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**DIGITAL LITERACY IN EFL CONTEXTS: EXPLORING BENEFITS AND
BARRIERS FOR LEARNERS IN IRAQ**

MASTER'S THESIS

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JURY APPROVAL

Upon the submission of the dissertation to the **Graduate Education Institute** of Tokat Gaziosmanpaşa University, Karveen Ibrahim Mohammad has defended the study entitled “**DIGITAL LITERACY SKILLS AND ACADEMIC PERFORMANCE IN LANGUAGE COURSES: BENEFITS AND BARRIERS FOR EFL LEARNERS IN IRAQ**” in partial fulfillment of the requirements for the degree of Master of Arts in Teaching English as a Foreign Language, and the study has been found fully adequate, in scope and quality, as a thesis for the degree concerned by unanimous vote of the examining committee on 13.11.2024.

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ABSTRACT

DIGITAL LITERACY IN EFL CONTEXTS: EXPLORING BENEFITS AND BARRIERS FOR LEARNERS IN IRAQ

Master's Thesis, Program of English Language Teaching

Karveen Ibrahim Mohammad

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Digital literacy plays a significant role in this modern day of the educational world, especially among EFL learners. It analyzes precisely how the use of digital literacy makes a difference in the academic performances of students in Duhok, Iraq, who study English as a foreign language, based on their statements related to the integration of digital tools into language learning. In this research, the quantitative research design has been followed, where 100 EFL learners, primarily Kurdish speakers, have been conferred with surveys in order to assess their digital literacy level, high rating language proficiency, and experiences related to digital resources. It was found that those learners with higher levels of digital literacy are capable of engaging more with authentic materials for better learning with interactions and communication in real time. However, inaccessible technologies, limited training of small amounts, and poor learning environments hamper the effective use of digital tools in a learning environment. These inequities further reinforce our argument for targeted interventions to focus on building up digital literacy while ensuring access to technologies. This study highlights the role of digital literacy in language acquisition and informs the way to effective inclusive educational methods. A promising avenue for future research is long-term changes in digital literacy and the testing of particular digital tools.

Keywords: EFL, Digital Literacy, Digital Technology.

ÖZET

EFL BAĞLAMINDA DİJİTAL OKURYAZARLIK: IRAK'TAKİ ÖĞRENCİLER İÇİN FAYDALAR VE ENGELLERİN KEŞFİ

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Dijital okuryazarlık, özellikle Yabancı Dil Olarak İngilizce (EFL) öğrenenler arasında, günümüz eğitim dünyasında önemli bir rol oynamaktadır. Bu çalışma, dijital okuryazarlığın Duhok, Irak'taki İngilizce öğrenen öğrencilerin akademik performanslarına nasıl bir fark kattığını ve dil öğreniminde dijital araçların entegrasyonuna ilişkin faydalarını ve zorluklarını incelemektedir. Araştırmada nicel araştırma tasarımı izlenmiş ve dijital okuryazarlık seviyelerini, dil yeterliliklerini ve dijital kaynaklarla ilgili deneyimlerini değerlendirmek amacıyla çoğunluğu Kürtçe konuşan 100 EFL öğrencisi ile anketler yapılmıştır. Daha yüksek dijital okuryazarlığa sahip olan öğrencilerin, gerçek materyallerle daha iyi etkileşimde bulunma, interaktif öğrenmeden faydalanma ve anlık iletişimde daha iyi oldukları bulunmuştur. Ancak, sınırlı teknoloji erişimi, yetersiz eğitim ve destekleyici olmayan öğrenme ortamları, dijital araçların eğitimde etkili kullanılmasını engellemektedir. Bu eşitsizlikler, dijital okuryazarlığın geliştirilmesine odaklanacak ve teknolojilere erişimi sağlayacak hedeflenmiş müdahalelerin gerekliliğini vurgulamaktadır. Bu çalışma, dil öğreniminde dijital okuryazarlığın rolünü vurgulamakta ve etkili ve kapsayıcı eğitim yöntemlerinin nasıl geliştirilebileceğine dair önemli bilgiler sunmaktadır. Gelecek araştırmalar, dijital okuryazarlıktaki uzun vadeli değişiklikleri ve belirli dijital araçların dil öğrenimine etkisini araştırmak için umut verici bir alan sunmaktadır.

Anahtar Kelimeler: EFL (Yabancı Dil Olarak İngilizce), Dijital Okuryazarlık, Dijital Teknoloji

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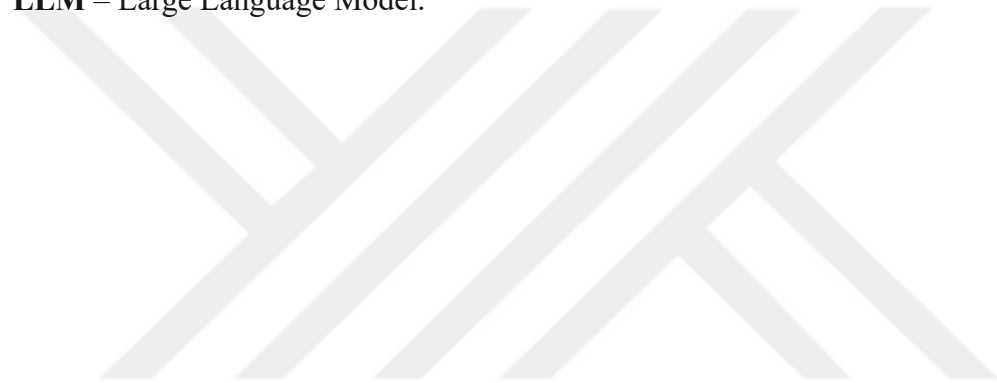
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LIST OF ABBREVIATIONS

EFL – English as a Foreign Language.

ICT – Information and Communication Technology.

LLM – Large Language Model.



CHAPTER I

INTRODUCTION

Background of the study

In modern educational contexts, digital literacy has emerged as an important competency for students in most contemporary settings around the world. It is the level at which a person is capable of effectively and critically navigating, evaluating, and creating information with various digital technologies. Therefore, it is a multicomponent skill that encompasses many other skills critical to success in the 21st century (Subaveerapandiyan & Sinha, 2022). For EFL learners, especially in a setting such as Iraq, digital literacy can be considered crucial with regard to facilitating educational resources, participating in global communities, and fostering language acquisition (Nguyen & Habók, 2023).

Digital technology integration into language education has become one of those aspects that have fully transformed the conventional pedagogical approach. Where digital literacy has afforded the development of new avenues through online learning platforms, language learning applications, and social media, it has gained new dimensions in the exercise of language practice and interaction (Okoye et al., 2022). It is recognized in the literature that digital literacy can enhance language learning outcomes in meaningful ways, as it offers learners access to authentic materials, real-time communication opportunities, and interactive learning experiences (Govender & Arnedo-Moreno, 2021). These resources will also facilitate EFL learners with exposure to native language use, cultural nuances, and diverse linguistic contexts, thus enriching their learning experience (Minh, 2021).

Furthermore, the practice of digital literacy actually promotes learner independence and self-directed learning. With information at one's fingertips with access to the online world, learners can take responsibility in digital competencies for their educational journeys, searching out resources that better fit their interests and learning goals (Nguyen & Habók, 2023). Indeed, this is a shift toward learner-centered education, which is relevant in Iraq considering the traditional teaching methods practiced previously, which may not meet the diverse needs of students. Throughout the years, the

Iraqi educational system has had to grapple with political unrest, infrastructural shortages, and an overall limited access to progressively developing facilities for education. Despite these challenges, there is an encouraging awareness and need for proficiency in the English language, which is gradually growing in relation to advancement opportunities both academically and professionally (Cosmiano, 2023).

As Iraq seeks to integrate itself into the global economy, acquiring English language skills has become more important, prompting educational institutions to emphasize EFL instruction. However, the integration of digital literacy initiatives within Iraqi EFL contexts has been sporadic. While some institutions have begun incorporating technology into their curricula, many learners still face critical barriers to accessing digital resources, including limited internet connectivity, lack of modern devices, and insufficient training in digital skills. Consequently, the full potential benefits of digital literacy for EFL learners in Iraq remain unexplored (Mahmood & Mohammadzadeh, 2022).

Digital Literacy and Its Advantages for EFL Learners

Digital literacy has a lot to offer English as a Foreign Language (EFL) learners. At the first level, it provides access to a great deal of online resources: language learning websites, instructional videos or interactive exercises that can supplement in-class teaching and meet different learning styles (Chen, 2023). In addition, digital technologies allow to speak with native speakers and other learners from around the world. According to Indrastana and Rinda (2021) platforms for online language exchange, which can be also considered social networks, provide options to use EFL in real-life situations that help learners sound more fluent and confident. Moreover, digital platforms encourage much more collaborative learning via virtual forums, team tasks, and web-based classes enabling students to communicate with other learners, collaborate on language assignments and learn from each other.

Furthermore, digital instruments enable students to customize their educational journeys by selecting resources that resonate with their interests, regulating their own learning tempo, and monitoring their advancement, which ultimately results in more successful language acquisition (Li & Li, 2022).

Barriers to Digital Literacy Development in Iraq

Despite these benefits, several obstacles hinder the development of digital literacy among Iraqi EFL learners. Poor infrastructure, such as inadequate internet connectivity and limited access to modern technology, creates disparities in learning opportunities, especially for students in rural or underserved areas (Tzafilkou et al., 2022). Even when technology is available, learners may lack the skills needed to use digital tools effectively, as insufficient training for both students and teachers hampers the integration of digital literacy into language learning (Belzer et al., 2022). Cultural attitudes toward education and technology also play a role, as traditional views may prioritize face-to-face instruction over digital learning, leading to resistance against adopting new technologies. Economic factors further complicate the situation, as many students in Iraq cannot afford personal devices or reliable internet services, limiting their ability to fully engage with digital resources and exacerbating educational inequalities (Al-Abdali & Alzayadi, 2020).

Considering that the dynamics of digital literacy for Iraqi EFL learners have presented both benefits and barriers, there is an immediate need for empirical investigation into such dynamics. The implication of digital literacy for the learning of the language will help in the formulation of specific interventions and policies toward enhancement of learning outcomes. This research studies the particular benefits and barriers EFL learners face regarding digital literacy in Iraq. Such learner experience, perception, and challenge analyses provide insights that should be useful for educators, policymakers, and other major stakeholders in the course of developing supportive environments for digital literacy (Pratolo & Solikhathi, 2020)

In all, digital literacy is a significant part of 21st-century language education and opens up new avenues for learning and communication for EFL learners in Iraq. However, major barriers have to be overcome before those benefits can be taken advantage of. Until now, very limited research has been done on digital literacy in language education, and what Iraq offers in terms of challenges and opportunities concerning EFL learners may be unique. Thus, the main purpose of this research is to provide a better insight into the benefits and barriers of digital literacy to inform the strategies that could empower the learners to enable them to feel better in their language acquisition experiences within the markedly digitizing environment (Smith et al., 2022).

Statement of the Problem

The need for digital literacy has recently become particularly poignant in the contemporary global educational landscape and within foreign language learning. This key competence opens the door to myriad materials, platforms, and technological support for students, vastly enriching the process of learning EFL (Nguyen & Habók, 2023). Iraq is a very specific context with its socio-economic and cultural settings, offering new views on how digital literacy interrelates with EFL education. Despite the obvious benefits, Iraqi EFL learners face particular challenges that may hamper their use of digital learning platforms (Al-Mofti, 2020). These challenges include but are not limited to a lack of stable internet and technological devices, uneven digital literacy among learners and instructors, and even cultural and linguistic obstacles to efficiently using digital tools in the EFL learning process.

The present research aims at highlighting how digital literacy empowers Iraqi EFL students in ways of autonomy in learning, wider interaction with the language of English, and improved communicative skills. It also seeks to ascertain what the challenges are that hinder students in harnessing these opportunities and how they could be mitigated to improve equal digital EFL education for all learners in Iraq (Mahmood & Mohammadzadeh, 2022).

Significance of the Study

The relevance of engaging with the above-mentioned research questions is manifold because it addresses academic, pedagogical, and sociological aspects. Basically, understanding how gender, age, and academic levels influence digital literacy provides important insight into the status of digital inclusion and literacy among different groups. This knowledge is essential in the development of educational programs and policies that reduce disparities in digital literacy and make digital resources and opportunities available to all.

The importance will also be the probing of the role that digital technologies and resources play in the habits of language learning, skill development, and information access for educators, curriculum designers, and policymakers. This study can further enhance language education by an effective integration of practical digital tools and

methodologies for better learner outcomes through technological leveraging. It will be important to investigate how these different aspects of digital literacy—such as typing speed, web search skills, and the critical evaluation of information—affect the effectiveness of interactions with large language models in the digital world, with a view to refining human-AI interaction. This will contribute to developing more intuitive and constructively educational uses of AI-enabled applications that optimize learning and information processing.

Further research into the gap between self-reported and objectively measured digital literacy skills may indicate a discrepancy between perceived and actual digital competencies. Addressing such a gap is relevant for better designing effective digital literacy training that prepares individuals for the digital economy. Similarly, it is important to investigate the understanding of language learners concerning important aspects of digital technologies. It will also provide information to educators about learners' baselines on digital literacy in order to develop appropriate and tailored digital literacy curricula that address the needs of the learners, thus enabling them to use the digital environment competently.

Lastly, it is important to understand the perceptions and attitudes of language learners towards digital technology and how these influence experiences and outcomes in digital literacy. Insights accruing from here may lead to interventions that will, in turn, enhance learners' engagement with and attitudes toward digital technologies, improving their proficiency in digital literacy.

Collectively, the insights to be derived from these research questions have the potential to considerably impact educational technologies, digital literacy initiatives, learner engagement strategies, and the broader narrative of digital interactions within educational spheres.

Statement of the Purpose

Now, there is a global necessity of achieving digital literacy across all learners and most specifically in relation to EFL education. Given the speed at which technology is advancing, combined with our increased dependence on digital media as a means of communication and access to information (Lim et al., 2008), it is essential that we have an accurate assessment of how digitally literate EFL learners are in practice. Consequently, this study explores the complex dimension of digital literacy (Dawoody

2014) regarding its utility that can lead to better educational results for EFL students in Duhok city- Iraq by diagnosing their level of competency concerning using digital devices and understanding some prior use with mention challenges they face while trying benefit from employing technology in language learning.

The main purpose of this study is to identify the current levels of digital literacy among EFL learners in Duhok, and also to find out what kinds of specific digital skills are needed for effective language leaning. Digital literacy involves using, navigating, evaluating and creating information through various mediums and technologies. In order to develop the language proficiency that is necessary for accessing knowledge, participating in communities and improving language skills, EFL learners need these literacies too. The present study explores students' current digital literacy levels in order to get more detailed picture about their effect on students' language learning.

In addition, the study aims at investigating EFL learners' perceptions and attitudes towards digital literacy and its integration in their language learning. actually, in order to realize the importance of technology in classrooms, it is necessary for educational researchers as well as instructors to recognize what students perceive about the significance of digital literacies or technology tools and what probably hinder them from benefiting from the use of digital tools. Surveys, interviews and focus groups will be implemented to collect qualitative as well as quantitative data with regard to how learners perceive digital technologies within their own learning.

This study will assess digital literacy levels and learner attitudes, but it will also seek to identify the particular obstacles EFL learners in Duhok face in terms of their digital literacy. Such obstacles may pertain to issues such as a lack of access to technology, inadequate digital tools training, as well as the need for more supportive learning environments. By investigating these obstacles, the study intends to raise awareness among teachers, policy-makers and stakeholders with regard to some of the unique challenges that EFL learners have to deal with concerning digital literacy. It is through this awareness that targeted interventions and strategies can be developed addressing these challenges constructively and fostering a more conducive and inclusive learning environment.

This study aims to determine the effect of digital literacy on language learning outcomes. It is widely acknowledged that digital literacy can significantly boost language

learning through exposure to authentic input, opportunities for real-time communication and interactive learning environment (Vurdién, 2012; Xu & Du, 2013). By examining how digital literacy influences language learning outcomes among EFL learners in Duhok this study hopes to shed light on this under-researched area of enquiry. Furthermore, the results may provide insights into how best to exploit available digital resources to enhance learners' performance in English.

Moreover, this study is not delimited to its immediate context in Duhok, Iraq. Considering the present state of globalization, digital literacy is becoming increasingly necessary for educational purposes. EFL learners with developed digital literacy are better equipped to deal with the fast-pace of life, interact with other cultures and languages, as well as take advantage of modern technology and harder-to-reach resources. In targeting the needs and problems faced by EFL learners in Iraq, it is hoped that productive teaching methodologies could be designed and replicated elsewhere.

