

**REPUBLIC OF TURKIYE
ÇUKUROVA UNIVERSITY
THE INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF ENGLISH LANGUAGE TEACHING**

**EXAMINING AND DEVELOPING DIGITAL LITERACY LEVELS OF
TURKISH EFL STUDENTS: AN EMPIRICAL STUDY**

Ecem EKİNCİ

A Ph.D. DISSERTATION

ADANA / 2024

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ABSTRACT**EXAMINING AND DEVELOPING DIGITAL LITERACY LEVELS OF TURKISH
EFL STUDENTS: AN EMPIRICAL STUDY****Ecem EKİNCİ****Ph.D. Dissertation, Department of Foreign Language Education****Supervisor: Prof. Dr. Yonca ÖZKAN****December 2024, 200 pages**

We live in a digital age that affects and encompasses everything around us, from our work life to daily activities, entertainment habits, and educational understanding. As in many areas, the importance of digital competence and literacy is increasing daily in language learning. Being literate now also includes proficiency in digital technologies, which is an essential survival skill in this digital age. Digital literacy has become such an indispensable element in all areas of life that the absence of digital literacy can cause an individual to lose many once-in-a-lifetime opportunities. Nowadays, technology has rapidly been changing, so the fundamental realization of just how important digital skills are has made a huge difference in today's world, where the ability to engage with technology is no longer a choice but a precondition for full participation in society. In most cases, people who are not digitally literate face a considerable disadvantage because they cannot access instant information, resources, and opportunities that have been mainly moved into these digital platforms.

This study examines the digital literacy levels of Turkish students learning English as a foreign language, considering the importance of the concept of digital literacy. Additionally, the study, which adopts a quasi-experimental mixed-method approach, aims to determine whether the digital literacy treatment has any impact on participant students' digital literacy achievement scores and self-perceived digital literacy levels. To this end, sixty EFL students at the tertiary level were selected according to the convenience sampling method. The students were categorized into two distinct groups: the experimental group of 29 students and the control group of 31 students. A 10-week digital literacy training program

was provided to 29 students in the experimental group, while the other 31 students served as the control group. The Digital Literacy training module, adapted and directed by the researcher, was developed using the UNESCO Global Literacy Framework (2018) and open-access LLSC materials. In order to investigate the impact of the Digital Literacy Training (DLT) module on the self-perceived digital literacy levels of Turkish EFL learners, the Digital Literacy Scale by Reddy et al. (2023) was employed both as pre-questionnaire (at the beginning of the treatment period) and post-questionnaire (at the end of the treatment period). The gathered data was examined utilizing the SPSS 25 statistical software, and its findings were compared employing Independent samples and paired samples t-tests. In tracking possible alterations in participants' digital literacy achievement scores, an achievement test was addressed as the pre and post-tests to determine the impact of the DLT program on the digital literacy achievement levels of the participants. Data from the achievement tests were also analyzed using the SPSS 25 statistical program. Furthermore, students' views and evaluations regarding this process were presented using a qualitative research approach to shed light on the perspectives of Turkish EFL students regarding their digital literacy levels and the perceived effectiveness of the DLT program they received. The qualitative data collected via focus group interviews, semi-structured interviews, and field notes taken by the researcher throughout the process were analyzed using qualitative analysis methods, contributing to a better understanding of the process. The findings of the research demonstrated that digital literacy training provided to Turkish EFL learners substantially improved their achievement-based and self-perceived DL levels. It was also found that the EFL learners developed positive views regarding the treatment of DLT and became aware of the most recent technological advances like artificial intelligence through this treatment.

Keywords: English language teaching/learning, digital literacy, quasi-experimental mixed-method, self-assessment, technological awareness

ÖZET

İNGİLİZCE'Yİ YABANCI DİL OLARAK ÖĞRENEN TÜRK ÖĞRENCİLERİN DİJİTAL OKURYAZARLIK SEVİYELERİNİN İNCELENMESİ VE GELİŞTİRİLMESİ: DENEYSEL BİR ÇALIŞMA

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İş hayatımızdan günlük aktivitelerimize, eğlence alışkanlıklarımızdan eğitim anlayışımıza kadar etrafımızdaki her şeyi etkileyen ve kuşatan dijital bir çağda yaşamaktayız. Birçok alanda olduğu gibi dil öğrenirken de dijital yeterliliğinin ve okuryazarlığının önemi her geçen gün artmaktadır. Artık okuryazar olmak, dijital çağda vazgeçilmez bir hayatta kalma becerisi olan dijital okuryazarlığı da ifade etmektedir. Hayatın her alanında dijital okuryazarlık artık öyle vazgeçilmez bir unsur haline gelmiştir ki, dijital okuryazar olmamak bireyin hayatında bir kez karşılaşabileceği pek çok fırsatı kaçırmaya neden olabilmektedir. Günümüzde teknolojinin çok hızlı değişmesi, teknolojiyle etkileşim kurma becerisinin artık bir tercih değil, topluma tam katılımın ön koşulu olduğu günümüz dünyasında, dijital becerilerin ne kadar önemli olduğunun anlaşılması büyük bir fark yaratmaktadır. Çoğu durumda, dijital okuryazar olmayan kişiler, çoğunlukla bu dijital platformlara taşınan anlık bilgiye, kaynaklara ve fırsatlara erişemedikleri için önemli bir dezavantajla karşı karşıya kalmaktadırlar.

Bu çalışma, dijital okuryazarlık olgusunun önemini göz önüne alarak İngilizce'yi yabancı dil olarak öğrenen üniversite düzeyindeki Türk öğrencilerin dijital okuryazarlık seviyelerini incelemektedir. Ayrıca yarı deneysel karma yöntem kullanılarak uygulanan bu çalışmada, öğrencilere verilecek olan dijital okuryazarlık derslerinin, onların dijital okuryazarlık başarı puanları ve kendi dijital okuryazarlık seviyeleri algıları üzerindeki etkisini ortaya çıkarmak hedeflenmiştir. Bunun için, İngilizce'yi yabancı dil olarak öğrenen

60 öğrenci kolayda örneklem yoluyla seçilmiştir. Bu öğrenciler, 29 kişilik deney ve 31 kişilik kontrol grubu oluşturacak şekilde gruplanmıştır. Deney grubundaki öğrencilere 10 haftalık bir dijital okuryazarlık eğitimi verilirken diğer 31 öğrenci ise kontrol grubunu meydana getirmiştir. Araştırmacı tarafından uyarlanan ve yönetilen dijital okuryazarlık eğitim modülü, Unesco Küresel Okuryazarlık Çerçevesi (2018) ve erişime açık LLSC materyalleri kullanılarak oluşturulmuştur. Dijital okuryazarlık eğitim (DOE) modülünün İngilizce'yi yabancı dil olarak öğrenen Türk öğrencilerin kendi dijital okuryazarlık seviyeleri algıları üzerindeki etkilerini ortaya çıkarmak için, Dijital Okuryazarlık Ölçeği (Reddy ve ark., 2023) ön-test (eğitim öncesi) ve son-test (eğitim sonunda) olarak uygulanmıştır. Toplanan veri, SPSS 25.0 istatistiksel yazılımı kullanılarak incelenmiştir ve sonuçlar bağımsız örnekler ve eşleştirilmiş örnekler t-testleri tekniklerinden faydalanarak karşılaştırılmıştır. Katılımcıların dijital okuryazarlık başarı puanlarındaki olası değişiklikleri izlemek için bir başarı testi, öntest ve son-test olarak belirlenip DOE programının katılımcıların dijital okuryazarlık başarı seviyeleri üzerindeki etkisini belirlemek için kullanılmıştır. Elde edilen veri yine SPSS 25.0 analiz programı ile analiz edilmiştir. Ayrıca, öğrencilerin bu süreçle ilgili görüş ve değerlendirmeleri İngilizce'yi yabancı dil olarak öğrenen Türk öğrencilerin dijital okuryazarlık düzeylerine ve aldıkları DOE programının kendi dijital okuryazarlık seviyeleri algılarına dair bakış açılarına ışık tutmak amacıyla nitel araştırma yöntemleri kullanılarak ortaya konulmuştur. Dijital okuryazarlık eğitimi sürecinde yapılan odak grup röportajları, eğitim sonunda yapılan yarı yapılandırılmış röportajlar ve süreç boyunca araştırmacı tarafından doldurulan alan notları nitel analiz yöntemleri ile analiz edilerek sürecin daha iyi anlaşılmasına katkı sağlamıştır. Araştırmanın bulguları, dijital okuryazarlık eğitimi vermenin, İngilizce'yi yabancı dil olarak öğrenen Türk öğrencilerin başarıya dayalı ve kişisel algıya dayalı dijital okuryazarlık seviyelerini önemli ölçüde geliştiğini göstermektedir. Ayrıca öğrencilerin dijital okuryazarlık eğitimi hakkında çoğunlukla olumlu görüşlere sahip oldukları ve bu araştırma sayesinde yapay zekâ gibi en güncel teknolojik gelişmelerden daha fazla haberdar oldukları da yapılan tespitler arasındadır.

Anahtar kelimeler: İngilizce öğretimi/öğrenimi, dijital okuryazarlık, yarı deneysel karma yöntem, öz-değerlendirme, teknolojik farkındalık

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ABBREVIATIONS

AI: Artificial Intelligence

COL: Commonwealth of Learning

DigComp: Digital Competence

DL: Digital Literacy

DLAT: Digital Literacy Achievement Test

DLGF: Digital Literacy Global Framework

DLS: Digital Literacy Scale

DLT: Digital Literacy Training

EFDL: European Framework for Digital Literacy

EFL: English as a Foreign Language

FGI: Focus Group Interviews

ICT: Information and Communications Technologies

IoT: Internet of Things

LLMs: Large Language Models

LLSC: Literacy Link South Central

MoNE: Minister of National Education

OECD: Organization for Economic Co-operation and Development

RTÜK: Radyo Televizyon Üst Kurulu

SPSS: Statistical Package for the Social Sciences

TPACK: Technological Pedagogical Content Knowledge

YÖK: Yüksek Öğretim Kurulu/ The Council of Higher Education

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CHAPTER I

INTRODUCTION

1.1. Introduction

This chapter starts with a section that explains the background and significance of the study, which deals with digital literacy as a conceptual framework. The problem of the study was explained in detail, highlighting the critical need for understanding digital literacy in the context of EFL learners. Following this, the aims and research questions were illustrated, providing a clear direction for the investigation. This part concludes with defining key terms to ensure clarity and consistency.

1.2. Background and Significance of the Study

A growing number of academic studies have examined digital literacy at the university level in Türkiye (Bayrakçı, 2020; Etike, 2021; Hamutoğlu et al., 2017; Kul, 2020; Onursoy, 2018;). However, these studies were conducted in different departments using various methodologies. While some focus on the relationship between digital literacy levels of university students and their spending online time (Onursoy, 2018) and internet addiction (Kul, 2020), other studies have developed scales to measure digital literacy skills. Moreover, Etike (2023) strikingly asserts in her research that students develop digital literacy skills with their own efforts, apart from the education they receive at the university, without the intention to develop basic skills, and there is a demand for more opportunities and support at the institutional level in order to develop these skills. Apparently, these students do not have a systematic training program in an informal setting throughout their school life to develop their digital literacy skills.

Additionally, studies in this field in Türkiye are mainly written in Turkish, and the use of English is limited in the literature (Elçiçek & Kahyaoğlu, 2022). This language barrier has resulted in a gap in the accessibility of research findings to the broader international academic community. To fill this gap in the literature, the current study has been an outstanding example of the studies that examine and develop digital literacy levels in

English, thereby contributing to the global discourse on digital literacy in EFL contexts and making the findings accessible to a broader audience.

On the other hand, when international studies are examined, it can be seen that some scholars adapt and refine the existing digital literacy scales while others develop novel digital literacy scales based on their understanding of digital literacy, each of which has equal importance (Peng & Yu, 2022). In this study, an existing scale (Reddy et al., 2023), developed within an updated and redefined model of digital literacy following 21st-century skills, was employed after the adaptation to the Turkish EFL context.

Moreover, there is an ambiguous boundary in literature, where there is no agreement on the responsibility for enhancing students' digital literacy levels and determining whose role it is (Tinmaz et al., 2023). While some argue that digital literacy training should start within the family, as relying solely on higher education may prove to be too late for individuals' professional careers (Duggan, 2013; Karaboga, 2019), others propose that primary school and language teachers have the responsibility to help students develop a critical and inquisitive mindset towards digital literacy. (Duran & Ozen, 2018). However, it should be an official and overt goal of any educational institution to teach digital literacy to students in a critical way. Language teachers should strive to enhance their students' digital literacy levels. Indeed, language teachers tend to provide digital literacy training even when it is not their explicit intention. For example, during a speaking lesson, language teachers may engage students in discussions about strategies for maintaining online safety and determining when to share or withhold information on social media, thereby addressing the concept of digital literacy (Wilden, 2022). Alternatively, when interpreting an image, inquiring about the underlying message can enhance students' understanding of visual literacy, which is closely linked to digital literacy.

Moreover, today's students arrive at school equipped with their existing expertise and familiarity with digital media. Nonetheless, the utilization of technology in and out of the school setting varies significantly among these learners, leading to a substantial difference between school cultures and individuals' everyday life experiences. Digital literacy training can establish a critical connection between the use of technology in the classroom and the prevalent techno-popular culture that dominates young people's leisure time. The majority of approaches to information technology in education go beyond a simple

and practical use of technology (Buckingham, 2015). Instead, these approaches promote the development of digital literacy skills and motivate students to dedicate significant effort to mastering them. When learners are encouraged to independently seek and select information, effectively communicate their knowledge in their own manner, express their individual thoughts, and engage in critical thinking regarding the potential of digital technology, they transform from passive recipients of information into active creators of the meaning. In this respect, supporting students in developing digital literacy skills and becoming independent learners is crucial. This may help them bridge the gap between school cultures and their everyday life experiences.

Bearing all these in mind, this study focused on the digital literacy development of university students in the EFL context in Türkiye to fill the gap in the related literature. It also aims to offer specific suggestions regarding the significance of digital literacy for administrators, curriculum designers, and particularly for English language teachers and EFL instructors in university settings. By highlighting the critical role that digital literacy plays in modern education, this research underlines the necessity for incorporating digital skills into the curriculum.

1.3. Statement of the Problem

The prevalence of technology and digital devices characterizes our current existence. In our contemporary digital society, possessing literacy skills extends beyond mere reading and writing proficiency. The ability to embrace creative and interpretive capabilities or experiences through a variety of contexts has become a requirement (Imms & Kvan, 2021). As stated by Greene, Yu, and Copeland (2014), one should possess the ability to use software to perform a task and evaluate the trustworthiness of online sources, recognize prejudiced web content, build new knowledge and communicate with others, share and integrate digital information, to be considered literate in the 21st century. The term “digital literacy” was initially coined by Gilster (1997) to describe this type of adaptation to emerging technologies, which is shortly characterized to be a survival skill in the digital age now. (Eshet-Alkalai, 2004). It can also be defined as the ability to find, evaluate, share, and create internet content (Widana, 2020). Being digitally literate is essential for achieving academic, career, and interpersonal success in the current digital era. According to Edith

Cowan University (2022), possessing digital literacy is crucial for effectively participating in today's digital society, as well as for studying and working. Even if students have access to new technologies, they are not able to use them efficiently, especially when it comes to the learning process (Shopova, 2014). Indeed, in her research on the digital literacy levels of university students in Türkiye, Onursoy (2018) found that simply using digital tools and spending more time in digital environments does not necessarily indicate the wise use of digital technologies among university students. Even if they are popularly proposed to be digital natives (Prensky, 2001), this cannot be the predictor of the EFL students' digital literacy levels. Last but not least, Elike (2023) emphasizes the necessity and significance of implementing a training program to acquire digital skills in her study.

In addition, a study conducted by the Radio and Television Supreme Council (RTSC, 2022) has found that out of the 6,115 individuals between the ages of 15 and 21, 31% of them reported having a high level of literacy, which equates to approximately 3 out of every 10 participants. The report identifies the eminence of compulsory digital literacy in the curriculum; this might be done by quickly updating and expanding present media literacy course books in schools to foster digital literacy. This is, again, a recommendation that is concurrent with global educational trends, with an increasing awareness in many educational circles that digital literacy is a fundamental skill in the 21st century. Findings from the RTSC study conducted in 2022 indicated that young people in Türkiye have severe deficiencies in digital literacy. Since only 31% of the participants of this study demonstrated high-level literacy, there is an immediate need for more comprehensive and compulsory education in digital literacy.

Similarly, Özkaya and Erat (2022) scanned 31 master's theses and 4 doctoral theses publicly available at The Council of Higher Education-YÖK Thesis Center, along with 34 articles in TR Dizin, all of which had an orientation toward digital literacy. The researchers concluded that advanced studies on the subject are lacking in number and quality. To close this gap in the literature, the current study investigated the self-reported digital literacy levels of EFL learners in Türkiye and aimed to improve their digital literacy achievement levels through Digital Literacy Training.

1.4. Aim of the Study and Research Questions

This study interrogates the impact of Digital Literacy Training (DLT) on the digital literacy achievement levels and self-perceived digital literacy levels of Turkish EFL learners. The study also aims to determine the viewpoints of Turkish EFL students regarding their digital literacy levels and the perceived efficacy of the DLT they have undergone. The ultimate aim of this study is to comprehensively assess the effectiveness of the DLT program in improving both objective and subjective aspects of digital literacy among Turkish EFL learners. As a result, the following research questions were addressed to shed light on the issue of digital literacy:

1. What are the effects of the DLT program on Turkish EFL learners' digital literacy achievement levels?
 - a. What are the DL achievement levels of the participants in the experimental and control groups before the implementation of the Digital Literacy Training (DLT) program?
 - b. Are there any significant differences in the DL achievement levels between the experimental group and the control group after the DLT program?
 - c. Does the implementation of the DLT program affect the DL achievement levels of the experimental group?
2. What are the effects of the DLT program on Turkish EFL learners' self-perceived DL levels?
 - a. What are the self-perceived DL levels of the participants in the experimental and control groups before the implementation of the DLT program?
 - b. Are there any significant differences in the self-perceived DL levels between the experimental group and the control group after the DLT program?
 - c. Does the implementation of the DLT program affect the self-perceived DL levels of the experimental group?
3. Is there any relationship between the DL achievement levels and self-perceived DL levels of Turkish EFL learners?
4. What are the perspectives of Turkish EFL students regarding their digital literacy levels and the effectiveness of the DLT they received?

The study is structured around four primary research questions. The first research question examines the effects of DLT through the DL Achievement test (DLAT), and it has three sub-questions. The first and second sub-questions aim to compare the digital literacy achievement levels of the experimental and control groups before and after the intervention to identify any significant differences. The third sub-research question seeks to determine whether the implementation of the DLT program affects the digital literacy achievement levels of the participants. The second research question examines the effects of DLT through the DL Survey (DLS), and it has three sub-questions. The first and second sub-questions assess the participants' self-perceived digital literacy levels before and following the DLT program to determine if there are any notable changes. The third sub-question aims to reveal the influence of the DLT program on the participants' self-perceived digital literacy levels. The third research question explores the relationship between EFL learners' actual DL achievement levels and self-perceived DL levels before and after the DLT program. The final research question explores the perspectives of Turkish EFL students on their digital literacy levels and the perceived effectiveness of the DLT training, using data from focus group interviews, semi-structured interviews, and field notes to attain an all-inclusive realization of their experiences and opinions.

1.5. *Operational Definitions

Artificial Intelligence (AI): Artificial Intelligence refers to the process of developing computer systems to perform tasks that would typically require human intelligence, such as reasoning, learning, problem-solving, and understanding natural language (Russell & Norvig, 2016 cited in Denis, 2023).

Attainment level: Attainment is the level of academic achievement or success a student has achieved, typically measured by qualifications, grades, or the completion of specific educational milestones, which describe the highest level of education individuals have completed (OECD, 2019).

Digital Literacy: Digital literacy is the competency to safely and efficiently access, organize, understand, integrate, communicate, assess, and create information with the help of digital technologies. UNESCO, 2018 (UNESCO, 2018).

Digital Competence: Digital competence includes the knowledge, skills, and attitude that enable the individual to use technology purposefully, whether it is to perform a task, solve a problem, communicate, manage information, cooperate, produce content, or share this with others (Skov, 2016).

English language teaching/learning: It is essential for this study in terms of the scope, setting, and participants of the study. Regarding the Turkish setting, English is taught and learned as a foreign language.

Quasi-experimental mixed-methods study: It is one of the mixed-methods design, which combines a quantitative evaluation design (a quasi-experimental design) with qualitative research means to figure the effectiveness, efficacy, or other outcomes of an intervention or program (Fàbregues et al., 2023).

Self-assessment: Self-assessment in learning is a reflective process in which learners evaluate and assess their own performance, skills, or learning by critically analyzing strengths and weaknesses, achievements, lacking sides, and improvements.

Self-perception: Students' self-perception refers to their evaluation of their own abilities and competence, significantly influencing their motivation and academic performance (Bandura, 1997).

Technological awareness: Technological awareness refers to the understanding and the knowledge of the learners about current and emerging technological advances, besides acknowledging their positive and negative effects on daily life experiences (Mwale & Chiweshe, 2024).

*Operational definitions are presented in alphabetical order.

CHAPTER II

REVIEW OF LITERATURE

2.1. Introduction

In this chapter, detailed explanations of the concepts related to digital literacy (DL) and its components are underpinned. The historical development of the DL concept and how it evolves in front of today's world is unfolded by many intertwined topics. Each component of the DL is examined in detail to illuminate the main focus of the study. This chapter also delves into other aspects, such as what the future holds beyond the DL concept, the rapid effect of artificial intelligence (AI) on DL, and the instruction of Digital Literacy within the English as a Foreign Language (EFL) setting. Lastly, the chapter closes by discussing the most recent studies conducted worldwide and in Türkiye.

2.2. Evolution of Digital Literacy

Dating back to the 1960s, the concept of Digital Literacy (DL) has dramatically changed and evolved in line with technological advances (Heick, 2019; Kastis & Carneiro, 2009). Before the advent of the digital literacy concept, visual literacy was in the limelight, which scholars define as the ability to interpret visual messages to communicate effectively with others (Considine, 1986; Fransecky & Debes, 1972). However, the efforts made during the 1980s were insufficient to keep pace with the rapid technological advancements. Consequently, the concept of technological literacy emerged, encompassing the idea of possessing the knowledge and skills required to utilize specific technological tools effectively. It became popular quickly with young people's growing use of computer-based and media technologies (Reddy et al., 2020). Still, the term technological literacy lacked the dimension of making meta-level decision judgments about technology usage. Gurak (2001) argues that these decision-making aspects were thoroughly missing from the definition of Technological Literacy of the 70s-80s. Following the announcement of the Apple II release in 1977 and IBM's first 'Personal Computer' (PC) in 1981, additional skills were required to accompany these advancements. This time, computer literacy was defined as the skill needed to understand a computer's features, functions, and uses and then apply this

knowledge to the efficient use of computer programs (Hunter, 1984; Scher, 1984). The term computer literacy remained in use without any interruptions until the late 1990s. However, the necessary computer literacy competencies were entirely altered due to the widespread use of computers in fields such as education, work, and leisure. Subsequently, the term became discredited, and new forms of literacy emerged. Then, Information and Communications Technologies (ICT) Literacy came to the front, which is the use of digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and produce information to function in a knowledge-based society (Lankshear & Knobel, 2008). After the arousal of web technologies and easy access to digital technology and the internet, it was high time to find a broader term to encapsulate all digital media features. Thus, Digital Literacy (DL) was introduced to literature by Glister (1997), who defined DL as the capacity to comprehend and apply information in various formats from various sources when presented through computers. Even if scholars define the term in multiple ways in several different scopes, which is gradually accepted due to the expansion of digital technologies, the primary objective of DL is to synthesize, incorporate, and generate information from diverse sources (Gardner, 2010).

In 2006, The DigEuLit project was proposed by Martin (2006) to develop a European Framework for Digital Literacy (EFDL) and suggested that digital literacy is the capacity and knowledge of people to appropriately use digital tools to search, access, manage, assess, and combine digital resources. Along with supporting social activities, digital literacy also entails generating new knowledge, making media, and interacting with others in certain life events. According to the framework, DL combines various literacies, including IT, information, technological, media, and visual literacy. After the end of the DigEuLit project, Martin and Grudziecki (2006) explained three staged models of DL linked to each other, as seen in Figure 1 below.

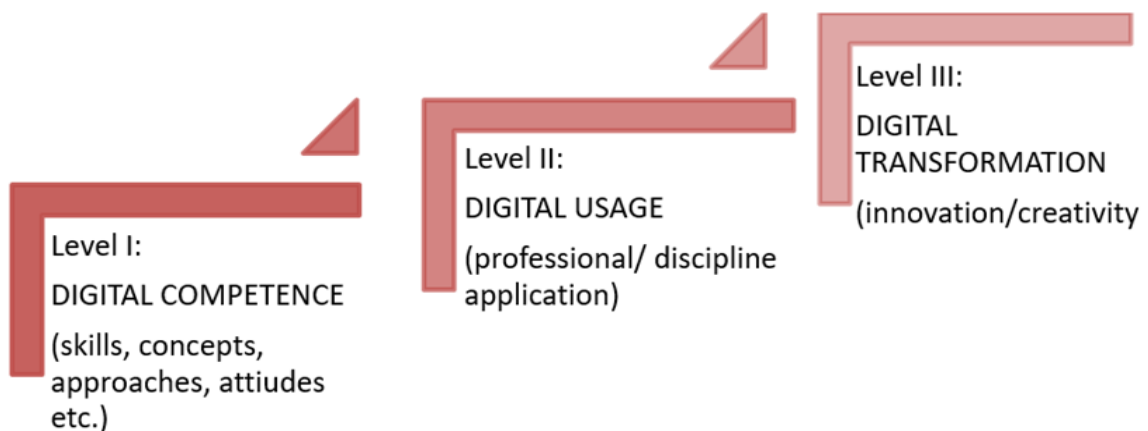


Figure 1. Digital literacy levels

Source: Adapted from Martin and Grudziecki, 2006

It is clear in Figure 1 that the digital competence concept constitutes a baseline for DL, requiring the ability, knowledge, disposition, and awareness of digital technology. Based on the digital competence of an individual, the next stage involves digital use, which encompasses the acquisition of digital competencies necessary for efficiently using digital tools to find and manipulate information and resolve intricate problems. At the top stage, digital transformation means using digital tools to create new knowledge, activity, or innovation (Reddy et al., 2020), which depends on an individual's digital usage at the previous level.

