service EFL teachers, digital skills, ICT efficacy, online/AI-supported professional development	9	22.5
Cross-level / Policy-oriented Studies	Vision 2030-aligned policy analyses, curriculum reform, national frameworks, or studies spanning multiple educational levels	6	15.0
Total		40	100

E. The Digital Skills–Oriented EFL Education: Gaps, Challenges, and Future Directions

The fifth research question highlighted gaps, challenges, and future directions in digital skills-oriented EFL education in relation to Saudi Vision 2030, noting significant gaps due to an overemphasis on higher education and limited empirical research on primary and secondary education. Tertiary institutions play a crucial role in preparing the workforce, but early education is often neglected, potentially hindering the development of important digital-linguistic skills necessary for lifelong learning. Additionally, there is a lack of clarity in defining digital skills within EFL curricula, leading to a wide range of interpretations, from basic ICT use to advanced AI skills. This issue underscores the need for a cohesive national framework that integrates EFL outcomes with the digital skill objectives outlined in Vision 2030. Challenges in teacher preparedness for integrating new technologies in EFL instruction include differing levels of digital pedagogical competence, the digital divide, inadequate access to devices, and insufficient digital literacy among both educators and students, particularly in relation to artificial intelligence, adaptive platforms, and data-driven learning tools (Shaalan & Ahmad, 2024; Aldawsari & Almohish, 2024; Nazim & Alzubi, 2025; Hind, 2021; Aljameel, 2022). Limited access to digital infrastructure, inconsistent institutional support, and misalignment between curricular objectives and assessment practices were also highlighted as barriers to effective implementation. Multiple studies (Alharbi et al., 2023; Mohammed et al., 2023; Banafi, 2025) highlight the need for a digital skills measurement tool and a performance enhancement framework to modernize the English Language Program, recommending updated training methods, relevant content, practical experiences, and student feedback to align with Vision 2030's employability objectives.

IV. CONCLUSION

This systematic review examined studies from 2013 to 2025 on integrating digital skills in EFL contexts in Saudi Arabia, focusing on five themes: conceptualization of digital skills under Saudi Vision 2030, incorporation into curricula and teaching methods, alignment with workforce needs, distribution across educational levels, and identification of gaps, challenges, and future directions. The findings reveal inconsistencies within the EFL curriculum, highlighting the need for a cohesive framework. Key issues included insufficient managerial support, unclear policies, and a misalignment between curriculum goals and labor market demands, exacerbated by inadequate initiatives to improve learners' digital skills. The study emphasizes the importance of English proficiency in improving digital literacy, noting challenges like insufficient digital infrastructure and resistance to change. It recommends that policymakers prioritize professional development and equal access to digital resources to successfully integrate EFL education into the digital landscape of a post-oil economy. Future research should develop standardized frameworks connecting language proficiency with digital and employability skills to aid EFL teachers' professional development. Additionally, it is crucial to align the EFL curriculum, assessments, and labor market needs to achieve the human capital development goals of Saudi Vision 2030.

ACKNOWLEDGEMENTS

The authors extend their appreciation to Prince Sattam bin Abdulaziz University for funding this research work through the project number (2025/02/36868).