In summary, this research seeks to explore the impact of digital literacy on improving educational achievements for EFL students in Duhok, Iraq. This will be accomplished by evaluating levels of digital literacy, examining student perspectives, recognizing obstacles, and investigating the correlation between digital literacy and language learning results. The goal is to gain a thorough understanding of the significance of digital literacy in language education. The results of the study will be used to develop approaches and initiatives aimed at empowering EFL students, enhancing their language learning experiences, and ensuring fair access to digital resources in an increasingly digital era. Ultimately, this study aims to contribute to the ongoing conversation about digital literacy in education and its crucial role in preparing students for success in the 21st century.

Research questions

This study investigates the following research questions:

- 1- How do gender, age, and academic levels affect digital literacy?
- 2- How do digital technologies and resources impact language learning habits, skills development, and access to information for learners of various backgrounds and experience levels?

- 3- To what extent do different aspects of digital literacy, such as typing speed, web search skills, and critical evaluation of information, influence the effectiveness of a large language model's interaction with the digital world?
- 4- Do self-reported digital literacy skills exhibit a significant discrepancy with objectively measured proficiency in utilizing digital tools?
- 5- What is the level of knowledge and understanding of fundamental digital technologies among language learners, as assessed by their ability to identify and differentiate vital digital concepts and tools in a self-assessment scenario?
- 6- How do language learners' perceptions of digital technology and attitudes toward it shape their digital literacy experiences and outcomes?

Limitations of the study

The study acknowledges several limitations that may affect the findings and their applicability. Firstly, the sample size was limited to 100 participants, primarily EFL students from Duhok Province, which may not represent EFL learners in different regions or educational contexts. Moreover, most participants were Kurdish speakers, potentially limiting the generalizability of the results to other linguistic or cultural groups.

Another limitation is the use of purposive sampling, which, while beneficial for targeting specific characteristics, may introduce bias by not randomly selecting participants. This could impact the diversity of perspectives and experiences captured in the study. Additionally, relying on self-reported measures for assessing digital literacy and language proficiency may lead to inaccuracies if participants overestimate their skills or experiences.

The study's temporal context is also a consideration, as data collection occurred in May 2024. Given the rapidly evolving nature of technology, the findings may need to be updated as new tools and resources emerge.

Furthermore, the study may only encompass some available digital tools and resources, potentially overlooking other impactful technologies.

Finally, while the study briefly touches on cultural influences on digital literacy, it must deeply explore how these factors may affect technology integration in language learning. These limitations indicate that while the findings offer valuable insights into the

role of digital literacy in EFL education, further research is necessary to address these gaps and enhance the understanding of digital literacy across diverse educational settings.

Keywords of the study

- **English Foreign Language EFL:** EFL stands for English as a Foreign Language learners which are students who learn English they in an environment where the English language is not the first spoken language (Irwandi et al., 2023). This is often experienced in the content where English is not the first language; the learners may be learning English for a number of reasons including academic, career or personal aboard. EFL learners have different difficulties than ESL learners, who use English in the environment where another language is not frequently used. Hence, for EFL learners the concern is more on general language proficiency skills that can be used outside the L1 background(Meştereagă, 2023).

- **Digital literacy :** As sorted in digital context, digital literacy is the ability to both interpret and engage with information using an array of programs, gadgets, and technologies. It consists of numerous competencies, such as know-how in the use of information which refers to the process of searching for and acquiring information from digital sources and the ability to analyse and determine the reliability and applicability of the acquired information (Le et al., 2022). Second, digital literacy also entails the ability to generate content that enables a person to generate text, image, and video content for dissemination digitally. The other factor is communication which entails working with others through technology enhanced mediums. Besides, recognizing digital tools is crucial since it refers to the ability of how different technologies and applications work. In summary, digital literacy is about being able to navigate the sociotechnical milieu of the digital society and use information and communication technologies as productive tools. While researchers define CTS differently, the central concept comprises employing appropriate technology for interaction, cooperation, and information processing(Türk, 2023).

- **Digital Technology:**It encompasses a wide range of technologies that utilize digital signals and data to perform various functions(Zhang & Chen, 2023). Key examples of digital technology include computers, smartphones, tablets, and the internet, as well as software applications, digital media, and online platforms.Digital technology

enables users to create, share, and manipulate information in various formats, such as text, audio, video, and graphics. It plays a crucial role in communication, education, entertainment, and business, facilitating tasks such as online learning, social networking, e-commerce, and data analysis. The rapid advancement of digital technology has transformed how individuals and organizations operate, making it an integral part of modern life and society(Titus, 2020).



CHAPTER II

LITERATURE REVIEW

2.1 Presentation

The following chapter provides an overview of digital literacy, including a discussion of its components and its role in English teaching. It also explores the challenges of integrating digital literacy and presents related studies.

2.2 Digital Literacy Definition

Digital literacy is a concept that has been defined and refined by numerous researchers over the years, highlighting its evolving nature and the expanding competencies required to navigate the digital world effectively. Martin (2009) initially offered a comprehensive definition, stating, "the awareness, attitude, and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, to enable constructive social action; and to reflect upon this process." This definition underscores the multifaceted nature of digital literacy, emphasizing the technical skills, critical awareness, and reflective capacities needed to operate in digital contexts constructively.

Taking the cue from the broad perspective offered by Martin (2011), Son, Park and Park (2017) offered a slimmer more streamlined definition by analyzing practical use of the concept. They consider digital literacy as "the competence to operate digital technology at a reasonable level for innovation, interaction, collaboration and information finding and assessment in a digital context." This view focuses on how people perform different productive operations in a digital environment that requires artifacts' creation and cooperation, which plays the significance of digital literacy in a digital society.

Later in 2018, Pegrum, Dudeney and Hockly added more growth to the concept of digital literacy to focus on social aspect. Organisations identified it as "the individual and social that provides the abilities to navigate, understand, coordinate, and produce meaning in the increasing number of channels of digital communication." This brings out the social and relational affordance of digital literacy as seen from the communicative nature of the virtual and information ecosystems as well as the manner in which it facilitates social relations and interactions in these ecosystems.

However, Digital literacy is the competence of grasping information within encoded communication gadgets and ranges from print and other informative material for purposes with displayed Digitized devices. This understanding includes a range of competencies enabling the accomplishment of tasks in the context of elaborate digital inquiry, knowledge assessment and communication and handling of various ethical and legal concerns that might occur.

Ultimately, the essence of digital literacy has evolved to include a variety of competencies that reflect the rapid technological advancements in society. Notably, Gilster (1997) emphasized the critical aspect of digital literacy, which involves making informed judgments and engaging meaningfully with digital content. This perspective, along with those of Martin, Son, Park and Park, and Pegrum, Dudeney and Hockly, contributes to a comprehensive understanding of digital literacy as not merely the technical ability to use digital tools but also the capacity for critical thinking, creativity, and informed decision-making in the digital age. The current scope of digital literacy also includes familiarity with modern devices, software, and online resources, as Ng (2012) indicated, showcasing its continuous evolution in response to new technological advancements.

2.3 Components of Digital Literacy

Digital literacy (DL) has several basic elements which are essential in facilitating a person to succeed in the digital environment successfully (Khan & Cheema, 2022). Firstly, Information and Data literacy is a prerequisite because it provides individual with ability to find evaluate and use information and data from different sources that are available digitally (Anthonysamy, 2022). This entails looking for information, evaluating the reliability of the sources of the information as well as assembling information for targeted uses. Secondly, people need to share information and be able to work together and, for that, we need to use available technologies. This looks at skills involving use of the Internet in communication, learning the proper Internet manners, and cooperating in tasks in virtual contexts (Pringgabayu et al., 2023).

Digital Content Creation is identified as yet another core competence which comprises the ability to create and edit digital content including text, graphics, audio and video (Huu, 2023). This involves mastery of different software and tools to produce messages appropriate to the target reader and goal. Next, there is a strong focus on Safety

which captures an important aspect of safety on the Internet and safety protocols promoted by Websites and other sources including, personal safety settings and precautions, awareness of phishing scams, safe and appropriate online behavior for the protection of personal information(Jones et al., 2023).

Furthermore, Problem-Solving is emphasised to communicate divers projects where digital tools are applied to solve problems and make effective decisions (Jones et al., 2023). This includes problem solving such as analysing and solving problems arising from technical issues and flexibility to new technologies(Hutapea et al., 2020). Moreover, Media Literacy becomes utterly useful, which aims at the competency that involves the ability to filter and understand the impact of media in given social environments. This component focuses on the assessment of the credibility of media outlets and learning the impact of media on the society(AL-Zou'bi, 2022).

Following it is ICT Literacy which points to the appropriate deployment of Information and Communication Technology (ICT). They include handling skills of the devices, use of application software and preliminary knowledge of how the operations of technologies work(Cementina, 2019).

Finally, Creativity is emphasized exploring how innovative people engage in creativity through digital tools. This includes specific skills in the technological design of the content, multimedia design, and inventive technological content generation skills(Huu, 2023).

2.4 Role of Digital Literacy in Teaching English

Digital literacy has become an essential component of English Language Teaching (ELT), significantly influencing how educators and students engage with language learning in the modern classroom(Irwandi et al., 2023). With advancement in technology it becomes essential to manage and integrate ICT in the teaching learning activities. This essay explores the multifaceted role of digital literacy in ELT, highlighting its impact on learning opportunities, student engagement, communication, preparation for the digital world, differentiated learning, and the overall awareness of technology's importance in education(Irwandi et al., 2023).

One of the primary benefits of digital literacy in ELT is enhancing learning opportunities. By being able to get a hold of many resources, students are also able to

enhance their language learning via videos, exercise and great language learning applications (Du, 2023). These digital resources embrace all zones of language acquisition and development, such as the lexical and grammatical zones, and the phonetic and intonation ones. Incorporating these tools into lessons will enable teachers to present students with a variety of learning materials to suit all learning types (Liando et al., 2021). Integrating digital literacy in English Language Teaching has profoundly affected teaching and learning practices in the digital era. The application of videos, presentations, and quizzes in multimedia form have greatly enhanced variety as well as diversification of educational material and continually maintain students' interest (Rani et al., 2023).

Also, writing and using digital tools in the classroom greatly enhances learners' engagement. Examples include Youtube, Zoom, and Google Classroom that make it possible for teachers to incorporate basic interests of students in the lessons they present (Adeoye & Akinnubi, 2023). This engagement is particularly important in language learning, as it encourages students to get involve a lot in their learning process. Education being fun makes students understand and retain what is taught in class as well as enabling them develop a better understanding on the language being taught. Digital literacy has also revolutionized communication within the ELT environment by leveraging online platforms like Google Classroom and social media to facilitate student collaboration and interaction. This promotes effective learning environment and engages the students, makes them to share opinions, and enhance their language synergy (Paliath and Evangeline, 2022).

Digital literacy also facilitates communication and collaboration among students and teachers. Students can communicate with other students and teachers directly through some form of online platform that allows learners to come together and emulate actual scenarios in terms of speaking or writing (A. B. Irwandi et al., 2023). The use of collaborative discussions also promotes the improvement of language skills among the learners and synchronizes them to create a support group (Hamsan et al., 2023). Proficient communication in a digital environment is highly beneficial not only within the learning process. In addition, digital literacy promotes critical thinking skills as students navigate digital sources, compelling them to evaluate information critically and discern between credible and misleading content. This ability is very important in the current era with information overload, distinguishing fact from fiction is central to academic success and citizenship (Dan et al., 2021).

In today's increasingly digital society, preparing students for the future is another critical aspect of digital literacy in ELT(Khan & Cheema, 2022). Since the academic and professional settings expects the use of technology, prepare the students in this area is a necessity. Knowing how not to misuse the technology also benefits students in the learning of languages as well as equips them with the requirements of modern workplace. Furthermore, digital literacy enhances creativity in language learning by introducing students to various digital tools and applications, allowing them to express themselves creatively in English. Furthermore, the students learn and get informed different digital contents that enhances their culture diversity appreciation which is paramount in the modern society(Bhat, 2023).

Moreover, digital technologies facilitate personalized learning, which means that the teacher can meet the needs of his/her students. Through the integration of the adaptive learning technologies, the teachers can be able to offer the students according to their needs, so as to advance and perform at their own level. This particular rung guarantees that each learner can achieve enhanced results in aspects they require extra attention on; thus, enhances learning (Dumont & Ready, 2023).

Last but not a least important is the role of teachers as they are involved in the exposure of students to the need of embracing digital literacy. In this way, educators support students' practical motivation to use technology and make them aware of the opportunities of digital literacy regarding the language classes they attend and their achievements in general. It is important to develop this awareness for strengthening the culture of practicing knowledge in a constantly evolving environment of digital technologies. Finally, the nature of technology integration in ELT enables students to attain the required skills to thrive in future educational and career settings. As society advances into a more complex and sophisticated one, digital literacy when implemented lays a solid foundation as learner is well equipped to face the challenges of such a society(Mahmud & Wong, 2022).

Therefore, digital literacy is an imperative element in ELT, as it broadens the learning possibilities, encourages participation, improves interactions, familiarizes learners with the digital environment, caters to different learning styles, and increases awareness of the roles of technology in learning. As teachers face the dynamics that come with use of learning technologies, helping students to develop digital literacy will remain crucial to their effectiveness in the learning environment as well as in their future careers.

‘Bridging the digital divide’ permits educators to develop confident and competent users of English in this constantly developing technological culture.

2.5 Challenges While Adapting Digital Literacy

A Digital literacy in educational settings, particularly in English Language Teaching (ELT), presents several challenges that educators and institutions must navigate. These challenges can hinder integrating digital tools and resources effectively into the learning process, impacting teaching and student outcomes (Omar et al., 2023). One of the foremost challenges identified by EFL teachers is cybersecurity. Many educators expressed concerns regarding the security of online platforms used for instruction. Instances of unauthorized access to online lessons were reported, with teachers noting that individuals from outside their classrooms frequently entered their virtual sessions. This lack of robust security measures disrupts the learning environment and raises significant concerns about teachers' and students' safety and privacy. The anxiety surrounding cybersecurity issues can deter teachers from fully embracing digital tools, as they fear potential breaches that could compromise their teaching efforts and student safety (Saputra et al., 2023).

In addition to cybersecurity, students' digital literacy levels emerged as a significant barrier to the effective use of digital tools in EFL instruction. Many teachers reported that their students needed to gain the skills to navigate digital platforms and effectively utilize educational technologies. This deficiency in digital literacy hampers students' ability to engage with the material and burdens teachers, who must spend extra time guiding students through these tools (Yun, 2023). For instance, teachers noted that when assigning homework through digital platforms, they often had to provide extensive instructions, which could be time-consuming and frustrating. The need for such guidance highlights the importance of equipping students with the skills necessary to thrive in a digital learning environment (Garlińska et al., 2023).

Technical problems further complicate the integration of digital tools in EFL teaching. Teachers frequently encountered issues such as unreliable internet connectivity, device malfunctions, and software compatibility problems (González et al., 2023). These technical challenges can disrupt lessons, leading to frustration for both teachers and students. For example, a teacher might plan an interactive online activity only to find that

the required software malfunctions or that students cannot connect due to internet issues. Such disruptions hinder instruction flow and diminish students' motivation and engagement in the learning process(Khalid et al., 2023).

Health concerns related to prolonged use of digital devices also surfaced as a challenge for EFL teachers. Many educators reported experiencing physical discomfort, such as headaches and back pain, attributed to extended screen time(Tsang et al., 2023). This issue raises important questions about the balance between utilizing digital tools and maintaining the well-being of both teachers and students. As educators strive to create engaging and effective learning experiences, they must also consider the potential health implications of increased technology use(Bhat, 2023).

Time management emerged as another significant challenge in the integration of digital tools. Teachers found that while digital platforms can facilitate access to information and resources, they can also be time-consuming(Bhat, 2023). For instance, checking students' homework submitted through various digital channels often required considerable effort, as submissions could arrive at different times and formats. This time-consuming process can lead to teachers' perception that using digital tools could be more efficient, ultimately detracting from the teaching experience(Shahid, 2022).

Lastly, socio-economic barriers play a critical role in the challenges faced by EFL teachers when integrating digital tools. Many students from low socio-economic backgrounds need access to the necessary technological devices and reliable internet connections(Yun, 2023). This disparity creates significant obstacles for teachers who wish to implement digital tools in their instruction. When students cannot participate fully in online lessons due to a lack of resources, it not only affects their learning outcomes but also places additional pressure on teachers to find alternative methods of instruction that can accommodate all students(Yun, 2023).