On the other hand, Martin (2006) stated that having solid digital literacy skills means effectively navigating and utilizing digital tools in different aspects of life, including professional, educational, recreational, and everyday tasks. It is a process that continues to develop as an individual's life circumstances change. Unlike ICT literacy, DL encompasses a broader range of skills and knowledge, drawing from various literacies such as information, media, and visual literacy. It entails acquiring and applying knowledge, techniques, attitudes, and personal qualities, as well as the capacity to strategize, implement, and assess digital actions for daily problem-solving (Belshaw, 2011). In addition, digital literacy consists of the ability to self-reflect on personal growth in this field.

Even if there are various versions of DL definitions in the literature, there is a widespread agreement regarding the multifaceted nature of these categories, which

encompass the intricate combination of technical skills, cognitive skills, meta-cognitive processes, as well as social and ethical awareness (Guri-Rosenblit, 2009). For instance, Ng (2012) proposed a framework for DL that includes three dimensions. The first one is the technical dimension, which involves having the necessary skills to use ICT for learning and everyday tasks. The second one is the cognitive aspect, indicating the capability to think critically while searching, assessing, and constructing digital information. The third one is the socio-emotional dimension involving responsibly using the internet for communication, socialization, and online and offline learning. Additionally, the fundamental characteristics of an individual who possesses DL, as outlined by Ng (2012), can be enumerated as follows;

- Perform fundamental computer tasks and utilize various resources for everyday purposes.
- Efficiently search, identify, and evaluate information for research and content acquisition.
- Choose and master the use of the most suitable technological tools or features to accomplish tasks and solve problems.
- Develop products that effectively showcase new insights and knowledge.
- Act responsibly in online communities and safeguard yourself in digitally enhanced settings (p. 1068).

According to Ng (2012), DL involves the skills and knowledge necessary to effectively use digital tools and resources by accessing information, data management, analysis of content, and media creation. Also, it involves communication and collaboration with others to facilitate positive social change. Additionally, Ng stresses the prominence of reflecting on this process within the context of specific life situations. This approach obviously underlines the multidimensional nature of DL by including technical skills, critical thinking, and social engagement. DL at this level, therefore, represents a broad set of competencies and attitudes that enable all citizens to effectively access, assess, use, and create digital tools and resources.

UNESCO, in 2018, published the Global Framework of Reference entitled Digital Literacy Global Framework (DLGF), which describes DL as a means of safe and appropriate

access, management, understanding, integration, communication, evaluation, and creation of information facilitated by digital technologies for work, entrepreneurship, and decent living. The framework includes several competencies: computer literacy, ICT literacy, information literacy, and media literacy (Anggraeni et al., 2022). UNESCO addressed DigComp 2.0 by Vuorikari et al. (2016) as a reference since it was designed after a lengthy consultation and development process, over-extending the existing digital literacy competencies, showing a comprehensive view of competence areas and competencies in the framework. Hence, the organization's members composed a framework consisting of seven competence areas and competencies through in-depth and online consultation methodologies, resulting in a non-linear and contextualized approach.

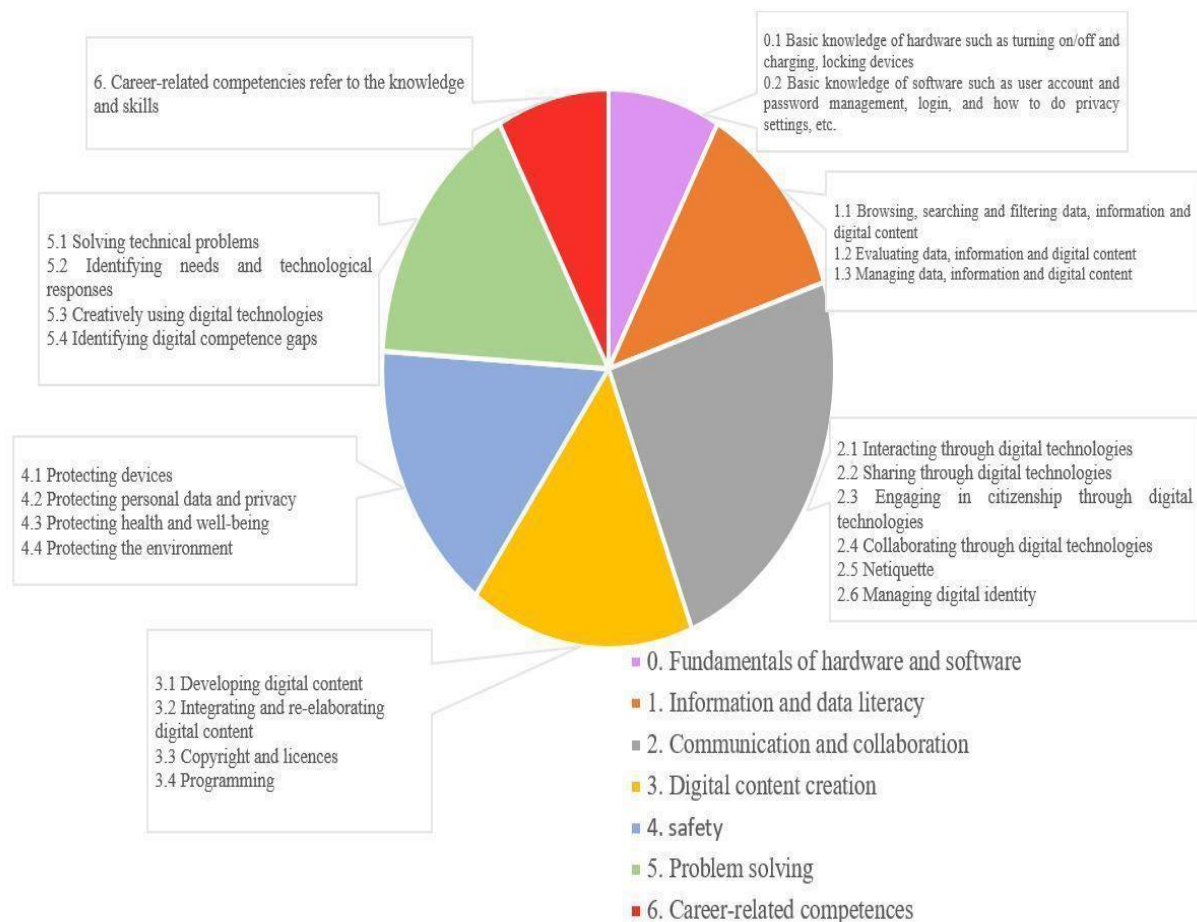


Figure 2. Digital Literacy Competence Areas and Competences in DLGF

Source: UNESCO, 2018

Besides these skill-based areas shown in Figure 2, the DigComp 2.0 capabilities were expanded to include hardware and software competency fundamentals and career-related

competencies. Stricevic (2018) claims that the changes in the environment and the dissemination of information are consequences of recent advancements in the digital world. To actively engage in this emerging world, individuals must possess an entirely new set of skills and competencies to effectively employ the latest digital formats and tools. The phrase digital literacy encompasses these newly acquired skills and abilities, including essential components such as information access and acquisition, contact with this information, and communication and distribution of the knowledge.

In addition, Hongthong and Temdee (2018) further argue that digital literacy is way beyond just knowing how to handle computers and other electronic devices. Integration and adaptation of the learning process are also part of it. It includes different types of literacy (such as visual literacy, information literacy, and reproduction literacy) and various aspects (such as culture, construction, communication, confidence, imagination, and critical thinking). They also claim individuals need to improve their digital knowledge to get the most out of the digital society, even though it can be hard to do so.

On the other hand, Heick (2019) defined digital literacy as the competency to understand and design complicated communication with varied digital platforms. It constitutes utilizing digital technologies to access and acquire more accurate information, engage in social interactions, indulge in critical thinking, establish connections, and actively participate in digital communities that are of personal interest. Heick (2019) signals the dynamic character of digital literacy, touching upon the sets of analytical, artistic, and technological competencies necessary for adaptation and active participation in digital spaces and communities, as well as handling information online. It has also been stated that the DL requirement must be emphasized to equip people with the knowledge and skills necessary to actively participate in rapidly changing contemporary society.

According to Covello and Lei (2010), DL is an overarching term that encompasses a range of interconnected and multifaceted sub-disciplines or “literacies.” These include areas such as information, computer, media, communication, visual, and technological literacy, each representing a critical component of the broader concept of digital competence. In their study, Reddy et al. (2020) evaluate and analyze the elements of digital literacy to include the essential digital proficiencies required by individuals in the present era, owing to technological advancements and constant evolution.

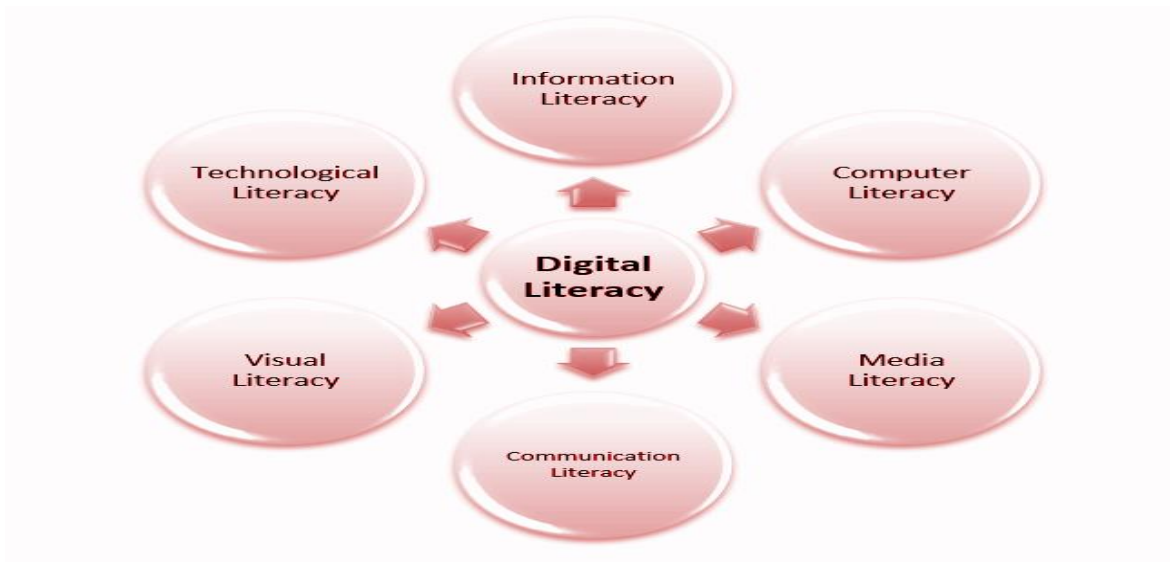


Figure 3. Six components of digital literacy

Source: Reddy et al., 2020

As outlined in Figure 3, each type of literacy possesses distinct characteristics (Reddy et al., 2020). Information literacy entails using digital technology to find, analyze, and synthesize resources, evaluate their trustworthiness, follow legal and ethical rules, cite properly, and create successful research questions. Computer literacy is the practical use of computers and digital technology. While media literacy means accessing, analyzing, evaluating, and communicating information using digital platforms, communication literacy means effective communication with publishing, Internet, and Web 2.0 tools individually and cooperatively. On the other hand, visual literacy involves the development of an individual's ability to understand and interpret information based on their predecessors' perceptions and then translate that understanding into an appropriate visual form. Technological literacy facilitates learning, productivity, and performance through the integration of digital tools. In the contemporary digital society, these numerous literacies are essential for enabling individuals to proficiently navigate, interpret, and engage with the digital environment.

All in all, it can be summarized by including all aspects in such a way that DL refers to a person's competence in locating and assessing relevant knowledge, making efficient use

of it, developing original content from the existing information, and finally, sharing and communicating it by utilizing suitable digital tools.

2.3. Digital Literacy Components

2.3.1. Information Literacy

Contemporary learners exist in an environment characterized by intricate constraints. Even if they can access more information by using their smartphones in a split second than previous generations could access at multistory university libraries, how much of the information can be digested by students is questionable (Fosnacht, 2020). With the increasing insertion of terms like “alternative facts” and “fake news” in the popular discourse, the importance of Information Literacy, a term discussed in the literature for decades, has been highlighted. In the 1980s, as the World Wide Web became an infinite source of information, the need to reframe bibliographic instruction in academic libraries emerged in light of student-centered learning. Consequently, in the UK, the “Seven Pillars” model was created for higher education students to define the fundamental skills that constitute the basis of information literacy (Town, 2000). This model establishes seven essential competencies: acknowledging the necessity for information, ascertaining the type of information that would fulfill that necessity, and formulating strategies to retrieve the information. It also involves retrieving and accessing relevant information, evaluating and comparing information from different sources, and recording, using, and communicating information effectively and efficiently. Finally, the model underlines the importance of synthesis and construction of new information acquired with previous knowledge to enhance understanding and knowledge involved in the process of creation and construction. These intrinsic aspects in the pillar model encourage information literacy in a spectrum from novice to expert abilities. Parallel to the “Seven Pillars” model, UNESCO in 2003 defined information literacy as a competence that provides knowledge about the individual’s information needs, locating it efficiently, critically evaluating it, and using it to accomplish a specific task. Thus, it is a prerequisite for participation in active life in the information society and the key to lifelong learning.

Moreover, Webber et al. (2005) bring forth in their findings that information literacy is generally perceived differently by all individuals based on their personal experience. It is

based on how one has been trained to use the skills required for independent study and research. These abilities can be utilized while considering the variations in people's personal experiences. The sequential representation of these personal experiences is identified by Landøy et al. (2020), as given in Figure 4 below.

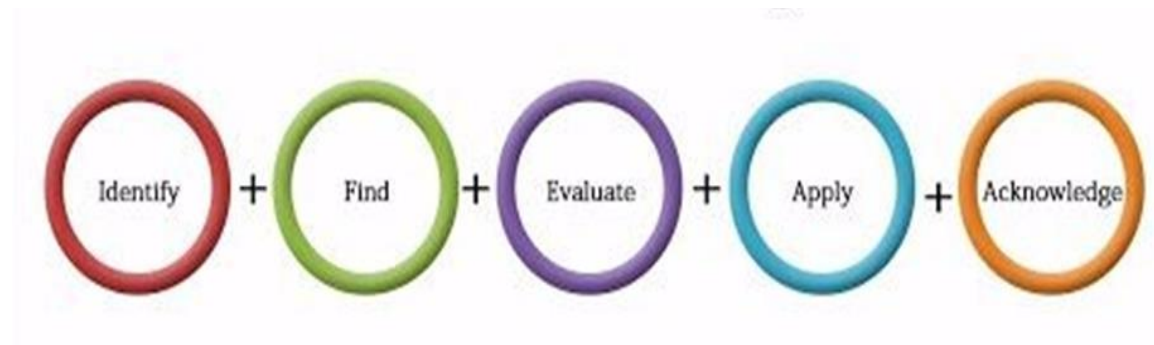


Figure 4. Basic components of information literacy

Source: Landøy et. al., 2020

In sum, information literacy may lead a person to be the owner of meaningful knowledge that enables flexibility in pragmatic issues after straining it through the continuum stages. As Figure 4 suggests above, information literacy consists of the abilities to identify, find, evaluate, apply, and acknowledge (Landoy et al., 2020). These skills are essential for effectively navigating the complexities of the information era, where the vast amount of data requires critical thinking and distinguishing relevant information. By mastering these skills, individuals can effectively transform raw information into practical knowledge, enabling them to adjust to and thrive in diverse personal and professional situations.

2.3.2. Computer Literacy

Computer literacy is generally labeled as IT or ICT literacy in the literature. As computer and communication technologies continue converging, academia, international media, and businesses worldwide increasingly employ Information and Communication Technology (ICT). ICT can be defined as a collection of activities and technologies that encompass both information technology and telecommunications. Information and communication technologies are no longer limited to specific business environments. They

have become more prevalent in community settings, schools, and homes. Everyday actions such as searching for a book using a computerized card catalog at the public library, withdrawing from an automated teller machine, or reading telephone messages have been significantly changed by ICT. As a result, the concept of a literate population must be broadened to encompass the technological skills and competencies necessary for individuals to navigate and thrive in an ever-evolving technological world.

In the late 1980s, the introduction of user-friendly graphical interfaces and accessible mass applications made computers widely accessible to the general public. Thus, the computer was perceived as a versatile instrument that could be utilized in several domains, such as education, employment, recreation, and domestic settings. The use of applications software became the focus of literacy activities, and definitions of computer or IT literacy focused on practical competencies rather than specialist knowledge. Upon recognizing that IT may serve as a means to implement student-centered pedagogies, there appeared a need for more critical, evaluative, and reflective approaches to using IT.

According to the OECD-ILO PISA project, as van Joolingen (2004) identified, ICT literacy incorporates an individual's interest, attitude, and proficiency in properly utilizing digital technology and communication technologies. This includes accessing, managing, integrating, and evaluating information, constructing new knowledge, and actively communicating with others to participate in society. The definition highlights five key components of ICT literacy, namely access, manage, integrate, evaluate, and create, as detailed in The Report of the International ICT Panel (2002). The first element, 'access,' pertains to the capacity to gather and obtain information efficiently. 'Manage' entails the utilization of established organizational or categorization frameworks to process information effectively. 'Integrate' involves interpreting and representing information and encompassing skills such as summarization and comparison. 'Evaluate' centers on forming educated assessments about information quality, relevance, utility, or efficacy. Finally, 'create' entails generating new information through adaptation, application, design, invention, or authorship of content. These components constitute the basis of ICT literacy, which is crucial for traversing the digital information environment.

These elements consist of a set of skills and knowledge presented in a sequence that suggests increased cognitive complexity. Each skill represents a basis for the subsequent element by integrating cognitive and technical skills, as illustrated in Figure 5.

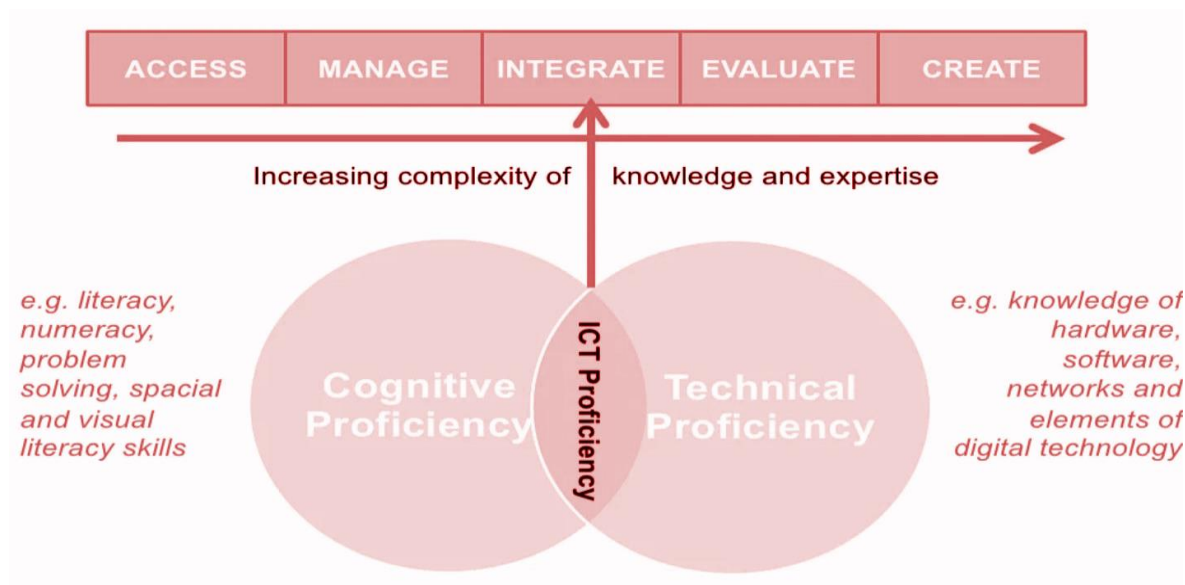


Figure 5. Computer (ICT) literacy components

Source: Adapted from ICT Panel, 2002.

According to the same report (ICT Panel, 2002), ICT literacy should not just be defined as acquiring technical skills. Instead, it is necessary to expand the definition of ICT literacy to encompass critical cognitive skills and the practical application of technical skills and knowledge. The cognitive skills encompass fundamental literacy, including reading and numeracy, and advanced critical thinking and problem-solving abilities. It is widely held that acquiring such skills is essential for achieving genuine ICT literacy. Furthermore, ICT literacy is asserted as a continuum of skills and abilities, encompassing the use of technology in basic daily activities to complete complex tasks.

2.3.3. Media Literacy

Media literacy is the capacity to identify different types of media and comprehend the messages that media is sending. In addition to traditional news sources like newspapers, television, and radio, today's young people consume a diverse range of other media, including everything from text messages to social media, viral videos, video games, and

memes. Although these various media forms differ, they were intentionally created by someone with a specific purpose in mind. That is why learners need to understand the purposes behind content creation and the significance of media literacy as a 21st-century skill. As Potter (2018) emphasizes, media literacy enhances one's ability to control the multitude of messages encountered through daily media exposure. It expands the traditional concept of literacy to encompass reading, writing and speaking, listening, viewing, creating, and sharing through various forms of media in our lives. Another definition of media literacy is the capacity to use and comprehend diverse forms of media and their content and generate and use appropriate forms of communication in various settings (European Commission, 2007). Learners should recognize that not all media is based on facts and that verifying the credibility of sources is crucial. Assessing credibility is a vital skill to develop. This definition acknowledges both the reception and production of media.

The European Commission (2007) identified a range of crucial media literacy levels for individuals to acquire. These levels are comfortable with various forms of media, ranging from conventional newspapers to Internet communities. This kind of engagement in media includes active participation in various forms of media, including television, internet search engines, and virtual communities. It also entails utilizing media for entertainment, cultural exploration, intercultural communication, education, and everyday activities like accessing libraries or podcasts. Another essential part is cultivating a critical attitude towards media by evaluating the reliability and precision of information, skillfully navigating through adverts, and efficiently utilizing search engines. Media literacy is the ability to use media creatively, taking advantage of technological advancements and the internet to generate and distribute content. Moreover, it is crucial to comprehend media economics, which entails distinguishing between media pluralism and ownership. Lastly, understanding copyright regulations is vital, particularly for younger generations who consume and produce digital information.

Furthermore, it is a fact that media content and information grow incrementally day after day. Tucker (2015) anticipated that there would be a clutter of information growing exponentially, with 44 times as much digital information in 2020 as there was in 2009. Indeed, people create 1.8 million megabytes a year by checking their phones, using GPS, and sending emails, tweets, and Instagram posts. This quantity is sufficient for filling nine

CD-ROMs daily. The media are highly attractive, and the time spent on media is increasing daily. At that point, it is necessary to navigate media use in this information-rich environment. Media literacy provides a set of perspectives that can be actively used to engage with media and interpret the meaning of the messages encountered.

Media literacy promotes the ability to adjust to evolving communication technology and fosters a willingness to embrace new media messages. Additionally, it improves the capacity to comprehend the information acquired from mass media more effectively. Thompson (2009 cited in Potter, 2018) maintains that today's youngsters have a high level of expertise in comprehending their audience's requirements and composing tailored messages to captivate them. This conclusion is based on a thorough analysis of over 14,000 writing samples from students conducted over five years. Writing with modern communication technology involves the process of self-discovery, the ability to articulate thoughts clearly, the skill of controlling one's image, and the art of convincing readers. Considering the definitions above, the essential attributes of media literacy involve comprehending the roles and functions of multifaceted media, identifying the circumstances that enable media to perform these functions, critically assessing media content, participating in media for self-expression and democratic engagement, and acquiring the requisite skills to create user-generated content.

Most importantly, it is not a surprise that learners will need to interact with multiple forms of media very soon. Becoming literate in those emerging media will give them an advantage in the future workplace. For instance, students will undergo job interviews via webcams rather than using a traditional written format. Therefore, it is imperative to ensure that they become proficient users in front of the camera. Regarding education, media literacy enhances students' comprehension and appreciation of media operations, meaning production, organizational structures, and reality construction. Media literacy seeks to provide students with the ability to produce media products (Duncan, 2006). To foster media literacy, educators must ensure that their students thoroughly comprehend mass media's characteristics, methods, and consequences. Accordingly, Koltay (2011) suggests that media literacy has to find its role in primary, secondary, and higher education independently or presumably as part of multiple or multimodal literacy.

2.3.4. Communication Literacy

Communication literacy refers to the ability to communicate with effectiveness as individuals and to engage in collaborative work within groups, using publishing technologies (word processors, databases, spreadsheets, drawing tools), the internet, as well as other electronic and telecommunication tools (Lankshear & Knobel, 2008). Covello and Lei (2010) define communication literacy as the capacity of learners to effectively convey messages as individuals and collaborate within groups, utilizing publishing technologies, the internet, and various electronic and telecommunication tools. Communication literacy underscores the significance of communication as a fundamental human activity and a cornerstone of social interaction, regarded as a critical personal attribute, whether conveyed orally or digitally. The emergence of digital technologies, which provide instantaneous communication with individuals or groups without face-to-face interaction, necessitates that users possess a heightened awareness of the nature and significance of communication literacy.

Communication literacy involves two main aspects. First, it includes understanding the impact of social context, mass media, communication technologies, law, ethics, rhetoric, and language. Second, it emphasizes reflecting on one's own role in creating, sharing, and interpreting messages. Communication literacy involves understanding how communication works in different situations. This includes recognizing its interactive nature, adjusting messages for various audiences, and communicating in a way that is ethical and socially responsible in a diverse world. Doing so provides a real-life application of literacy, with a clear audience and purpose for the work.