REFERENCES

- [1] AL-Bareghi, S. A. A. (2018). Digital integration of Active Learning in Saudi Arabia for TESOL courses. *International Journal of Innovative Science and Research Technology*, 3(8), 39–42.
- [2] Al Fraidan, A. A. (2024). Bridging the empathy gap in AI: Developing culturally attuned and ethically robust educational tools for safeguarding Saudi children's learning environments. *Pakistan Journal of Life and Social Sciences (PJLSS)*, 22(2). <https://doi.org/10.57239/pjlss-2024-22.2.00942>
- [3] Al Fraidan, A., & Alaliwi, M. (2024). Digital Transformation for Sustainable English Language Learning: Insights from Saudi Arabia and Global Perspectives. *Forum for Linguistic Studies*, 6(6), 439–449. <https://doi.org/10.30564/fls.v6i6.7754>
- [4] Al-Harbi, S. S., & Alshumaimeri, Y. A. (2016). The flipped Classroom Impact in Grammar Class on EFL Saudi Secondary School students' performances and Attitudes. *English Language Teaching*, 9(10), 60. <https://doi.org/10.5539/elt.v9n10p60>
- [5] Al Khateeb, A. A. M. (2017). Measuring Digital Competence and ICT Literacy: An Exploratory study of In-Service English Language Teachers in the Context of Saudi Arabia. *International Education Studies*, 10(12), 38–51. <https://doi.org/10.5539/ies.v10n12p38>
- [6] Al-Khreshah, M. H., Alshammari, S. R., & Almayez, M. (2025). Digital integration in the Saudi ELT context: a supervisory lens on teachers' technological efficacy. *Cogent Social Sciences*, 11(1). <https://doi.org/10.1080/23311886.2025.2526011>
- [7] Al-Maini, Y. H. (2013). Issues in Integrating Information Technology in Learning and Teaching EFL: the Saudi Experience. *The EuroCALL Review*, 21(2), 49–51. <https://files.eric.ed.gov/fulltext/EJ1064980.pdf>
- [8] Al-Mwzaiji, K. N. A., & Muhammad, A. A. S. (2023). EFL Learning and Vision 2030 in Saudi Arabia: A Critical perspective. *World Journal of English Language*, 13(2), 435. <https://doi.org/10.5430/wjel.v13n2p435>
- [9] Al-Shakhis, W. M., & Banks-Santilli, L. (2023). Promoting Critical Thinking Skills in Students in Middle and High School to Achieve the Kingdom of Saudi Arabia's National Vision 2030. *The World Research of Political Science Journal*, 6(1). Available at <https://digitalcommons.aaru.edu.jo/wrpsj/vol6/iss1/5>