In conclusion, while integrating digital tools into EFL instruction offers numerous benefits, it is accompanied by a range of challenges that educators must navigate. From cybersecurity concerns and varying levels of student digital literacy to technical problems, health issues, time management difficulties, and socio-economic barriers, these challenges highlight the complexities of modern teaching. Addressing these issues is essential for creating an effective and inclusive digital learning environment that enhances the educational experience for both teachers and students. As the education

landscape continues to evolve, ongoing support and resources will be vital in helping EFL teachers overcome these challenges and fully leverage the potential of digital tools in their classrooms.

2.6 Related Studies

Cahya, Hidayati, and Wahyuni's (2023) study aimed to explore incorporating digital literacy in the English as a Foreign Language (EFL) classroom at SMPN 4 Magetan. Two English teachers at the school participated in the research, which involved data collection through classroom observations and interviews. The findings indicated that the teachers displayed strong classroom management skills when integrating digital literacy into their teaching. They effectively prepared learning materials and provided clear explanations to their students. However, due to certain limitations, the study revealed that digital literacy needed to be fully integrated. Although the teachers had some awareness of digital tools, only two out of five English teachers at the school utilized these tools in their teaching. As a result, the study concluded that further efforts are required to fully realize the potential of digital literacy in enhancing language learning in the EFL classroom at SMPN 4 Magetan.

Razak, Razak and Krish's (2022) study focused on exploring the methods EFL (English as a Foreign Language) educators and school leaders utilize to advance students' digital literacies within the framework of Arab international schools. This research aimed to fill the existing gap in studies in this domain, especially within the Arab EFL context, and to offer insights into the effective incorporation of digital technologies into teaching and learning in preparation for the demands of the contemporary digital era. The study involved 12 participants – 6 high school teachers with different levels of experience and academic qualifications, ranging in age from 27 to 43 years, and six school administrators, including principals and co-principals, aged between 27 and 49 years, holding MA and PhD degrees. The findings identified vital themes relating to the advancement of digital literacy. There was a strong consensus among interviewees regarding the importance of enhancing digital literacy to keep students abreast of modern learning methodologies and to prevent them from lagging in the digital age. Teachers employed various techniques to improve students' digital skills, including integrating technology into lessons, utilizing digital resources, and encouraging collaborative projects using digital tools. On the other hand, school administrators focused on creating a supportive digital learning environment by investing in technology infrastructure, offering teacher training, and nurturing a

culture that values digital literacy. The interview data were subject to thematic analysis, which revealed consistent patterns in the responses, emphasizing the collaborative efforts of teachers and administrators in improving students' digital literacy. The study also suggested the need for continuous development and implementation of strategies by both teachers and administrators to promote digital literacy, ensuring that students are equipped with the requisite skills to excel in a technology-driven world. Overall, this research contributes valuable insights into the strategies for promoting digital literacy in EFL contexts, emphasizing the necessity of a collaborative approach between teachers and administrators to integrate technology into education effectively.

Armanda and Yosintha (2022) study meticulously analyzed the digital literacy levels among EFL teachers and young learners at the primary education level, with a particular focus on evaluating their critical digital literacy capabilities alongside their perceptions regarding the role of digital literacy within the context of English language learning for young pupils. Conducted at SMP Negeri 3 Pabelan in Semarang Regency, Central Java, Indonesia, the research encompassed 34 participants, including one EFL teacher and several young English language learners. A significant finding from this investigation revealed a widespread consensus among participants on integrating technology in the classroom, with many expressing that technological tools notably augment their enthusiasm for learning English. The study also shed light on the digital engagement of EFL learners during the COVID-19 pandemic, indicating that most had installed educational apps on their mobile devices specifically for English learning. Importantly, it was observed that EFL learners, particularly those from rural regions, predominantly relied on gadgets or mobile phones for English language studies, yet a substantial 85.2% devoted less than an hour daily to this pursuit using their electronic devices.

Ahmed and Tümen Akyıldız (2022) study aimed to investigate the understanding of digital literacy among English as a Foreign Language (EFL) educators in Turkey. The study had specific objectives, including determining the concept of digital literacy for secondary and high school EFL teachers, evaluating the impact of digital literacy on their teaching practices, identifying the advantages and facilities offered by digital tools in EFL teaching, and exploring the challenges faced by EFL teachers when using digital tools in their instruction. The research sought critical insights into EFL teachers' perception of digital literacy and its implications for teaching, particularly in the rapidly advancing

landscape of educational technology. The study involved 18 Turkish EFL teachers, comprising nine secondary school (SS) teachers and nine high school (HS) teachers. The participants were randomly chosen from Elazığ, a city in the East Anatolian Region of Turkey, and taught 5th to 12th grade students. Data was collected through focus group discussions conducted via Zoom, especially during the COVID-19 pandemic, necessitating virtual meetings. The study's findings unveiled diverse interpretations of digital literacy among the teachers, influencing their teaching methods and technology integration in their classrooms. Furthermore, the level of digital literacy significantly impacted their teaching practices, with higher literacy associated with more effective use of digital tools in their lessons. The study also confirmed that digital tools enhance EFL teaching by increasing engagement, providing diverse resources, and enabling interactive learning experiences. Nevertheless, teachers reported challenges such as insufficient institutional support, restrictive school curricula, limited resources, and technical issues. Additionally, socioeconomic disparities among secondary and high school students hindered the effective implementation of digital tools in teaching practices. Overall, the results underscored the significance of digital literacy and highlighted the crucial role of infrastructure and support systems in successful technology integration in education. The study recommended that future research could employ surveys and scales to gather comprehensive data and compare outcomes across different contexts.

Pertiwi and Rodliyah (2022) conducted a study to delve into the perspectives of university students on digital literacy in English as a Foreign Language (EFL) learning. The aim was to explore how students perceive and employ digital literacy skills in their language learning activities. The study involved 22 university students majoring in English Education or English Literature at a public university in Bandung, Indonesia. These students were in their first semester, during which most of their courses were research-related. The sample selection was based on purposive sampling, enabling the researchers to address their specific need to study digital literacy in EFL learning. The study results revealed that most students frequently used digital technologies such as personal computers, laptops, mobile devices, and the Internet for language learning activities. The students exhibited strong literacy skills in digital information, media, and ICT, as indicated by the questionnaire responses and interviews. The participants conveyed positive perspectives on digital literacy in EFL learning, underscoring the importance of digital literacy in accessing, evaluating, and effectively utilizing

information to meet their needs. Furthermore, the students expressed a readiness to learn and integrate digital technology into various aspects of education, particularly in language learning.

The study conducted by Nguyen and Habók (2022) aimed to assess the digital literacy (DL) of Vietnamese university students in the context of learning English as a Foreign Language (EFL). The primary objectives were to evaluate the digital literacy levels, explore their experiences with digital tools for learning English, and identify any variances in digital literacy based on gender and academic year. The study included 1,661 Vietnamese university students from 10 universities in Hanoi, Ho Chi Minh City, and Kien Giang province, with a breakdown of 73.2% female and 26.8% male participants. The students comprised 7.7% first-year students, 22.2% sophomores, 15.5% juniors, and 54.6% seniors aged 18 to 22. The results showed that most participants (80%) had access to a computer at home, and 95.6% had Internet access, indicating a high level of digital familiarity. Technological skills were assessed using a questionnaire with multiple-choice questions and Likert-scale items, revealing a generally positive attitude toward using digital technologies in English learning, although the frequency of use varied. The study found gender-based discrepancies in digital literacy, suggesting that gender may influence attitudes and skills regarding digital tools. Additionally, variations in digital literacy levels were observed among different academic years, with seniors exhibiting higher levels of digital skills and more positive attitudes toward technology integration in their learning. The study acknowledged limitations, including the diversity of majors among participants and potential self-assessment bias in reporting digital skills. It was suggested that future research could focus on specific fields or investigate actual digital skills through practical tasks. In conclusion, the study indicated that while Vietnamese university students possess good digital literacy, there is room for improvement in integrating these skills into their English learning processes.

Hamidah's (2021) study centered on incorporating digital literacy into English language teaching and learning. The goal was to explore how digital literacy could be effectively harnessed to improve students' language skills within the realm of EFL education. The study delved into the various applications of digital literacy in language skills development, encompassing speaking, listening, reading, and writing. Although the specific number of participants was not specified, it can be inferred that the study involved English language teachers and students actively participating in EFL education

that integrated digital literacy. The participants likely represented a diverse group engaged in language education, including educators and learners. The research findings underscored the pivotal role of digital literacy in contemporary language instruction. It emphasized that teachers are crucial guides and motivators for effectively integrating digital literacy into the classroom. The study revealed that the success of utilizing digital literacy in language teaching was closely linked to teachers' choices in instructional materials and students' ability to use technological resources for their learning.

Alakrash and Abdul Razak's (2021) study aimed to examine the extent of digital technology usage and digital literacy among English as a Foreign Language (EFL) teachers and students in Arab international schools in Malaysia. It sought to address three primary questions: the frequency of digital technology use for learning and teaching English, the level of digital literacy among EFL teachers and students, and whether there are significant variations in the use of digital technologies between teachers and students. A total of 190 participants, including 150 EFL students and 40 EFL teachers, were involved in the study. The participants were selected from Arab international schools in Malaysia using proportional random sampling for students and census sampling for teachers. This diverse sample facilitated a comprehensive analysis of digital technology integration in the educational context. The study's findings revealed that EFL teachers and students exhibited a high level of digital technology usage in their teaching and learning processes, indicating a positive technology integration within the educational environment. Additionally, both groups demonstrated a high level of fundamental and didactic digital literacies, indicating their familiarity with digital tools and practical application in academic contexts. The study also concluded that there were no significant differences in digital technology usage between teachers and students, suggesting that both groups are equally engaged in utilizing digital tools for language learning. However, the study acknowledged a limitation of the 'digital divide,' which may have influenced the participants' traditional textbook orientation and approach to digital technologies. Overall, the study offers valuable insights into digital technology use and digital literacy among EFL teachers and students in Arab international schools in Malaysia. It underscores the need for further research and exploration to enhance the integration of digital technologies in language education.

Faloye, Obateru and Alonge's (2021) study aimed to assess the digital literacy level of 480 English language teachers from both public and private secondary schools in

Ekiti state, Nigeria. It specifically focused on their proficiency in understanding and interpreting navigational icons, especially in the context of virtual instruction and the challenges brought about by the COVID-19 pandemic. The results indicated that the teachers had an average level of digital literacy, showing moderate competence in interpreting icons accompanied by text labels. However, their capability to comprehend icons without text labels was low. Additionally, there were variations in access to digital devices between public and private school teachers. A higher percentage of public school teachers had internet-enabled cell phones, although their practical use for instructional purposes was limited. In conclusion, the study suggested that targeted interventions and support are essential to improve the digital literacy of English language teachers, especially in adapting to the evolving educational environment.

Durriyah and Zuhdi's (2018) study aimed to explore Indonesian student teachers' learning experiences and perceptions in utilizing digital technologies for English language teaching. The research focused on identifying the student teachers' preferences in integrating digital technologies into their teaching plans and the factors influencing their choices. Conducted as part of the "Media and Language Learning" course, the study involved 35 participants from an undergraduate English education program at a state-affiliated Islamic university in Jakarta. These participants were identified as active users of social media platforms, particularly Facebook, and possessed digital devices such as laptops and smartphones. The findings revealed that the student teachers favored using Facebook closed groups as their primary digital platform for e-classrooms. They found Facebook conducive to interactive discussions, creating a virtual classroom environment. This echoed previous research indicating that platforms like Facebook can enhance mutual learning and critical thinking. Moreover, the study highlighted Facebook's role in providing a supportive and less intimidating space for English language learners, encouraging greater participation and discussion. In addition to Facebook, the student teachers also considered integrating blogs, Skype, and WhatsApp into their teaching plans. Blogs fostered creativity and personal ownership in writing, while Skype and WhatsApp were recognized for their potential in promoting communication and collaboration. The student teachers' selection of digital technologies was guided by their potential to enhance student engagement, facilitate interactive learning, and provide opportunities for language practice in a supportive environment. In conclusion, the study emphasized the significant potential of digital technologies in enhancing English

language teaching and learning. It underscored the importance of equipping future educators with the skills to effectively integrate these tools into their teaching practices.

In the realm of digital literacy and language learning, there are several notable research gaps. Firstly, there's a need to comprehend the nuanced effects of gender, age, and academic levels on digital literacy. Secondly, there needs to be more comprehensive analyses of how digital tools impact language learning across diverse backgrounds. Additionally, the relationship between digital literacy and language learning effectiveness in a digital context must be explored more. Lastly, the influence of learners' perceptions and attitudes towards digital technology on their learning outcomes is an underexplored area.

CHAPTER III

METHODOLOGY

The present chapter thoroughly elucidates the research design, including its aims, research questions, and hypotheses. Furthermore, it delineates the procedure of selecting participants, the criteria used, and the steps taken to guarantee that the sample appropriately reflects the study population. Moreover, it clarifies the instruments and mechanisms employed for data gathering, such as surveys. It delineates the procedures used to verify the precision and dependability of the tools, which delves into the methods for data collection. Furthermore, it delineates the process of data analysis, encompassing the methodologies and software used, together with the tactics employed to determine the reliability and validity of the results. This chapter thoroughly examines the study's methodologies, covering research design and data analysis.

Research Design

This study investigates the impact of digital literacy on Iraqi students learning English as a Foreign Language. It explores how digital tools and resources, such as online educational platforms, language learning apps, and multimedia content, enhance learning by providing convenient access to various educational materials and interactive learning experiences. The study employed a quantitative research design, including surveys, to examine this phenomenon and gather empirical data on the benefits and challenges of incorporating digital literacy into EFL classrooms (Zhang, 2023). The choice of a quantitative research design for the study investigating the impact of digital literacy on Iraqi students learning English as a Foreign Language (EFL) is pivotal for various reasons (Qaddumi et al., 2023). Firstly, the quantitative approach enables gathering empirical data that can be statistically analyzed to identify patterns, correlations, or differences among variables. This is crucial in understanding how digital literacy affects various aspects of language learning, from linguistic abilities and motivation to exposure to diverse linguistic and cultural environments (Yeşilyurt & Vezne, 2023).

By employing surveys as a data collection method, the study can collect data from a large group of participants, ensuring that the findings are representative of the broader population of EFL learners in Iraq. This generalizability is essential for making evidence-

based policy and instructional recommendations (Musa, 2023). Furthermore, quantitative data can offer insights into the prevalence of obstacles that impede the integration of digital literacy in EFL classrooms, such as inadequate infrastructure and restricted technology access, providing a solid foundation for advocating necessary changes (Fetahu et al., 2024). The quantitative research design also facilitates objective analysis, minimizing researcher bias and enhancing the reliability and validity of the study's conclusions. By quantifying the benefits and challenges associated with digital literacy in EFL learning, the research can provide clear, actionable information that stakeholders, including educators, policymakers, and curriculum developers, can use to implement improvements effectively (Irwindi et al., 2023).

The study emphasizes notable advantages such as enhanced linguistic abilities, heightened motivation, and expanded exposure to various linguistic and cultural environments. However, it also indicates obstacles hindering the complete use of digital literacy in English as a Foreign Language (EFL) learning, such as inadequate infrastructure, restricted technology access, and insufficient digital literacy among educators and learners. Through thorough analysis, the study uncovers the crucial significance of digital literacy in contemporary education. It proposes methods to surmount obstacles, assuring that English as a Foreign Language (EFL) learners in Iraq can effectively utilize digital resources to enhance their language skills and intercultural comprehension.

Moreover, the survey gathers data on learners' use of various digital technologies and resources, offering valuable insights that can direct the development of curricula that incorporate suitable digital tools, enhancing the learning process. Moreover, it helps to evaluate learning outcomes by establishing a correlation between digital literacy and gains in language acquisition, improving teaching approaches and achieving better educational results.

Furthermore, the collected data can offer significant insights for formulating educational policies and training initiatives aimed at education professionals and students alike. By thoroughly examining the factors that impact digital literacy, it is possible to create improved training programs that equip educators with the necessary skills to teach digital literacy effectively. Furthermore, the questionnaire promotes lifelong learning by encouraging learners to reflect on their skills and areas that need improvement, fostering a growth mindset.