In their thematic research, Ghasemi and Resekh (2020) proposed three dimensions of communicational literacy: sensory-based communication, specialized communication, and communication at different levels. These researchers added that sensory-based communication is the most dominant dimension since human communication requires, by its fundamental nature, one or more of the five senses to perceive a message for cognitive processing. Specialized communication literacy contains all kinds of literacies that include the notion of communication, such as “speaking literacy,” “writing literacy,” “reading literacy,” and “body language literacy.” The third dimension represents a number of levels concerning communication literacy, for instance, the literacy of interpersonal

communication, intra-personal communication, and metaphysical communication. A third dimension also underlines the training of the five senses for developing the receiving and understanding of different communication messages. Ghasemi and Resekh (2020) also stated that teaching and learning specialized communication skills would enable people to cope with the world because good communication at all levels, with the advent of many types of literacy, will contribute to the improvement of the living conditions of the people. These findings highlight communication literacy's complexity and multifaceted nature, demonstrating how it extends across sensory and intellectual domains.

2.3.5. Visual Literacy

Visual literacy refers to the capacity to comprehend and value visual information. Visual imagery has consistently served as a potent vehicle for interpreting information, conveying meaning, and addressing the challenges of daily living. The richness and complexity of visual images enabled by digital tools highlight the influence of visual elements in forming our daily comprehension (Martin & Grudziecki, 2006). On the other hand, Stokes (2002) characterizes visual literacy as the capacity to analyze, interpret, and comprehend information conveyed through pictorial or graphic imagery. It also includes the ability to translate various forms of information into visual representations, such as images or graphics, to enhance communication. Moreover, visual literacy refers to a set of competencies that enable individuals to differentiate and interpret the visual actions, objects, or symbols they encounter within their surroundings. Hence, a visually literate person can communicate with others through the creative use of these competencies and comprehend and enjoy the masterworks of visual communication through the appreciative use of these competencies (Koltay, 2011). However, visual literacy is culturally specific, even though universally recognized symbols or visual representations are comprehensible worldwide. For this reason, cultural differences should bear in mind in educational contexts. Educators must consider these cultural nuances when designing curricula and teaching materials to ensure students interpret visual content correctly. This approach enhances the visual literacy levels of the students and promotes greater cultural awareness and sensitivity.

Moreover, Cappello (2022) emphasizes the necessity of incorporating visual communication within educational practices, arguing that literacy in today's image-rich

context goes beyond the traditional domains of reading, writing, listening, and speaking. As the nature of communication has changed from just reading through print to interaction with a host of multimodal resources, visualization has been instrumental in constructing multilayered messages. Therefore, the definition of literacy should be extended to integrate it into the ever-increasing significance of visuality in communication. It is a fact that visual literacy was considered as the ability to read, write, evaluate, and view ideas visually. However, in the current context, learners require competencies for perception, evaluation, reasoning, and the critical use of visual learning materials.

The visually rich content requires high-order thinking skills from students to understand and interact with the educational resources (Güney, 2019; Kaya, 2020). These skills are crucial in the current academic environment since students have to deal with more and more complicated visual information. As students are exposed to the material that stimulates using visual literacy skills, their ability to analyze and synthesize information gradually improves. Reddy et al. (2023) identified and illustrated these visual literacy skills in Figure 6 below.

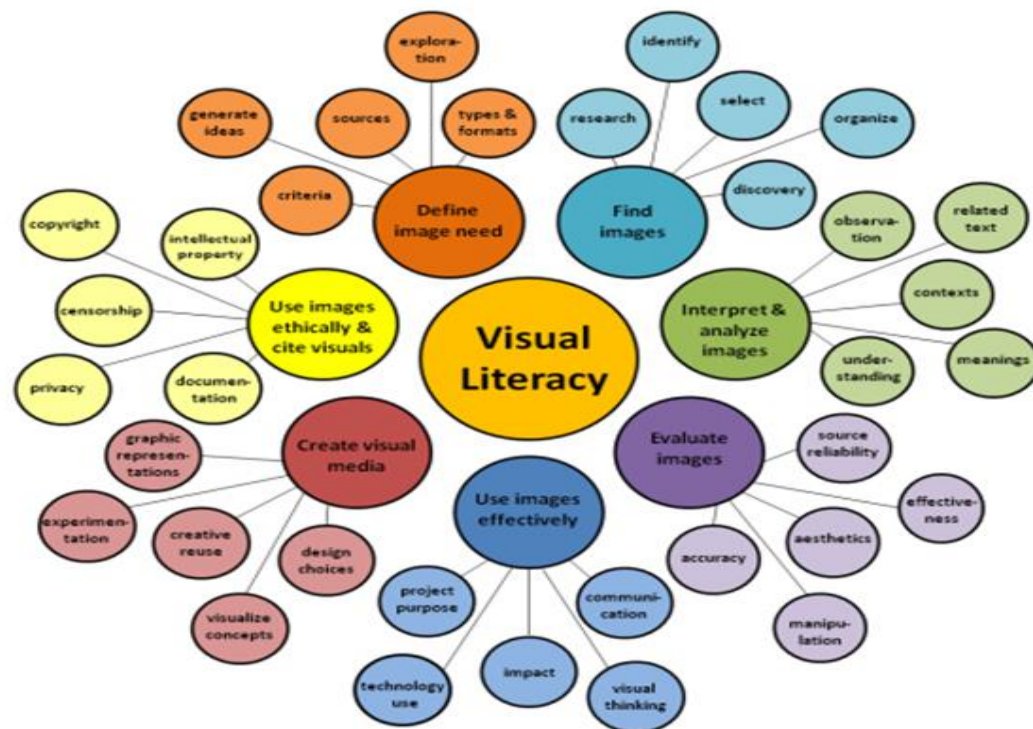


Figure 6. Visual literacy skills

Source: Reddy et al., 2023

Figure 6 presents a comprehensive overview of visual literacy's key components and skills. In the diagram, "Visual Literacy" is positioned at the center, with multiple interconnected themes surrounding it to emphasize the different aspects of this concept. The explanation of each skill given in Figure 6 can be made as follows;

- Defining the need for an image – An individual can describe an image, know the image functions, and communicate information.
- Finding images – An individual can discover pictures using various search tools and search techniques on digital platforms.
- Interpreting and analyzing images – An individual's ability to understand the cultural, social, physical, and technical aspects and design context. Also, understand the image's meaning and how it communicates it.
- Evaluating images – An individual's ability to evaluate images critically, that is, the image quality, reliability, and accuracy using the design elements, and to assess the credibility of the image sources.
- Using images effectively – An individual can use images for different purposes (select a relevant image and incorporate it into an appropriate context), use technology to work with pictures, and communicate images effectively (using images for discussions and presentations).
- Creating visual media – An individual can create visuals or images to display information and represent and communicate concepts.
- Using images ethically and citing visuals – An individual's ability to understand and follow the ethical, legal, and social aspects surrounding visual materials, for example, citing the source of images, knowing about intellectual property rights, copyright, and fair use policy (p. 497).

These items offer a detailed framework for the skills necessary for solid visual literacy. They highlight the importance of the technical abilities involved in locating, utilizing, and producing visual content and the critical and ethical considerations that should be integrated into these processes. These interconnected themes derive the standards supporting visual literacy instruction and learning. Most recently, researchers

(Commonwealth of Learning, 2020; Dhawan, 2020; Huang et al., 2020; Reimers et al., 2020) have adopted various strategies to improve learning through the use of visual communication tools. For example, other communication tools like Zoom have also been used to deliver learning sessions. This is through videos that contain visualization while teaching the lessons. Even learning management systems, such as Moodle, have their own instructional visual elements to be used for educational purposes. Tools and applications like digital stories and video games have also been incorporated into teaching to engage students interactively. Video-based lessons are another commonly employed method, with visuals playing a central role in supporting content delivery. Furthermore, teachers have utilized online learning programs such as BrainPop, RAZ Kids, Quizlet, FlipGrid, and Khan Academy, which contain visual aspects to aid the learning process. In addition, educational television has been used as a supplementary method to enhance student academic performance.

2.3.6. Technological Literacy

Technological literacy is the ability to use, manage, understand, and assess technology, according to ITEEA (2000), while according to Pearson and Gamire (2006), it is the ability to comprehend and use technology to one's advantage in today's technologically advanced world. On the other hand, individuals from diverse social, cultural, educational, and occupational backgrounds are likely to have varying amounts and types of technological literacy.

Petrina (2006) demonstrates technological capability levels by revising the Technology Taxonomy offered by Tomei (2005), given in Table 1 below, by asserting that there is a trend in reconciling educational technologies with technology education, which amounts to taking advantage of the new abilities and literacies for work, play, and study in information-based societies.

Table 1.

Taxonomy for technological literacy and capability

Literacy Understand technology and its components	• Understand technology in oral and written communication. • Use basic technologies
Collaboration Share ideas and collaborate, form relationships through technology	• Share information about and through technology. • Use technology to facilitate collaboration.
Decision-Making Use technology in new and concrete situations	• Apply technology for problem-solving. • Design effective solutions to problems.
Discrimination Select appropriate technologies	• Appraise technologies to determine effectiveness. • Discriminate resources appropriate to problems.
Integration Create new technologies and resources	• Design, construct, and implement new technologies and resources. • Use technologies to complement other technologies.
Technology in Society The study of technology and its value in society	• Analyse copyright laws and intellectual property rights. • Debate issues surrounding legal and ethical uses of technology. • Consider the consequences of appropriate technologies.

Table 1 provides a broad framework covering most of the multilayered aspects of technology literacy, from basic technical skills to critical thinking, ethical consideration, and creation and collaboration. These competencies are required for a person's survival within a technological environment and help them get started by using technology effectively while considering the greater implications and responsibilities of technology for society.

The State Educational Technology Directors Association (2007) defines technological literacy as the ability to use appropriate technology to communicate, solve problems, access, manage, integrate, evaluate, and create information through the responsible use of technology. Applying this competency fosters better learning opportunities in all subject areas and develops knowledge that a person will convey for their lifetime in today's world. According to Ellis et al. (2016), technological literacy is being equipped with fundamental computer skills combined with using computers with other technologies, impacting learning, productivity, and performance. Furthermore, these learners may intuitively realize how technology-based products and systems are developed and critically evaluate solutions in response to needs and opportunities, a process developed by exposure to a wide range of relevant experiences over time.

DL and technological literacy borders are regularly blurred since these terms are generally used interchangeably. In fact, although each of these literacies has some distinctive characteristics, many similarities make it hard to note the clear borderline between them. Research findings by Bakır (2016), Kurt et al. (2014), and Silik and Aydın (2021) support this idea that DL and technological literacy have interlinking features, and thus, both can't be distinctly separated through inflexible borders. It is clear that these literacies interrelate; therefore, educators and practitioners should also bear in mind that success in one supports the other. Appreciation of the interdependency of these skills creates a more sophisticated and practical approach toward developing them.

In conclusion, information, computer, media, communication, visual, and technological literacies are some facets of digital literacy; all help an individual navigate the complexities of the digital age. These literacies are fundamental to higher education and subsequent professional development and useful for the citizens' critical thinking, ethical awareness, and intercultural competence. By embedding such kinds of literacy into the curriculum, students can be trained to utilize digital tools appropriately, evaluate information critically, and use it to communicate effectively on multiple platforms. As the digital world continues to shift and evolve, educators and learners must be flexible and continue to refine skills to focus more on a globalized world. However, executing them effectively requires developing an awareness of their interrelatedness and cultural and contextual nuance, which impacts how those skills are manifested. As the digital landscape continues to evolve,

educators and learners must remain adaptable, continuously refining their skills to meet the demands of an increasingly interconnected and information-rich world.

2.4. Digital Literacy and Beyond: Artificial Intelligence Era

By its very nature, conceptualizing the idea of digital literacy involves transcending a superficial notion of digital literacy. As Sağıroğlu et al. (2020) state, digital literacy is the ability to interpret the meaning in a digital environment and analyze the events according to a scientific, statistical, or logical point of view. Sağıroğlu et al. (2020) identify various essential aspects of digital literacy in the modern digital landscape. They emphasize the significance of precisely comprehending the digital ecosystem strategically using its potential while mitigating risks, challenges, and hazards. The researchers also defined DL as “the intentional, appropriate, safe, and effective use of electronic media, tools, devices, apps, software, and digital products, involving the ability for critical and comprehensive assessment of events by establishing cause-and-effect relationships. Their research also emphasizes that the virtual world is a significant educational platform for learning and instruction, where cultural exchange should be encouraged. Furthermore, it is imperative to produce and disseminate content ethically while safeguarding privacy, as well as to recognize potential health hazards linked to the digital realm and implement preventive strategies. Finally, it is also concluded that, in this changed environment, DL envelops the roles of a digital worker, producer, user, manager, seller, or distributor.

Sağıroğlu et al. (2020) explain the concept of DL from the point of an increasingly digitized society by developing a quite comprehensive framework. Their study has also underlined several critical aspects such as acting with awareness, foresight in interaction with a digital environment, safe and effective use of digital tools and media, and developing the ability for analytical thinking while assessing and interpreting information in digital format.

With the ever-evolving nature of DL, it is no longer an option not to acknowledge the role of emerging technologies in general, and specifically Artificial Intelligence (AI), in the modern world, as it stands firmly at the pinnacle of modern civilization. AI is a software program or system designed to make predictions, suggestions, or decisions impacting physical or virtual environments based on human-defined objectives (Organization for

Economic Co-operation and Development, 2019). Owing to rapid technological improvement and a continuous circle of research in different fields, improvement in AI has been astonishing for the last few years. Research into the advances in artificial intelligence shows great development, including the enhancement of algorithms, increased computational power, and the integration of AI into diverse sectors such as finance, healthcare, and education.

Recent studies have identified how AI can transform professional domains into more productive and creative ones. Advanced tools such as ChatGPT and other large language models (LLMs) have entirely revolutionized the world of content development and automation, promising immense improvements in institutional performance across diversified fields of academics, technology, and communications. This trend is expected to accelerate, with ongoing research focusing on refining AI design and addressing ethical considerations associated with AI deployment.

While people have always continued developing their educational experiences with emergent technologies, very recently, Artificial Intelligence and everything related to it has become hot topics because of its unparalleled potential in education. Specifically, for language learning, AI has several distinctive features such as personalized learning (Huang et al., 2023), being a conversational agent to foster communication (Ayedoun et al., 2019), enabling immersive context via virtual reality sources (Mirzaei et al., 2018).

Lately, OpenAI introduced their new advanced model called ChatGPT-4o on May 13, 2024. This AI-powered Chabot can understand and respond to audio, images, and text in real-time, allowing it to have human-like conversations and quickly answer users' questions. In their recent study, Çınar Yağcı and Aydın Yıldız (2023) even assert that ChatGPT can be a reliable artificial intelligence chat buddy for foreign language learners who want to learn English. Moreover, Wei (2023) demonstrates that AI-mediated instruction significantly improves learners' English language achievements, motivation, and self-regulation compared to traditional instruction methods. His study also revealed that AI tools could lead to higher engagement and personalized learning experiences, which are essential in language acquisition. AI-mediated instruction was also found to enhance L2 motivation and self-regulated learning strategies. This suggests that AI can improve learning outcomes in language education by offering personalized and engaging learning experiences. Likewise,

Le Phan (2023) investigates how students perceive the application of AI technologies in English writing classes. The study examines the efficacy of AI tools, such as automated writing evaluation systems, in improving students' writing proficiency. The findings suggest that while AI can be a valuable tool in language education, it should be integrated thoughtfully, with adequate support from human instructors, to address the limitations of AI. The study suggests a blended approach, combining AI tools with traditional teaching methods to maximize learning outcomes.

Further, as stated by Jaleniauskienė et al. (2023), a comprehensive bibliometric analysis highlighted the growing application of AI in language education, revealing trends such as the use of chatbots, virtual reality, and intelligent tutoring systems. These AI technologies are increasingly indispensable for language learning, especially in functions such as learning vocabulary, improving performance, and giving personalized feedback, which makes learning an interactive and practical task.

To summarize, integrating DL and AI into educational practices represents a pivotal shift in how we approach learning in the digital age. Sağiroğlu et al. (2020) explained that being digitally literate is way beyond having the ability to use technical devices; rather, it is an overall understanding of the digitized world, threats, and opportunities, along with the ability to evaluate and critically judge digital content. The rapid advancements in AI, particularly in language education, further underscore the importance of these competencies. The rapid rise of AI technologies such as ChatGPT and intelligent tutoring systems provides an enormous opportunity for languages to be learned by offering personalized, immersive, and engaging experiences. However, as the research indicates, the successful integration of AI in education requires a balanced approach that combines these innovative tools with the guidance of human instructors to address their limitations and maximize learning outcomes. As we continue to explore the intersection of digital literacy and AI, our attention must shift to the ethical, cultural, and educational implications with a view toward better use of emerging technologies to improve learning.

2.5. Teaching Digital Literacies

Digital literacy has been included in both the curriculum and the policies of educational institutions. Contemporary academic institutions at various levels of education

have been tasked with developing their students' DL skills through interdisciplinary approaches or dedicated courses. Although there is much to be gained from teaching students DL, some challenges exist, such as insufficient professional development for educators, differences in digital infrastructure among schools, and inequitable opportunities for all students to use digital resources. These challenges would, therefore, require attempts to develop educational approaches that could bring multiple views on DL. The coping strategies may include recognizing DL as an integral part of work skills and social practice in students' everyday lives. These approaches can be exemplified by assignments and activities that aim to develop a broad set of digital literacies, including technical skills, critical engagement with digital media, and creative communication practices.

In addition to acquiring fundamental digital abilities, learners must also comprehend the cultural, political, and economic factors that are shaping it. Peled (2021) examined the DL attitudes of pre-service teachers by gathering survey data from 1,265 students enrolled in teachers' colleges. The study's results indicated that students possess elevated perceived DL skills. Nevertheless, they had difficulties in critically examining and evaluating knowledge and exhibited a deficiency in ethical understanding. Consequently, pedagogical methods must navigate the discourses, policies, and instructional traditions constituting the educational ecosystem in which teaching and learning are invariably embedded (Weninger, 2022). It is evident that an improved digital literacy curriculum for universities must be developed to support students' digital skills, including computational thinking and data competencies.

To sum up, while the integration of digital literacy into educational curricula represents a significant advancement in preparing students for the digital age, it is clear that challenges remain. The disparities in digital infrastructure and the varying levels of professional development for educators highlight the need for a more equitable and comprehensive approach to DL teaching. Addressing these challenges requires the adoption of pedagogical strategies that not only develop students' technical skills but also foster critical thinking and ethical understanding of digital media. Moreover, by recognizing DL as a vital work skill and a social practice embedded in daily life, educational institutions can better prepare students to navigate the complexities of the digital world. Moving forward, it will be essential for curricula to evolve continually, ensuring that students are equipped not

only with the skills to use digital tools effectively but also with the awareness to understand and critically engage with the broader cultural, political, and economic contexts in which these tools operate.

2.6. Digital Literacy in EFL Context

Since English continues to hold the largest share of web content (52.1%) (Johnson, 2024), English learners must possess digital literacy in this modern era of the online world. Recent literature shed light on the multiple efforts to achieve this goal using various methodologies. Some educators ask students to create a short video about a digital skill, generate memes, or analyze a text to improve communication skills, encouraging creative digital play based on real-life experiences and raising awareness of communication politics (Weninger, 2022). Others incorporate DL into learning through authentic academic practices, such as answering open- or closed-ended questions, writing essays, creating presentation slides, producing videos or podcasts, and preparing reports used across various courses (Iskandar et al., 2022).

Some of the recent studies have focused on EFL learners for various aspects of effectiveness concerning digital tool usage. For instance, Rinekso et al. (2021) investigated 34 EFL Master's students through online interviews. The results of the study suggested that Digital literacy, according to participants, is a set of soft skills related to managing digital information, which includes searching for, understanding, evaluating, creating, and sharing information. These learners make use of these digital tools both in school and in social life. This finding parallels other studies dealing with the use of digital resources that EFL learners use in different situations. Other related studies have investigated the utilization of social media for English language acquisition (Colton, 2021; De Groot, 2017), e-dictionary vocabulary enlargement (Wang, 2012), social media intercultural awareness (Özdemir, 2017; Wang & Chen, 2023), the use of WhatsApp as a messaging app supporting educational collaboration (García-Gómez, 2020; Rinekso & Muslim, 2020), or the use of Zoom for video calls in language instruction (Kohnke & Moorhouse, 2020). These studies jointly highlight the various ways digital tools assist EFL learners.

Moreover, Hamouma and Menezla (2019) explore the relationship between digital literacy proficiency and academic writing performance among EFL students in Algeria. The

research investigates how DL skills contribute to students' academic writing quality and effectiveness. The study found a significant positive correlation between students' DL levels and academic writing performance. Students with higher DL were better able to organize, evaluate, and communicate information effectively in their writing. The study concluded that DL is crucial in enhancing students' academic writing abilities, particularly in EFL contexts where writing in a non-native language presents additional challenges.

In conclusion, as English continues to dominate online content, the importance of digital literacy for English learners is more critical than ever. The integration of DL into English language learning has been approached through various innovative methods, including digital tools, to enhance communicative competence and critical awareness. Recent research highlights the vital role that DL can play in proficiently enhancing language ability and improving overall academic performance. As a cross-curricular competency, DL transcends specific subject areas, making it essential for students, educators, and education professionals to navigate educational and real-world challenges effectively. Such broad applicability makes DL an increasingly important skill in today's digital and interconnected world.

2.7. Digital Literacy Studies in Türkiye

In 2018, the Council of Higher Education (YÖK) initiated a project about distance learning called the Digital Transformation Project in Higher Education. In the project's first phase, a program was organized to develop the digital competencies of more than ten thousand academic staff and sixty thousand students in sixteen newly established universities, mainly in the Eastern and South-eastern Anatolia Regions. The project's primary purpose was to develop the digital competencies of instructors and students. In the following process, the academicians would transfer this training to other academicians and students in the university. Furthermore, as part of the project, the council planned to offer a semester-long cybersecurity course to university students. Simultaneously, there was an emphasis on incorporating technology into educational methodologies, embracing massive open online courses, open educational materials, artificial intelligence, cloud computing, and data mining research. Another objective of the project was to empower instructors to act as the instructional designers of their courses, enabling each student to create their materials

and access a dedicated digital page on the system to facilitate their course progress. Giving lectures to students about DL covering issues such as internet technologies, social networks, technology's impact on society, information ethics, lifelong learning in technology, cloud computing, and future DL was an additional objective. The project has led to increased DL among students and staff, improved access to educational resources, and created a more flexible and resilient higher education system in Türkiye. However, like many digital transformation efforts, the project has faced challenges, including the need for continuous investment in infrastructure and the ongoing training of academic and administrative staff (YÖK, 2020).

There are also plenty of recent studies in the DL field in Türkiye. However, the majority of them deal with pre-service or in-service EFL teachers. In their study, Ata and Yıldırım (2019) conducted a study by adopting quantitative and qualitative data collection methods to explore the perceptions and views of the pre-service teachers concerning digital literacy issues. Data for this study were drawn from 295 pre-service teachers from different departments working at a public university. The study's results demonstrated that the pre-service teachers had positive attitudes towards DL. However, it was established from this study that the respondents lacked the needed cognitive competencies in knowledge searching, evaluation, production, and communication.

In their recent study, Akayoglu et al. (2020) employed Saldana's (2013) thematic analysis framework to unfold the DL practices of 113 pre-service EFL teachers from three different universities. The research indicated that the pre-service EFL teachers considered themselves good enough to use digital resources for personal, educational, and professional purposes. Their conceptualization of DL, however, covers a range from knowledge acquisition to the critical, creative, and collaborative utilization of digital resources. These findings align with the results obtained by Ertürk (2022), who investigated the digital literacy levels of 94 Turkish Pre-service EFL teachers. The research findings demonstrated that the DL level among participants was at the middle level. The researcher also stated that possessing technological knowledge and skills does not automatically ensure that teachers can effectively utilize the appropriate material for their specific objectives. Similarly, Şengül and Demirel (2022) investigated the attitudes of Turkish teacher candidates towards DL and their perceptions of digital writing. The participants of this paper were 556 Turkish language

teacher candidates who attended 18 public universities in Türkiye. The findings revealed that the teacher candidates possess a middle level of DL as they possess basic levels of digital skills but hold much potential for improvement. In addition, a positive relationship was observed between DL and attitudes toward digital writing, suggesting that the candidates with high DL could have developed favorable attitudes toward digital writing. In a similar scope, Yıldırım et al. (2023) investigated the relations between digital literacy levels, attitudes towards e-learning, and screen reading self-efficacy among primary school teacher candidates in Türkiye. The sample of this study was composed of 677 teacher candidates who were chosen through a method of random sampling. In this regard, the “digital literacy scale,” “attitude scale towards e-learning,” and “screen reading self-efficacy perception scale” were used for data collection. Data analysis was done using structural equation modeling. The results showed that the levels of DL and screen reading self-confidence were positively related: higher levels of DL raise the ability to read and understand digital texts well. Moreover, e-learning attitudes were identified as significant mediating factors between DL and screen reading self-efficacy. With good attitudes towards e-learning, teacher candidates are expected to have higher levels of DL and be more confident about reading on screens. A most recent study by Pehlevan and Ünal (2024) investigated the relationship between Digital Literacy (DL) and Technological Pedagogical Content Knowledge (TPACK) among pre-service English teachers at a Turkish state university. In general, prospective English teachers reached high levels in both DL and TPACK; however, some areas showed a medium level of skill attainment. The data obtained from the focus group interviews revealed that pre-service English teachers argued that hands-on experience and practical training in technology integration were effective for developing their digital competence. They also shared worries that some of the technology courses included in their teacher education program were ineffective.

Moreover, Ayyildiz et al. (2021) have reported on the level of digital literacy of Turkish teachers at the Faculties of Education concerning the effectiveness of using technology during lessons. The research also gathered prospective students’ perceptions of their instructors’ competence in technology integration. The study utilized a quantitative method and cross-sectional design, where two tools were used: the ‘academicians’ digitalization scale’ and the ‘students’ perception scale about instructors’ technology

integration competence.’ Data was retrieved from 1019 academics and 846 prospective teachers and analyzed using descriptive and inferential statistics. The study revealed that the DL levels of academics varied significantly depending on the department, age, and grade level. However, the Department of Computer Education and Instructional Technology academics exhibited the highest DL levels. The study also showed that academics were more proficient in using technology for professional development than in educational settings or social life. There was also a significant difference in technology integration competence based on the age of the academics, with younger academics generally displaying higher competence. As for perceptions of the students, they rated their instructors’ competence in technology integration, with higher ratings for the use of technology over its integration into the curriculum. This indicates that while technology is being used, its full integration into teaching practices might need improvement.