- [10] Abdulhaleem, E., Akram, N., & Alshehri, A. (2025). Sustainable Research Practices for English Language Teachers in Saudi Arabia. *Sage Open*, 15(4). <https://doi.org/10.1177/21582440251385472>
- [11] Alahmari, A. S. (2013). *An investigation of Saudi Arabian EFL teachers' engagement with technology* [Doctoral dissertation, Monash University]. <https://doi.org/10.4225/03/58b4f67696508>
- [12] Alamri, H. R. H. (2020). Teachers' 21st-Century Skills: How do Saudi EFL Students Evaluate their Use? *Saudi Journal of Humanities and Social Sciences*, 5(2), 42–55. <https://doi.org/10.36348/sjhss.2020.v05i02.003>
- [13] Albedah, F., & Lee, C. B. (2017). The Use of Mobile Devices Outside of the Classroom for Self-Directed Learning among Female EFL Students in Saudi Arabia. *International Association for Development of the Information Society*, 152–156. <https://files.eric.ed.gov/fulltext/ED579302.pdf>
- [14] Albugami, S. S., & Ahmed, V. (2015). Towards successful implementation of ICT in Saudi schools. *International Journal of Education and Development Using Information and Communication Technology*, 11(1), 36-54.
- [15] Aldawsari, M. M. M., & Almohish, N. R. I. (2024). Threats and Opportunities of Students' Use of AI-Integrated Technology (CHATGPT) in Online Higher Education: Saudi Arabian Educational Technologists' Perspectives. *The International Review of Research in Open and Distributed Learning*, 25(3), 19–36. <https://doi.org/10.19173/irrodl.v25i3.7642>
- [16] Alenezi, A. (2019). Effectiveness of educational technology applications in Saudi Arabian secondary schools. *Journal of Informatics and Mathematical Sciences*, 11(2), 221–233. <https://doi.org/10.26713/jims.v11i2.845>
- [17] Alhababi, H. H. (2017). *Technological pedagogical content knowledge (TPACK) effectiveness on English teachers and students in Saudi Arabia* [Ph.D. dissertation, University of Northern Colorado].
- [18] Alharbi, M. A., Alharhti, R. A., & Rania, M. (2023). Requirements of Employing Digital Skills Based on the Professional Standards for Teachers in the Kingdom of Saudi Arabia from the Point of View of General Education Teachers in Bisha City. *Information Sciences Letters*, 12(9), 2375-2397. <https://digitalcommons.aaru.edu.jo/isl/vol12/iss9/39>
- [19] Aljameel, I. H. (2022). Computer-Assisted Language learning in Saudi Arabia: past, present, and future. *International Education Studies*, 15(4), 95. <https://doi.org/10.5539/ies.v15n4p95>
- [20] Almalki, J. (2017). Improving the usage of ICT for teaching and learning in the Kingdom of Saudi Arabia and Australia: A comparative study of ICT use in a sample of Saudi Arabian and Australian primary schools. In *Griffith Research Online (Griffith University, Queensland, Australia)*. <https://doi.org/10.25904/1912/3558>
- [21] AlMegren, A., & Yassin, S. Z. (2013). Learning Object Repositories in e-Learning: Challenges for Learners in Saudi Arabia. *European Journal of Open, Distance and E-learning*, 16(1), 115-130. <https://eric.ed.gov/?id=EJ1017441>
- [22] Alresheed, S., Raiker, A., & Carmichael, P. (2016). Integrating Computer-Assisted Language Learning in Saudi Schools: A Change Model. In *Handbook on Digital Learning for K-12 Schools* (pp. 369–380). https://doi.org/10.1007/978-3-319-33808-8_22
- [23] Alshammari, R., Parkes, M., & Adlington, R. (2017). Using WhatsApp in EFL instruction with Saudi Arabian university students. *Arab World English Journal (AWEJ)*, 8. <https://doi.org/10.2139/ssrn.3094526>
- [24] Alshumaimeri, Y. A., & Alhumud, A. M. (2021). EFL students' perceptions of the effectiveness of virtual classrooms in enhancing communication skills. *English Language Teaching*, 14(11), 80. <https://doi.org/10.5539/elt.v14n11p80>
- [25] Altawil, A. (2019). *Exploring how digital media technologies can foster Saudi EFL students' English language learning* [Unpublished doctoral thesis]. Western Sydney University, Australia.
- [26] Althobaiti, A. (2025). English in Saudi Arabia: Language Policy, Sociocultural Dynamics, and the Vision 2030 Transformation. *Eurasian Journal of Applied Linguistics*, 11(3), 262-273. <http://dx.doi.org/10.32601/ejal.11323>
- [27] Asa, A. R., Nautwima, J. P., & Johannes, H. N. (2025). Digital Literacy for Workforce Readiness: Bridging the Skills Gap in the 21st Century. *International Journal of Innovation and Economic Development*, 3(11), 7-22.
- [28] Assulaimani, T. (2019). The future of teaching English in Saudi Arabia. *Universal Journal of Educational Research*, 7(8), 1623–1634. <https://doi.org/10.13189/ujer.2019.070801>
- [29] Autor, D. H. (2015). Why are there still so many jobs? The history and future of workplace automation. *The Journal of Economic Perspectives*, 29(3), 3–30. <https://doi.org/10.1257/jep.29.3.3>
- [30] Banafi, N. (2025). Status of the English language program considering Saudi Vision 2030: from students' perspectives. *Asian-Pacific Journal of Second and Foreign Language Education*, 10(1). <https://doi.org/10.1186/s40862-024-00311-y>
- [31] Basal, A. (2015). The implementation of a flipped classroom in foreign language teaching. *Turkish online journal of distance education*, 16(4), 28-37. <https://doi.org/10.17718/tojde.72185>
- [32] Bejaković, P., & Mrnjavac, Ž. (2020). The importance of digital literacy on the labour market. *Employee Relations: The International Journal*, 42(4), 921–932. <https://doi.org/10.1108/ER-07-2019-0274>
- [33] Donoso, V., Pyżalski, J., Walter, N., Retzmann, N., Iwanicka, A., D'Haenens, L., & Bartkowiak, K. (2020). *Report on Interviews with Experts on Digital Skills in Schools and on the Labour Market*. Zenodo (CERN European Organization for Nuclear Research). <https://doi.org/10.5281/zenodo.5226910>
- [34] Đorđević, B., Milanović Zbiljić, S., & Radosavljević, M. (2025). Impact of the Digital Skills on Employability: Cross-Sectional Analysis. *Economies*, 13(7), 196. <https://doi.org/10.3390/economies13070196>
- [35] Elmahdi, O. E. H., AbdAlgane, M., Hamid, F. A., Balla, A. A. S., & Ibrahim, I. Z. A. (2025a). Integrating Critical Thinking and Technology in Saudi EFL Classrooms: A Framework for Culturally Responsive Language Learning. *International Journal of English Language Studies*, 7(2), 34–52. <https://doi.org/10.32996/ijels.2025.7.2.4>
- [36] Elmahdi, O. E. H., Osman, W. A. E., Elamin, Y. M., Elyasa, Y. M., Mudawe, O. M. N., Alteib, I. A., Khurram, S. S., Mohammed, A. F. A., Mahjoub, G. A., Ali, F. R. R., & Ahmed, H. M. M. (2025b). Integration of ICT Tools in Elementary EFL Education: A Mixed Methods Study of Teacher Perspectives and Implementation Challenges in Saudi Arabia. *Forum for Linguistic Studies*, 7(3), 697–713. <https://doi.org/10.30564/fls.v7i3.8508>
- [37] Faisal, E. (2024). Unlock the potential for Saudi Arabian higher education: a systematic review of the benefits of ChatGPT. *Frontiers in Education*, 9. <https://doi.org/10.3389/feduc.2024.1325601>