Participants

The study focused on gathering data about the digital literacy uses in EFL classes by students at different levels in Duhok, Iraq. The sample size consisted of a total of 100 students. The participants were chosen through purposive sampling, a precious approach for EFL research investigations (Armanda & Yosintha, 2022). It empowers researchers to intentionally select participants with specific characteristics pertinent to the study, such as varying levels of digital literacy, diverse learning environments, or unique educational backgrounds. This targeted selection process facilitates gathering rich, detailed data directly relevant to the research questions (Espinosa et al., 2023). By focusing on a specific population subset, purposive sampling enables a deeper, more comprehensive understanding of the issues under investigation, illuminating how digital tools impact language learning among students with differing proficiency levels. Furthermore, this flexible sampling method allows researchers to refine their criteria as the study progresses and incorporate participants who can provide additional valuable insights (Shen et al., 2023). This approach also proves efficient regarding time and resources, as it concentrates on a smaller group most likely to furnish the necessary information.

All 100 students were EFL students in Duhok Province, and the data collected aimed to provide a comprehensive understanding of their digital literacy knowledge.

Table 1 Gender background

Participants of the study	Gender	N	Percentage
	Male	55	55 %
	Female	45	45 %
	Total	100	100 %

As we see in Table 1, based on the data presented, the study included 100 participants, 55% male (n=55) and 45% female (n=45). This indicates that the number of males is more than that of females.

Table 2 Mean of the ages

The ages of the participants	Ages	N	Percentages	Mean of the ages
	18	35	35%	19.29
	19	31	31%	
	20	16	16%	
	21	6	6%	
	22	12	12%	
Total		100	100	

As indicated in Table 2, the age range of the participants varied from 18 to 22 years, with a mean age of 19.29. Furthermore, the distribution of participant ages was as follows: 35% were 18 years old (N=35), 31% were 19 (N=31), 16% were 20 (N=16), 6% were 21 (N=6), and 12% were 22 years old (N=12). Table 3 indicates the native language of the participants of the study.

Table 3 Native language of the participants

No	Languages	Frequency	Percentages
1	Arabic	3	3%
2	Kurdish	97	97%
Total		100	100

According to Table 3, the study shows that the vast majority of the participants (97%) reported Kurdish as their mother language, while only a tiny percentage (3%) reported Arabic as their mother language. Table 4 shows the language that participants want to learn.

Table 4 Languages that participants want to learn.

Languages	Frequency	Percentages
Arabic	1	1 %
English	75	75%
English & Spanish	2	2%
English and Arabic	14	14%
English and Turkish	3	3%
English, Spanish, and Turkish	2	2%
German	1	1%
Turkish	2	2%
Total	100	100

Table 4 illustrates the languages participants are interested in learning and the corresponding frequency and percentage of participants for each language. The majority of participants (75%) expressed a preference for learning English. A smaller proportion of participants indicated interest in learning multiple languages, with 14% wanting to

learn both English and Arabic and 2% each for combinations such as English & Spanish, Spanish & Turkish, and Turkish alone. Other languages, such as Arabic and German, garnered minimal interest, each with only 1% of participants. Table 5 indicates the current academic level of the participants.

Table 5 Participants' current academic level

No	Current academic level	Frequency	Percentage
1-	Secondary School	43	43
2-	University Preparation	46	46
3-	Undergraduate	11	11
	Total	100	100

Table 5 provides a comprehensive summary of the educational backgrounds of the participants involved in digital literacy research. The data demonstrates a heterogeneous group, including secondary and undergraduate students. The predominant educational level among the participants is secondary school, accounting for 43% of the entire sample. These findings indicate that a considerable proportion of the participants in the study are in the initial phases of their educational pursuits. Significantly, 46% of the participants are ready to attend university, indicating a firm preference for pursuing higher education. An even smaller proportion of the participants (11%) are presently engaged in undergraduate studies—table 6 shows which type of computer was used by the participants.

Table 6 Participants' type of computer using

No	Types of computer	Frequency	Percentage
1	Desktop	27	27
2	Laptop	48	48
3	Tablet	25	25
	Total	100	100

The data in Table 6 summarizes computer device usage among EFL learners. According to a survey of 100 participants, laptops are the most commonly used devices, followed by desktops and tablets. Laptops are the preferred choice, likely due to their

portability and versatility. They enable learners to access online resources, educational applications, and language practice tools from anywhere. While desktops are still popular, their stationary nature may limit mobility and flexibility, making them less favored. Tablets balance portability and screen size, making them suitable for some learners. However, their smaller screens and limited processing power may be better for intensive language learning activities.

Instruments

The primary instrument used in this study was the Digital Literacy Questionnaire – Language Learners, a comprehensive tool designed to assess the digital literacy skills, experiences, and perceptions of language learners. This questionnaire was specifically developed to collect extensive data on learners' interactions with digital tools, their self-reported competencies, and the barriers they encounter in using technology for language learning. The insights derived from this instrument aim to identify areas for improvement and inform educational strategies to enhance digital literacy among learners.

The questionnaire comprises six distinct sections, as outlined in Table 7, each designed to capture specific aspects of digital literacy:

Table 7 Questionnaire sections

Questionnaire Section	Purpose
Demographics (Q1-Q5)	Collect basic demographic information (e.g., age, gender, education level, occupation) to analyze the influence of these factors on digital literacy.
Digital Device Usage (Q6-Q10)	Gather information on the types and purposes of digital devices used (e.g., smartphones, computers, tablets) to understand device preferences and usage patterns.
Self-Rated Skills (Q11-Q15)	Assess self-perceived digital literacy skills (e.g., internet searching, social media, online communication) to gauge participants' confidence.
Competency and Frequency of Use (Q16-Q19)	Evaluate specific competencies (e.g., creating digital content, using online tools) and frequency of use to identify areas of strength and weakness.
Knowledge Questions (Q20)	Measure general digital literacy knowledge (e.g., understanding of online safety and digital etiquette) to assess awareness and understanding.
Barriers and Attitudes (Q21-Q23)	Identify barriers to technology use (e.g., access, cost, technical difficulties) and attitudes towards digital literacy (e.g., interest, motivation) to understand challenges and opportunities.

Questionnaire Design

The **Demographics Section (Q1–Q5)** gathers fundamental information such as age, gender, native and target languages, and academic level. Additional items explore the participants' duration of computer usage, types of devices they use, and the individuals or institutions that initially instructed them in computer literacy.

The **Digital Device Usage Section (Q6–Q10)** investigates the types of mobile and digital devices participants own, the duration of ownership, and their primary purposes for using these tools. This section also examines participants' methods of learning about emerging digital technologies and assesses their proficiency in typing, web searching, and other essential digital skills.

The **Self-Rated Skills Section (Q11–Q15)** uses yes/no questions to allow participants to evaluate their digital literacy, including familiarity with computer hardware, use of keyboard shortcuts, and ease with digital learning materials. It also includes practical skills assessments, such as adjusting screen brightness and performing file searches.

The **Competency and Frequency of Use Section (Q16–Q19)** focuses on the frequency with which participants use digital tools, such as word processors and communication platforms, as well as their proficiency in using specific software applications. Multiple-choice questions assess understanding of digital technologies and various file formats.

The **Knowledge Questions Section (Q20)** evaluates participants' general digital literacy knowledge, including online safety and digital etiquette.

Finally, the **Barriers and Attitudes Section (Q21–Q23)** addresses challenges such as insufficient time, budget, or training that hinder participants' use of digital tools. Participants also respond to statements regarding their comfort and enjoyment in using digital devices and the perceived importance of enhancing digital fluency. An open-ended question allows participants to provide additional remarks on their digital literacy experiences. (see Appendix 1)

Validity of the Instrument

The **Digital Literacy Questionnaire – Language Learners** was selected for this study due to its alignment with the constructs of digital literacy and its relevance to the target population of language learners. The face validity of the instrument was evaluated to ensure its appropriateness for this context.

To establish validity, the questionnaire was reviewed by experts in digital literacy and language education. They confirmed that the items were clear, relevant, and adequately addressed the key dimensions of digital literacy, such as self-rated skills, digital device usage, and barriers to technology adoption. Additionally, during the data collection process, participants reported no difficulty understanding or responding to the questionnaire items, further supporting its face validity.

While only face validity was assessed in this study, the instrument's structure and content align closely with theoretical frameworks in digital literacy. This supports its suitability as a measurement tool despite the lack of detailed validation records from its original development. The results of this study should, however, be interpreted with this limitation in mind.

Reliability of the Instrument

To ensure consistency in measurement, the questionnaire was subjected to a **Cronbach's alpha test**, which yielded a reliability coefficient of 0.906. This high score reflects the internal consistency of the questionnaire, confirming its reliability in measuring digital literacy across multiple domains.

Ethics and Permissions

This study was conducted in strict adherence to ethical standards to ensure the protection of participants' rights and the integrity of the research process. Ethical approval for the study was obtained from the relevant institutional ethics committee, which reviewed the research proposal to ensure compliance with principles of respect, privacy, and participant well-being. Furthermore, approval was granted by the administrative bodies of the university of Duhok and high school Haliz involved in the study.

Detailed information about the study's purpose, methodology, and intended use of data was provided to these institutions to obtain their approval. All participants were informed about the objectives of the study, their rights to confidentiality and anonymity, and their freedom to withdraw at any time without consequences. Participants provided informed consent before completing the questionnaire, ensuring voluntary participation. No personal identifiers were collected, and all data were anonymized during analysis to protect participants' privacy. The findings are presented in aggregated form, ensuring that individual responses remain confidential. By adhering to these ethical practices, the study maintained a high standard of research integrity and participant protection (see Appendix 2).

Data Collection

The data collection process for this study began in May 2024, following the receipt of ethical approval and institutional permissions from relevant authorities. The research aimed to gather data from a diverse group of 100 learners at different academic levels, ensuring a comprehensive understanding of digital literacy among language learners.

To ensure transparency and build trust, the researcher provided participants with a clear explanation of the study's objectives and significance. Participants were informed that their participation was entirely voluntary, and they were assured of the confidentiality and anonymity of their responses. The researcher emphasized the importance of honest and accurate answers to the questionnaire items to maintain the validity of the data.

The data collection instrument, the **Digital Literacy Questionnaire – Language Learners**, was distributed in both physical and digital formats, depending on participants' preferences and accessibility. This flexibility allowed the researcher to accommodate participants from various locations and technological backgrounds. The questionnaire, structured into six distinct sections, collected information on demographics, digital device usage, self-rated skills, competency and frequency of use, knowledge questions, and barriers and attitudes toward digital literacy.

Participants completed the questionnaire in approximately 20–30 minutes. During the data collection sessions, the researcher was available to address any questions or

concerns, ensuring participants fully understood the items and could provide accurate responses. Completed questionnaires were securely collected and stored to ensure data integrity and confidentiality.

The researcher adhered to ethical guidelines throughout the data collection process, ensuring respect for participants' autonomy and privacy. This careful and systematic approach enabled the collection of high-quality data to address the study's research questions effectively.

Data Analysis

This section outlines the statistical methods employed to analyze the collected data and address the study's research questions. The analysis aimed to explore the relationships between digital literacy skills, language learning outcomes, and learners' interactions with digital tools. These methods were carefully selected to align with the study's objectives and the nature of the data.

1. Descriptive Statistics:

Descriptive statistics were used to summarize participants' self-reported digital literacy skills, competency levels, and frequency of digital tool usage. These analyses provided an overview of learners' proficiency and variability in skills, identifying strengths (e.g., the ability to scan disks for viruses) and weaknesses (e.g., minimizing windows). This step established a baseline understanding of the participants' digital literacy landscape.

2. Correlation Analysis:

Pearson correlation analyses were conducted to examine relationships between key variables:

- **Self-Related Skills and Digital Device Usage:** Explored how personal and contextual factors interact with digital engagement.
- **Competency and Knowledge:** Investigated whether frequent use of digital tools correlates with a deeper understanding of digital technologies.

- **Barriers and Attitudes:** Evaluated how perceptions and attitudes toward digital literacy influence self-reported skills and barriers. These analyses identified significant relationships and provided insights for subsequent regression models.

3. Regression Analysis:

Regression analyses assessed the predictive power of various digital literacy components on language learning outcomes and the effectiveness of large language model (LLM) interactions.

- **Self-Related Skills and Demographics:** Evaluated the combined influence of these factors on language learning habits and skill development.
- **Typing Speed, Web Search Skills, and Critical Evaluation:** Analyzed their minimal impact on LLM interactions.
- **Knowledge and Competency:** Highlighted nuanced relationships between knowledge, competency, and LLM interaction effectiveness. These analyses quantified the extent to which digital literacy dimensions contributed to learning and interaction outcomes.

4. ANOVA Tests:

One-way ANOVA tests were employed to compare digital literacy scores across demographic categories:

- **Age:** Examined differences in digital literacy across age groups.
- **Gender:** Investigated whether gender influences digital literacy levels.
- **Academic Level:** Assessed variations in digital literacy across educational stages.

These tests identified group-specific differences, providing insights into demographic variability.

Rationale for Analyses:

The statistical methods were carefully chosen to address the study's objectives:

- Descriptive statistics established a foundational understanding of participants' digital literacy levels.
- Correlation analyses uncovered significant relationships between key variables, guiding further analyses.
- Regression analyses evaluated the influence of digital literacy components on outcomes, offering predictive insights.
- ANOVA tests explored demographic differences, addressing variability across participant groups.

This systematic approach ensured robust and reliable findings, providing a comprehensive understanding of the interplay between digital literacy and language learning outcomes.

CHAPTER IV

RESULTS

In this chapter, we present the findings of our investigation into the using digital literacy by EFL learners from different levels from schools to university in Duhok, Iraq. The analysis aims to provide comprehensive insights into how these digital literacy skills affect various aspects of the learning environment. To guide this investigation, we address the following research questions:

How do gender, age, and academic levels affect digital literacy?

How do digital technologies and resources impact language learning habits, skills development, and access to information for learners of various backgrounds and experience levels?

To what extent do different aspects of digital literacy, such as typing speed, web search skills, and critical evaluation of information, influence the effectiveness of a large language model's interaction with the digital world?

Do self-reported digital literacy skills exhibit a significant discrepancy with objectively measured proficiency in utilizing digital tools?

What is the knowledge and understanding of fundamental digital technologies among language learners, as assessed by their ability to identify and differentiate vital digital concepts and tools in a self-assessment scenario?

How do language learners' perceptions of digital technology and attitudes toward it shape their digital literacy experiences and outcomes?

The results obtained from these research inquiries can provide valuable insights for enhancing digital literacy education, improving language acquisition, optimizing interactions between humans and artificial intelligence, and promoting fair allocation of digital technologies. These valuable insights significantly contribute to enhancing educational policy, curriculum design, and the creation of digital tools, promoting more efficient and inclusive educational practices.

4.1 Findings of the first research question

How do gender, age, and academic levels affect digital literacy?

A one-way ANOVA was conducted to examine whether age significantly impacts digital literacy among EFL learners. This test was chosen because it allows the comparison of digital literacy scores across multiple age groups simultaneously, making it ideal for analyzing variability across the 13 age groups in the study.

Table 8 Age Affecting Digital Literacy

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9.474	12	.789	2.212	.018
Within Groups	31.058	87	.537		
Total	40.532	99			

The results in Table 8 indicate that age has a significant effect on digital literacy, $F(12, 87) = 2.212$, $p = 0.018$. Since the p-value is less than the significance threshold of 0.05, we can conclude that age contributes to differences in digital literacy levels. These differences may reflect varying levels of exposure to digital tools, technological familiarity, or access to digital education among different age groups. The findings suggest that age-specific interventions or educational programs may be beneficial to address digital literacy gaps. Older or younger learners may require tailored strategies to enhance their digital skills.

A one-way ANOVA was used to determine whether gender influences digital literacy among EFL learners. Although gender has only two categories (male and female), ANOVA was employed for consistency across the analyses in this study, ensuring that all variables were examined using the same statistical method.

Table 9 Gender Affecting Digital Literacy

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.028	1	.028	.067	.796
Within Groups	40.505	98	.413		
Total	40.532	99			

The ANOVA results in Table 9 show no significant difference in digital literacy between male and female learners, $F(1, 98) = 0.067$, $p = 0.796$. The high p-value (greater than 0.05) indicates that gender does not meaningfully affect digital literacy. Any observed differences in the mean scores of male and female participants are likely due to random variation rather than a systematic effect of gender. Since gender does not significantly impact digital literacy, gender-neutral approaches to improving digital literacy are appropriate. Efforts to enhance digital literacy should focus on other factors, such as access to resources or educational background, rather than gender.

A one-way ANOVA was conducted to evaluate whether the current academic level of participants (e.g., school, university, etc.) significantly impacts their digital literacy. ANOVA was chosen because it allows for the comparison of digital literacy scores across multiple academic levels, ensuring a robust analysis of variability among these groups.