Another study by Ahmed and Akyıldız (2022) revealed that both in-service secondary school EFL teachers and high school EFL teachers were confident in using digital tools and being digitally literate, although some of them could not define the term correctly. The researchers also underlined that high school teachers knew the term digital literacy more than secondary teachers. It is also claimed that DL had positive effects on language teaching. Similarly, Çelik (2024) revealed in her MA thesis, working with 250 EFL teachers in Gaziantep, that the EFL teachers had a moderate level of DL and were knowledgeable about some fundamental aspects of DL. However, the participant EFL teachers lack the competence to fully understand all DL elements. They also seem to possess fundamental problems with time, motivation, and lack of support from the Ministry of National Education (MoNE).

On the other hand, Bayrakçı and Narmanlıoğlu (2021) conducted a study with 1287 university students and graduates to measure their DL levels through the Digital Literacy Scale (DLS) they developed. As for their key conclusions, they claimed that male participants exhibited superior levels of DL compared to female participants. Moreover, graduates exhibited higher DL levels compared to current undergraduate students. They also mentioned that participants aged 25-32 had higher DL scores than younger and older age groups, and participants with higher economic status had better DL skills. Last but not least, those participants who started using smart devices in primary school or earlier showed higher

DL levels, while participants who actively followed technological developments had significantly higher DL scores.

The reviewed studies indicate that there has been a growing interest in the role of digital literacy in several types of educational institutions in Türkiye, emphasizing its core role in modern education. Whereas DL skills for teachers and learners are improving, several gaps persist, such as unequal digital skills levels, the need to enhance practical training, and the integration of technology into pedagogical methods. Moreover, demographic factors such as age, sex, and socio-economic status influence DL levels, thus calling for more targeted and inclusive approaches in DL teaching.

CHAPTER III

METHODOLOGY

3.1. Introduction

This chapter clarifies the underlying mindsets of the research paradigm and design of the study, highlighting the rationale for embracing a quasi-experimental mixed-method approach in detail. Then, the setting and participants of the study are further elucidated. In addition, the data-gathering instruments, procedural methods, and stages of data analysis are detailed. Finally, validity and reliability, ethical considerations, and the researcher's role in this study are defined thoroughly.

3.2. Research Paradigm and Design

The research paradigm and research design are distinct concepts; however, they are likely to impact one another. While research paradigm can be defined as a researcher's worldview (Mackenzie & Knipe, 2006) or as a philosophical way of thinking (Kuhn, 1962), research design addresses the overall strategy the researcher embraces in the light of four main elements of related paradigm: ontology, epistemology, methodology, and axiology. Based on the philosophical assumptions of the researcher about what the nature of reality is (ontological), what the relationship between the researcher and that being researched is (epistemological), what the role of values is (axiological), and what the process of research is (methodological) (Guba & Lincoln, 1994), the paradigm and research design are accordingly shaped in a study. Social science studies discuss four main research paradigms: positivist, interpretivist, critical (Candy, 1989), and *pragmatic* (Tashakkori & Teddlie, 2003) paradigms. The positivist paradigm explores a research perspective based on the scientific process. In contrast, the interpretivist paradigm primarily seeks to comprehend the subjective domain of human behavior by arguing for the uniqueness of human inquiry (Schwandt, 1994). On the other hand, the critical paradigm centers its research on social justice issues, seeking to deal with the political, social, and economic issues that lead to social injustice, disagreement, conflict, and power relations at all levels. The pragmatic paradigm asserts that one cannot ascertain the truth of the real world exclusively through a singular scientific

technique, as posited by the positivist paradigm, nor can social reality be defined purely through the interpretivist paradigm. A mono-paradigmatic research viewpoint is insufficiently intelligible to analyze the phenomenon in question. Hence, the pragmatic paradigm combines methodologies that collectively clarify participants' genuine behaviors, the underlying beliefs driving those behaviors, and the possible results of specific actions. This resulted in a novel methodology that supports using mixed methodologies as an effective means to comprehend human behavior. That is why this study takes a practical approach, combines a relational way of knowing, emphasizes a focus on values, and adopts a practical paradigm view by employing a mixed methods approach (Kivunja & Kuyini, 2017).

To delve into detail, it should be emphasized that the study was conducted in line with a mixed-method research design. Specifically, the *Sequential Embedded Experimental Model* (Creswell & Clark, 2017) was employed in the research process, as seen in Figure 7.

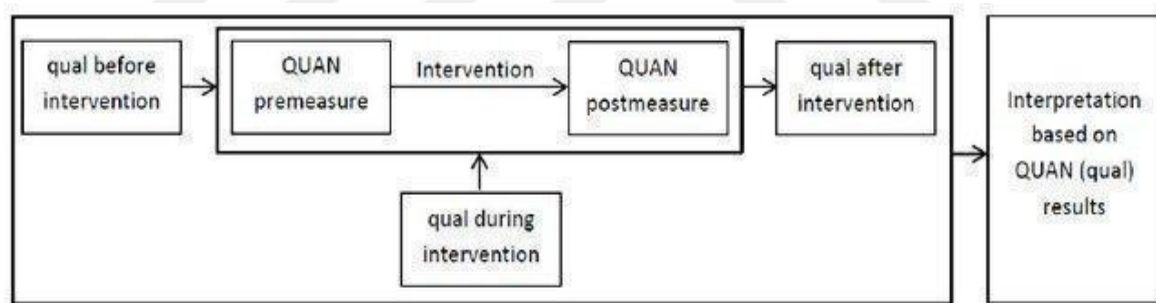


Figure 7. Mixed methods research: Sequential embedded experimental model

Source: Creswell and Clark, 2017

Figure 7 above illustrates a sequential mixed-method approach in which the researcher collects and analyzes quantitative and qualitative data inside a traditional quantitative or qualitative framework (Creswell & Clark, 2017). The term mixed method refers to the mixture of quantitative and qualitative research methodologies. The explanatory sequential design initiates with a quantitative phase that guides the subsequent qualitative phase through methods-level strategies such as connecting, building, merging, and embedding (Fetters et al., 2013). The qualitative research phase seeks to generate meta-inferences that illuminate or exemplify the quantitative findings (Creswell & Clark, 2017).

As Johnson and Onwuegbuzie (2004) suggested, the sequential mixed-method approach facilitates a more comprehensive analysis of results, offering the best opportunities for answering important research questions.

Thus, qualitative and quantitative research methodologies were embedded in the data collection and analysis stages to understand both processes better in this study. The quantitative data obtained from the digital literacy scale and achievement test scores of the participants were fortified by the qualitative data, which were collected during and after the intervention by focus group and semi-structured interviews with the participants in the experimental group. The whole process was further triangulated by the qualitative data obtained from field notes to maintain objectivity and facilitate critical reflection on the research process (Maharaj, 2016). The researcher took field notes during the intervention lessons and focus group interviews to have a broader perspective and thick descriptions of the study.

3.3. Setting and Participants

A total of 120 students enrolled in the preparatory class at OKÜ School of Foreign Languages for the 2023-2024 academic year. Following Fisher's (1935) formula to calculate the right sample size for the study, at least 60 participants were needed when the confidence level was 99%, and the confidence interval was set to 12. The formula provided by Fisher means that 60 or more measurements/surveys are required to have a confidence level of 99% that the real value is within $\pm 12\%$ of the measured/surveyed value. Initially, 62 Turkish EFL students were selected as the participants of the study, using convenience sampling to form each group. Each group consisted of 31 students; however, 2 students from the experimental group were disenrolled before initiating the investigation. Thus, 60 participants in total were listed as shown in Table 2.

Table 2.

Participants of the Study

	Males	Females	TOTAL
Experimental Group	4	25	29
Control Group	7	24	31

As it is provided in Table 2, the experimental group consists of 29 participants, with 4 males and 25 females, and the control group comprises 31 participants, with 7 males and 24 females. Overall, the table highlights a more significant proportion of female participants in both groups, with similar total numbers of participants in each group, ensuring the balance between the experimental and control conditions.

The study participants, aged between 18 and 22, are compulsory preparatory school students from various departments, including English Language and Literature and Translation and Interpreting. The proficiency level of the participants is A2, according to the institution's proficiency test conducted at the beginning of the first semester. They have 24 hours of English lessons weekly, and the researcher instructs 12 hours of main course lessons for the participants of the experimental group.

3.4. Data Collection Tools

This study contains quantitative and qualitative data collection instruments. Quantitative data collection tools are (a) *Digital Literacy Survey (DLS)* and (b) *Digital Literacy Achievement Test*, while the qualitative data collection tools are (c) *Focus Group Interviews*, (d) *Semi-Structured Interviews*, and (e) *Field Notes*, all of which are explained thoroughly in the following sections.

3.4.1. Quantitative Tools

The first data collection tool is the Digital Literacy Survey (DLS), a self-reporting 5-point Likert scale with 60 items and 6 subscales, sourced from Reddy et al. (2023) to collect the intended data. Each subscale has high internal reliability as seen in parenthesis: (1)

Information literacy (0.932), (2) *Communication literacy* (0.912), (3) *Technological literacy* (0.925), (4) *Media literacy* (0.928), (5) *Visual literacy* (0.964), (6) *Computer literacy* (0.852). The scale was proven reliable and valid with above 0.90 Cronbach's Alpha score in the original study (Reddy et al., 2023). The researcher added the demographic information part to the beginning section of the original scale. Moreover, the normality test analysis of the DLS tool is displayed in Table 3 as follows.

Table 3.

Normality Analysis of the DLS

Subcategories	Item Numbers	Skewness	Kurtosis
Media Literacy	1-13	,123	-,132
Communication literacy	14-18	-,030	,036
Information literacy	19- 29	,568	,181
Visual literacy	30- 42	,219	,509
Technology literacy	43- 54	,647	-,298
Computer literacy	55- 60	-,111	-,256

Table 3 provides Skewness and Kurtosis values for a dataset, which are essential indicators of the data's distribution characteristics. Based on Tabachnick and Fidell's (2007) guidelines, Skewness and Kurtosis values within the range of -1 to +1 suggest an approximately normal distribution. The presented data fall within this acceptable range for all categories, indicating no significant skewness or kurtosis issues. This suggests that the dataset is well-suited for further statistical analyses that assume normality, such as parametric tests, as the overall distribution appears balanced and consistent with the requirements for such analyses.

The original questionnaire items were translated into Turkish to enhance participant comprehension. DLS identifies six levels of digital literacy, determined by the range of participants' scores, as illustrated in Figure 8 below.

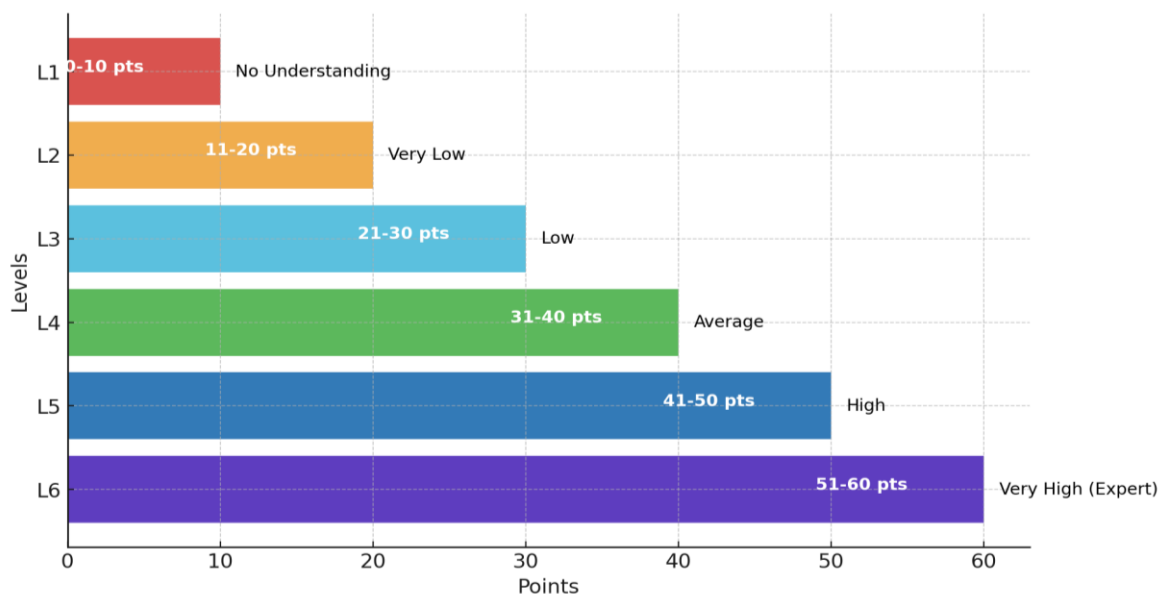


Figure 8. Digital literacy scale with levels, points, and description

Source: Reddy et al., 2023

Figure 8 presents the DLS with six distinct levels that categorize individuals' digital literacy based on a scoring range from 0 to 60. While the minimum proficiency is classified as L1, the maximum proficiency is L6. Furthermore, the author was able to grant permission to use DLS in the study via an approval email, as shown in Figure 9 below.

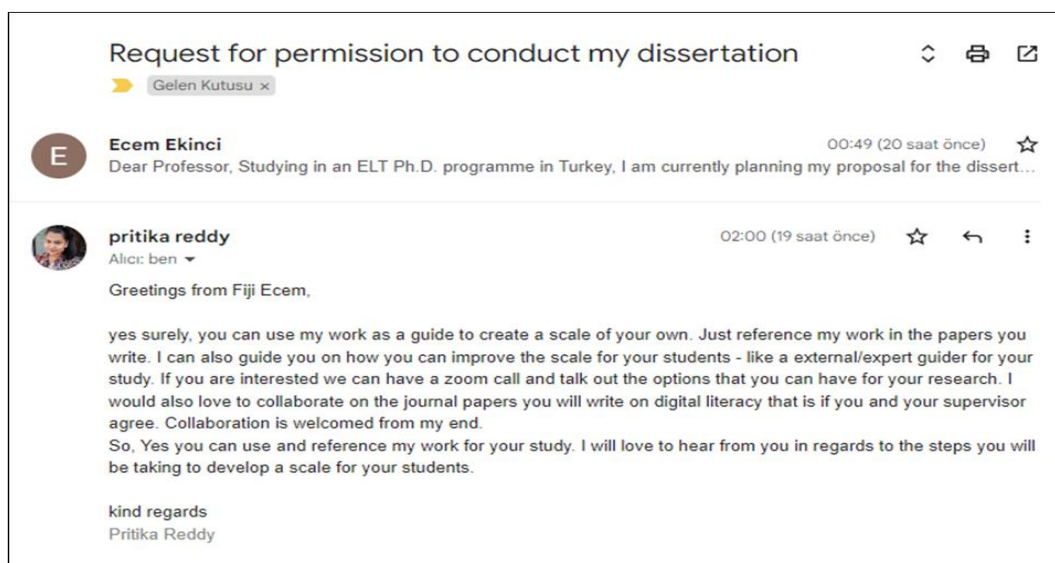


Figure 9. Permission for the use of DLS from the author

Furthermore, it should be emphasized that the DLS measurement (Reddy et al., 2023) utilized in this study was chosen specifically regarding its scope and encapsulation of several aspects and subcategories of digital literacy. Some other scales were designed to target digital literacy levels of learners with various aspects such as emphasizing some literacy areas (Eshet-Alkai, 2004), having three-dimensional (technical, cognitive, and social-emotional) functions (Ng, 2012), evaluating digital competencies among university students (Redecker, 2017), basing on competencies like digital communication, content creation, and problem-solving (Bardakçı & Narmanoğlu, 2021), or addressing information skills, communication, content creation, safety, and problem-solving features (Tondeur, 2017). Nonetheless, the DLS instrument (Reddy et al., 2023) was preferred over the aforementioned scales because of its inclusivity, and its being the most up-to-date design.

The Digital Literacy Achievement Test (DLAT) is an instrument utilized in the study to collect data. It was designed by the researcher based on the DLT curriculum, which was adapted and directed from the Literacy Link South Central (LLSC) Community Tech Connect Curriculum Outline, to assess students' digital literacy achievements through their examination scores. An expert opinion was also granted for the test to ensure its credibility and applicability. Each subscale of the DLS was addressed at the achievement test to ensure content validity. A total of 30 questions were designed to allow for quick scoring based on the digital literacy proficiency levels outlined in Table 4. Each question is worth 2 points, making it possible to efficiently assess an individual's digital literacy level using the scale. A detailed presentation of the intervention durations of the subcategories, besides the item and question numbers of DLS and DLAT based on these subcategories, is shown in Table 3 below.

Table 4.

Representations of DL Subcategories in DLT, DLS, and DLAT

Digital Literacy Subcategories	Duration of DLT Intervention (Week)	Number of Items in DLS	Number of Questions in DLAT
Computer Literacy	1	6	5
Technological Literacy	3	12	8
Information Literacy	2	11	4
Media Literacy	2	13	5
Communication Literacy	1	5	3
Visual Literacy	1	13	5
TOTAL	10	60	30

Table 4 shows the representations of the subcategories of Digital Literacy (DL) and explains the time allocated for the intervention of Digital Literacy Training (DLT), the number of items used in the Digital Literacy Scale (DLS), and the number of questions in the Digital Literacy Achievement Test (DLAT) respectively. Each subcategory was instructed between 1 and 3 weeks during the intervention. For example, the longest duration was 3 weeks for Technological literacy which has also the highest question number based on the duration and number of items. That is to say, intervention durations and DLAT questions were arranged based on the item number in DLS for each subcategory. For instance, Media Literacy and Visual Literacy had equal numbers of items in the DLS, 13 items for each. Communication Literacy has the fewest items for both DLS, 5 items, and the DLAT, 3 questions.

3.4.2. Qualitative Tools

Focus group interviews are one of the research tools used to collect qualitative data. In this research, focus group interviews were conducted with participants from the experimental group to gather their perspectives and comments regarding the digital literacy training they received and their levels of digital literacy. The focus group interviews took place in a comfortable meeting hall, and each group interview took nearly 50 minutes. Focus group interviews are an additional data collection tool that supports quantitative studies as a data source. Krueger (2014) characterized a focus group as a distinct assembly with a specified purpose, composed in a particular manner, and tasked with accomplishing a given procedure. Focus group interviews aim to elicit qualitative data from a specific group of individuals in a hospitable setting, facilitated by a moderator, through group discussions. These data collection tools allow researchers to identify potential shortcomings of other data collection tools by gaining insights from the participants' perspectives during the process (Cheng, 2007). Figure 10 below illustrates the ideal focus group interview structure proposed by Cheng (2007).

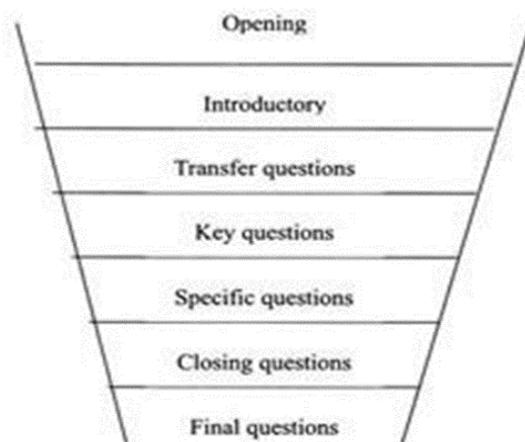


Figure 10. The structure of a focus group interview

Figure 10 above illustrates the structured flow of a focus group interview, starting from general to more specific questions. The process starts with the opening phase, followed by introductory questions that set the contextual frame. As Cheng (2007) stated, transfer

questions link the introductory stage to the main discussion. Key questions create the basis of the interview, addressing the central issues under investigation. Specific questions explore the participants' perspectives on primary subjects. The interview then gradually closes with closing questions summarizing or clarifying earlier responses. Finally, the final questions end the discussion, ensuring that the most critical points have been addressed. This framework facilitates a thorough employment of focus group interviews.

The other qualitative data collection tool used by the researcher is semi-structured interviews, which include open-ended questions directed to some of the participants from the experimental group (*see Appendix D*). These interviews were held at the end of the treatment period by one of the colleagues of the researcher to avoid researcher bias (Salazar, 1990) and to ensure that participants do not feel under pressure to comment positively about the whole process, as it is commonly agreeable that researcher bias is a considerable methodological concern in qualitative studies (Creswell & Poth, 2016). These interviews took place in the interviewer's office at the School of Foreign Languages. Each respondent was asked ten open-ended questions, and thus, each interview took approximately 9 to 12 minutes to conduct. Overall, semi-structured interviews added an essential qualitative element to the research and provided rich context and depth to the data from the experimental group. This method enriched the data and provided a mechanism for addressing issues related to researcher bias, thereby improving the credibility and trustworthiness of the study's findings. Using such a method was crucial in letting participants reflect candidly on the intervention and providing valid and informative feedback.

The final data collection tool is the researcher's field notes at each stage of the research process for the comprehensive recording of observed phenomena. According to Phillippi and Lauderdale (2018), field notes have several critical functions in qualitative research. First and foremost, field notes encourage researchers to meticulously examine the environment and interactions, augmenting language-centric data with comprehensive documenting of physical components. They also facilitate reflective practices whereby the researchers identify and address potential biases. The field notes further help in initial coding and iterative study design that enhance rigor and reliability. In addition, field notes furnish essential context that enhances the data analysis process, leading to a more profound comprehension of the research outcomes.

Neuman (2011) categorized the sorts of field notes utilized in qualitative data gathering. Data types acquired via field notes consisted of jotted notes (brief memory aids), direct observation (recorded immediately post-fieldwork), inference (insights into social dynamics and emotions), analysis (methodological approaches and theoretical reflections), interview notes (details regarding the interview setting and participant), and personal journal (individual views and emotional responses). Likewise, Deggs and Hernandez (2018) argue that reflective practices, particularly via field notes, can assist qualitative researchers in deriving meaning from data obtained using empirical methods. Therefore, the researcher employs contextualized field notes while conducting focus group interviews and at the end of each digital literacy intervention lesson.

3.5. Data Collection Procedure

To investigate whether the DLT intervention has any effect on the participants' self-perceived and achievement-based DL levels, the experiment was conducted by comparing the pre-test DLS and DLAT tools administered at the beginning of the study. Then, the researcher gave the participants a 10-week intervention of Digital Literacy Training (DLT) as separate lessons weekly. According to Cohen et al. (2017), this aspect of research called the independent variable, is the main characteristic of experimental research. Thus, the treatment of digital literacies is the central manipulation of the independent variable. The study focuses on the possible changes and improvements resulting from the intervention. As the control group did not receive any lessons, any changes in the post-test addressed at the end of the treatment period could be interpreted as a consequence of the intervention. While the DLT intervention was being carried out, Focus Group Interviews (FGI) were conducted to gain insights about the process. Upon the conclusion of the 10-week DLT intervention, post-test DLS and DLAT results were gathered, and semi-structured interviews were performed to obtain the desired qualitative data. The researcher also took field notes throughout all these data collection phases. Elaborated details are explained in the following sections.

3.5.1. Piloting of the Questionnaire

First of all, to carry out the pre-tests, the digital literacy scale (by Reddy et al., 2023) was translated into Turkish by using the TRAPD model (Harkness, 2003), which is based on a team approach protocol and follows five stages: translation, review, adjudication, pre-testing, and documentation as it is shown in Figure 11 below.

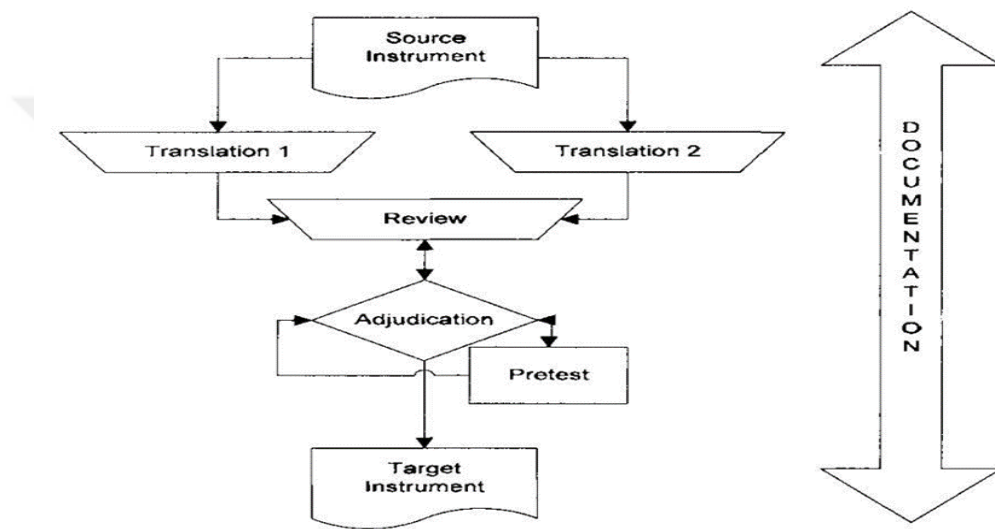


Figure 11. Stages of the TRAPD model

Source: Harkness, 2003.

As Figure 11 illustrates, the model requisites follow certain stages while determining the final translated version of the instrument. These stages can be explained as follows;

- *Stage 1* ⇒ Translation: The questionnaire is subjected to preliminary translation during this phase. Two individuals with exceptional skills in the source and target languages are chosen as translators, guaranteeing their high familiarity with both languages.
- *Stage 2* ⇒ Review: The translated items are sent to two reviewers for evaluation. The reviewers may either approve the translations or propose an updated version if dissatisfied. The reviewers were chosen according to the same criteria as the translators.

- *Stage 3* ⇒ Adjudication: This phase entails evaluation by a linguist and a researcher familiar with the questionnaire. They are responsible for making the ultimate decision on the translated items, considering the reviewers' opinions.
- *Stage 4* ⇒ Pre-testing: The finalized translated survey undergoes pilot testing on a culturally representative sample of the target audience. This phase assists in recognizing any problems that the translators, reviewers, or adjudicators may have neglected.
- *Stage 5* ⇒ Documentation: Unlike the other phases, documentation is a continuous process during the translation production. All actions undertaken must be meticulously recorded to guarantee transparency and precision.

Considering the stages defined above, the researcher organized 3 groups of individuals for the translation process using the team approach of Harkness (2003). For the first stage, two multilingual coworkers were requested to produce two distinct translations, as the screenshots of emails from the colleagues are illustrated in Figure 12.