- [38] Gaballa, H. (2014). Assessing English Language Instructors' Knowledge and Use of Information and Communication Technology (ICT) In Taif University Campuses (TUCs). *Journal of Education and Practice*, 5(35), 82–88. <https://www.iiste.org/Journals/index.php/JEP/article/download/17457/17716>
- [39] Gitsaki, C., & Alabbad, A. (2013). ICT integration in Post-Secondary English teaching and learning. In *IGI Global eBooks* (pp. 179–193). <https://doi.org/10.4018/978-1-4666-1984-5.ch013>
- [40] Goos, M., Manning, A., & Salomons, A. (2014). Explaining job polarization: Routine-Biased technological change and offshoring. *Manning Economic Review*, 104(8), 2509–2526. <https://doi.org/10.1257/aer.104.8.2509>
- [41] Hamouda, A. (2020). The Effect of Virtual classes on Saudi EFL Students' Speaking Skills. *International Journal of Linguistics, Literature and Translation*, 3(4), 175–204. <https://al-kindipublisher.com/index.php/ijllt/article/view/1096>
- [42] Hemajothi, S., & Jain, S. K. (2022). Challenges of E Learning during the Pandemic and Its Implications in Education. *Technoarete Transactions on Application of Information and Communication Technology (ICT) in Education*, 1(4). <https://doi.org/10.36647/ttaicte/01.04.a001>
- [43] Hind, A. (2021). Online learning of English language courses via blackboard at Saudi universities during COVID-19: Challenges and difficulties. *The Journal of Asia TEFL*, 18(3), 780–799. <https://doi.org/10.18823/asiatefl.2021.18.3.3.780>
- [44] Kaczorowska-Spychalska, D. (2018). Digital technologies in the process of virtualization of consumer behaviour – Awareness of new technologies. *Management*, 22(2), 187–203. <https://doi.org/10.2478/manment-2018-0031>
- [45] Katsarou, E. (2021). The Effects of Computer Anxiety and Self-Efficacy on L2 Learners' Self-Perceived Digital Competence and Satisfaction in Higher Education. *Journal of Education and e-Learning Research*, 8(2), 158–172. <https://doi.org/10.20448/journal.509.2021.82.158.172>
- [46] Kumbo, L., Mero, R. F., & Hayuma, B. J. (2023). Navigating the Digital Frontier: Innovative Pedagogies for Effective Technology Integration in Education. *The Journal of Informatics*, 3(1), 14–33. <https://doi.org/10.59645/tji.v3i1.142>
- [47] Ma, H., & Ismail, L. (2025). Empowering language teacher educators: the impact of training, emotions, leadership, and infrastructure on digital pedagogy and the facilitation of future teachers' competence. *Education and Information Technologies*, 30(16), 23817–23843. <https://doi.org/10.1007/s10639-025-13700-8>
- [48] Mohamed, A. M., Alsharafi, S. A., Jmaiel, H. A., Nasim, S. M., & Strzelecki, A. (2025). EFL teachers' awareness of the Internet of Things in EFL education. *Discover Internet of Things*, 5(1), 89. <https://doi.org/10.1007/s43926-025-00179-5>
- [49] Mohammed, T. Q., Bukhari, S. S. F., Ali Fadel, S., & Aljuhani, H. S. A. (2023). The future of English as a foreign language teaching and learning in view of the fourth industrial revolution in the MENA region. *Arab World English Journal (AWEJ) Special Issue on CALL*, (9). <https://doi.org/10.2139/ssrn.4534567>
- [50] Mubarak, R. (2025). Exploring Saudi EFL Learners' Perceptions and Use of AI-Powered English Learning Platforms in the Context of Vision 2030. *European Scientific Journal (ESJ)*, 21(35), 1–24. <https://doi.org/10.19044/esj.2025.v21n35p1>
- [51] Murcia, K., Campbell, C., & Aranda, G. (2018). Trends in Early Childhood Education Practice and Professional Learning with Digital Technologies. *Pedagogika*, 68(3). <https://doi.org/10.14712/23362189.2018.858>