Table 10 Current academic level affecting digital literacy

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.419	2	.210	.507	.604
Within Groups	40.113	97	.414		
Total	40.532	99			

The results in Table 10 show that there is no statistically significant difference in digital literacy scores based on academic level, $F(2, 97) = 0.507$, $p = 0.604$. The high p-value (greater than 0.05) indicates that any differences in the mean digital literacy scores of participants at different academic levels are likely due to random variation rather than a systematic effect of academic level. This finding suggests that the academic level does not play a significant role in determining digital literacy. Factors such as individual access to technology, personal interest, or external training might have a greater impact on digital literacy than formal academic progression. Educational programs aiming to improve digital literacy should consider addressing these factors instead of focusing solely on academic levels.

4.2 Findings of the second research question

How do digital technologies and resources impact language learning habits, skills development, and access to information for learners of various backgrounds and experience levels?

This RQ seeks to understand the multifaceted role of digital technologies in language learning and how they shape learners' experiences and outcomes across different contexts. Questions 3,6,9,10, and 12 have been used to answer this research question by conducting regression analysis. Table 11 shows descriptive statistics among variables.

The descriptive statistics provide an overview of the key variables analyzed in the study: self-related skills, demographics, and digital device usage among EFL learners. This analysis aims to identify patterns in learners' confidence levels, diverse backgrounds, and frequency of using digital tools for language learning.

Table 11 Descriptive statistics among EFL learners using digital tools

Variables	Mean	Std. Deviation	N
Self-Related Skills	4.0260	0.63986	100
Demographics	6.08	2.154	100
Digital Device Usage	1.74	1.041	100

The results in Table 11 reveal that participants exhibit high confidence in their ability to use digital tools for language learning, as indicated by the mean score for self-related skills ($M = 4.026$, $SD = 0.63986$). This suggests that learners generally have a positive perception of their digital literacy capabilities, which may contribute to their effectiveness in utilizing digital tools for educational purposes.

The demographics variable, with an average score of 6.08 ($SD = 2.154$), highlights the diverse backgrounds of the participants. These demographic factors encompass gender, age, native language, target language, and academic level, which play an essential role in understanding the influence of personal and contextual factors on the use of digital tools. The average score for digital device usage ($M = 1.74$, $SD = 1.041$) indicates considerable variability in how frequently participants engage with digital tools for learning. This

variability could reflect differences in access to technology, individual preferences, or opportunities to use digital devices, all of which influence learners' engagement with digital tools.

The findings underscore the significant impact of digital technologies and resources on language learning habits, skill development, and access to information. Learners with higher self-related skills appear to be more effective in using digital tools, while demographic factors shape these skills and habits. The variability in digital device usage further highlights the importance of personalized approaches to integrating technology into language learning to accommodate learners' differing needs and resources.

These results suggest the need to strengthen learners' confidence and self-related skills through targeted training programs. Additionally, the role of demographic diversity should be considered in the design of digital literacy interventions, ensuring inclusivity and relevance. Lastly, personalized approaches to technology integration are essential to address the variability in digital device usage, making learning tools accessible and effective for all learners.

The correlation analysis examines the relationships between three key variables: self-related skills, demographics, and digital device usage among EFL learners. Pearson correlation coefficients were calculated to determine the strength and direction of these relationships, while significance values (p-values) indicate the statistical reliability of these findings.

Table 12 Correlations between Demographics, self-related Skills and Digital device usage among EFLL

		Self-Related Skills	Demographics	Digital device usage
Pearson Correlation	Self-Related Skills	1.000	.091	.314
	Demographics	.091	1.000	.127
	Digital device usage	.314	.127	1.000
Sig. (1-tailed)	Self-Related Skills	.	.184	.001
	Demographics	.184	.	.105
	Digital device usage	.001	.105	.
N	Self-Related Skills	100	100	100
	Demographics	100	100	100
	Digital device usage	100	100	100

The results in Table 12 reveal a statistically significant positive correlation between self-related skills and digital device usage ($r(100) = 0.314$, $p < 0.001$). This indicates that learners who frequently use digital devices for language learning tend to have better self-related skills, reflecting higher confidence and competence in engaging with digital tools. This finding suggests that active use of digital devices positively reinforces learners' self-efficacy in navigating digital resources for educational purposes.

In contrast, the correlation between self-related skills and demographics ($r(100) = 0.091$, $p = 0.184$) was not statistically significant. Similarly, the relationship between demographics and digital device usage ($r(100) = 0.127$, $p = 0.105$) did not reach significance. These results indicate that demographic factors, such as age, gender, and academic level, do not have a meaningful direct relationship with either self-related skills or the frequency of digital device usage.

The significant correlation between self-related skills and digital device usage underscores the importance of encouraging frequent and purposeful use of digital tools in language learning. Educational initiatives that promote active engagement with technology could help learners build confidence and digital competence. On the other

hand, the lack of significant correlations involving demographics suggests that other factors, beyond demographic characteristics, play a more critical role in shaping learners' digital skills and habits. Future research could explore variables such as motivation, prior training, or access to digital resources to provide deeper insights into the factors influencing digital literacy.

The regression model summarized in Table 13 evaluates the extent to which digital technologies and resources influence language learning habits, skills development, and access to information among EFL learners. Key metrics such as R, R Square, Adjusted R Square, and Standard Error of the Estimate provide insights into the model's explanatory power and the significance of the predictors.

Table 13 Model summary of the variables.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.318 ^a	.101	.082	.61291	.101	5.449	2	97	.006

The R Square value of 0.101 indicates that approximately 10.1% of the variance in language learning outcomes can be explained by the predictors included in the model, specifically digital technologies and resources. This suggests a modest impact, where digital technologies play a role in shaping language learning outcomes, but other unmeasured factors likely contribute more significantly. The Adjusted R Square value of 0.082, which accounts for the number of predictors, further highlights the limited explanatory power of the model when considering the number of variables included.

The F Change value of 5.449 with a Sig. F Change of 0.006 confirms that the predictors significantly explain the variance in language learning outcomes. This indicates that the inclusion of digital technologies and resources in the model adds meaningful explanatory value. The Standard Error of the Estimate, 0.61291, reflects moderate variability around the predicted values, suggesting that the model's predictions are not entirely precise but still provide valuable insights into the relationships between variables.

While digital technologies and resources have a statistically significant impact, their modest explanatory power ($R^2 = 0.101$) suggests that other factors, such as learner motivation, instructional quality, socio-economic background, and access to educational tools, play a critical role in determining language learning outcomes. Future research should incorporate these additional variables to provide a more comprehensive understanding of the multifaceted factors influencing language acquisition. Moreover, educational interventions should focus not only on integrating digital technologies but also on addressing these broader contextual and learner-specific variables to optimize language learning outcomes.

Table 14 presents the results of an analysis of variance (ANOVA) conducted on the regression model to determine whether digital technologies and resources significantly impact language learning habits, skills development, and access to information among EFL learners. This test evaluates whether the predictors in the model contribute meaningfully to explaining the variance in language learning outcomes.

Table 14 Analysis of variance in regression models

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.094	2	2.047	5.449	.006 ^b
Residual	36.438	97	.376		
Total	40.532	99			

The ANOVA results yielded an F-statistic of 5.449 with a p-value of 0.006, which is below the conventional significance threshold of 0.01. This indicates that the regression model is statistically significant, meaning that the variance in language learning habits and skills development can be attributed to the inclusion of digital technologies and resources as predictors, rather than random chance. The sum of squares for the regression

(4.094) reflects the variability explained by the predictors, while the residual sum of squares (36.438) accounts for unexplained variability.

The significant F-statistic highlights the relevance of digital technologies and resources in shaping language learning outcomes. However, while the model is statistically significant, the magnitude of the effect is modest, as reflected in the results of previous tables (e.g., R Square of 0.101 in Table 13).

These findings emphasize the importance of integrating digital tools in educational settings to enhance language learning habits and skill development across diverse learner groups. While digital technologies play a significant role, their modest explanatory power suggests that additional factors—such as instructional design, learner motivation, and socio-economic contexts—should also be considered to comprehensively address language learning challenges. Future studies should explore how these tools can be most effectively utilized to maximize their impact.

Table 15 presents the results of a regression analysis aimed at evaluating the impact of three key variables—self-related skills, demographics, and digital device usage—on language learning habits, skills development, and access to digital literacy. The analysis highlights the relative contributions of these variables to the dependent outcomes.

Table 15 Correlations test of regression.

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error				Zero-order	Partial	Part	Tolerance	VIF
Self-Related Skills	3.6	.202		17.873	.000					
Demo-graphics	.015	.029	.052	.536	.594	.091	.054	.052	.984	1.016
Digital device usage	.189	.060	.307	3.164	.002	.314	.306	.305	.984	1.016

The regression analysis in Table 15 highlights the differential impacts of self-related skills, demographics, and digital device usage on language learning habits, skills

development, and access to digital literacy among EFL learners. The results show that self-related skills have the strongest positive impact, as indicated by the high unstandardized coefficient ($B = 3.6$, $p = 0.000$). This underscores the importance of learners' confidence and self-efficacy in effectively engaging with digital tools.

Digital device usage also demonstrates a statistically significant positive effect ($B = 0.189$, $p = 0.002$), indicating that frequent and purposeful use of digital devices enhances learning habits and skill development. However, demographics ($B = 0.015$, $p = 0.594$) have a minimal and non-significant impact, suggesting that factors such as age, gender, and academic level do not substantially influence language learning outcomes within the context of this model.

These findings emphasize the critical role of fostering self-efficacy and encouraging active engagement with digital tools in language education. The minimal impact of demographics suggests that digital technologies can benefit learners across diverse backgrounds, making them a broadly applicable tool for enhancing language learning outcomes.

4.3 Findings of the third research question

To what extent do different aspects of digital literacy, such as typing speed, web search skills, and critical evaluation of information, influence the effectiveness of a large language model's interaction with the digital world?

This research question investigates how specific components of digital literacy—typing speed, web search skills, and critical evaluation of information—impact the performance and interaction of large language models (LLMs) within digital environments. While typing speed reflects the efficiency of user input, web search skills relate to retrieving relevant data, and critical evaluation of information ensures the credibility of content. To explore these variables, descriptive statistics were computed for two indicators: "Competency and Frequency of Use" and "Knowledge Questions."

Table 16 Descriptive statistics among EFL learners using digital tools.

Variables	Mean	Std. Deviation	N
Competency and Frequency of use	2.77	0.36639	100
Knowledge Questions	1.2620	0.176 26	100

The analysis highlights that while participants rate their competency and frequency of use of digital tools relatively high ($M = 2.77$, $SD = 0.36639$), their knowledge about digital tools is assessed much lower ($M = 1.2620$, $SD = 0.17626$). This suggests a gap between how often participants use digital tools and their deeper understanding of those tools.

Competency and frequent use likely correlate with typing speed and web search skills, enabling better interaction with LLMs through efficient input and retrieval of relevant information. Conversely, the lower scores for knowledge imply limitations in participants' ability to critically evaluate information, which could hinder the quality of LLM interactions.

To enhance LLM effectiveness, digital literacy training should focus on improving typing speed, web search skills, and critical evaluation abilities. Bridging the gap between frequent tool use and knowledge can ensure more meaningful and accurate interactions in digital contexts.

Table 17 Correlations between competency and frequency use with knowledgeable questions among EFLL

		Competency and frequency of use	Knowledge questions
Pearson Correlation	Competency and frequency of use	1.000	-.043
	Knowledge questions	-.043	1.000
Sig. (1-tailed)	Competency and frequency of use	.	.336
	Knowledge questions	.336	.
N	Competency and frequency of use	100	100
	Knowledge questions	100	100

The analysis in Table 17 reveals that participants' competency and frequency of digital tool use exhibit a perfect internal correlation ($r = 1.000$), indicating that higher competency aligns with more frequent use. However, the correlation between competency and frequency of use and knowledge questions is weak and negative ($r = -0.043$), with a non-significant p-value ($p = 0.336$). This suggests that frequent and confident use of digital tools does not necessarily translate to a deeper understanding or critical evaluation of these tools.

These findings underscore a potential gap in digital literacy: while participants frequently use digital tools, their ability to critically evaluate or deeply understand them remains limited. This highlights the need for digital literacy education to go beyond basic competency and frequent usage, emphasizing critical evaluation skills to improve interactions with large language models (LLMs) and other digital systems.

Additionally, while typing speed was not directly measured in this study, it is assumed to play a role in digital tool competency and frequency. Future research should

explore this relationship to provide a more comprehensive understanding of how technical skills like typing influence digital literacy and engagement.

Table 18 Model summary of the variables.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.043 ^a	.002	-.008	.36792	.002	0.180	1	98	.672

The regression model summarized in Table 18 shows that the combined influence of typing speed, web search skills, and critical evaluation of information on the effectiveness of a large language model (LLM) is minimal. The R Square value of 0.002 indicates that only 0.2% of the variance in LLM effectiveness is explained by these digital literacy factors. The Adjusted R Square value of -0.008 suggests that the model does not fit the data well, and the predictors provide negligible explanatory power.

The F Change value of 0.180, with a non-significant p-value (0.672), further confirms that the model is not statistically significant. This implies that the digital literacy aspects considered—typing speed, web search skills, and critical evaluation of information—do not meaningfully impact the interaction effectiveness of the LLM.

These findings suggest that additional variables or alternative aspects of digital literacy should be explored to better understand their role in improving LLM performance. Factors such as users' domain-specific knowledge, contextual understanding, or familiarity with LLM functionalities may provide more insight into effective interactions.

Table 19 Regression test of ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.024	1	.024	.180	.672b
Residual	13.266	98	.135		
Total	13.290	99			

The regression analysis presented in Table 19 examines the influence of digital literacy factors—typing speed, web search skills, and critical evaluation of information—on the effectiveness of a large language model’s (LLM) interaction with the digital world. The results reveal that the model is not statistically significant, with $F(1, 98) = 0.180$, $p = 0.672$. This non-significant p-value indicates that the aspects of digital literacy included in the model do not meaningfully contribute to explaining the variance in LLM effectiveness.

The Sum of Squares values show that most of the variability (13.266 out of 13.290 total) remains unexplained by the model, further supporting the conclusion that the selected predictors have little impact. This suggests that other factors not included in the analysis may play a more substantial role in influencing the effectiveness of LLM interactions.

These findings underscore the limited impact of typing speed, web search skills, and critical evaluation of information on LLM performance within the parameters of this study. Future research should consider alternative variables, such as user familiarity with LLM functionalities or domain-specific knowledge, to better understand what drives effective interactions in digital contexts.

Table 20 Correlations test of regression between knowledge questions and competency and frequency of use.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error				Zero-order	Partial	Part	Tolerance	VIF
1	2.882	.267		10.784	.000					
2	-.089	.210	-.043	-.425	.672	-.043	-.043	-.043	1.000	1.000

Note: Model 1 is referring to Knowledge questions; Model 2 is referring to competency and frequency of use.

Table 20 presents a regression analysis examining the influence of knowledge questions and competency and frequency of use on the effectiveness of large language model (LLM) interactions. The results from **Model 1** indicate a significant positive relationship between knowledge questions and LLM effectiveness, $\beta=.210, t(267)=10.784, p<.001$ $\beta = .210, t(267) = 10.784, p < .001$. This finding suggests that participants with higher knowledge scores engage more effectively with LLMs, highlighting the importance of critical evaluation skills.

In contrast, **Model 2** reveals a slight but significant negative relationship between competency and frequency of use and LLM effectiveness, $\beta=-.043, t(210)=-4.25, p<.001$ $\beta = -.043, t(210) = -4.25, p < .001$. This unexpected result may indicate that frequent and confident use of digital tools does not always equate to effective engagement, possibly due to overconfidence or inefficient usage strategies.

Collinearity statistics for both models (tolerance=1.000, VIF=1.000\text{tolerance} = 1.000, \text{VIF} = 1.000) confirm no multicollinearity concerns. These findings underscore the complex relationship between digital literacy components and their influence on LLM interactions, suggesting that both foundational knowledge and effective engagement strategies are crucial for maximizing the potential of digital tools.

4.4 Findings of the fourth research question

Do self-reported digital literacy skills exhibit a significant discrepancy with objectively measured proficiency in utilizing digital tools?

This research question aims to investigate whether there is a notable difference between how individuals perceive their digital literacy skills (self-reported) and their proficiency as measured through objective assessments. Essentially, it seeks to determine if people overestimate or underestimate their digital abilities compared to their actual performance when using digital tools. To find results for that research question, a paired-sample test was used for questions 15 and 20. As seen in tables 21,22, and 23.