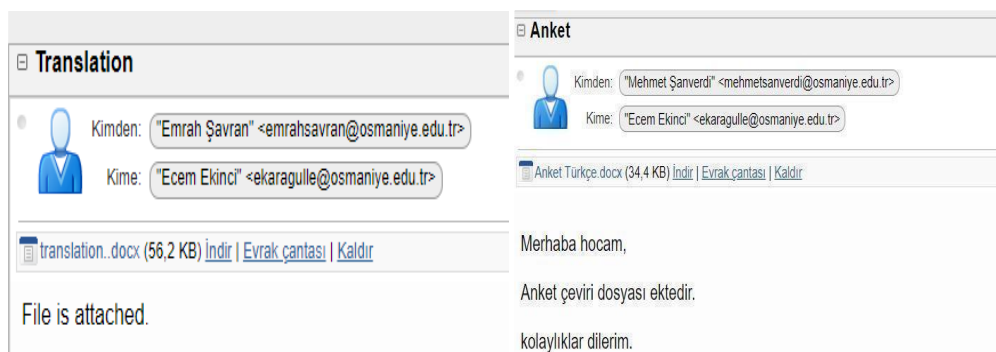


Figure 12. Screenshots of the e-mails by Translators

For the reviewing phase, the researcher collaborated with one of her colleagues, who is a master's degree holder, and a researcher contributing to the same field with several academic studies, and carried out several surveys and questionnaires. They compared and contrasted and finally merged the questionnaires to develop the final version before adjudication.

During the adjudication process, a linguist researcher, who was the former head of the translation and interpreting department at OKÜ, was solicited for assistance. The

professor made a final decision on the list of translated items compiled after the reviewers' verdict.



Figure 13. Screenshot of the mail from an Adjudicator

At that point, the items were ready for pre-testing. The pilot testing was conducted with 20 students from the same cultural background as the target audience. They were probed for each item by answering the questions such as “What do you mean? or Is the item clear enough?”, encouraging them to elucidate their understanding of the item in an open-ended manner. This guarantees that the final version of an item is comprehended as possessing a significance equivalent to that of the original item (*see Appendix E*). Last but not least, documentation was carried out carefully during the process. With the alterations based on students' comments, the final version of the questionnaire was generated and ready for use.

3.5.2. Digital Literacy Training as Intervention

This study employed a 10-week Digital Literacy Training (DLT) intervention for the experimental group participants. Mainly, the Literacy Link South Central (LLSC) Community Tech Connect Curriculum Outline was adapted while creating a syllabus for the training program. Ontario-based initiative expresses its aim as developing resources from cutting-edge programs to award-winning resources for literacy programs and community members interested in the issue of literacy. Thus, all the documents are open to public access. The researcher examined the training module provided by the team and selected the relevant

topics to the intended digital literacies in the study to adapt and make them ready to be instructed (source: <https://www.llsc.on.ca/digital-literacy-modules>). In addition to the written documents, several supplementary materials were selected from YouTube videos to enhance the visual and practical aspects of learning. Moreover, for the DLT program to be applied, an expert, who is a PhD holder instructor at Osmaniye Korkut Ata University, and has been giving Digital Literacy Courses for three years in the same school, was requested to review, revise, and share his opinions with the researcher (see *Appendix F*). Table 5 below shows the targeted digital literacies with definitions, related topics, and intended outcomes for each week.

Table 5.

Digital Literacy Training (DLT) Program

Week	Digital Literacies with Definitions	Topics	Outcomes	New words and Terms
1	Computer Literacy: The ability to understand how to use computers, digital technologies, and their applications for practical use	Operating Systems Search Engines Viruses	Students will know: • What is on the desktop of Windows 10 • How to open an application • What a search engine is • Some of the most popular search engines • How to use a search engine to find information • Some common online threats • Some tips to avoid online threats • What to do if my computer gets a virus	operating system applications programmer input output storage search engine keyword doodle malware adware trojan spyware ransomware worm
2	Technological Literacy: The ability to use computers and digital technologies to improve learning, productivity, and performance	Digital Identity Digital or Online footprint	• What a digital identity is • What a digital footprint is • What my digital footprint might have in it	Persona Credentials Blockchain Reputation digital footprint browser history

			• How a digital footprint can affect employment	download history cookies cache community guidelines
3	Technological Literacy: The ability to use computers and digital technologies to improve learning, productivity, and performance	Passwords Scamming	• What a password is • How to create a strong password • What scamming is • How to avoid it	Password Privacy-first browser VPN (Virtual Private Network) Logbook Internet fraud Phishing Scams Foam Jacking
4	Technological Literacy: The ability to use computers and digital technologies to improve learning, productivity, and performance	Personal-Private Info Online Identity Theft Storing Info on the cloud	• The difference between personal and private information • What identity theft is • What the cloud is • Some standard cloud services and basic features	sign-up or register pop-up personal information private information identity theft or fraud cloud services encryption
5	Information Literacy: The ability to find and locate resources through digital platforms, analyze and synthesize them, evaluate the credibility of information, and understand legal and ethical issues surrounding information	Evaluating Online Info Fake News	• Why it is crucial to evaluate online information • What fake news is • Some questions I can ask to try and determine if the information I find on the internet is true and comes from a reliable source	Googling hits fake news biased domain clickbait echo chamber
6	Information Literacy: The ability to find and locate resources through digital	Giving Academic Citation	• What citation means • Why it is crucial to give references	Reference Plagiarism

	platforms, analyze and synthesize them, evaluate the credibility of information, and understand legal and ethical issues surrounding information	APA Understanding Copyrights	• What APA is • What is copyright and its purpose • What the Fair Use Doctrine is	Google Scholar APA DOI number ORC-ID copyright holder public domain fair use
7	Media Literacy: The ability to create content and communicate it using various digital platforms	Social Media	• What social media is • Some common social media sites • What can I use social media for • Some tips on how to stay safe and secure when using social media	social media profile private message timeline post status update Share Messenger connection recommendation hyperlink anchor text endorsement behavior tracking geolocation
8	Media Literacy: The ability to create content and communicate it using various digital platforms	FOMO Effect Cyberbullying	• What fear of missing out is, and how to avoid it • What cyberbullying is and how to act against it	FOMO Choice Paralysis Digital Detox Troll(ing) Swat(ing) Sh*tposting Flaming Outing Griefing Catfishing Frape

9	Communication Literacy: The ability to communicate using publication technologies, the Internet, and other electronic communication tools	E-mail Basics	• What an e-mail is • How to set up an e-mail account • Some basic e-mail features • How to send a basic e-mail • How to merge e-mails • What Zoom is and what it does • Three ways to join a Zoom meeting • Some Zoom features • What Microsoft Teams is and what it does • Some Zoom features	e-mail inbox outbox junk mail/spam deleted/trash compose draft reply forward e-mail mail merging folders/label s contact carbon copy recipients subject body cloud-based
		Using Zoom		
		Using Microsoft Teams		
10	Visual Literacy: The ability to interpret visual representations and convert all information into different forms of images, pictures, or visuals	Captioning a photo with a Critical perspective	• what caption is and why it is essential to evaluate them critically • what is Photoshop • how to edit visuals • some common Photoshop applications	caption hashtag folksonomy photoshop PicsArt editing mixing remixing
		Photoshop		

It is also crucial to mention that DLT intervention was designed for 10 weeks because of several reasons. First of all, several studies underscore the practicality of interventions spanning a 10 to 12-week timeframe within educational settings (Inns & Slavin, 2020; Outhwaite et al., 2020) to ensure effective student outcomes (DeFouw et al, 2021). Additionally, the 10-week intervention duration was not only feasible due to time constraints and schedule availability concerns but also for resource allocations based on the DLT syllabi.

Weekly, students received handouts including instructional objectives and explanations of the relevant terms for that week. YouTube videos were examined, and different activities and exercises were performed interactively during those lessons. YouTube videos and other printed materials were prepared in English, yet Turkish

equivalents of the terms and students' commentaries in Turkish were accepted during the lessons. The duration of the lessons varied between 60- 90 minutes. There are some examples from the syllabus for the fifth and the seventh week (*see Appendix G*), showing the outcomes, explanations, related video links, and some exercises.

After the students had become familiar with digital literacy training, focus group interviews were held in the fifth week of the intervention. Following Cheng's (2007) guideline, critical questions about the training program were directed to the participants in the researcher's office. There were 5-6 students interviewed from the experimental group one at a time. The effectiveness and the advantages or disadvantages of the digital literacy training were evaluated at this point. According to their feedback, missing points were adjusted within the intervention process. The focus group interview questions that the researcher prepared are given in Figure 14 below.

Opening/ Introduction:

Good evening dear friends. Today we have gathered here to evaluate our DL lessons by answering some questions. Please feel free during the process. I should emphasize that we are recording the interview but your answers will be kept confidential.

Transfer Questions:

After introducing yourself briefly, could you please tell:

- how long you have been using computer and internet
- how many hours do you spend on internet daily

Key Questions:

Could you please evaluate our DL lessons in terms of:

- their permanence and effectiveness

Specific Questions:

- the points you had not realized before and been surprised to learn
- the points that you say it would be good to change in the process

Closing Questions:

Could you please tell how digitally literate you consider yourself?
How do you evaluate your being digital literate?

Final Question:

Is there anything you want to add to evaluate and comment on the DL lessons we are covering every week?

Figure 14. Focus group interview questions

To shed light on the focus group interview phase, one of the students who is not a research participant was requested to take some photos of the interview while the participants contributed to the research (*see Appendix H*).

After the DLT intervention ended, semi-structured interviews, which featured open-ended questions directed at selected participants from the experimental group, were conducted to capture participants' reflections and insights regarding their experiences. To mitigate potential researcher bias, the interviews were conducted by one of the researcher's colleagues, ensuring that the participants would not feel pressured to provide overly positive

responses about the study. Thus, the interviews were held in the researcher's colleague's office in a familiar and comfortable environment for the participants. Each participant was asked a set of ten open-ended questions, allowing them to express their views and provide detailed responses freely (*see Appendix D*). To ensure richer and more nuanced data, a semi-structured interview format was picked, which provides participants with more flexibility in sharing experiences without limitations of predefined answers. These interviews took 9 to 12 minutes to complete, depending on the depth of the participants' responses. The purpose of employing semi-structured interviews in this context was to gain deeper insights into the participants' subjective experiences of the intervention.

Besides, the researcher took field notes during the study's critical incidents, making an elaborate description of events and observations possible. They were collected while piloting the translated questionnaire items with students, documenting their reactions, feedback, and any potential issues with clarity or translation. Moreover, the researcher observed participants while they were answering the pre-test questionnaire and the achievement test, tracing any behaviors, difficulties, or interactivity that may indicate how they perceived the questions or the form of the test itself. The field notes were further kept during the focus group interviews, during which the researcher captured the content of the discussions, non-verbal cues, group dynamics, and any kind of extended interaction between participants. As the researcher would be able to know the general context of the discussion and the level of involvement the participants had with the subjects discussed, this phase of field note-taking was crucial for adding depth to the data collected from the focus group responses.

In addition, the researcher carried out extra observations during the intervention phase and took notes about DLT sessions each week. These notes included personal reflections concerning the effectiveness of the lessons, the participants' engagement, and all other emerging themes or patterns in their learning behaviors. Because the researcher closely traced the changes and progress during the intervention, this immediate documentation of incidents was indispensable for understanding the experiences of the participants and the overall effect of the DLT lessons. Thanks to these observations and instant documentation, the data acquired via questionnaires was contextualized and triangulated by the researcher, by providing a more nuanced comprehension of the experiences and behaviors of the

participants. The research has become more far-reaching and reflective, facilitating deeper insights into the investigation, main topics, and conclusions of the study thanks to this elaborative methodological process. All of the transcript data, obtained from field notes that are non-verbatim and edited, can be traced in the study as well (*see Appendix I*).

To shed light on the data collection process, Figure 15 has been developed to illustrate the data gathering procedure, including pre-tests, post-tests, interventions, interviews, and data analysis, which ensures that the research can provide both quantitative evidence and qualitative insights to assess the impact of the DLT lessons comprehensively.

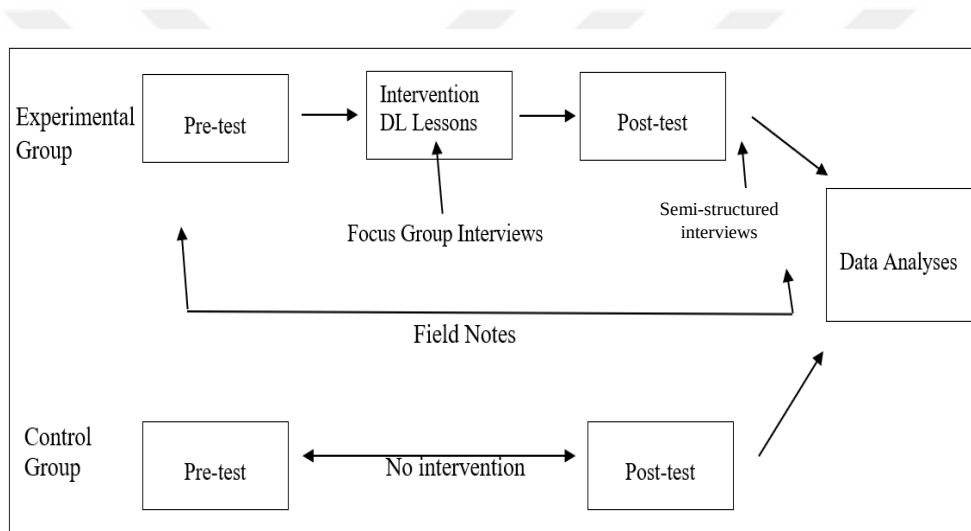


Figure 15. Data Collection Procedure

Figure 15 above displays the data collection process for both the experimental and control groups. It is clear that the experimental group underwent pre-tests, followed by an intervention through Digital Literacy (DL) lessons, and post-tests afterward. Additional data was gathered through focus group interviews conducted during the intervention and semi-structured interviews after the post-test. Field notes were taken throughout the data collection process. In contrast, the control group only participates in the pre-test and post-test without any intervention. All gathered data, encompassing field notes and interviews, was subsequently analyzed during the data analysis phase. This systematic procedure guarantees thorough data acquisition for group comparison.

The 10-week DLT program was utilized as an intervention and concluded at the end of the term. Then, after the final collection of post-tests and the semi-structured interviews, the data were analyzed accordingly, which is highlighted in the following section. The procedure and outcomes are also given in the study (*see Appendix J*).

3.6. Data Analysis

The researcher performed independent data analysis for each data collection instrument. Table 6 below indicates the data analysis methods corresponding to each research question.

Table 6.

Data Collection Tools and Data Analysis Methods

Research questions	Data Collection Tools	Data Analysis
1. What are the effects of the DLT program on Turkish EFL learners' digital literacy achievement levels?	DLAT	SPSS 25.0
a. What are the digital literacy achievement levels of the participants in the experimental and control groups before the implementation of a Digital Literacy Training (DLT) program?	Pre-tests DLAT	Independent-sample t-test
b. Are there any significant differences in the digital literacy achievement levels between the experimental group and the control group after the Digital Literacy Training (DLT) program?	Post-tests DLAT	Independent-sample t-test
c. Does the implementation of the Digital Literacy Training (DLT) program affect the digital literacy achievement levels of the experimental group?	Pre-test DLAT vs Post-test DLAT	Paired Sample t-test
2. What are the effects of the DLT program on Turkish EFL learners' self-perceived DL levels?	DLS	SPSS 25.0

a. What are the self-perceived digital literacy levels of the participants in the experimental and control groups before the implementation of the Digital Literacy Training (DLT) program?	Pre-tests DLS	Independent-sample t-test
b. Are there any significant differences in the self-perceived digital literacy levels between the experimental group and the control group after the Digital Literacy Training (DLT) program?	Post-tests DLS	Independent-sample t-test
c. Does the implementation of the Digital Literacy Training (DLT) program affect the self-perceived digital literacy levels of the experimental group?	Pre-test DLS vs Post-test DLS	Paired Sample t-test
3. Is there any relationship between the digital literacy achievement levels and self-perceived digital literacy levels of Turkish EFL learners?	Pre-test DLAT vs Pre-test DLS Post-test DLAT vs Post-test DLS	SPSS 25.0 Correlation
4. What are the perspectives of Turkish EFL learners regarding their digital literacy levels and the effectiveness of the Digital Literacy Training (DLT) they received?	Focus-group interviews Semi-structured interviews Field notes	Content Analysis Coding

3.6.1. Analysis of Quantitative Data

The quantitative data collected from the surveys and achievement tests were meticulously analyzed using SPSS 25.0 software, employing a diverse range of statistical methods to ensure a comprehensive data evaluation. These methods included the paired-sample t-test, independent-sample t-test, and Pearson correlation, each carefully selected to examine specific aspects of the research. This multilevel approach facilitated a detailed investigation of the relationships between variables and the differences observed across groups, confirming the study's outcomes were meticulously explored.

The paired-sample t-test is among the most common statistical tests used in comparing the average of two related groups. In most studies, the same subjects are measured at two different times. In this study, it was employed to evaluate the pre-and post-

test results of students, offering a clear comparison of their performance before and after the training program. By applying this test, researchers could establish if the observed changes in student outcomes following the intervention were statistically significant, providing insight into the effectiveness of the training program (Field, 2013). This kind of analysis is imperative whenever one tries to reach a conclusion on the effect of an intervention on a particular population over time.

In addition, independent sample t-test analysis was also conducted to analyze the difference between the two independent groups: the experimental and the control groups. This statistical test can be helpful when the researchers want to know whether there is enough substantial evidence that the mean score of the two independent groups differs significantly. This analysis allowed for a direct comparison, in the present study, of performance outcomes of students exposed in the experimental and control groups, hence reinforcing the possibility of attributing any observed change to the intervention itself. By examining the difference, the researcher determined whether the intervention had a measurable effect on the students who received digital literacy training compared to the control group, which had not undergone the same treatment.

Another statistical tool used in this analysis is the Pearson correlation, which is, according to Cohen (1988), an analysis measure defining the direction and strength of the linear relationship of two continuous variables. This analysis was used to examine the relationship between self-reported DL levels and achievement-based DL levels of the participants. Thanks to Pearson correlation analysis, the researcher could explore relationships among various variables and thus point out probable predictive relationships.

Utilizations of SPSS 25.0 techniques such as paired-sample t-test, independent-sample t-test, and Pearson correlation were carried out twice to ensure the accuracy and reliability of the study findings prevent errors, and confirm that there is no data that was overlooked or misinterpreted. By doing this, the analysis could be repeated and retested to see if the results held true. Accordingly, this reduced the possibility of arriving at false conclusions. Such an approach to data analysis is vital for making decisions and suggestions based on the study's findings, echoing the researchers' commitment to producing valid and reliable results. With these analyses, the researcher of the study managed to facilitate the

understanding of the effects of the intervention process and provide answers to a part of the research questions.

3.6.2. Analysis of Qualitative Data

The qualitative data collection tools used in this study are the focus group interviews, semi-structured interviews conducted with experimental group participants, and the researcher's field notes taken throughout the data collection phases. First, recorded data from interviews were transcribed into texts and then checked by the researcher and a colleague to initiate qualitative data analysis. Three native speakers of Turkish then proofread the data of the interviews. Later, these proofread transcriptions were reviewed by the participants as a method of validation for the reliability of the original data and recordings in terms of their accuracy and fit with experiences, which is referred to as member checking (Birt et al., 2016). Later on, the data was translated into English and evaluated by three other academics. In this study, content analysis was applied, which is used to systematically examine textual data in order to identify meaning itself (Kyngäs, 2020). According to Preiser et al. (2021), qualitative content analysis methods logically manifest an emphasis on the diversity of meanings or interpretations in a research context. This study followed the six-step procedure prescribed by Braun and Clark (2006) for thematic analysis of data obtained from the interviews and field notes. During this process, the researcher became familiarized first with the data through transcription, when necessary, then reading and re-reading the material and noting initial ideas. In the second phase, initial codes were developed through systematic coding of the critical features of the data across the dataset, where relevant data was grouped under each code. Third, the researcher identified the individual themes by organizing codes into potential themes and by gathering all relevant data under these themes. This was followed by the fourth phase, which involved reviewing themes to ensure they coincided with both coded extracts and the overall dataset; this developed a thematic map for the analysis. The fifth phase included defining and labeling the themes, developing each theme, and phrasing specific definitions that captured the overall storyline of the analysis. Finally, a report was produced by selecting compelling examples, conducting final data analysis, and linking the findings to the research questions and existing literature.

Following the above-mentioned phases, emergent codes and themes were generated and prepared for presentation in the findings chapter. The study does not include participants' personal information to ensure respondent confidentiality. Instead, the abbreviations were set for the students' names, such as S1, S2, etc.

3.7. Validity and Reliability

Validity in mixed-method research refers to the accuracy and trustworthiness of the findings, ensuring that the study measures what it is intended to measure. In mixed-method research, validity involves integrating quantitative and qualitative validity strategies. According to Creswell and Clark (2011), methodological triangulation is vital in nature; the inclusion of different data sources, methods, or theoretical perspectives enables a researcher to corroborate findings, thus helping to enhance validity. Data triangulation, member checking, and prolonged engagement in the field would be some other strategies that could help enhance validity. Tashakkori and Teddlie (2010) argued that maintaining validity in mixed-method studies involves considering sources of biases from both qualitative and quantitative aspects, hence allowing an in-depth investigation with subtlety in the research problem. Since mixed-methods studies combine the strengths of two approaches, the resultant findings may turn out to be more valid and reliable.

On the other hand, reliability refers to the stability and dependability of the research findings over time and across different contexts. That is the consistency of the results such that the instruments are replicated to produce the same or consistent results. According to Joppe (2000), reliability is the extent to which the results of a study are consistent over a certain period and accurately reflect the target population focused by the research. In other words, a measurement tool can be considered valid in cases where the research results can be replicated using the same approach. In quantitative studies, reliability can be maintained via statistical measures such as Cronbach's alpha coefficient, which can be used to establish internal consistency. However, the reliability of qualitative aspects is assured through processes such as coding consistency checks and inter-rater reliability (Guba & Lincoln, 1994). As noted by Tashakkori and Teddlie (2003), the reliability in mixed-method studies involves consistency and integration of findings across different methods. This holistic approach to reliability ensures that the mixed-method study can provide a comprehensive,

consistent, and reliable set of findings that can endure scrutiny and replication. Therefore, the following strategies and techniques were used to ensure the present study's validity and reliability.

- **Methodological triangulation** in this research study is ensured by utilizing both qualitative and quantitative methods, known as mixed-methods. Mixed-method utilization improved the validity and reliability of the study because it encapsulates different perspectives under its scope while investigating a single phenomenon. It enables the combination of data collection methods and analysis strategies in such a manner that the results can be cross-checked for more holistic and complex information regarding issues of concern (Creswell & Plano Clark, 2011; Denzin, 1978). With the corroboration across different methods, researchers ensure the reduction of bias inherent in a single approach and increase the credibility of the results and the overall validity of their studies. Furthermore, such combinations of different methods can allow researchers to comprehensively compare and contrast the several dimensions of research questions. For instance, quantitative data may provide expansion, while qualitative data may suggest depth and context (Patton, 2002). That means triangulation grants the cross-verification of data through various sources and reduces the risk of methodological biases by not being only dependent on one method (Denzin, 1978). Last but not least, combining different methodologies may result in more full and detailed data. For example, data obtained by a survey may demonstrate trends and patterns, whereas interviews can provide more insights into participants' perceptions, experiences, and perspectives (Thurmond, 2001). Considering these facts, this study employed a mixed methodology to triangulate and ensure validity. Constituting the quantitative part of the study, a survey and an achievement test measuring the digital literacy levels of the participants were employed with qualitative elements, including the interviews and field notes, which aim to explore the experiences and perceptions of the participants. The current study thereby consolidated the quantitative data through qualitative insights by incorporating different methodologies.

- **Data Triangulation** means using multiple data collection tools to study a single phenomenon. The gist of the method aims at validation and corroboration by seeking to cross-verify data obtained through different tools and perspectives. When researchers embrace diverse data collection strategies, the credibility and robustness of the findings are paid for by providing a broad understanding of the research problem (Patton, 2002). Quantitative surveys, for example, can offer broad statistical trends, while qualitative interviews offer very detailed insight into the experience and views of the participants. (Creswell & Plano Clark, 2011). Besides, while combining various data sources, the researchers can lessen the possibility of any one-method biases. This ensures that a study is more balanced and objective (Thurmond, 2001). Thus, data triangulation was established in the data collection tools in the current research by corroborating the surveys and the interviews. The Digital Literacy Scale (DLS) was further triangulated with the Digital Literacy Achievement Test (DLAT). Additionally, qualitative data triangulation was carried out by conducting focus group interviews and field notes, which provided a complete understanding of the research context.
- **Scale triangulation** refers to the implementation of multiple tools to measure the same construct to ensure the validity and reliability of each measurement. Multiple scaling allows researchers to cross-check their findings by implementing several scales and guarantee that the measured construct is the same across individual instruments. Any inconsistencies in the construct can be easily identified thanks to this approach. When different scales show similar results, this means that the construct is valid enough. More importantly, different scales might be sensitive to different levels or susceptible to biases. Using multiple scales allows the researcher to find and reduce such biases for better measurements (Denzin, 1978). Both the DLS scale and DLAT were thus implemented in this study to investigate and disclose the digital literacy levels of EFL learners, through which the relationship between them became the subject of investigation.