- [52] Narendran, N., Vairavan, C., & Kamalesh Kumar, P. (2025). The growth of digital literacy and 21st-century skills in English language education through ICT. *Advances in Consumer Research*, 2(5), 1507–1512.
- [53] Nazim, M., & Alzubi, A. A. F. (2025). EFL Teachers' Perspectives of Online and In-Person Professional Development Practices: Vision 2030 and Saudi Education Reforms in Focus. *Sage Open*, 15(1). <https://doi.org/10.1177/21582440251325596>
- [54] Ndiaye, A., Ullah, F., Lebbada, D., & Mohammed, E. B. (2024). English Language Teaching & Saudi Arabia Vision (2030): A Critical Scrutiny. *International Journal of Linguistics*, 16(2), 28–41. <https://doi.org/10.5296/ijl.v16i2.21777>
- [55] Nguyen, L. A. T., & Habók, A. (2022). Digital literacy of EFL students: An empirical study in Vietnamese universities. *Libri*, 72(1), 53–66. <https://doi.org/10.1515/libri-2020-0165>
- [56] Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- [57] Palupi, T. M., & Subianto, K. A. (2024). The Incorporation of Digital Literacy in EFL Learning Materials on Junior High School. *Indonesian EFL Journal*, 10(1), 87–96. <https://doi.org/10.25134/iefllj.v10i1.9293>
- [58] Prato, B. W., & Solikhati, H. A. (2020). Investigating teachers' attitude toward digital literacy in EFL classroom. *Journal of Education and Learning (EduLearn)*, 15(1), 97–103. <https://doi.org/10.11591/edulearn.v15i1.15747>
- [59] Rahimi, A. R. (2023). Beyond digital competence and language teaching skills: the bi-level factors associated with EFL teachers' 21st-century digital competence to cultivate 21st-century digital skills. *Education and Information Technologies*, 29(8), 9061–9089. <https://doi.org/10.1007/s10639-023-12171-z>
- [60] Renno, I. (2025). Improving English in Riyadh Schools through Multimodal Learning and Student Engagement. *International Journal of Academic Research in Progressive Education and Development*, 14(3). <https://doi.org/10.6007/ijarped/v14-i3/25792>
- [61] Rinekso, A. B., Rodliyah, R. S., & Pertiwi, I. (2021). Digital literacy practices in tertiary education: A case of EFL postgraduate students. *Studies in English Language and Education*, 8(2), 622–641. <https://doi.org/10.24815/siele.v8i2.18863>
- [62] Saleh, S., & Alshewter, K. M. (2025, December 31). A Quasi-Experimental Study on AI-Supported Informal Learning Intervention: Cultivating Digital Competence, Academic Enjoyment, and Engagement among Saudi EFL Learners. *Computer-Assisted Language Learning Electronic Journal*, 26(7), 256–276. <https://callej.org/index.php/journal/article/view/801>
- [63] Salem, M. A., Alsyed, W. H., & Elshaer, I. A. (2022). Before and Amid COVID-19 Pandemic, Self-Perception of Digital Skills in Saudi Arabia Higher Education: A Longitudinal Study. *International Journal of Environmental Research and Public Health*, 19(16), 9886. <https://doi.org/10.3390/ijerph19169886>
- [64] Shahid, S. H., & Ali, Z. (2017). Effects of video-podcasts on listening comprehension of Saudi EFL learners. *European Journal of English Language Teaching*, 2(4), 169–194. <https://doi.org/10.5281/zenodo.891143>
- [65] Shaaalan, I. E. A. W., & Ahmad, A. S. K. (2024). Linguistic Competence among Egyptian vs. Saudi EFL Majors in Light of Utilizing Artificial Intelligence Technology. *International Journal of Computer-Assisted Language Learning and Teaching*, 14(1), 1–19. <https://doi.org/10.4018/ijcallt.361771>