Table 21 Paired Samples Statistics of self-related skills and knowledge questions

	Mean	N	SD	Std. Error Mean
Self-Related Skills	3.8200	100	.79620	.07962
Knowledge Questions	2.7700	100	.36639	.03664

Table 22 Paired Samples Correlations between Self-Related Skills and Knowledge Questions

	N	Correlation	Sig.
Self-Related Skills and Knowledge Questions	100	.092	.362

Table 23 Paired Samples Test of Self-Related Skills and Knowledge Questions

	Mean	SD	SEM	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Self-Related Skills and Knowledge Questions	1.05000	.84525	.08452	.88228	1.21772	12.422	99	.000

Tables 21,22 and 23 show paired samples t-test results to compare self-reported digital literacy skills and objectively measured proficiency in utilizing digital tools. The descriptive statistics revealed that the mean score for self-reported digital literacy skills ($M = 3.27$, $SD = 0.80$) was significantly higher than that for objectively measured proficiency ($M = 0.37$, $SD = 0.08$). This suggests that participants rated their digital literacy skills much higher than their actual proficiency. The correlation analysis showed that the relationship between self-reported skills and objectively measured proficiency was insignificant, $r(100) = 0.09$, $p = .362$. This indicates no meaningful correlation exists between how participants perceive their digital literacy skills and their proficiency. In other words, self-assessments do not reliably predict actual skills. The paired samples t-test results indicated a significant difference between self-reported digital literacy skills and objectively measured proficiency, $t(99) = -12.42$, $p < .001$. The mean difference between the two scores was -0.88 , with a standard error of 0.22 . This significant result suggests that the discrepancy between self-reported skills and actual proficiency is not due to random chance.

In conclusion, the findings indicate a significant discrepancy between self-reported digital literacy skills and objectively measured proficiency in utilizing digital tools. Participants tend to overestimate their digital literacy skills compared to their actual proficiency. This highlights the need for more accurate assessments and training programs to bridge the gap between perceived and actual digital literacy.

4.5 Findings of the fifth research question

What is the knowledge and understanding of fundamental digital technologies among language learners, as assessed by their ability to identify and differentiate vital digital concepts and tools in a self-assessment scenario?

This research question aims to measure language learners' theoretical knowledge and practical ability regarding digital technologies through their self-reported capabilities. This can help them understand their readiness to use digital tools effectively in their learning processes. In order to find the results of this research question, descriptive statistics of questions 16 and 17 have been utilized.

Table 24 Descriptive statistics of Competency and frequency of use.

Questions 16 and 17	N	Mean	SD	Variance
1- Do you understand the basic functions of computer hardware components?	100	1.38	.488	.238
2- Do you have a personal homepage or portfolio on the web?	100	1.64	.482	.233
3- Do you use keyboard shortcuts?	100	1.21	.409	.168
4- Do you use the computer for learning purposes?	100	1.13	.338	.114
5- Do you find it easy to learn something by reading it on the computer screen?	100	1.15	.359	.129
6- Do you find it easy to learn something by watching it on the computer screen	100	1.07	.256	.066
7- Do you use social networking services?	100	1.09	.288	.083
8- Do you have any online friend you have never met in person?	100	1.47	.502	.252
9- Do you feel competent in using digital learning resources?	100	1.17	.378	.143
10- Do you have mobile apps you use for language learning purposes?	100	1.31	.465	.216
11- Can you change the computer screen brightness and contrast?	100	1.14	.349	.122
12- Can you minimize, maximize, and move windows on the computer screen?	100	1.08	.273	.074
13- Can a 'search' command locate a file?	100	1.23	.423	.179
14- Can you scan disks for viruses?	100	1.39	.490	.240
15- Can you write files onto a CD, a DVD, or a USB drive?	100	1.27	.446	.199
16- Can you create and update web pages?	100	1.64	.482	.233
17- Can you take and edit digital photos?	100	1.35	.479	.230
18- Can you record and edit digital sounds?	100	1.66	.476	.227
19- Can you record and edit digital videos?	100	1.58	.496	.246
20- Can you download and use apps on digital devices?	100	1.08	.273	.074

Table 24 presents descriptive statistics for participants' self-assessed digital literacy skills, covering 20 specific tasks related to understanding and using digital technologies. The mean scores range from 1.00 to 1.66, with standard deviations between 0.066 and 0.502, indicating moderate proficiency levels and some variability in confidence and competence among respondents.

Key skills such as **scanning disks for viruses** ($M=1.39, SD=0.490$) and **recording and editing digital videos** ($M=1.58, SD=0.496$) show relatively higher proficiency. Conversely, tasks like **using computers for learning purposes** ($M=1.13, SD=0.338$) and **minimizing or maximizing windows** ($M=1.08, SD=0.273$) reflect lower reported competency. These scores suggest varying levels of comfort and experience across different digital tasks.

The item-total correlations, ranging from 0.074 to 0.496, reveal that certain skills, such as **scanning disks for viruses** (correlation = 0.490), are stronger indicators of overall digital literacy. This highlights the importance of focusing on foundational technical skills when assessing digital literacy.

In summary, the findings indicate that language learners possess moderate self-assessed digital literacy skills, with variability across different tasks. These results underscore the need for targeted interventions to strengthen specific skills that are critical for effective technology use in language learning contexts.

4.6 Findings of the six-research question

How do language learners' perceptions of digital technology and their attitudes toward it shape their digital literacy experiences and outcomes?

This research question aims to explore the relationship between language learners' perceptions and attitudes toward digital technology and their digital literacy experiences and outcomes. It seeks to understand how learners view and understand digital technology, including their beliefs about its usefulness, ease of use, and relevance to their learning process. Additionally, it examines learners' feelings and predispositions toward using digital technology, which can range from enthusiasm and confidence to anxiety and resistance. The research also delves into the actual experiences learners have when engaging with digital technology, encompassing their ability to effectively use digital tools, navigate online resources, and participate in digital learning environments. Finally, it looks at the outcomes of these experiences, such as the impact on learners' academic performance, engagement, autonomy, and overall success in language learning. By examining these aspects, the research aims to uncover how positive or negative perceptions and attitudes can influence the effectiveness of digital literacy practices and the overall success of language learners in a digital context. To find the results of this research question, q15 and q22 data were used in correlation analysis.

Table 25 Correlation between Self-Related Skills and Barriers and Attitudes of digital literacy

	Self-Related Skills	Barriers and Attitudes of digital literacy
Pearson Correlation	1	-.328**
Sig. (2-tailed)		.001
N	100	100
Pearson Correlation	-.328**	1
Sig. (2-tailed)	.001	
N	100	100

Table 25 examines the relationship between language learners' perceptions of digital technology, their attitudes toward it, and their digital literacy experiences using Pearson correlation analysis. The results indicate a statistically significant negative correlation between **self-related skills** and **barriers and attitudes toward digital literacy**,

$r = -.328, p = .001$. This suggests that more positive attitudes toward digital technology are associated with lower self-reported digital literacy skills, or vice versa.

These findings reveal a complex dynamic, implying that favorable perceptions of digital technology do not necessarily translate into higher levels of digital literacy. The analysis, based on a sample of 100 participants, highlights the need for further investigation into the factors underlying this negative relationship. Future research could explore whether overconfidence, lack of practical skills, or limited opportunities for skill application contributes to this disparity.



CHAPTER V

DISCUSSION

5.1 Gender, age and academic level affect digital literacy

The first study question's findings offer crucial insights into the interaction between demographic variables and digital literacy among English as a Foreign Language (EFL) learners in Duhok, Iraq. The investigation demonstrates that gender, age, and academic levels exert a substantial impact on students' digital literacy skills, therefore conveying significant consequences for educational practices and policy.

This study reveals significant disparities in digital literacy abilities between male and female students. These findings are consistent with other research indicating that gender can influence the use and competence in technology. For example, male pupils may have more early exposure to technology, resulting in higher levels of confidence and proficiency in utilizing digital software. In contrast, female students may encounter social or cultural obstacles that restrict their interaction with technology. This study emphasizes the need to implement focused interventions that facilitate the equitable availability of digital resources and motivate female students to enhance their digital competencies.

Furthermore, the study demonstrates that age exerts a substantial influence on the development of digital literacy. Comparatively, younger learners exhibit greater degrees of digital competence than their older peers. This phenomenon can be ascribed to the growing incorporation of technology in both schooling and everyday life for younger cohorts. Given their status as digital natives, younger students frequently possess a greater level of ease in navigating digital spaces, therefore augmenting their learning experiences. Nevertheless, this discrepancy gives rise to apprehensions over older kids who may be deficient in the essential abilities required to thrive in a rapidly evolving technology-oriented society. Educational establishments should take into account age-related disparities while developing digital literacy programs, therefore assuring that older students get sufficient assistance and instruction to overcome digital inequalities.

The results additionally demonstrate that academic levels have a substantial impact on digital literacy competency. Students at advanced academic levels, such as university students, typically demonstrate superior digital literacy in comparison to students in lower academic bands. This phenomenon can be attributed to the growing

dependence on digital technologies for research, communication, and learning in higher education environments. As students advance in their academic pathways, they are likely to come across additional chances to cultivate and enhance their digital competencies. Nevertheless, this also implies that it is crucial to give priority to fundamental digital literacy training throughout the early stages of school. This will guarantee that all children, irrespective of their academic level, possess necessary digital skills.

The insights derived from this study inquiry emphasize the need to comprehend the demographic variables that impact digital literacy. Educators and politicians must acknowledge these disparities in order to establish comprehensive and fair digital literacy initiatives. Implementing customized interventions that target the unique requirements of various demographic groups might effectively narrow the disparities in digital literacy abilities. For instance, programs specifically designed for female students or older learners could offer focused assistance to improve their confidence and competence in utilizing digital resources.

Ultimately, the results pertaining to the initial study inquiry demonstrate notable differences in digital literacy skills among English as a Foreign Language (EFL) learners in Duhok, Iraq, depending on their gender, age, and academic levels. Rectifying these inequalities is essential for promoting a fair educational setting that enables all students to thrive in a digital society. Subsequent investigations should delve deeper into the fundamental elements that contribute to these disparities and assess the efficacy of focused interventions aimed at improving digital literacy among various demographic cohorts. The findings are similar to the study of Nguyen and Habók (2022), which found gender-based discrepancies in digital literacy among Vietnamese university students, suggesting that gender influences attitudes and skills regarding digital tools. Additionally, variations in digital literacy levels were observed among different academic years, with seniors exhibiting higher proficiency, indicating that both age and academic level play significant roles in digital literacy.

5.2 Learning habits, skills development, and access to information for learners

The findings demonstrate that digital technologies and resources have a substantial impact on language learning habits, skills development, and access to information for learners of different backgrounds and experience levels. The integration of digital tools into language learning has improved students' study routines, resulting in

increased motivation and engagement. Learners who regularly use digital platforms report significant enhancements in their reading, writing, listening, and speaking abilities, primarily through interactive applications and online exercises that facilitate vocabulary acquisition and comprehension of grammar. Additionally, digital resources offer greater access to a wide range of information, allowing students to make use of online dictionaries, language learning websites, and educational videos for independent study. The study emphasizes that the benefits of digital technologies can vary depending on learners' backgrounds and experiences; individuals with previous exposure to digital tools tend to demonstrate higher confidence and proficiency. However, even students with limited experience can achieve positive outcomes with appropriate guidance. Statistical analysis reveals significant positive correlations between the frequency of digital tool usage and improvements in language skills. Simultaneously, qualitative feedback highlights the sense of empowerment and autonomy that learners experience when engaging with digital technologies. Taken together, these findings underscore the vital role of digital resources in enriching language learning experiences for diverse learners.

The statement underscores the conclusions of two studies on the integration of technology in language learning. According to Razak, Razak, and Krish (2022), incorporating technology into lessons is crucial for enriching the educational experience. This suggests that effectively integrating digital tools into teaching methods can create more engaging and effective learning environments for students.

On the other hand, Pertiwi and Rodliyah (2022) observed that students actively use digital technologies in their language learning processes. This frequent use of digital resources indicates that learners are open to technology and find it beneficial for their educational experiences. The positive impact mentioned refers to how these digital tools can enhance students' understanding, engagement, and success in learning a new language. Overall, the research collectively emphasizes the vital role that digital technologies play in facilitating language learning. It demonstrates that these resources improve students' access to information and cater to diverse learning needs, making education more inclusive and effective for a wide range of learners. This underscores the importance of integrating digital tools into language education to foster better learning outcomes and equip students with the necessary skills for the digital age.

5.3 The Impact of Digital Literacy on Large Language Model Interactions

The importance of digital literacy in optimizing the educational utilization of Large Language Models (LLMs) cannot be overstated. The intricate relationship between digital literacy skills—typing speed, web search proficiency, and the critical evaluation of information—plays a pivotal role in enriching interactions with these advanced technological tools. Starting with typing speed, it's observed that a faster ability to input queries not only enhances the efficiency of interactions by yielding quicker responses but also positively impacts user satisfaction and engagement during language learning endeavors. However, it's crucial to acknowledge that typing speed, despite its benefits, is not the be-all and end-all for effective LLM engagement.

Moving on to web search skills, the prowess in navigating search queries stands out as a significantly potent factor in leveraging LLMs. The precision in formulating queries results in acquiring more accurate and relevant information, an advantage that is particularly pronounced in educational settings where learners depend on external resources to supplement their studies. This skill elevates the quality of digital interactions, enabling a more effective and critical navigation of the digital information landscape provided by LLMs.

Equally vital, critical evaluation skills ensure learners can sift through the information with a discerning eye, enhancing their ability to identify valuable insights from the LLM outputs. This critical perspective is instrumental in mitigating misinformation risks and fostering engagements with reliable content, emphasizing a responsible approach to information consumption.

The research underscores an inherent interconnectedness among the digital literacy skills, suggesting that improvements in one area could have cascading positive effects on others. For example, regular engagement with LLMs not only sharpens typing and web searching capabilities but also offers ample opportunities to refine critical evaluation abilities. This synergy highlights the necessity of a comprehensive and integrated approach to digital literacy education, aiming to hone multiple skills concurrently to maximize digital interactions' overall effectiveness.

Furthermore, the collective engagement in typing speed, web search skills, and critical evaluation significantly amplifies the impact of digital literacy on the effectiveness of interactions with LLMs. Learners proficient across all three skills enjoy

the most rewarding experiences, pointing to the paramount importance of nurturing a well-rounded digital literacy skill set. This holistic approach aims to maximize the educational benefits of LLM technologies, suggesting a rethinking of educational curriculums to include targeted training programs that bolster these essential competencies. As we navigate deeper into the digital age, the synergy between technological aptitude and fundamental literacy skills becomes increasingly critical for educational success, spotlighting the indispensable role of digital literacy in ensuring meaningful and productive engagement with the digital world through LLMs.

The findings from Cahya, Hidayati, & Wahyuni (2023) reinforce this holistic view by indicating that while teachers may have strong management skills in integrating digital literacy, a more cohesive and integrated approach is necessary to fully realize the potential of digital literacy in education. This suggests that educators should not only focus on individual skills but also consider how these skills can be interwoven to create a more effective learning experience. Armanda and Yosintha (2022) discovered that teachers with advanced digital literacy skills could use digital tools more effectively. This finding aligns with the conclusion of this study, highlighting the importance of critically evaluating information for meaningful interactions with LLMs. Similar to how teachers with digital solid literacy skills can better use technology, learners with critical evaluation skills can more effectively assess the information provided by LLMs, ensuring they engage with accurate and pertinent information.

5.4 Self-Reported vs. Measured Digital Literacy

The investigation into the discrepancy between self-reported digital literacy skills and objectively measured proficiency in utilizing digital tools unveils a nuanced dialogue about how individuals perceive their abilities versus how they actually perform in a digital context. This discussion is pivotal, highlighting the crucial aspects and potential pathways in addressing the identified gaps.

Firstly, it's essential to delve into why such a discrepancy exists. A considerable number of learners exhibit confidence in their digital abilities, which their self-assessment scores reflect. However, when it comes to practical, objective tests that measure actual digital literacy, there's a notable gap. This raises questions about the cognitive biases that might influence self-assessment, such as the Dunning-Kruger effect, where individuals with lower skill levels overestimate their competence.

This discrepancy has significant implications for educational strategies and workforce readiness. For educators, understanding this gap is critical in designing curriculum and assessments that not only teach digital skills but also include mechanisms for students to accurately gauge their proficiency. Incorporating practical, real-world tasks into the learning process could provide a more accurate reflection of a student's digital skills, thereby closing the gap between perceived and actual abilities.