- **Investigator Triangulation** is maintained when more than one investigator or interviewer is included in the data collection and analysis phases. This approach attempts to enhance the validity and reliability of the research findings by reducing the possible biases and limitations caused by the researcher's being alone during these stages of the study. Inasmuch as different investigators are concerned with the research, the study benefits from multiple perspectives and various ways of interpreting the data. For example, different interviewers may lead to minimizing the risk of individual biases. Every interviewer can bring some biases and views that will be combined in such a way that the research objectives will be achieved due to a balanced and objective analysis taking place accordingly. The study will gain validity when different researchers have independently validated some findings. Cross-validation removes the impact that results are some kind of artifact occurring due to a single researcher's approach or perspective (Tashakkori & Teddlie, 2010). Moreover, Bashir et al. (2008) emphasized that to avoid the influencing power over attitude and biases of one investigator to others, each of them should collect data independently. As a result, these kinds of independent contributions can make the data collection process more objective. A colleague of the researcher, also a professional in the field, conducted the semi-structured interviews to eliminate researcher bias, as Chenail (2011) asserts, which may occur when interviewing is used to generate the data. Those interviews were conducted at the end of the term after the end of the treatment period.
- **Data transparency** refers to the way the data are shared, reported, and documented openly, accessible, and transparently throughout the research process to let interested parties verify, replicate, and analyze the data further. It embodies practices that make sure the data is available to other researchers, policymakers, and the public in some readable format. Detailed documentation, open access to the dataset, and transparent reporting of methods and results are some of the practices that amount to transparent data. Besides, all details related to the research methodology, including techniques of data collection, data processing, and data analysis, should be provided clearly, which assists other

researchers in understanding how the data were collected and analyzed (Corti et al., 2024). From the beginning till the end of the study, the researcher reported and documented all the aforementioned processes objectively and transparently.

- **Reporting Non-Verbal Data:** refers to objective, detailed, organized recording and presentation of data in non-verbal forms. These are gestures, facial expressions, body language, tone of voice, and other forms of non-verbal ways of communication. Any data requires such transparent reporting for the accuracy, reliability, and validity of research findings. Transparency in reporting the non-verbal data also means that the research findings are based on a total analysis of all available data, not just from the respondents' words, which increases the validity and reliability of the study (Creswell, 2021). Besides, non-verbal data can give deeper insight into participants' factual feelings, attitudes, and behaviors than was readily available through verbal communication. According to Goffman (2023), transparent reporting makes it easier for the researcher and readers to understand the research context. Well-documented details on the methods of data collection and analysis concerning non-verbal data will enable other researchers to seek to replicate the study or verify findings, thereby making the study robust. In support, Yin (2014) argues that the robustness of a research study involves such characteristics. Thus, this study includes field notes maintained by the researcher during the conduction of the research to shed light on the verbal data obtained via the data collection tools and outcomes provided by the participant students by investigating the non-verbal signals.
- **Piloting of the Questionnaire** enables the researcher to locate ambiguous or vague questions that might mean different things to the respondents. Such clarification of questions ensures all respondents understand them in roughly similar ways, which in turn increases the reliability (Fink, 2003). Piloting the questionnaire may also help get feedback on whether the respondents think the questions appear to be measuring a certain intended construct, which helps assess their relevance and appropriateness (DeVon et al., 2007). In this study, the DLS as a research tool was piloted after its translation from the original

source. The piloting was conducted with 20 students living in the same culture as the target population. These participants were then asked for each item through questions like “What do you mean?” or “Is the item clear enough?” which led them to express their comprehension of the item in an open-ended manner. By doing so, the final version of an individual item is ensured to be understood as having the same meaning as the original one.

- **Member-checking– participant validation** is a technique utilized in qualitative research to enhance a study's accuracy, reliability, and validity. It involves returning obtained data or results to the participants so they can review them and comment. By doing this, researchers can be sure that their interpretations are accurate as the participants confirm the interpretations and derive conclusions at this stage. The participants can point out any inaccuracies or misunderstandings of the collected data that might be contained in the data; such specific information the researcher can correct to maintain the reliability of the data (Lincoln & Guba, 1985). In addition, member-checking enables the researcher to ascertain that the data and accompanying interpretations are a true reflection of the experiences and views of the participants; thus, this enhances the content validity of the study (Creswell & Miller, 2000). In light of these facts, the researcher of this study employed member checking subsequent to data collection through focus groups and semi-structured interviews. During this process, the participants were asked to read and reflect on the transcribed data. Based on their commentaries, it was revealed that their prior statements during the interviews aligned with the transcribed data. Hence, the researcher made sure that the data was ready to be analyzed from then on.

3.8. Ethical Considerations

During the study period, the ethical considerations guiding the research process are outlined, focusing on protecting participants’ rights, confidentiality, and integrity throughout the study. Before collecting data, the researcher explained the goal of this research to the participants, asking their permission and committing to keeping their data confidential. Simultaneously, the participants signed informed consent forms at the beginning of the study

(see *Appendix K*). Moreover, the researcher used abbreviations such as S1 and S2 when presenting the participants' data to avoid violating their privacy. Lastly, the study does not involve any form of deception at any stage. The collected data has been securely stored on a cloud server, ensuring constant accessibility. Triangulation has ensured objectivity through different data collection methods, and the researcher adopted outspokenness and frankness.

3.9. Researcher's Role

In this study, the researcher was also the instructor of the participant students. Together, they had 14 hours of English preparatory class sessions each week. That is why, the researcher was able to gain an emic perspective towards the study rather than being an outsider. She kept recording the field notes during the data collection phase, which provided a thick description of the circumstances and incidents that occurred during the whole procedure. Throughout the phases, she was with the participants centering their opinions on the study. Specifically, she made changes during the intervention of DLT based on student feedback to meet their expectations from the training. For example, in FGI students mentioned that they would like more interactive sessions, and then the researcher added several activities to the following syllabi accordingly. Moreover, the researcher made alterations to the data collection tool by omitting the second FGI at the end of the study and adding semi-structured interviews instead. What is more, she also requested assistance from one of her colleagues to conduct those semi-structured interviews to ensure objectivity and avoid any researcher bias. Thus, a non-threatening and friendly atmosphere for interviews was provided to the participants. Lastly, all the collected data is kept confidential and safe in a cloud service and analyzed neutrally by the researcher.

CHAPTER IV

FINDINGS

4.1. Introduction

This chapter presents the findings of the study. The findings are categorized according to the data-collecting methodology. Consequently, the sequence of the presentation of the findings is as follows: (1) quantitative data findings (results from pre and post-tests of DLATs, results from pre and post-tests of DLSs, and comparative analysis and correlation between DLAT and DLS) and (2) qualitative data findings (results from FGIs, semi-structured interviews, and field notes).

4.2. Findings of Quantitative Data

The study's quantitative data are examined using the SPSS 25.0 software, as previously mentioned. Results are displayed in corresponding tables and charts, illustrating figures including percentages, mean scores, standard deviations, and two-tailed significance scores. Key points related to these illustrations are also emphasized during the presentation.

4.2.1. Digital Literacy Achievement Tests

To address the first research question of the study, it was necessary to administer an achievement test to the participants both before and after the intervention. As previously mentioned, the DLAT consists of 30 multiple-choice questions evaluating different subcategories of DL, designed in line with the DLS scale. The achievement scores of the participants were graded twice by the researcher and the researcher's colleague who is also a professional in the field. Double-checked scores were analyzed later by SPSS 25.0.

For the first sub-question of the first research question, the digital literacy achievement levels of the participants in the experimental and control groups before the implementation of the Digital Literacy Training (DLT) program were compared by using the independent t-test technique to answer RQ1a. *RQ1a: What are the digital literacy achievement levels of the participants in the experimental and control groups before the*

implementation of the Digital Literacy Training (DLT) program? Findings for this question are shown in Table 7 below.

Table 7.

Independent Sample T-test Analysis for Pre-test DLAT Scores

Group	N	Group Statistics		p-value (2-tailed)
		Mean	Std. Deviation	
Experimental	29	18,9655	8,09975	,876
Control	31	19,2581	6,19660	

As presented in Table 7, the experimental group includes 29 participants, while the control group has 31 participants. The experimental group's pre-test mean score is 18,96, while the same variable is calculated as 19,25 for the control group. The results indicate that the participants in both groups achieved similar levels in the pre-test achievement test, which is also revealed by the p-value. If the 'p-value' is calculated higher than 0,05, it means that there is no significant difference between the scores of the compared groups. In the current study, 'p-value', which is the most crucial figure in Table 9, is calculated as 0,875. Therefore, it indicates that there is not a statistically significant difference between the pre-test scores of the experimental and the control groups ($p > 0,05$).

Additionally, the percentages of students based on their DL levels before the DLT program was implemented are compared and contrasted in Table 8 below to make these findings more comprehensible.

Table 8.

Comparison of Pre-test DLAT Results of Both Groups

Levels	Experimental Group		Control Group	
	N	%	N	%
L1 (No Understanding)	4	13.7	3	9.6
L2 (Very Low)	11	37.9	16	51.6
L3 (Low)	12	41.3	11	35.4
L4 (Average)	2	6.8	1	3.2
L5 (High)	0	0	0	0
L6 (Very High/Expert)	0	0	0	0
TOTAL	29	100	31	100

In Table 8, it is clear that most of the participants in this study fall into the L2 and L3 categories of Reddy et al. (2023), which are described as very low and low levels.

The second sub-question of the first research question deals with the post-test DLAT scores. *RQ1b: Are there any significant differences in the digital literacy achievement levels between the experimental group and the control group after the Digital Literacy Training (DLT) program?* To answer this question, post-tests were compared using the independent t-test technique. Table 9 shows independent sample t-test results of achievement post-test scores of experimental and control group participants.

Table 9.

Independent Sample T-test Analysis for Post-test DLAT Scores

Group	N	Group Statistics		p-value (2-tailed)
		Mean	Std. Deviation	
Experimental	29	30,0000	8,41767	,000
Control	31	18,4516	6,88398	

Table 9 exhibits that the mean post-test score of the experimental group is calculated as 30,00, while the same variable is calculated as 18,45 for the control group. Moreover, the p-value indicates a statistically significant difference between the scores of experimental and

control groups after the provision of digital literacy training ($p<0,05$). Additionally, percentages of students based on their levels after the DLT program are presented in Table 10 below to clarify *RQ1b* in a detailed way.

Table 10.

Comparison of DLAT Post-test Results of Both Groups

Levels	Experimental Group		Control Group	
	N	%	N	%
L1 (No Understanding)	0	0	4	12.9
L2 (Very Low)	3	10.3	16	51.6
L3 (Low)	11	37.9	10	32.2
L4 (Average)	11	37.9	1	3.2
L5 (High)	4	13.7	0	0
L6 (Very High/Expert)	0	0	0	0
TOTAL	29	100	31	100

Table 10 illustrates that the majority of the participants in the experimental group attained L3 and L4 levels (low and average), whereas most participants in the control group remained at L2 and L3 levels (very low and low) at the end of the study. This means DLT positively affected the DLAT scores of the students.

Next, the third sub-question of the first research question focuses on the DLAT scores of the participants as pre and post-tests to reveal the effect of the DLT program. *RQ1c: Does the implementation of the Digital Literacy Training (DLT) program affect the digital literacy achievement levels of Turkish EFL learners?* To find an answer to this question, pre- and post-achievement scores and levels of the experimental group were compared and contrasted by implementing a paired sample t-test. Table 11 illustrates the results as follows.

Table 11.

Paired Sample T-test Analysis for Pre and Post-test DLAT Scores of Experimental Group

Group	N	Group Statistics		p-value (2-tailed)
		Mean	Std. Deviation	
Pre-Test Score	29	18,9655	8,09975	,000
Post-Test Score	29	30,0000	8,41767	

Table 11 clarifies that the experimental group's pre-test mean score is 18,96 while this score is 30,00 as a post-test result. This means that the experimental group increased their achievement scores after the DLT program. It is also clear from Table 11 that this increase is statistically significant when we examine the p-value ($p < 0,05$).

Furthermore, the percentages of the pre- and post-levels of the experimental group are listed in Table 12 below to provide a clear conclusion for the third sub-question of the first research question of the study.

Table 12.

Comparison of Pre-test and Post-test DLAT Results of Experimental Group

Levels	Experimental Group Pre DLAT		Experimental Group Post DLAT	
	N	%	N	%
L1 (No Understanding)	4	13.7	0	0
L2 (Very Low)	11	37.9	3	10.3
L3 (Low)	12	41.3	11	37.9
L4 (Average)	2	6.8	11	37.9
L5 (High)	0	0	4	13.7
L6 (Very High/Expert)	0	0	0	0
TOTAL	29	100	29	100

As Table 12 suggests, the majority of the experimental group students were at L2 and L3 levels (very low and low) before the DLT program. However, when the post-DLAT

levels of the same students are analyzed, an increase is seen in the L3 and L4 categories, representing low and average levels.

To summarize the findings of the first research questions, it can be stated that the experimental and control groups had similar scores and levels before implementing the DLT program. However, there is a significant difference between the experimental group's pre and post-test DLAT scores, which means that the DLT program positively affected the DL scores and levels of the participant students.

4.2.2. Digital Literacy Survey

The second research question of the study deals with the DLS scores of the participants to determine the impact of the Digital Literacy Training (DLT) program on their perceived digital literacy levels. To answer the sub-questions of the second research question, it was necessary to administer surveys to participants before and after the DLT intervention. The survey was adapted from Reddy et al. (2023), consisting of 6 subcategories of DL. The initial research indicates that the scale is both reliable and valid (*Cronbach's Alpha score = 0.90*). Before the study was conducted, the original scale was translated into Turkish following certain procedures, and it was piloted with 20 participants based on the TRAPD model of translation of scales (Harkness, 2003). Before the analysis of the groups' overall DLS scores, each participant's individual DLS scores were calculated following the protocol suggested by Reddy et al. (2023). The DLS scores for each participant were calculated by first summing the total scores from the 60 items in the survey. Since the survey was based on a 5-point Likert scale, the total score was then divided into 5 to obtain an average score that reflects the participants' overall digital literacy level. For example, a participant who received 180 total points from the DLS scale out of 60 items in total ended up with a 36 score after dividing the result into 5, considering 5-Likert, to reveal the levels and point ranges provided by Reddy et al. (2023). As the participant in the example receives 36 points, she has an 'average' (31-40) digital literacy level (*see Figure 8*). After revealing all individual DLS scores of both groups, their average scores were calculated to prepare them for the SPSS analysis.

For the first sub-question of the second research question, the self-perceived DL levels of the participants in the experimental and control groups before the implementation

of the DLT program were compared using the independent t-test technique. *RQ2a: What are the self-perceived digital literacy levels of the participants in the experimental and control groups before the implementation of the Digital Literacy Training (DLT) program?* The results pertaining to this question are presented in Table 13 below.

Table 13.

Independent Sample T-test Analysis for Pre-test DLS Scores

Group	N	Group Statistics		p-value (2-tailed)
		Mean	Std. Deviation	
Experimental	29	35,5172	10, 01592	,863
Control	31	35,9355	8, 58982	

As suggested in Table 13, the mean score of the experimental group is 35,51, while the same score is 35,93 for the control group. The results demonstrated that participants in both groups exhibited nearly identical values in the pre-test DLS, which was also revealed by the p-value. The ‘p-value’ was calculated as 0,863, which means that there is not a statistically significant difference between the pre-test DLS scores of the experimental and the control groups ($p>0,05$).

Additionally, Table 14 presents a comparison of the numbers and percentages of students based on their self-perceived digital literacy (DL) levels before the DLT program was implemented to make these findings more comprehensible.

Table 14.

Comparison of Pre-test DLS Results of Both Groups

Levels	Experimental Group		Control Group	
	N	%	N	%
L1 (No Understanding)	0	0	0	0
L2 (Very Low)	1	3.4	0	0
L3 (Low)	10	34.4	6	16.2
L4 (Average)	7	24.1	17	54.8
L5 (High)	9	31	5	16.1
L6 (Very High/Expert)	2	6.8	3	9.6
TOTAL	29	100	31	100

Table 14 demonstrates that experimental and control group students had similar self-perceived DL levels before the DLT program, considering the scale provided by Reddy et al. (2023). The experimental group predominantly identified at levels L3 and L5 (low and high), while the control group primarily perceived themselves at levels L4 and L5 (average and high).

The second sub-question dealt with the comparison of post-test DLS scores of the experimental and control group participants. *RQ2b: Are there any significant differences in the self-perceived digital literacy levels between the experimental group and the control group after the Digital Literacy Training (DLT) program?* Post-test scores were compared using the independent t-test technique to find an answer to the research question. Table 15 provides independent sample t-test analysis results of DLS post-test scores of experimental and control group participants.

Table 15.

Independent Sample T-test Analysis for Post-test DLS Scores

Group	N	Group Statistics		p-value (2-tailed)
		Mean	Std. Deviation	
Experimental	29	42,5103	8,97132	,116
Control	31	38,7871	9,08404	

Table 15 indicates that the mean score for the experimental group is 42.51, while the control group has a mean score of 38.78. There is not a significant difference between the DL levels of participants in the experimental and control groups based on their DLS scores ($p>0.05$).

In addition, the numbers and percentages of students based on their self-perceived DL levels after the DLT program was implemented are compared and contrasted in Table 16 below to make these findings more comprehensible.

Table 16.

Comparison of Post-test DLS Results of Both Groups

Levels	Experimental Group		Control Group	
	N	%	N	%
L1 (No Understanding)	0	0	0	0
L2 (Very Low)	0	0	0	0
L3 (Low)	2	6.8	6	16.2
L4 (Average)	11	37.9	14	45.1
L5 (High)	9	31	6	16.2
L6 (Very High/Expert)	7	24.1	5	16.1
TOTAL	29	100	31	100

Table 16 implies that the majority of the participants in both the experimental and the control groups perceived themselves at L4 and L5 (average and high) DL levels.

Nevertheless, it is understood that participants in the experimental group assessed themselves slightly at a higher level than those in the control group.

To answer the third sub-question of the second research question, pre-and post-DLS scores and levels of the experimental group were compared and contrasted by implementing a paired sample t-test. The results of this statistical analysis are presented in Table 17, providing insight into the impact of the DLT program on students' self-perceived digital literacy. (*RQ2c: Does the implementation of the Digital Literacy Training (DLT) program affect self-perceived digital literacy levels of Turkish EFL learners?*)

Table 17.

Paired Sample T-test Analysis for Pre and Post-test DLS of Experimental Group

Group	N	Group Statistics		p-value (2-tailed)
		Mean	Std. Deviation	
Pre-Test Score	29	35,0138	9,86001	,000
Post-Test Score	29	42,5103	8,97132	

According to Table 17, the pre-test DLS scores of the participants in the experimental group are 35,01, while the post-test DLS scores are 42,51 for the same participants. Thus, comparing the experimental group's pre-test and post-test DLS levels shows a significant difference between the perceived DL levels of participants before and after the implementation of the DLT program ($p < 0,05$).

Moreover, the percentages of self-perceived DL levels of the experimental group are included in Table 18 below to address the study's second research issue conclusively.

Table 18.

Comparison of Pre-test and Post-test DLS Results of Experimental Group

Levels	Experimental Group Pre DLS		Experimental Group Post DLS	
	N	%	N	%
L1 (No Understanding)	0	0	0	0
L2 (Very Low)	1	3.4	0	0
L3 (Low)	10	34.4	2	6.8
L4 (Average)	7	24.1	11	37.9
L5 (High)	9	31	9	31
L6 (Very High/Expert)	2	6.8	7	24.1
TOTAL	29	100	29	100

As Table 18 suggests, most of the experimental group students perceived themselves at L3 and L4 levels (low and high) before the DLT program. However, an increase in digital literacy levels is observed when examining the post-DLS levels of the same students, with more students reaching levels L4 and L5 (average and high).

To provide more comprehensible insights into the individual items and subcategories, the following tables present the pre-and post-test mean scores of the experimental group for each subcategory of the DLS, allowing for an easy comparison of the changes in one view. Table 19 displays the media literacy mean scores of the experimental group before and after the DLT program.

Table 19.

Media Literacy- Mean Scores of the Experimental Group

Media Literacy	Pre	Post
1. Creating new content in Word/Excel/PowerPoint	2,51	3,31
2. Creating PDF documents	2,75	3,37
3. Revising existing content	2,51	3,24
4. Choosing appropriate media	3,06	3,68
5. Understanding copyright	2,96	3,37
6. Understanding Intellectual property rights	2,68	3,34
7. Knowing how to use computers, smartphones, tablets and smart media	3,89	3,93
8. Navigating through hyperlinks	3,58	3,89
9. Interpreting media messages	3,51	3,86
10. Selecting possibilities through online newspapers, cookies, websites, and news channels	3,34	3,72
11. Communicating and presenting using media such as using Blogs and YouTube	3,00	3,62
12. Using different sources of information and media devices, e.g., Internet and social networks	3,89	4,06
13. Participating in public through debates and online forums, e.g., using social media and emails	2,86	3,20
Average Mean Scores	3,12	3,58

Table 19 indicates a significant improvement in the participants' perceived media literacy scores after the 10-week DLT program. The data show an improvement across all skills after the intervention. For instance, the ability to create new content using software such as Word, Excel, and PowerPoint improved from a mean score of 2,51 to 3,31. Similarly, the mean score for understanding intellectual property rights increased from 2,68 to 3,34, and the ability to use different sources of information and media devices rose from 3,89 to 4,06. The average mean scores increased from 3,12 in the pre-test to 3,58 in the post-test, reflecting the overall enhancement of media literacy among the students.

Next, Table 20 gives the mean scores of the communication literacy of the experimental group before and after the DLT program, as it is the second subcategory of digital literacy in the DLS survey.

Table 20.

Communication Literacy- Mean Scores of the Experimental Group

Communication Literacy	Pre	Post
14. Using Open Educational Resources (OERs)	2,31	2,86
15. Participating in online chats and forums for learning and research	2,68	3,10
16. Using digital platforms for personal use – online booking and appointments	3,00	3,34
17. Using publication technologies	2,96	3,31
18. Using the Internet to communicate	4,17	4,34
Average Mean Scores	3,02	3,39

Table 20 presents the pre-and post-test mean scores of the experimental group in the area of communication literacy. The data indicate improvements across all targets following the intervention. For example, the mean score for using Open Educational Resources (OERs) increased from 2,31 to 2,86, and the ability to participate in online chats and forums for learning and research improved from 2,68 to 3,10. Additionally, the use of digital platforms for personal purposes, such as online booking and appointments, increased from 3,00 to 3,34.

Table 21 also presents the information literacy mean scores of the experimental group before and after the DLT program, as it is the third subcategory of DL in the DLS survey.

Table 21.

Information Literacy- Mean Scores of the Experimental Group

Information Literacy	Pre	Post
19. Knowing what and how to find information on the web	3,89	4,03
20. Using advanced search options to look for information on the web	3,65	4,06
21. Using information in different media, for example, podcasts or videos	3,27	3,89
22. Assessing whether an online resource (e.g., web page, blog, wiki, video, podcast, academic journal article) is credible and trustworthy	3,06	3,51
23. Keeping a digital record of the information relevant to you	2,62	3,31
24. Adding comments to blogs, forums, or web pages for online communications	2,31	3,27
25. Creating content in different media	2,55	3,48
26. Collaborating safely with others online, for example, with secured passwords, aware of fake websites and spams	2,44	3,24
27. Citing references for online resources used	2,27	2,93
28. Sharing files legally with others	2,72	3,37
29. Knowing what a bibliography is	2,20	3,79
Average Mean Scores	2,82	3,53

Table 21 details the information literacy scores, which reflect a significant improvement following the 10-week DLT program, with the average mean scores increasing from 2,82 in the pre-test to 3,53 in the post-test. The ability to use advanced search options for information retrieval also improved, with the mean score rising from 3,65 to 4,06. Similarly, using information from different media, such as podcasts or videos, increased from 3,27 to 3,89. The participants' ability to assess whether online resources are credible and trustworthy improved from 3,06 to 3,51.

On the other hand, Table 22 offers the mean scores of the visual literacy subcategory of the experimental group before and after the DLT program, which is the fourth subcategory of DL in the DLS survey.

Table 22.

Visual Literacy- Mean Scores of the Experimental Group

Visual Literacy	Pre	Post
30. Defining and identifying the need for an image	3,03	3,34
31. Identifying a variety of sources for images	3,13	3,75
32. Accessing required images and visual media	3,44	3,72
33. Organizing images and the source of information	2,86	3,75
34. Identifying the physical, technical, and design components of an image	2,48	3,24
35. Interpreting and analyzing an image	3,24	3,68
36. Evaluating the effectiveness and reliability of an image	3,10	3,65
37. Evaluating textual information accompanying the images	2,96	3,44
38. Using technology to work with images	3,20	3,82
39. Knowing how to interpret images and including them in your scholarly projects	2,82	3,44
40. Using tools and technology to produce images and visual media	3,00	3,58
41. Understanding and following ethical, legal, social, and economic issues surrounding images and visual media	2,79	3,48
42. Citing images and visual media in projects and presentations	2,79	3,82
Average Mean Scores	2,99	3,59

Table 22 presents a comprehensive picture of the students' enhanced abilities to interpret, create, and ethically manage visual content following the 10-week DLT program. The results show an improvement in all measured skills. For example, the ability to define and identify the need for an image increased from a pre-test mean score of 3,03 to a post-test score of 3,34. Identifying various sources for images also improved significantly, rising from 3,13 to 3,75. Other skills, such as accessing required images and visual media, increased from 3,44 to 3,72.

In addition, Table 23 below provides information about the pre and post-test scores of the participants in the experimental group considering the technology literacy subcategory.

Table 23.

Technology Literacy- Mean Scores of the Experimental Group

Technology Literacy	Pre	Post
43. Identifying different computer platforms and software versions	2,31	3,03
44. Installing and uninstalling software	2,27	3,06
45. Compressing and Decompressing files	2,41	3,03
46. Backing up and Recovery of data	2,79	3,24
47. Choosing the best hardware/software for a given task	2,41	3,06
48. Knowledge of emerging technology and its limitations	2,93	3,34
49. Knowledge of word processing, spreadsheet, database, and presentation software	2,27	3,03
50. Creating mail merge	2,03	2,65
51. Knowing how to use search engines and online directories	2,68	3,44
52. Knowledge about password protection	3,10	3,62
53. Planning, creating, and editing presentations, videos, animations, simulations, and podcasts	2,68	3,55
54. Knowledge about web authoring tools	2,48	3,31
Average Mean Scores	2,53	3,20

The technology literacy scores from the 10-week DLT program in Table 23 demonstrate significant advancements in students' abilities to effectively utilize and understand a broad range of technological tools and concepts. For instance, the ability to identify different computer platforms and software versions increased from a mean score of 2,31 to 3,03. Similarly, scores for installing and uninstalling software improved from 2,27 to 3,06, and compressing and decompressing files increased from 2,41 to 3,03. The increase in average mean scores from 2,53 in the pre-test to 3,20 in the post-test reflects the substantial impact of the DLT program on enhancing students' proficiency with technology, a critical component of digital literacy.