- [66] Siambi, J. K. (2023). The Impact of Saudi Arabia's Education Policies under Vision 2030 on Student Performance: Saudi's Progress Benchmarked with Malaysia's Education Blueprint 2025. *Advances in Social Sciences and Management*, 1(9), 14–30. Retrieved from <https://hspublishing.org/ASSM/article/view/214>
- [67] Sofi, L. A. (2015). Teaching English in Saudi Arabia through the use of multimedia. *Master's Projects and Capstones*, 138. <https://repository.usfca.edu/capstone/138>
- [68] Sudirman, A. (2025). Integrating Digital Literacy in EFL Teaching and Learning Contexts: A Systematic Literature Review. *Jejak Digital: Jurnal Ilmiah Multidisiplin*, 1(4), 1401-1417. <https://doi.org/10.63822/b2sdt853>
- [69] Tutar, Ö. F., & Turhan, F. H. (2023). Digital Leisure: Transformation of leisure activities. *Shanlax International Journal of Education*, 11(S1-Oct), 16–28. <https://doi.org/10.34293/education.v11i1s1-oct.6365>

Ahmed Alshehri is currently working as an Assistant Professor at the Department of English Language & Literature, College of Arts and Letters, University of Bisha, Saudi Arabia. He earned the Master of Arts in Linguistics from Essex and the Doctor of Philosophy in Applied Linguistics from the University of York. He teaches EFL classes. His area of interest includes applied linguistics and he has made significant contributions to this field over many years. He publishes in renowned Scopus-indexed journals.

Khalid Khulaif Alshammari earned his Ph.D. from Newcastle University, UK. He is currently working as an Assistant Professor at Department of Languages and Translation, University College in Tayma, University of Tabuk, Tabuk, Saudi Arabia. He has presented papers at conferences and published multiple articles in Scopus-indexed journals of repute both in applied linguistics, teaching and research. His areas of interest include Phonology, Arabic Dialectology, Phonology-Morphology Interface, Pragmatics, and EFL/Technology.

Mohammad Jamshed got his Ph.D. degree in 2018 from Aligarh Muslim University, Aligarh, U.P. (INDIA). His areas of interest include postcolonial literature, travel writings, comparative studies, and ESL/EFL teaching. He has presented papers at conferences and published more than a dozen articles in Scopus-indexed journals of repute both in literature and ESL/EFL teaching and research. He is currently working as Associate Professor, at the Department of English, College of Science & Humanities, Prince Sattam Bin Abdulaziz University, Al Kharj, 11942, Kingdom of Saudi Arabia.

Mohammad Rezaul Karim is currently working as an Assistant Professor of English in the College of Science and Humanities, Prince Sattam bin Abdulaziz University, KSA. He holds a Ph.D. from Gauhati University, India. He has been teaching English language to the undergraduate students for the last 7 years. He has presented papers at both national and international conferences, published more than 25 research articles and papers in various Scopus and WOS indexed journals, and authored two books. His main area of interest is English language and comparative literature.