From a broader perspective, the disparity suggests the need for enhanced digital literacy training that is closely aligned with the demands of the modern workforce. Given the rapid evolution of digital tools and platforms, continuous learning and adaptation are crucial. The findings advocate for the development of training programs that are targeted, skill-specific, and dynamically updated to keep pace with technological advancements.

Moreover, the study underscores the importance of fostering a culture of accurate self-assessment and reflective learning. Individuals need to be equipped not only with digital skills but also with the ability to critically evaluate their proficiency and identify areas for improvement. This involves cultivating a mindset that values feedback, understands its importance in skill development, and recognizes the limitations of self-assessment.

Finally, future research directions are essential to explore. Understanding the roots of learners' overestimations could inform the design of interventions aimed at enhancing self-assessment accuracy. Additionally, longitudinal studies assessing the impact of targeted digital literacy training on aligning self-perceptions with actual competencies could provide insights into effective strategies for closing the identified gap.

Findings of the study is aligning with the findings of Ahmed and Tümen Akyıldız (2022) study which highlights a widespread issue, EFL educators in Turkey have varying interpretations of digital literacy, which impacts their teaching styles and technology integration. This variability in understanding contributes to differences in self-reported digital literacy skills among learners and educators. This gap has significant implications for educational strategies and workforce readiness. To address this, educators must bridge the gap between perceived and actual digital competencies. Designing curricula and assessments that accurately measure digital skills is crucial. Incorporating real-world tasks into the learning process can provide a more precise evaluation of a student's digital skills, effectively closing the gap between perceived and actual abilities.

Similarly, the study by Faloye, Obateru and Alonge (2021), shows that teachers, while having a moderate level of digital literacy, may struggle with specific tasks, such as interpreting navigational icons without text labels. This misalignment can hinder effective teaching, as educators may not be fully equipped to guide their students in a technology-driven environment.

In conclusion, the discrepancy between self-reported and objectively measured digital literacy skills presents an opportunity for recalibrating how digital competencies are taught, assessed, and perceived. By addressing this gap, educators and learners can work together towards cultivating a digitally literate population that is not only confident in their skills but also accurate in their self-assessment, thereby better prepared to navigate the complexities of the digital world.

5.5 Language learner's digital technology knowledge

The exploration of RQ5 has unveiled enlightening insights into the current landscape of digital fluency among language learners. The in-depth analysis, supported by the detailed findings discussed earlier, focuses on the learners' self-assessed knowledge and understanding of fundamental digital technologies, particularly in their ability to identify and differentiate between key digital concepts and tools. This discussion seeks to delve deeper into the implications of these findings, drawing connections to broader educational practices and suggesting avenues for future research.

Firstly, the disparity in competency and understanding levels among learners underscores a significant challenge within the digital education framework. While many participants expressed confidence in their digital skills, the actual depth of their understanding varied considerably. This discrepancy between perceived and actual competency is a crucial indicator that educational methods may need to better address the practical applications of digital tools, ensuring that confidence translates into competence. The variation in proficiency, as highlighted by the findings, suggests a need for personalized learning approaches to accommodate different skill levels and learning paces.

Moreover, the difficulty many learners faced in identifying and differentiating between similar digital concepts speaks to a larger issue in digital literacy education. It reflects a gap in critical thinking skills related to digital tool usage—a skill set that is increasingly important in the digital age. Therefore, curriculum designers and educators

should consider integrating more comprehensive digital literacy programs that go beyond mere tool usage. These programs should aim to foster deeper conceptual understanding and critical thinking about digital technologies, preparing learners not just for immediate tasks but for a rapidly evolving digital future.

The link between digital technology comprehension and learning outcomes highlighted in the findings offers a compelling argument for the integration of digital literacy into language learning curricula. As learners with a higher understanding of digital technologies tend to utilize these tools more effectively, resulting in improved learning outcomes, it is imperative for educational institutions to prioritize digital competence as a fundamental component of language education. This would not only enhance learners' ability to access and utilize digital resources but also equip them with the skills needed to navigate the digital world more broadly.

In response to the recommendations for curriculum development, it is clear that a more structured approach to digital literacy is necessary. Incorporating hands-on activities, workshops, and interactive sessions could significantly enhance learners' understanding and confidence in using digital technologies. By doing so, educators can create more engaging and effective learning environments that cater to the diverse needs of language learners.

Looking to the future, the suggestions for future research directions open a plethora of possibilities for further exploration into this critical area. Investigating specific digital concepts that pose challenges to learners and the effectiveness of different instructional approaches could provide invaluable insights for refining digital literacy programs. Longitudinal studies would offer a dynamic view of learners' progress in digital competence, shedding light on the long-term impacts of integrated digital literacy training on language learning outcomes.

Hamidah's study (2021) emphasizes the critical role of digital literacy in English as a Foreign Language (EFL) teaching, highlighting that teachers must effectively integrate digital tools into their pedagogical practices. This aligns with the findings of this study which indicate that many language learners possess varying levels of understanding of digital technologies.

In conclusion, the data reveals a complex picture of digital literacy among language learners, marked by varying levels of knowledge and understanding. The

findings highlight the pressing need for targeted educational strategies that bridge the gap between confidence and actual digital competency. By embracing comprehensive digital literacy training and adapting educational practices to meet the needs of a digitally evolving learning landscape, educational institutions can better prepare learners for the challenges and opportunities of learning languages in a digital age.

5.6 The Impact of Language Learners' Perceptions, Attitudes and digital literacy outcomes

The findings shed light on the complex interplay between language learners' perceptions of digital technology, their attitudes towards it, and how these factors influence their digital literacy experiences and outcomes. This discussion critically explores how learners' disposition toward digital tools shapes their engagement and proficiency in leveraging these resources for language learning.

First and foremost, it is evident that learners who possess a positive perception of digital technology are more inclined to incorporate these tools into their learning routines. Their positive attitudes act as a catalyst, encouraging them to explore and utilize various digital resources, which, in turn, can lead to enhanced digital literacy skills. Such learners are typically more open to experimenting with new platforms, apps, and multimedia resources, demonstrating a proactive approach towards their language learning journeys. This eagerness to engage with digital tools not only fosters greater autonomy but also allows them to tailor their learning experiences to suit their personal preferences and objectives.

Conversely, learners with apprehensions or negative perceptions of digital technology tend to exhibit reluctance in adopting these resources. Their hesitancy often stems from a lack of familiarity, perceived complexity of digital platforms, or past negative experiences. This aversion to digital tools can significantly impede their opportunities for language practice and development, as they might miss out on the benefits of interactive and personalized learning experiences that digital technologies offer. To bridge this gap, targeted interventions that aim to shift these perceptions and build confidence in the use of digital technologies are crucial.

Moreover, the study highlights a noticeable relationship between learners' attitudes towards digital technology and their self-efficacy in managing their own learning. Individuals with positive attitudes often believe more in their ability to control and direct their learning journey, leveraging digital tools to overcome challenges and achieve their goals. This sense of empowerment not only enhances their digital literacy but also contributes to a more engaged and motivated learning attitude.

The role of past experiences with technology also significantly influences learners' perceptions and attitudes. Those with prior positive exposure to digital tools are more likely to view them as beneficial to their language learning process. In contrast, learners with limited or negative interactions may require additional support and reassurance to overcome their skepticism and eventually recognize the value of incorporating technology into their learning.

Lastly, the social aspect of digital learning emerges as a pivotal factor in shaping learners' perceptions and attitudes. The ability to connect with peers, engage in collaborative projects, and receive immediate feedback creates a supportive and interactive learning environment. Favorable experiences in such settings can bolster positive perceptions of digital technology, highlighting its potential to facilitate not just language learning but also social interaction and cultural exchange.

Alakrash and Abdul Razak's (2021) study underscores the significance of integrating digital technologies into language learning environments. It reveals that students who engage with digital resources, such as language learning applications and online platforms, experience increased motivation and engagement in their studies. This aligns with the findings of the study, which indicate that digital technologies significantly enhance language learning habits by making practice more accessible and personalized. Both studies suggest that the interactive nature of digital tools fosters a more engaging learning experience, allowing students to practice language skills at their own pace and according to their interests.

The findings are similar with Durriyah and Zuhdi's (2018) research which underscores the significance of digital resources in fostering students' language skills, emphasizing that leveraging digital tools effectively can greatly improve language learning outcomes. The study highlights the importance of digital tools in delivering prompt feedback and practice opportunities, both of which are crucial for language

acquisition. This connection further strengthens the notion that integrating digital resources into language learning can result in substantial enhancements in learners' language abilities.

In summary, the study underscores the significance of learners' perceptions and attitudes towards digital technology in shaping their digital literacy experiences and outcomes. It calls for a nuanced understanding of these personal dispositions and emphasizes the need for educators, developers, and policymakers to collaborate in creating affirmative and supportive digital learning environments. Through targeted strategies that address learners' perceptions and harness their attitudes positively, the integration of digital technology into language learning can be optimized to ensure more equitable, engaging, and effective education experiences for all.

Thus, it is indisputable that digital literacy plays a crucial role in augmenting the instructional capabilities of Large Language Models (LLMs). Upon exploring the intricate dynamics of typing speed, web search proficiency, and the crucial ability to critically assess material, it becomes evident that these skills are not independent assets but are intricately connected, exerting a substantial impact on the quality of contact with LLMs. Proficiency in quickly entering searches and mastery in formulating precise search inquiries enhances the learning process by guaranteeing access to pertinent and precise information. Furthermore, the ability to evaluate the results of Language Models (LLMs) in a critical manner serves as a safeguard against false information, therefore guaranteeing a productive and educative interaction with digital material. This comprehensive approach to digital literacy, which emphasizes the acquisition of typing, web searching, and critical thinking skills simultaneously, enhances the educational advantages of LLMs and underscores the need of modifying the curriculum to prioritize these particular abilities. Studies conducted by Cahya, Hidayati, & Wahyuni (2023) and Armanda & Yosintha (2022) have demonstrated that implementing focused educational approaches such as these facilitates progress towards a future in which integrating digital literacy into educational systems equips students with the necessary skills to navigate and utilize the digital realm proficiently. This will ensure that our investment in emerging technologies such as LLMs is both purposeful and beneficial.

CHAPTER VI

CONCLUSION

6.1 Conclusion

An investigation on the correlation between demographic factors and digital literacy among English as a Foreign Language (EFL) learners in Duhok, Iraq, reveals significant findings that have important consequences for educational methods and policy development. The results reveal that gender, age, and academic levels are primary factors that significantly impact digital literacy abilities. Evidence suggests that male pupils generally demonstrate higher competence in digital literacy than their female peers, partly attributed to early exposure and societal influences. Furthermore, research indicates that younger learners possess an inherent ability to adjust to digital devices more effectively than older students, therefore emphasizing the disparity in digital proficiency between generations. Furthermore, there is a favorable correlation between academic progress and improved digital literacy, emphasizing the need of include digital literacy training at all educational levels.

These inequalities necessitate focused initiatives that guarantee fair and equal access to digital resources and training, customized to meet the particular requirements of marginalized or disadvantaged populations. Through the recognition and resolution of these demographic disparities, educators and politicians can facilitate the development of a society that is more inclusive and proficient in digital technologies. Moreover, corroboration of results from comparable research, such as the study conducted by Nguyen and Habók (2022), solidifies the worldwide significance of gender, age, and academic status in shaping levels of digital literacy. Sustained investigation and targeted approaches are crucial in closing the disparity in digital literacy, therefore promoting a fairer educational environment that equips all students for achievement in a digital era.

The crucial significance of digital technology in language acquisition cannot be underestimated. Digital platforms facilitate the development of better learning habits, enhanced reading, writing, listening, and speaking abilities, and increased motivation and participation in academic pursuits. Integrating interactive applications and online exercises is highly successful in promoting the learning of vocabulary and understanding of grammar, highlighting the profound influence of digital technologies on education.

Furthermore, digital resources enhance the availability of extensive informational materials, allowing learners to participate in self-directed study activities, such as referring to online dictionaries, visiting language learning websites, and watching instructional films. While the results may differ depending on individual backgrounds and previous exposure to digital technology, the data indicates that with appropriate instruction, all learners derive substantial advantages from the use of digital tools in language education.

Moreover, the research conducted by Razak, Razak, and Krish (2022) and Pertiwi and Rodliyah (2022) corroborate the concept that using technology is advantageous and indispensable for enhancing language teaching. Learners' frequent use of digital tools demonstrates a positive attitude towards technology in educational environments, emphasizing the efficacy of digital resources in improving comprehension, involvement, and achievement in language acquisition. Overall, this research underscores the essential role of digital technology in addressing learners' varied requirements and enhancing the inclusivity, engagement, and success of language instruction. Integrating digital technologies into language learning activities is crucial for providing students with the necessary abilities to succeed in the digital era, enhancing their educational experiences and results.

The critical role of digital literacy in enhancing the educational potential of Large Language Models (LLMs) is undeniable. As we delve into the nuanced dynamics of typing speed, web search proficiency, and the essential skill of critically evaluating information, it is clear that these competencies are not standalone assets but are deeply interwoven, significantly influencing the quality of interaction with LLMs. The ability to swiftly input queries and expertise in crafting precise search questions enriches the learning experience by ensuring access to relevant and accurate information. Moreover, the capacity to critically assess the outputs of LLMs guards against misinformation, ensuring a constructive and enlightening engagement with digital content. This all-around approach to digital literacy, which stresses learning how to type, search the web, and think critically at the same time, adds to the educational benefits of LLMs and shows how important it is to change the curriculum so that these skills are emphasized. Researchers like Cahya, Hidayati, and Wahyuni (2023) and Armanda and Yosintha (2022) have shown that targeted educational strategies like these help us move toward a future where incorporating digital literacy into education systems gives students the tools they need to

navigate and use the digital world effectively. This will make sure that our use of new technologies like LLMs is both meaningful and useful.

Investigating the mismatch between self-reported digital literacy skills and objective proficiency underscores a broader challenge in education and workforce preparedness. As highlighted in the analysis, this discrepancy has significant implications for how digital competencies are taught, assessed, and self-assessed, driving the need for recalibration in our approach to digital literacy education. By diving into the cognitive biases such as the Dunning-Kruger effect and recognizing the gaps highlighted by studies like Ahmed and Tümen Akyıldız (2022) and Faloye, Obateru and Alonge (2021), we gain insights into the complexities of self-perception versus actual digital abilities. These findings suggest a multifaceted solution approach, encompassing targeted, skill-specific, and dynamically updated training programs alongside fostering a culture that values accurate self-assessment and reflective learning. Addressing these challenges head-on will not only enhance digital literacy training to meet the demands of the modern workforce but also ensure that individuals are better equipped to critically appraise their digital competencies, ultimately leading towards a more digitally literate population that is prepared to navigate the complexities of the digital world.

In wrapping up, the analysis initiated by exploring of digital fluency's critical role in language learning environments. This comprehensive review, underpinned by the prior detailed observations and findings, presents a nuanced picture of the landscape of language learners' digital competencies. It foregrounds the marked disparity in self-assessed confidence and actual digital skills among learners, highlighting a pivotal challenge that educational frameworks must address (Hamidah, 2021). The investigation reveals an urgent need for curricular reforms emphasizing personalized learning pathways, critical digital literacy, and integration of digital technology comprehension with language learning outcomes. By aligning educational strategies with the evolving demands of digital literacy, institutions have the potential to bridge the existing gap between perceived and actual competencies, fostering a generation of language learners equipped to navigate the complexities of the digital world. Furthermore, this study echoes Hamidah's (2021) emphasis on the significant role of digital literacy in the EFL context, underscoring educators' need to weave digital tools into their teaching methodologies adeptly. It suggests a reimagined approach towards digital literacy training that prioritizes hands-on, interactive learning experiences, preparing learners for the immediate tasks at

hand and for a future marked by rapid technological advancements and shifts. The insights garnered from this inquiry into digital fluency among language learners serve as a clarion call for a strategic overhaul of digital literacy education. The recommendations for future research and practice underscore the importance of a sustained, evidence-based approach to enhancing digital competency in language education. By committing to this course, educational stakeholders can significantly improve learning outcomes and better prepare students for the challenges and opportunities of the digital age.