Furthermore, Table 24 presents the mean scores for the final subcategory, computer literacy, among individuals in the experimental group as follows.

Table 24.

Computer Literacy- Mean Scores of the Experimental Group

Computer Literacy	Pre	Post
55. Using Google to search for topics	4,41	4,44
56. Having an email account	4,55	4,62
57. Using of office applications	3,20	4,24
58. Resolving basic technical equipment problems	2,44	3,68
59. Using anti-virus software	2,58	3,44
60. Having and using social media accounts	4,27	4,34
Average Mean Scores	3,58	4,13

Table 24 presents the pre-and post-test mean scores of the experimental group in the area of computer literacy. The results demonstrate improvement in all areas after the DLT intervention. For instance, the ability to use Google to search for topics slightly increased from 4,41 to 4,44, and the score for having and managing an email account improved from 4,55 to 4,62. More significant improvements are observed in using office applications, which increased from 3,20 to 4,24, and resolving basic technical equipment problems, which rose from 2,44 to 3,68.

Among all the literacy areas assessed, computer literacy showed the most substantial increase, with the average mean score rising from 3,58 in the pre-test to 4,13 in the post-test. This 0,55-point improvement indicates that the DLT program was particularly effective in enhancing students' basic computer skills, which are foundational to all other forms of digital literacy. Furthermore, the highest increase within the computer literacy category was observed in resolving basic technical equipment problems, where the score jumped from 2,44 to 3,68. This significant enhancement highlights the program's efficacy in enabling students to achieve greater autonomy in controlling and resolving issues with their digital tools. Acquiring technological problem-solving skills is essential, as it diminishes reliance on external assistance and strengthens students' confidence and independence in using technology.

In a nutshell, the overall results demonstrate the success of the DLT program in significantly enhancing the digital literacy levels of the participants across all categories. The most substantial gains were observed in computer literacy, particularly in resolving basic technical issues, highlighting the program's effectiveness in equipping students with

the essential skills needed for independent digital functioning. This foundational improvement is crucial, as it supports the development of more advanced digital literacy competencies, ensuring that students are well-prepared to navigate the complexities of the digital world both now and in the future. The DLT program's impact across the board suggests that similar interventions could be highly beneficial if implemented more broadly within educational curricula.

To summarize the findings related to the second research question, it is evident that the experimental and control groups had similar scores and levels before the DLT program was implemented, indicating that they were well-matched at the outset. Following the DLT intervention, although there was no statistically significant difference between the post-test DLS scores of the experimental group and the control group, the experimental group demonstrated a substantial increase in their self-perceived digital literacy levels. This suggests that, despite the lack of a significant difference in objective measures between the two groups, the experimental group participants were reported to be more confident and self-assured in their digital literacy skills after the DLT program. The increase in self-perception highlights the program's effectiveness in enhancing actual digital competencies and boosting students' confidence in their digital abilities, which can be equally important in fostering a positive approach to digital learning and application.

4.2.3. Relationship between DLAT and DLS

The third research question of the study examines the correlation between achievement-based digital literacy levels and the self-assessed digital literacy levels of the participants. *RQ3: Is there any relationship between the digital literacy achievement levels and self-perceived digital literacy levels of Turkish EFL learners?*

At this stage, the correlation analysis technique in SPSS 25.0 was utilized to analyze the quantitative data and investigate relationships between variables. To be more specific, the researcher conducted a Pearson Product Moment Correlation analysis. This method was chosen to provide statistical insights into how different variables interact with each other throughout the study. The Pearson correlation coefficient is commonly used in correlation analysis to determine how closely two variables are related. +1 indicates a perfect positive linear relationship. -1 indicates a perfect negative linear relationship. 0 indicates no linear

relationship between the variables. Plus, Gülbahar and Büyükoztürk (2008) state that the magnitude of the relationship varies from no relation to a strong relation (0.00= no relation, 0.00 - 0.30 = weak relation, 0.30 - 0.70 = moderate relation, 0.70 - 1.00 = strong relation). To clarify the research question, the researcher compared the Digital Literacy Achievement Test (DLAT) and the Digital Literacy Scale (DLS) pre-test scores of the students in the experimental group. Table 25 below presents the results of this comparison, offering a detailed look at how these pre-test scores aligned with one another.

Table 25.

Correlation between Pre-test DLAT and DLS Scores of Experimental Group

		Correlations	
		Pre_DLS	Pre_DLAT
Pre_DLS	Pearson Correlation	1	,517**
	Sig. (2-tailed)		,004
Pre_DLAT	Pearson Correlation	,517**	1
	Sig. (2-tailed)	,004	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 25 displays the correlation between the pre-test scores of the DLS and the Digital DLAT for the experimental group. The Pearson correlation coefficient between the pre-DLS and pre-DLAT scores is 0,517, indicating a moderate positive correlation between the participants' self-perceived digital literacy (by using DLS) and their actual digital literacy achievement (by using DLAT). On the other hand, the significance value (Sig. 2-tailed) is 0,004, which is less than 0,01. This shows that the correlation is statistically significant at the 0,01 level, indicating that the correlation between these variables is unlikely to be coincidental.

Table 26 provides a detailed comparison of the experimental group's levels based on their pre-test scores from the DLAT and the DLS. This comparison visually illustrates the distribution of participants across various digital literacy level intervals, highlighting their actual digital literacy achievement and their self-perceived digital literacy before the intervention.

Table 26.

Comparison of Pre-DLAT and Pre-DLS levels of Experimental Group

Levels	Experimental Group Pre DLAT		Experimental Group Pre DLS	
	N	%	N	%
L1 (No Understanding)	4	13.7	0	0
L2 (Very Low)	11	37.9	1	3.4
L3 (Low)	12	41.3	10	34.4
L4 (Average)	2	6.8	7	24.1
L5 (High)	0	0	9	31
L6 (Very High/Expert)	0	0	2	6.8
TOTAL	29	100	29	100

Table 26 categorizes participants into different levels based on their perceptions and achievements related to digital literacy issues. It is clear from the table that the participants had L2 and L3 (very low and low) achievement levels before the DLT program was implemented, whereas their perceived levels were L3, L4, and even L5 (low, average, and high) according to their pre-test DLS results.

After examining the relationship between the pre-test results, the researcher shifted focus to the post-test data to determine whether the DLT program affected the relationship between participants' self-perceived digital literacy and their actual digital literacy achievement. Table 27 presents a comparison of the post-test results for both DLS and DLAT, analyzed using the correlation coefficient technique in SPSS 25.0.

Table 27.

Correlation of Post-test DLAT and DLS of Experimental Group

		Correlations	
		Post_DLS	Post_DLAT
Pre_DLS	Pearson Correlation	1	,341
	Sig. (2-tailed)		,070
Pre_DLAT	Pearson Correlation	,341	1
	Sig. (2-tailed)	,070	

Table 27 shows the correlation between the post-test scores of the Digital Literacy Scale (DLS) and the Digital Literacy Achievement Test (DLAT) for the experimental group. The Pearson Correlation coefficient between the post-DLS and post-DLAT scores is 0.341, indicating a moderate positive correlation between participants' self-perceived digital literacy and their actual digital literacy achievement after the intervention. Besides, the significance value is 0,070, which is greater than the 0,05 threshold, meaning that the correlation is not statistically significant. This suggests that, after the DLT program, there was no significant relationship between participants' self-perceived digital literacy and their actual digital literacy achievement.

Table 28 provides a detailed comparison of the experimental group's level intervals based on their post-test scores from the DLAT and DLS. The comparison demonstrates the distribution of participants across different intervals of digital literacy levels, emphasizing their actual digital literacy achievements and their self-perceived digital literacy after the digital literacy intervention.

Table 28.

Comparison of Post-DLAT and Post-DLS levels of Experimental Group

Levels	Experimental Group Post DLAT		Experimental Group Post DLS	
	N	%	N	%
L1 (No Understanding)	0	0	0	0
L2 (Very Low)	3	10.3	0	0
L3 (Low)	11	37.9	2	6.8
L4 (Average)	11	37.9	11	37.9
L5 (High)	4	13.7	9	31
L6 (Very High/Expert)	0	0	7	24.1
TOTAL	29	100	29	100

Table 28 compares the post-test levels of the experimental group based on their scores from the DLAT and the DLS. It is clear from the table that while achievement-based DL levels of the experimental group participants are L3 and L4 (low and average), their self-perceived DL levels varied from L4 to L6 (average, high, and very high) after the DLT program was instructed to them. The results suggest that although a disparity exists between participants' self-perception and actual achievement levels in DL, this disparity seems to reduce following the DLT intervention.

This section provided an in-depth examination of the quantitative collection tools and data analysis methods used in the study. Key instruments, such as the DLAT and the DLS, were employed to assess participants' digital literacy levels before and after the intervention. To further enhance the validity of these results, supporting the quantitative findings with qualitative data is essential, offering a more comprehensive understanding of participants' experiences and perspectives throughout the intervention. That is why the following section focuses on qualitative data and findings obtained through qualitative data collection tools.

4.3. Findings of Qualitative Data

To answer the last research question, several qualitative data collection tools were administered at the qualitative phase of the study. *RQ4: What are the perspectives of Turkish EFL students regarding their digital literacy levels and the effectiveness of the Digital Literacy Training (DLT) they received?*

As mentioned in the previous chapter, the study's qualitative data was obtained via the FGI, field notes, and semi-structured interviews, which are analyzed by thematic content analysis. Thematic content analysis (Braun & Clarke, 2006, p.87) is a versatile and data-centric approach for identifying, analyzing, and reporting patterns (themes) inside data. Six phases that the researcher of this study followed to conduct thematic content analysis, as outlined in Braun and Clarke's (2006) framework, are listed below:

Step 1: Familiarizing Yourself with the Data

The researcher has meticulously reviewed the interview transcripts, identifying salient points, pertinent student experiences, and critical incidents documented in field notes.

Step 2: Generating Initial Codes

Then, the researcher continued identifying recurring patterns and topics in the interviews and the field notes. She made lists for initial codes by going through them iteratively and systematically coding the data's salient features across the entire dataset. Codes identify elements of the data that are related to the research question.

Step 3: Searching for Themes

The researcher subsequently categorized these preliminary codes into general themes. This phase continued to employ iterative reading. The researcher categorized codes into principal themes.

Step 4: Reviewing Themes

The researcher reviewed these emergent themes to ensure they accurately represented the data and provided a coherent narrative of the participants' experiences. This involved two

levels: Level 1 (checking themes against the coded extracts) and Level 2 (checking themes against the entire dataset).

Step 5: Defining and Naming Themes

Each theme was clearly defined and named to reflect the critical insights derived from the data. These definitions were correlated with the initial research questions and objectives. The themes were ensured to be clear and concise and provide a coherent data narrative.

Step 6: Producing the Reports

The final step was to generate a report summarizing the findings, calculate percentages of emergent codes within each theme, discuss the implications for language teaching, and provide recommendations based on the analysis. The researcher also tabulated the findings to contribute to gaining further understanding. The researcher selected vivid, compelling extracts from the data to illustrate each theme, linking back to the research question and existing literature.

Following these steps of thematic analysis, the researcher finalized the process with related codes, themes, percentages, and key student extracts.

4.3.1. Focus-Group Interviews

Focus group interviews (FGI) were conducted during the fifth week of the intervention, marking the midpoint of the overall process. These interviews aimed to ensure the intervention proceeded smoothly and to gather participant feedback. The focus group sessions aimed to manage the intervention process and provide a platform for participants to express their viewpoints. In addition to exploring participants' prior digital experiences, the sessions also focused on evaluating the delivery of the Digital Literacy Training (DLT) lessons. Participants were invited to share suggestions for any aspects of the program they felt should be changed or improved. The findings related to the first focus group interview question are summarized in Table 29 below. (*How long have you been using computers and the internet?*)

Table 29.

1st Question of FGI- Codes and Themes- Digital Background

Codes	Themes	Description	Representative Quotes	f	%
Long-Term Users	Early Adoption of Technology	Students who have used computers and the Internet for many years, starting from a young age.	‘Küçüklüğümde n beri zaten bilgisayar ve teknolojinin içindeydim.’	8	33%
Medium-Term Users	Moderate Use	Students started using computers and the Internet more recently, typically in their teenage years.	‘5 yıldır sosyal medya kullanıyorum. Bilgisayar olarak da 5 yıl kadar da bilgisayar kullandım.	12	50%
Short-Term Users	Late Adoption	Students who began using technology most recently, within the last few years.	Bilgisayar kullanmıyorum, tablet kullanıyorum dört yıldır. Sosyal medya olarak Instagram kullanıyorum üç yıldır.	4	16%

As Table 29 implies, the majority of the participants are medium-term users of digital technology. Moreover, they tend to use social media at a moderate level as well (2-3 hours). However, some of them uttered that they used social media a lot and that either they or their family and friends have trouble with their excessive use.

The other scope in FGI was the extent to which the lesson could be recalled quickly and effectively. Table 30 below shows the qualitative findings for DLT lessons' effectiveness and retention. (*‘Does our lesson leave a lasting impact? What are the points you remember?’*)

Table 30.

2nd Question FGI- Codes and Themes- Retention and Effectiveness of DLT

Codes	Themes	Description	Representative Quotes	f	%
Key Concepts Remembered	Memorable Content	Students recall specific concepts or topics discussed.	‘Mesela ben Google arama motorunda bu kadar yetkili kullanabileceğimi bilmiyordum.’	6	46%
Engagement and Impact	Teaching Effectiveness	Students felt the lessons were engaging and left an impact.	‘Kişisel bilgi hepsi. Başkasının eline geçmemesi lazım.’ ‘Ve tehlikelerin belki bu kadar farkında olmayabilirdik.’	5	38%
Real-World Relevance	Practical Applications	Students remember practical applications of the content.	‘Benim en yararlı bulduğum konu dijital ortamda virüsleri tanıtmamızdı’.	2	15%

As provided in Table 30, the participants referenced multiple points from the principles clarified during the DL courses., such as the Google search engine, hardware, and software systems. In addition, they mostly agreed that these lessons would be permanent and effective for later usage. They gave examples of the most beneficial insights gained during the DL training, such as being aware of different kinds of viruses, not tapping into every link they received, and not sharing too much personal and private information online. They also related DL lesson concepts to their daily internet use, such as being aware of online security and the necessity of changing passwords regularly. Another question of the FGI sessions was about how DL lessons were preceded. Some changes to the course were made after students’ feedback. Table 31 demonstrates the related findings. (*‘Regarding the content and methodology of our lessons, is there anything you think should be changed?’*)

Table 31.

3rd Question of FGI- Codes and Themes- Suggestions for DLT

Codes	Themes	Description	Representative Quotes	f	%
Content Adequacy	Satisfaction with Current Content	Students express satisfaction with the current course content.	‘Hayır gayet güzel gidiyor.’	5	50%
More Practical Activities	Preference for Interactive Methods	Suggestions for increasing practical activities in the course.	‘Biraz daha aktivite eklesek iyi olur.’	3	30%
Importance of Visual Aids	Video Integration	Students value the inclusion of videos and suggest maintaining or increasing their use.	‘Videolarla pekiştiriyoruz bence. Akılda da çok iyi kalıyor.’	2	20%

Table 31 categorizes feedback into three principal codes: content adequacy, more practical activities, and importance of visual aids. The table indicates that fifty percent of the students reported satisfaction with the existing content and structure of the lessons, believing that no modifications were required. However, some students (30%) suggested increasing the number of practical activities to enhance engagement and learning, while some (20%) emphasized the value of using videos in the lessons, noting that they help reinforce the content and improve retention.

The last question of FGI sessions was about students’ self-perceived digital levels. The researcher asked the participants to rate their levels between 1- 10. The findings of the question are given in Table 32 as follows. (*‘How would you rate yourself in terms of digital literacy on a scale of 1 to 10?’*)

Table 32.

4th Question of FGI- Codes and Themes- DL levels of Students

Codes	Themes	Description	Representative Quotes	f	%
Moderate Proficiency	Self-Perception of Digital Literacy	Students rate themselves around 5 to 7 out of 10 in digital literacy.	‘Benim puanım düşük yani. 10 üzerinden maksimum 5.’	3	50%
Recognition of Limitations	Awareness of Knowledge Gaps	Students acknowledge gaps in their knowledge, especially in technical areas.	‘Bence daha fazla öğrenmemiz gereken çok şey var. Teknik şeyler çok oluyor değil mi?’	2	33%
Confidence in Basic Digital Skills	High level in DL	Some students feel confident in their basic digital skills but recognize there is more to learn.	‘Benim teknolojiyle aram iyi. Ama %100'e perfect diyemeyeceğim. O yüzden 7 falan derdim kendime.’	1	16%

Table 32 identifies three main codes: moderate proficiency, recognition of limitations, and confidence in basic digital skills. Each code is associated with a theme, description, representative quotes, frequency, and appearance percentage. Table 32 summarizes the students' self-perceived digital literacy levels, highlighting their moderate proficiency, awareness of gaps, and confidence in basic skills. After the FGI sessions, some changes were applied to the DLT intervention process. The researcher adapted more practical exercises to help reinforce the content and improve retention of the training program.

4.3.2. Semi-structured Interviews

Semi-structured interviews were conducted after the DLT program ended. Students were asked to evaluate the course regarding the content, duration, handouts, visual materials, and activities. There was also a session for member-checking the transcriptions at the end of the term. By the end of the DL training process, the impact and effectiveness of Artificial Intelligence (AI) applications have significantly increased. Therefore, the researcher added some essential questions about AI, and student perspectives were given a place as a separate part of the findings. As mentioned before, the semi-structured interviews and member checking sessions were conducted by a researcher's colleague, a professional in the field, to avoid potential biases and a stressful atmosphere for the participants. To this extent, Table 33 shows the initial data findings from the semi-structured interview sessions. (*What do you think about the digital literacy course you took this semester? How did you find the course content/was it sufficient? Did you find the course duration sufficient (long/short)? What did you think about the notes distributed by the teacher? What are your thoughts on the videos watched to support the lesson? Did you find the activities in the lesson sufficient? What are the positive/negative aspects of the course? What do you remember most? Would you recommend such training/courses to your friends?*).

Table 33.

Semi-structured interviews- Codes and Themes

Codes	Themes	Description	Representative Quotes	f	%
Comprehensive Content	Satisfaction with Course Content	Students found the course content thorough and helpful, covering essential digital literacy topics.	‘Eğitimin içeriği çok faydalıydı.’	24	32%
Balanced Duration	Course Duration Feedback	Most students considered the course duration appropriate, though some suggested shorter sessions.	‘Süre bence uygundu, ama daha kısa olsa da olurdu.’	21	28%
Effective Use of Notes	Quality of Materials	Students appreciated the notes provided, especially when they were clear and visually supported.	‘Ders notları oldukça faydalıydı, özellikle görsellerle desteklenmesi iyi oldu.’	18	24%
Interactive and Engaging	Activity and Video Feedback	Activities and videos were generally well-received, with some students suggesting more interactive elements.	‘Videolar ve aktiviteler faydalıydı, ama daha interaktif olabilirdi.’	15	20%
Positive Overall Impact	Overall Course Evaluation	The course left a positive impression on students, with many feeling they gained significant skills.	‘Bu ders bana çok şey kattı.’	12	16%

It is evident from Table 33 that students generally found the content of the DLT course to be comprehensive, practical, and beneficial. The 10-week duration of the course was generally considered sufficient by most students, and the single course duration was

generally considered appropriate, although some students suggested that shorter sessions might be more effective. In addition, course materials and notes were appreciated for being clear, concise, and helpful in understanding the topics, especially when they were supplemented with visual aids, and the activities and videos were well-received, with some students expressing a desire for more interactivity. Generally, students had quite a positive experience in the course and said their digital literacy skills improved significantly.

Furthermore, questions regarding AI were posed to the participants following the member-checking sessions, and the results are presented in Table 34 below. (*Although AI is not included in our course content, we have a few questions about it as it is rapidly developing in the upcoming period. Have you heard of AI applications (ChatGPT/Google Gemini)? When and from whom? Have you ever experienced AI applications? Can you describe your experience? For what purposes do you use AI? Do you use AI to support your language learning? What challenges do you face when using AI? What do you think AI will be able to do in the future?*).

Table 34.

Artificial Intelligence- Codes and Themes

Codes	Themes	Description	Representative Quotes	f	%
Familiarity with AI Applications	Awareness and Exposure to AI	Most students are familiar with AI applications like ChatGPT and have heard about them through various sources.	‘ChatGPT’yi Emrah Hoca’dan duydum.’	12	20%
Positive Experience with AI	Experiences with AI	Students generally report positive experiences using AI, particularly in educational settings.	‘ChatGPT ile mesela İngilizce karşılıklı muhabbet edebiliyorum, hem telaffuzumu geliştiriyorum’	10	17%
Educational Use of AI	Application in Learning	AI is frequently used by students for learning purposes, such as improving language skills or completing assignments.	‘Genelde ödev düzenliyorum, konu anlatımı yaptırıyorum.’	15	25%
Challenges in AI Usage	Challenges Encountered	Some students experience challenges, such as inaccurate responses or difficulty in using AI effectively.	‘Bazen yanlış cevaplar veriyor.’	8	13%
Future Potential of AI	Perception of AI’s Future	Students are optimistic about AI’s future, believing it will become even more integrated into daily life and education despite being bothered about losing their professions.	‘Bence gelecekte daha da yaygın olacak, işimizi elimizden almazsa iyi’.	10	17%

Table 34 proves that students are familiar with AI applications, primarily hearing about them through their instructors or peers. Students generally have positive experiences using AI, particularly in organizing assignments and improving language skills. While students commonly use AI for educational purposes, such as practicing language skills and completing assignments, others face challenges when using AI, particularly regarding the accuracy of the information provided and the robotic nature of the responses generated. To sum up, students were optimistic about the future of AI, anticipating its expanded use in various fields, including education. In contrast, some students mentioned their concerns about the potential loss of their jobs because of the possibility of AI replacing their positions.

4.3.3. Field Notes

The researcher took field notes to get a broader aspect of the data collection process. The field notes were taken right after all phases of data collection, such as pre-test, post-test, FGI sessions, semi-structured interviews, and 10-week DLT lessons. The thematic content analysis method was applied to the transcribed data, and Table 35 provides the related findings as follows.

Table 35.

Field notes- Data Collection Phase- Codes and Themes

Codes	Themes	Description	Representative Quotes	<i>f</i>	%
Student Engagement	Interactive Learning	Students were actively engaged in guessing the meaning of digital literacy terms during the mind-mapping activity.	‘I started the lesson by explaining the main topic and making students guess what Digital Literacy is.’	10	10%
Adapting Content	Flexibility in Teaching	Adjustments were made to the survey to replace outdated terms with more relevant ones (e.g., Skype with Zoom).	‘One of the students asked what Skype was... I wanted them to change it with Zoom instead.’	15	15%
Student Uncertainty	Challenges in Comprehension	Students faced difficulties with technical terms in the DLAT, leading to questions and skipped items.	‘As I had expected, most of the students did not know the technical terms.’	15	15%
Teacher Support	Instructor Guidance	The teacher provided ongoing support, encouraging students to ask questions if they encountered difficulties.	‘I added that they should not hesitate at any moment to ask questions or use any unknown words if they happen to have one.’	10	10%
Preparation and Environment	Interview Setting	The interviews were carefully scheduled and prepared, ensuring a comfortable environment for students.	‘We prepared his office before the time came up... I had also reminded those who were the participants of the interviews.’	10	10%

Student Nervousness	Emotional Responses	Some students were nervous about the interviews, and efforts were made to calm them.	‘Some of the students were nervous. When I realized it, I tried to calm them down by comforting them.’	10	10%
Interview Process	Data Collection	The semi-structured interviews were conducted by a colleague and recorded for accuracy.	‘My colleague started interviews and recorded them via his smartphone.’	5	5%
Efficiency of Interviews	Time Management	The interview process was conducted efficiently, lasting a total of half an hour for 13 students.	‘The interviews lasted half an hour long in total.’	5	5%
Verification of Data	Data Reliability	Member checking was conducted to ensure the reliability of the data collected during interviews.	‘I arranged member checking sessions by informing those interviewee students via the WP group of the class.’	5	5%
Consistency in Interviewing	Consistency in Data Collection	The same colleague who conducted the original interviews led the member-checking sessions for consistency.	‘My colleague carried out these sessions one more time because he was the interviewer of those previous sessions.’	5	5%
Participant Engagement	Student Involvement	All interviewees agreed to participate in the member-checking sessions, showing their engagement in the process.	‘All the interviewees were acknowledged and agreed to participate in the member checking session.’	5	5%

Additional Questions	Comprehensive Review	A few additional questions were included during the member checking to expand on the original interviews.	‘We added a few more questions related to the scope of my research.’	5	5%
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Table 35 displays a selection of codes and their appearance percentages, illustrating the distribution of critical themes generated via the data obtained through field notes. Of the responses, student engagement and teacher support share favorable mention, with 15% of the responses. These codes deal with the active engagement of students in the learning process and careful guidance on the part of instructors. Adapting content and student uncertainty are represented in 10% of the responses, pointing to the changes made in the course materials and the uncertainty students expressed in understanding technical terms. Other themes, like preparation and environment, student nervousness, and interview process, account for 10% of the data, reflecting an emphasis on the pre-thoughtful process of interviews, the emotional responses of students, and the data collection process.

The data acquired by the researcher’s field notes was also utilized to shed light on the DLT intervention phase. Table 36 below details the findings of the 10-week DLT Intervention phase of the study based on the field notes taken during the study period.

Table 36.