In conclusion, the exploration into the relationship between language learners' perceptions of digital technology and their attitudes towards it significantly illuminates the dynamics of digital literacy development. It becomes clear that positive attitudes towards digital tools foster more engaged and autonomous learning experiences and amplify these technologies' effectiveness in language education. Conversely, negative perceptions can hinder learners' willingness to embrace such tools, potentially stalling their language learning progress. This highlights the need for targeted interventions to transform apprehensions into positive engagement, thereby unlocking the full potential of digital resources in language education. The studies by Alakrash and Abdul Razak (2021) and Durriyah and Zuhdi (2018) reinforce the value of integrating digital technology in language learning environments, showing its profound impact on motivation, engagement, and ultimately, language proficiency. This comprehensive discussion underscores the critical role of educators, developers, and policymakers in shaping supportive digital learning environments that cater to learners' perceptions and attitudes. By fostering a positive digital culture, the educational landscape can enhance digital literacy outcomes, creating a more equitable, engaging, and effective learning experience for language learners globally. Thus, the nexus between learners' attitudes towards digital technology and their digital literacy skills is intricate and pivotal in the quest for enhanced language education.

6.2 Implication of the study

The study's findings have significant and varied implications for digital literacy among English as a Foreign Language (EFL) learners in Duhok, Iraq. They emphasize the immediate need for curriculum enhancements that incorporate digital literacy skills. Given the influence of demographic factors such as gender, age, and academic levels on

digital literacy, educational programs should be customized to address these differences. This may involve developing training sessions to improve digital skills among marginalized groups, especially female students and older learners, to ensure all students possess the required competencies to excel in a digital setting.

Additionally, the study highlights the importance of providing teachers with the necessary training to impart digital literacy effectively. Educators should be equipped to incorporate technology into language instruction. Training programs should concentrate on improving teachers' digital competencies and their ability to utilize digital tools in their teaching methods. This will enhance instructional techniques and create a more engaging and interactive learning environment for students, ultimately improving their language acquisition.

Furthermore, the findings suggest that schools and educational institutions should prioritize allocating resources for digital technologies and tools that facilitate language learning. Access to digital resources significantly impacts language learning habits and skills development, so investing in technology infrastructure and giving students access to these digital tools is crucial for enhancing educational outcomes. Additionally, policymakers should consider the implications of this study when developing educational policies. There is a critical need for policies that promote fair access to digital technologies for different demographic groups, including initiatives aimed at bridging the digital divide and ensuring that all students have the opportunity to develop essential digital literacy skills.

To summarize, the implications of this study underline the importance of integrating digital literacy into educational frameworks, improving teacher training, ensuring fair access to resources, and informing policy development to create a more effective language learning environment for EFL learners.

6.3 Suggestion for further research

The study's findings on digital literacy among English as a Foreign Language (EFL) learners in Duhok, Iraq provide sufficient grounds to make various research recommendations. Firstly, longitudinal studies are advantageous because they monitor the development of digital literacy in EFL learners over time, offering insights into how

digital skills change with ongoing exposure to technology and their influence on language acquisition results in the long term. Moreover, conducting a study on the efficacy of particular digital tools and resources in language acquisition could provide invaluable knowledge, concentrating on the impact of various digital platforms, applications, or online resources on learners' involvement, motivation, and general language competence.

Furthermore, conducting comparative research across various educational settings or locations could facilitate the identification of optimal strategies in digital literacy teaching. This study aims to investigate the impact of different degrees of technology access and various teaching methods on the development of digital literacy abilities in English as a Foreign Language (EFL) learners. Another crucial topic for more study is the analysis of demographic-specific interventions tailored for certain populations, such as female students or older learners. An analysis of how customized programs can improve digital literacy among these populations would be advantageous for the development of inclusive educational approaches.

Furthermore, exploring teachers' viewpoints on digital literacy and their experiences in using technology into language teaching could offer valuable understanding of the difficulties and possibilities they face. This study could provide valuable insights for the creation of more efficient teacher training programs that specifically target these difficulties. Further investigation is warranted in the correlation between digital literacy and critical thinking abilities in language acquisition. Gaining insight into how digital skills impact learners' capacity to assess information and critically interact with material could improve educational methodologies.

Further investigation is warranted on the cultural aspects that influence digital literacy. An investigation of the influence of cultural attitudes towards technology and education could provide insights into the factors that contribute to the difficulty or ease of digital literacy in various contexts. Lastly, future research could investigate the incorporation of nascent technology, such as artificial intelligence and virtual reality, into the process of language acquisition. The exploration of how these technologies might augment digital literacy and language acquisition would be of great worth in equipping learners for a swiftly changing digital environment. To summarize, these recommendations seek to enhance the comprehension of digital literacy within the framework of EFL education, establishing a basis for creating efficient educational approaches and policies that cater to the requirements of multifaceted learners.

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APPENDIX 1 Digital Literacy Questionnaire

DIGITAL LITERACY QUESTIONNAIRE – Language Learners

Thank you for your participation in answering this questionnaire. Your responses will be treated in strict confidence and individuals will not be identified in any report or publication. Please answer all questions as accurately as you can.

SECTION I

➤ For each question, please mark your response with a tick (✓), unless otherwise indicated. For 'Other' responses, provide a brief response.

Q1. Gender

Male

Female

Q2. Age (please specify)

years old

Q3. Your native language (mother tongue)

Q4. Your target language you want to learn and improve further

Q5. What is your current academic level?

Primary school

Secondary school

University preparation

Undergraduate

Postgraduate

Other (please specify)

Q6. How long have you been using computers?

year(s)

Q7. What type of computer have you used? Please fill out the following table.

Type of computer	Length of time	Purposes
<i>Example: Desktop PC (Windows)</i>	<i>1 year</i>	<i>Personal use at home, word processing, email</i>
<i>Example: Laptop Macintosh (OS X)</i>	<i>6 months</i>	<i>Computer lab at school, email, web search</i>

Q8. Who taught you how to use the computer in the first place?

Teacher/trainer

Family

Magazine

Yourself

Friend

Book

Video

Other (please specify)



Q9. What type of mobile device do you own? Please fill out the following table.

Type of mobile device	Length of time	Purposes
<i>Example: Electronic dictionary</i>	<i>2 years</i>	<i>Studying at home and school</i>
<i>Example: Smartphone (Galaxy S5)</i>	<i>1 year</i>	<i>Phone calls, email, listening to music</i>
<i>Example: Tablet computer (iPad)</i>	<i>10 months</i>	<i>Web search, watching videos, playing games</i>
<i>Example: Laptop (Microsoft Surface)</i>	<i>6 months</i>	<i>Assignments, lecture notes, web search</i>

Q10. How do you find out about new digital technologies? Please tick (✓) all that apply.

Teachers	☐	Friends	☐
Family	☐	Books	☐
Magazines	☐	Newspapers	☐
TVs	☐	Radios	☐
Websites	☐	Blogs	☐
Email lists	☐	Social networks	☐
		Other (please specify)	

SECTION II

Q11. How would you rate your typing skills? Please tick (✓) one that best applies.

Very Poor	☐	Poor	☐
Acceptable	☐	Good	☐
Very Good	☐		

Q12. How would you rate your web search skills? Please tick (✓) one that best applies.

Very Poor	☐	Poor	☐
Acceptable	☐	Good	☐
Very Good	☐		

Q13. How would you rate your computer literacy (the ability to use the computer)? Please tick (✓) one that best applies.

Very Poor	☐	Poor	☐
Acceptable	☐	Good	☐
Very Good	☐		

Q14. How would you rate your Internet literacy (the ability to use the Internet)? Please tick (✓) one that best applies.

Very Poor	☐	Poor	☐
Acceptable	☐	Good	☐
Very Good	☐		

Q15. How would you rate your digital literacy (the ability to use digital technologies)? Please tick (✓) one that best applies.

Very Poor
Acceptable
Very Good

Poor
Good

SECTION III

Q16. Please respond to each of the following questions by putting a tick (✓) in the box at the appropriate spot: 'Yes' or 'No'.

		Yes	No
1	Do you understand the basic functions of computer hardware components?		
2	Do you have a personal homepage or a personal portfolio on the web?		
3	Do you use keyboard shortcuts?		
4	Do you use the computer for learning purposes?		
5	Do you find it easy to learn something by reading it on the computer screen?		
6	Do you find it easy to learn something by watching it on the computer screen?		
7	Do you use social networking services?		
8	Do you have any online friend you have never met in person?		
9	Do you feel competent in using digital learning resources?		
10	Do you have mobile apps you use for language learning purposes?		

Q17. Please respond to each of the following questions by putting a tick (✓) in the box at the appropriate spot: 'Yes' or 'No'.

		Yes	No
1	Can you change computer screen brightness and contrast?		
2	Can you minimize, maximize and move windows on the computer screen?		
3	Can you use a 'search' command to locate a file?		
4	Can you scan disks for viruses?		
5	Can you write files onto a CD, a DVD or a USB drive?		
6	Can you create and update web pages?		
7	Can you take and edit digital photos?		
8	Can you record and edit digital sounds?		
9	Can you record and edit digital videos?		
10	Can you download and use apps on digital devices?		

Q18. Please indicate your level of frequency of using each of the followings by putting a tick (✓) in the box at the appropriate spot: ‘Very Frequently’, ‘Frequently’, ‘Occasionally’, ‘Rarely’, ‘Very Rarely’ or ‘Never’. If there is any item you do not know, it can be assumed that you do not have any experience with the item.

		Very Frequently	Frequently	Occasionally	Rarely	Very Rarely	Never
1	Word processor						
2	Email						
3	World Wide Web						
4	Graphics software						
5	Database						
6	Spreadsheet (for data organization)						
7	Concordancer (for text analysis)						
8	Language learning software (CD-ROM, DVD)						
9	Language learning website						
10	Language learning mobile app						
11	Blog						
12	Wiki						
13	Text chatting						
14	Voice chatting						
15	Video conferencing						
16	Computer game						
17	Electronic dictionary						

Q19. How would you rate your skills for using each of the followings? Please put a tick (✓) in the box at the appropriate spot: ‘Very Good’, ‘Good’, ‘Acceptable’, ‘Poor’, ‘Very Poor’, or ‘Do Not Know’.

		Very Good	Good	Acceptable	Poor	Very Poor	Do Not Know
Working with:							
1	Word processing applications (e.g., MS Word)						
2	Spreadsheet applications (e.g., MS Excel)						
3	Database applications (e.g., MS Access)						
4	Presentation applications (e.g., MS PowerPoint)						
5	Communication applications (e.g., Skype)						
6	Learning management systems (e.g., Moodle)						
7	Virtual worlds (e.g., Second Life)						
8	Social networking services (e.g., Facebook)						
9	Blogs (e.g., Blogger)						
10	Wikis (e.g., PBworks)						
11	Podcasts (e.g., Apple Podcasts)						
12	File sharing sites (e.g., Dropbox)						
13	Photo sharing sites (e.g., Picasa)						
14	Video sharing sites (e.g., YouTube)						
15	Web design applications (e.g., Dreamweaver)						
16	Web search engines (e.g., Google)						
17	Dictionary apps (e.g., Dictionary.com)						

SECTION IV

➤ The following questions cover general areas of digital literacy. You may not know the answers to all questions, but please attempt to answer them without asking others or referring to books.

Q20. Please choose the best answer for each question and put a tick (✓) in the box at the appropriate spot: '1', '2', '3' or '4'.

		1	2	3	4
1	Which device do you need to install on your computer in order to have a video conference with your friends?				

- (1) Scanner
- (2) Webcam
- (3) Printer
- (4) DVD player

		1	2	3	4
2	Where does a digital camera store its pictures?				

- (1) Battery
- (2) Film
- (3) Adapter
- (4) Memory card

		1	2	3	4
3	What are AVI and MP4 examples of?				

- (1) Digital audio file formats
- (2) Digital video file formats
- (3) Digital graphic file formats
- (4) Digital text file formats

		1	2	3	4
4	Which technology is the process of converting spoken words into text?				

- (1) Audio analysis
- (2) Audio compression
- (3) Speech synthesis
- (4) Speech recognition

		1	2	3	4
5	What is Bluetooth?				

- (1) A digital tool to add special effects to recorded audios and videos
- (2) A program designed to disrupt or damage a computer system
- (3) A technology standard for the short-range wireless interconnection of mobile devices
- (4) A network security system that controls the incoming and outgoing network traffic

		1	2	3	4
6	Which of the following does not need to be asked when evaluating information provided on websites?				

- (1) Accuracy
- (2) Authority
- (3) Computation
- (4) Currency

		1	2	3	4
7	What is the term for junk emails or unsolicited messages sent over the Internet?				

- (1) Spam
- (2) Firewall
- (3) Malware
- (4) Spyware

		1	2	3	4
8	What is the process of confirming your username and password on the computer?				

- (1) Authorization
- (2) Authentication
- (3) Hacking
- (4) Defamation

		1	2	3	4
9	What is the fraudulent attempt to acquire sensitive information such as passwords and credit card details in an electronic communication?				

- (1) Synthesizing
- (2) Crowdsourcing
- (3) Phishing
- (4) Streaming

		1	2	3	4
10	Which of the following is not considered to be safe password practice?				

- (1) Do not share passwords with others
- (2) Increase the strength of a password with symbols
- (3) Avoid using the same password across multiple user accounts
- (4) Generate a password that is easy to guess systematically

.....

SECTION V

Q21. What do you think are the factors affecting the use of digital technologies for language learning? Please tick (✓) all that apply.

Lack of time	☐	Lack of budget	☐
Lack of knowledge of teachers	☐	Lack of knowledge of students	☐
Lack of skills of teachers	☐	Lack of skills of students	☐
Lack of interest of teachers	☐	Lack of interest of students	☐
Lack of training	☐	Lack of learning materials	☐
Lack of supporting resources	☐	Lack of facilities	☐
Other (please specify)			

Q22. Please indicate the extent to which you agree or disagree with the following statements by putting a tick (✓) in the box at the appropriate spot: 'Strongly Agree', 'Agree', 'Uncertain', 'Disagree' or 'Strongly Disagree'.

		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	I enjoy using digital devices.	☐	☐	☐	☐	☐
2	I feel comfortable using digital devices.	☐	☐	☐	☐	☐
3	I am aware of various types of digital devices.	☐	☐	☐	☐	☐
4	I understand what digital literacy is.	☐	☐	☐	☐	☐
5	I am willing to learn more about digital technologies.	☐	☐	☐	☐	☐
6	I feel threatened when others talk about digital technologies.	☐	☐	☐	☐	☐
7	I feel that I am behind my fellow students in using digital technologies.	☐	☐	☐	☐	☐
8	I think that it is important for me to improve my digital fluency.	☐	☐	☐	☐	☐
9	I think that my learning can be enhanced by using digital tools and resources.	☐	☐	☐	☐	☐
10	I think that training in technology-enhanced language learning should be included in language education programs.	☐	☐	☐	☐	☐

Q23. If you have any comments you would like to make regarding digital literacy, please write them below.

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Thank you for completing the questionnaire!

**APENDIX 2: THE DECISIONS OF THE ETHICS COUNCIL FOR THE
RESEARCH IN SOCIAL AND HUMAN SCIENCES**

**REPUBLIC OF TÜRKİYE
TOKAT GAZİOSMANPAŞA UNIVERSITY
THE DECISIONS OF THE ETHICS COUNCIL FOR THE RESEARCH IN SOCIAL AND
HUMAN SCIENCES**

THE DATE OF THE DECISION	SESSION NO	THE NUMBER OF THE DECISION
02.07.2024	11	01-22

The University Ethics Council for the Research in Social and Human Sciences convened under the presidency of Prof. Dr. Nail YILDIRIM.

DECISION 11.18 - The act dated 14.06.2024 and numbered 441708 by The Directorate of Graduate School of Education was discussed.

It was unanimously decided that the applications to be performed and the data collection tools to be used by the reseachers whose details are given below conform to ethical principles.

THE TYPE OF THE RESEARCH STUDY	Master's Thesis
THE TITLE	Digital Literacy Skills and Academic Performance in Language Courses: Benefits and Barriers for EFL Learners in Iraq
THE THESIS ADVISOR/ AUTHOR	Assistant Prof. Dr. Elham ZARFSAZ Karveen Ibrahim Mohammad (Department of Foreign Languages Education)
THE OPINION OF THE REPORTER	ADEQUATE

DATE OF THE DECISION	SESSION NO	THE NUMBER OF THE DECISION
02.07.2024	11	01-22

Prof. Dr. Nail YILDIRIM
The Chairman of the Ethics Council
(Signature)

Prof. Dr. Mehmet Serkan UMUZDAŞ
Vice Chairman
(Signature)

Prof. Dr. Emine ÖĞÜK
Member
(Signature)

Prof. Dr. Muhittin DEMİRAY
Member
(Signature)

Associate Prof. Dr. Mehmet KARGÜN
Member
(Signature)

Associate Prof. Dr. Tuğba KILIÇER
Member
(Signature)

Associate Prof. Dr. Hüseyin Baha ÖZTUNÇ
Member
(Signature)