Field notes- 10-week DLT Intervention Phase- Codes and Themes

Codes	Themes	Description	Representative Quotes	<i>f</i>	%
Preparation and Engagement	Pre-Lesson Preparation	The teacher shared video links and prepared materials ahead of time to ensure students were engaged with the lesson topics.	‘I shared the video links of the YouTube materials on the WP group with students the day before each lesson.’	15	15%
Interactive Learning	Student Participation	Students actively participated in lessons, answering questions, sharing experiences, and engaging in discussions.	‘Some of the students gave examples from their lives when they had a virus problem and how they fixed it.’	20	20%
Awareness and Self-Reflection	Digital Identity and Safety	Lessons focused on raising awareness about digital identity, online footprints, and the importance of protecting personal information.	‘I asked students to Google themselves and note what appeared in the search results.’	10	10%
Practical Skills Development	Hands-on Activities	Students developed practical skills by creating strong passwords, recognizing scams, and creating LinkedIn profiles.	‘I assigned them the task of creating three different secure passwords using a combination of their favorite numbers, character names, symbols, and snacks.’	15	15%
Challenges and Solutions	Overcoming Difficulties	Students faced challenges with certain tasks but were provided	‘Some students struggled initially with making passwords both	10	10%

		with guidance and solutions to help them succeed.	strong and memorable, but then I provided guidance and examples to assist them.'		
Critical Evaluation	Information Literacy	Students learned to critically evaluate online information, recognize fake news, and verify sources using fact-checking tools.	'This activity introduced them to fact-checking tools and methods for verifying online content.'	10	10%
Media Literacy and Safety	Social Media Use	Lessons on social media safety, privacy, and the effects of FOMO and cyberbullying helped students understand the risks associated with online platforms.	'We talked about different kinds of cyberbullying involving the use of digital platforms to harass, threaten, or embarrass someone.'	10	10%
Digital Communication Skills	Communication Literacy	Students were taught how to effectively use email, Zoom, and Microsoft Teams, which are essential for their academic and professional lives.	'The main objective was to teach students the basics of email usage, how to use Zoom effectively, and an introduction to Microsoft Teams.'	5	5%
Student Satisfaction and Feedback	Positive Course Evaluation	Students expressed satisfaction with the lessons and felt that the skills and awareness they gained would have a lasting impact.	'They thanked me by saying they learned a lot and this awareness they gained through the lessons would make a difference in their lives.'	5	5%

Table 36 provides a comprehensive overview of the themes and codes from the 10-week DLT intervention sessions, reflecting the key elements of each week's field notes. To start with, preparation and engagement fall under the category of pre-lesson preparation and take 10% of the content. This section relates to how the teacher tried to provide resources, like video links, to prepare the students for each class. The largest share, 20%, falls under interactive learning, emphasizing student participation during lessons, where students share personal experiences and contribute to discussions. Practical skills development, including developing secure passwords and identifying cyber scams, comes up 15% of the data showing what students do in practice. Awareness and self-reflection regarding digital identity and safety and challenges and solutions, including how to overcome learning difficulties, are 10% each. Both these themes would highlight awareness among the students about digital identity and how they overcome challenges, including the creation of password difficulties.

The findings section of this study presented quantitative and qualitative data from a study focused on the influence of a 10-week Digital Literacy Training (DLT) program on EFL learners. Quantitative data were obtained via the Digital Literacy Achievement Test (DLAT) and the Digital Literacy Scale (DLS), employed as pre-and post-tests to evaluate participants' actual and self-perceived digital literacy levels. The data were analyzed using SPSS 25.0, employing statistical methods such as independent t-tests, paired sample t-tests, and Pearson correlation to compare pre-and post-test scores and examine relationships between variables. On the other hand, qualitative data were collected via focus group interviews (FGIs), semi-structured interviews, and the researcher's field notes. These tools provided insights into participants' experiences, perceptions, and feedback. The qualitative data were analyzed using Braun and Clarke's (2006) thematic analysis, which involved systematically coding and identifying key themes to better understand the students' engagement and learning experiences during the DLT program. The following chapter discusses and concludes the findings of the study.

CHAPTER V

DISCUSSION

5.1. Introduction

This study employed a mixed methodology, integrating quantitative and qualitative data-gathering methods to assess and enhance the Digital Literacy levels of EFL learners by implementing a Digital Literacy training program as an intervention. An achievement test (DLAT) and a self-perception survey (DLS) by Reddy et al. (2023) were conducted as pre and post-tests before and after the DLT program. To triangulate the findings, focus group interviews, semi-structured interviews, and field notes were also used to scaffold the quantitative data. The findings of these quantitative and qualitative data collection tools were presented in the previous chapter based on the related research questions. This chapter presents a discussion of the research questions based on the findings, accompanied by relevant references from the existing literature. Discussions are directed to the related tables in previous chapters, and some non-verbatim, edited extracts obtained from interview and field notes transcriptions are given for further exemplification.

5.2. Discussion of the Quantitative Data Findings

The quantitative data findings were obtained by analyzing the data obtained via the use of the Digital Literacy Achievement Test (DLAT) and Digital Literacy Survey (DLS) as pre- and post-tests before and after the Digital Literacy Training (DLT) program.

The achievement-based digital literacy (DL) levels of Turkish EFL learners were revealed by utilizing DLAT, which was prepared by the researcher in line with the DLS by Reddy et al. (2023). It included 30 questions measuring 6 subcategories of DL. Firstly, Table 7 illustrates that the experimental group's mean pre-test score was 18,96, while the same variable was calculated as 19,25 for the control group. This indicates that there was no statistically significant difference between the two groups' pre-test scores before the intervention. Table 8, which deals with the students' perceived DL levels, also gives evidence of the experimental and control group participants' similar levels (L2 and L3) before the DLT program was implemented. Most participants were at very low levels, as

seen in the results. Following the implementation of the 10-week DLT program, a notable alteration in the performance of the experimental group (L3 and L4) was seen in comparison to the control group, as illustrated in Tables 9 and 10. Table 9 demonstrates that the mean post-test score for the experimental group was 30,00, whereas the corresponding score for the control group was 18,45. Furthermore, the p-value demonstrates a statistically significant disparity between the scores of the experimental and control groups following the delivery of the DLT program. In addition, Table 10 demonstrates that a substantial number of individuals in the experimental group achieved L3 and L4 levels (low and average), while most participants in the control group stayed at L2 and L3 levels (very low and low) by the research findings. This indicates that DLT had a beneficial impact on the experimental group students' DLAT results. Likewise, a significant change was observed when comparing the levels of the experimental group before and after the intervention. Table 11 indicates that the experimental group's pre-test mean score was 18,96, whereas the post-test mean score was 30,00. The experimental group demonstrated an increase in achievement scores following the DLT program. In addition, Table 12 shows in detail that the perceived DL levels of the experimental group increased at least one level (from L2 -L3 to L3 -L4).

To summarize the findings related to the first research question, it is evident that the experimental and control groups had comparable scores and levels before implementing the DLT program. However, a significant difference was observed between the experimental group's pre- and post-test DLAT scores, indicating that the DLT program positively impacted the participants' DL scores and levels. This finding aligns with existing research showing the positive impact of targeted DL interventions on learners' digital competencies (Ng, 2012; Tondeur, 2020; Vuorikari et al., 2016). For example, Ng (2012) found in his study that structured DL training is essential in helping learners navigate the complexities of digital environments, especially in educational contexts. Vuorikari et al. (2016) conducted a study and emphasized the need for comprehensive DL frameworks through which DL teaching can be solid. Thus, it is clear that we need to create and apply more inclusive DL teaching/ training programs at the university level.

Next, to answer the second research question, the DLS questionnaire was utilized after adapting and being translated to Turkish as pre and post-survey. The data were analyzed

through SPSS 25.0 using techniques such as independent sample t-test, paired sample t-test, and evaluation of Pearson correlation coefficient.

At first, the pre-test scores of both groups were compared by independent sample t-test analysis. Table 13 suggests that the mean score of the experimental group is 35.51, whereas it is 35.93 for the control group. Similarly, Table 14 revealed that both groups have similar self-perceived DL levels (L3, L4, and L5) from low to high degree, and there was no significant difference between the scores of the experimental and the control group. In other words, all participants perceived themselves as having similar DL levels before the intervention.

Later, the 10-week DLT program was instructed, and post-tests were collected to compare with the previous situation. Tables 15 and 16 show no significant difference in their self-perceived DL levels after the intervention. Both of the groups tended to have similar perceptions about their DL levels. These findings suggest that EFL learners are inclined to have higher perceptions about their actual DL levels, which is also claimed by earlier studies in the literature. These findings were in line with Peled (2021), who investigated the digital literacy perceptions of 1265 students, and the research showed that students have a high perceived DL level; however, they experience problems analyzing and evaluating knowledge critically, and they lack ethical knowledge. That is to say, the participants in this study exhibited higher self-perceived DL levels. Similar findings might even be discovered in studies involving in-service and pre-service teachers. Ata and Yıldırım (2019) and Akayoğlu (2020) found similar results with pre-service teachers having high perceptions of digital literacy and being competent enough. They also revealed that participants do not have the cognitive skills to search, assess, produce, and communicate knowledge after implementing a quantitative measure. Similarly, Ahmed and Akyıldız (2022) and Çelik (2024) studied with in-service EFL teachers working with various grades. They found that the participants tend to perceive themselves as having high levels of DL, although the findings do not support these perceptions.

On the other hand, Tables 17 and 18 revealed the changes in the self-perceived DL levels of the experimental group. Table 17 indicates that the pre-test DLS scores for participants in the experimental group are 35,01, whereas the post-test DLS scores for the same participants are 42,51. The comparison of the experimental group's pre-test and post-

test DLS levels indicates a significant difference in the perceived DL levels of participants before and after the implementation. In addition, Table 18 demonstrated that before the DLT program, most students in the experimental group were self-reported to be at L3 and L4 levels (low and high). However, examining the same students' post-DLS levels reveals that there has been a rise in digital literacy, with more students achieving levels L4 and L5 (average and high). Based on these findings, it is evident that the experimental group has increased their self-perceived DL levels even though there is no significant difference between the experimental and control group's post-test DLS scores. It can be inferred from these findings that the DLT program helped increase participants' self-perceived DL levels to a higher degree in the experimental group.

Additionally, Tables 19, 20, 21, 22, 23, and 24 reveal the mean scores of the experimental group participants before and after the implementation of the DLT program. Table 19 indicates that the notable advancements in various aspects of media literacy imply that the DLT program significantly enhanced students' digital literacy skills. The gains in understanding and applying media literacy concepts, such as content creation, copyright awareness, and digital communication, indicate that students are better equipped to navigate and utilize digital media responsibly and effectively. These improvements are critical for their success in academic and professional environments, where digital literacy is increasingly a fundamental requirement. Table 20 presents the findings of the second subcategory, communication literacy. The improvements in communication literacy suggest that the DLT program effectively enhanced students' abilities to communicate and collaborate in digital environments. The gains in using OERs, participating in online learning communities, and employing digital platforms for personal and professional use highlight the program's success in preparing students for the demands of the digital world. These skills are essential for academic success and effective participation in the increasingly digital professional landscape. The overall increase in communication literacy underlines the importance of integrating digital literacy training into educational curricula, as it equips students with the necessary tools to navigate and succeed in a digitally connected world, which is also underpinned by Elike (2023) in her recent study.

Table 21 presents the information literacy scores of the experimental group participants before and after the DLT program. The marked improvements across various

aspects of information literacy demonstrated that the DLT program was highly influential in equipping students with the necessary competencies, such as locating, evaluating, and using information in a digital environment. DLT training is, therefore, of utmost importance when considering developments in advanced research methods, critical judgment of sources, and safe online collaboration. This increase is especially significant as it indicates that students are now more equipped to conduct research, use digital content appropriately, and adhere to academic standards in producing their work. These findings, therefore, encourage the inclusion of comprehensive information literacy training at all levels of education to ensure that students can establish their identities academically in this digital age.

On the other hand, as illustrated in Table 22, considerable enhancement in participants' visual literacy scores has been observed, proving the success of the DLT program in substantially enhancing the students' capability in managing, interpreting, and producing visual content. These capabilities are essential in various settings and situations, from academic and professional communication to contexts where the effective use and critical evaluation of visual media can substantially enhance the clarity and impact of messages. On the other hand, greater sensitivity to ethical and legal considerations and new skills in creating and citing visual material may suggest that students are better prepared to navigate and produce visual material for perhaps the most challenging visual environment ever—the digital era. These are going to be essential, especially for students in their subsequent academic and professional lives, since in most fields, visual literacy could very easily become a point of increased priority. It, therefore, focuses on the need to include visual literacy training in curricula so that learners will be holistically prepared to succeed in a visually oriented-digital world.

Moreover, Table 23 indicates that most of the aspects of technology literacy showed remarkable improvements, which is indicative of the strong influence or impact that the DLT program had on the students in providing technical skills that are considered useful for them to navigate and use modern technology effectively. Some other areas of improvement included software management, data security, and decision-making on hardware and software choices, from which one could evaluate that the students are better equipped and confident in handling the technical features of their digital environment. Besides, the improved awareness of emerging technologies and the ability to use advanced tools for

content creation illustrate how well the program prepared the participants to respond to continuous demands created by rapid evolution in the digital environment. These are the academic and professional skills that are needed since, in most fields nowadays, technological proficiency is a fundamental requirement. The overall improvement in technological literacy of the participant students stresses the eminence of integrating technology training into the education system. This implementation would ensure that students are not just able to use current technologies but also prepared to adapt to new and emerging tools, enhancing their long-term digital competency and employability in a technology-driven world.

The final subcategory, computer literacy, was defined, and the pre-and post-test scores were reflected in Table 24. Computer literacy scores show that the DLT program successfully enhanced the foundational digital skills of the students. The sharp competence in basic computer functions, such as using search engines, managing email accounts, and using office applications, emphasizes how effective the program was in providing students with skills necessary to be competent in everyday digital tasks that are necessary for a successful academic life. The most crucial point, however, is the substantial gain in technical problem-solving skills and cybersecurity awareness—it reflects that students can already work independently in managing and securing their digital environment. This is very important in a time when digital threats have become routine, and the protection of personal information has become one of the key abilities every person needs to master. In addition, the slight progress in social media competency perhaps reveals that the students had exposure to these sites before the DLT training but that the program then provided them with a way to use social media more judiciously and responsibly, which is an essential factor in professional networking. The improvement in computer literacy skills shows that basic computer skills training should be included in educational training curricula because such skills play a foundational role in higher-order digital literacy competencies. Educators might better prepare students for the increasingly computerized nature of academic work and professional life by ensuring students' computer literacy.

The comparative analysis of mean scores demonstrates the DLT program's efficacy in markedly enhancing participants' digital literacy across all areas. The most notable progress was seen in computer literacy, especially in resolving fundamental technical

problems, underscoring the program's effectiveness in equipping students with the essential skills required for independent digital operation. This foundational enhancement is critical, as it lays the groundwork for developing more advanced digital literacy competencies, ensuring that students are well-equipped to handle the complexities of the digital world both now and in the future. The broad impact of the DLT program suggests that similar interventions could be highly beneficial if integrated more widely into educational curricula. Research has consistently shown that structured digital literacy training programs can significantly enhance participants' digital competencies across various domains. According to Ng (2012), well-designed digital literacy programs are essential for equipping learners with the necessary skills to navigate the complexities of digital environments. The success of the DLT program in this study aligns with these findings, demonstrating substantial improvements in all areas of digital literacy. Similarly, foundational digital skills, such as those improved through the DLT program, are essential for more complex digital literacy competencies. Law et al. (2018) emphasize that a strong base in basic digital literacy is crucial for learners to effectively engage with more sophisticated digital tools and concepts, ensuring they are prepared for future challenges in the digital landscape. Plus, the broad impact of the DLT program and the potential benefits of integrating similar interventions into educational curricula are well-documented. Erstad (2010) argues that digital/ media literacy should be a core component of modern education, as it is vital for students' success in both academic and professional contexts. The positive outcomes of the DLT program in this research reinforce the need for widespread adoption of such initiatives.

Another focus of the study was to find out whether there is any correlation between the DLAT and DLS scores of the participant students, which was the aim of the third research question. Tables 25, 26, 27, and 28 demonstrate the relationship between the participants' achievement-based and self-perception-based DL levels. Tables 25 and 26 show a significant correlation between actual achievements and self-perceived scores of the experimental group before the DLT program intervention. Nonetheless, the gap between these differences is seen to converge after the study, as Tables 27 and 28 suggest, because this time, there is no significant difference between the levels after the DLT program. That is to say, even if the self-perceived DL levels stayed high in pre and post-measures, the increase in achievement-based DL levels tells us that the experimental group has become more aware of what they

are capable of after the DLT program. To conclude, the DLT program enhanced learners' awareness of their actual proficiency levels. Students' perceptions and actual achievement converge, and the gap between them closes thanks to the intervention. Moreover, the alignment of self-perceptions with actual achievements after the intervention may be attributed to the increased self-efficacy fostered by the DLT program. According to Bandura's (1997) theory of self-efficacy, learners' belief in their capabilities is influenced by mastery experiences. The DLT program likely allowed participants to experience success in digital tasks, enhancing their self-efficacy and leading to a more accurate self-assessment of their digital literacy levels. Furthermore, the convergence of self-perceived and actual digital literacy levels after the DLT program can be related to the findings of Ortega-Sánchez et al. (2020), which emphasize the importance of accurate self-assessment in educational settings. Their research also points out the necessity for comprehensive digital competence training for teachers to integrate digital tools into their pedagogical techniques to increase students' self-perceptions. In conclusion, these results show that learners' self-perceptions can become closer to their actual achievement levels and that a digital literacy training program can contribute to their realization are among the most striking outcomes of the study.

5.3. Discussion of the Qualitative Data Findings

To answer the last research question, the qualitative data findings were gained from analyzing the data obtained via the focus group interviews (FGI), semi-structured interviews, and field notes in this study. They were analyzed using the thematic content analysis method by Braun and Clarke (2006). The findings of FGI were illustrated in Tables 29, 30, 31, and 32. Firstly, Table 29 shows that most participants were medium-term users of digital technology. On the other hand, some participants report a gradual preference for social media over personal computers in the medium term.

S1: 'I do not use the computer, but I have been using the internet or social media for 7-8 years. We never bought it. For a while, I only used a tablet.'

S2: 'I do not use a computer. I have been using a tablet for four years. I have been using Instagram as a social media platform for three years. I use it daily, but it does not take long. It probably does not exceed two hours a day.'

Despite the claims of Onursoy (2018), who reported that university students' use of digital tools and spending more time in digital environments does not mean that they use digital technologies wisely, these findings can support what Bayrakcı and Narmanlioğlu (2021) suggest. Their study claims that participants who started using smart devices in primary school or earlier showed higher digital literacy levels. Therefore, being long-term users of digital technology can be considered a strong indicator of achieving a high level of digital literacy.

For the next point, Table 30 indicates that participants predominantly retain practical essential concepts, which proves that retention in DL training can be obtained by daily usage instances and hands-on activities about the related concepts.

S3: 'I think what we have learned will be permanent. Because we all currently use a lot of the internet and technological devices. I think this is how it will be permanent. I've been using it so much since then. Once we realize that mistake, we fix it, we fix it. After that, we will be figuring it out.'

Pehlevan and Ünal (2024) also conducted focus group interviews in their recent study, revealing that the participants believed hands-on experience and practical training in technology integration were essential for developing digital competence. Table 31 is also related to this issue because most students were content with how DL lessons were carried out, while others expressed the need for more active learning for retention and effectiveness. On the other hand, Table 32 indicates that the majority of students rated their levels as moderate. As the DLT program continued, they became more aware of their deficiencies.

S4: 'Now you say digital literacy. There are so many advanced things. If you mean the trial exam we took, I would give myself a maximum of 5 out of 10. I knew half of it. I didn't know the other half.'

S5: *'Frankly speaking, I do not think that I am digitally literate. After the things I learned from the lessons, I would say I had not known much earlier.'*

After the intervention was finished, more insights were addressed through semi-structured interviews. A colleague of the researcher carried out the semi-structured interviews. Thus, the participants were supposed to express themselves more unrestrictedly. Tables 33 and 34 display the findings of the semi-structured interviews and AI sessions. As Table 33 suggests, students had a positive experience with the training, noting significant improvements in their digital literacy skills.

S3: *'I was a little happy when I first heard about this training. Because our age is the age of technology, we need all kinds of this information. For example, my old passwords were very simple. Because of these problems, a few accounts were stolen, such as my game accounts. But now, for example, I have learned what kind of things I need to do, especially in terms of encryption. I knew from the very beginning that it was a necessary training. At least I reinforced what I already knew.'*

However, others expressed concerns regarding several negative aspects of the DLT program, including instruction durations. In addition, some of the participants reported that more hands-on activities or greater use of computer labs would be more beneficial, even though the course content focused on practical, everyday topics such as encryption, online security, and VPN use. Furthermore, they typically suggest these training sessions to their friends.

S3: *'I think 2-2.5 hours a week might be a little short. Because we are definitely in a technological and internet age, therefore, I think the sessions should be 1 to 2 hours at least 2-3 days a week. They must spread during the week. It may be difficult for friends who are not interested to attend long lessons at once. It may seem boring to offer 4-5 hours at a time, but I think it would be more beneficial to divide it into 2-3 days of the week and do them all for 1.5-1.5 hours or so. Because, as I said,*

technology is very important in this period and I think that training once a week is a little more inadequate than dividing them through the week.

S4: 'Because it took so long, for example, we had a lesson once a week between the sessions, so there was a lot of time passed until the next one. We kept forgetting or were unable to update what we had learned. That's why I felt like we were missing. Yes. Yes. But other than that, we didn't actively do it ourselves on the computer. We just listened. But since we didn't use it on our own phones or apps or the computer, it felt a little less complete.'

S4: 'Well, I learned a lot about creating a password, a VPN connection, or safe use of social media. I recommend it to my friends. I think they should definitely take such a lesson. Because, uh, using the internet safely is very important to me.'

The semi-structured interview section also included AI-related questions, as mentioned in the previous chapter. Table 34 summarizes the participants' perceptions about AI, and the majority have positive attitudes and experiences with AI so far, hearing about it from friends and teachers. Many of them use AI for educational purposes, and some are concerned about the possible loss of their future positions in their career.

S3: 'I think it is a very useful application. Of course, usage methods are essential. If we present something 100% from there, it won't do us any good. It can be specifically used to fix errors. We write a paragraph. For example, I did it. I wrote a complete paragraph in English. I asked if you could find any errors here and asked them to be corrected. Writing a paragraph in our department is very important, and that's how I learned from my mistakes.'

S3: 'It looks like the place it's going is very dangerous. I don't think it will end up like Terminator at least for about 150-200 years. I don't think such a thing will happen. But it's definitely a very difficult situation when it comes to getting things done. For example, although its translation is not like that of a human, this is just the beginning. In another 10 years, perhaps there will not even be a need for translators. Because when two states talk, the microphones are transmitted to each other through translators. I'm not saying that if they leave it to AI, that worker will

no longer be needed. I think there are huge business risks. Frankly, there is a big problem in terms of learning, and people are becoming lazy. Because in the future, when we use technology, we can work from home. We no longer need to move. We won't need to go to companies. In such cases... Of course, the events I mentioned may take up to 50 years. Unless we see war or anything. I think there will be problems in such cases. But frankly, it's nice to see people advancing to a better place.

S6: 'Well, it's better if it doesn't take our positions. I hope it doesn't get it. But I think it's a bit frightening, especially since artificial intelligence is advancing so quickly.

In summary, students are generally optimistic about the future of AI, expecting its increased application across various fields, including education. However, some students express their concerns about the potential threat to their future jobs due to AI advancements.

After the results obtained from semi-structured interviews, the findings of field notes were listed in Tables 35 and 36 in the previous chapter. While Table 35 enlightens the researcher's observations during the data collection phase of the study, Table 36 focuses on the 10-week DLT program and the researcher's reflections on the process. According to Table 35, student engagement, adapting content, challenges in comprehension, and teacher support were among the principal codes of the pre and post-test applications. In contrast, preparation and environment emotional responses, data verification, data collection consistency, student involvement, and comprehensive review were common for the interview phase.

Furthermore, many emergent codes extracted from field notes dealt with the 10-week DLT program. As seen in Table 36, preparation and engagement, interactive learning, awareness and self-reflection, practical skills development, challenges and solutions, critical evaluation, media literacy and safety, digital communication skills, student satisfaction, and feedback were among them. In essence, students reported being pleased with the course and believed that the knowledge and skills they acquired would have a lasting positive influence on their lives. These findings align with existing literature, underscoring the importance of teacher involvement and tailored content in enhancing student engagement and understanding in digital literacy initiatives (Law et al., 2018; Ng, 2012). Extract 1 below

shows how students feel engaged with the concept they learned and what to change in their lives.

Extract 1:

'This activity was well-received, with most students appearing surprised by the amount of information available about them online. Following that, a discussion was started on the importance of this activity, emphasizing the relevance of self-awareness in managing one's digital identity. Students reflected on their online personas and considered if they aligned with their real-life identities and future goals. Some said they would not be happy to share that available online information about themselves with their future employers. Some others mentioned they had forgotten even to have some old social media accounts. So, they decided to take control over what they had shared online. One of the students even expressed the desire to clean up old social media accounts and establish a more professional online persona. After I emphasized the importance of managing one's digital footprint, particularly when potential employers check social media profiles before hiring, many students expressed a newfound awareness of the importance of managing their online presence. I finished the lesson by encouraging students to check their privacy settings on social media. The lesson lasted one and a half hours.'

Extract 2:

'I provided an overview of popular social media platforms, including Facebook, Twitter, LinkedIn, Instagram, YouTube, and Pinterest. Each platform was explained in terms of its primary functions and typical user interactions. The "Social Media Explained by Kebab" analogy was particularly effective in simplifying the differences between platforms. Students found this humorous and relatable, which helped to reinforce their understanding. After watching related videos, it was revealed in a lively discussion that most students prefer using Instagram over the other. Most of the students did not have any Facebook or LinkedIn accounts, even some of them said they did not use any social media, considering them a waste of time. Thus, in line with the lesson objectives, I asked them to create LinkedIn profiles

and follow me there. Some students needed assistance during that process, so I made them form groups and help each other. Further, we discussed LinkedIn and Twitter terminologies such as profile, connection, recommendation, retweeting, hashtag, and replying. They followed me on these platforms and followed them back.'

Such practical activities enable students to associate newly acquired terminology with its application. The students' positive feedback, as reflected in their satisfaction with the course, suggests that the DLT program effectively met their learning needs and expectations. These findings are also supported by Elike (2023), who dealt with the general view of Turkish university students about digital literacy training. This study demonstrated that technical access to digital technologies does not make young people digitally literate, and regardless of the level of digital skills they have, students demand more opportunities and support at the institutional level to develop these skills. In short, we need such training programs as the DLT program because it improves students' technical skills and promotes critical thinking and self-awareness regarding digital practices. As indicated by their feedback, the enduring impact of these skills on students' lives reflects the program's success in equipping them with valuable competencies that extend beyond the classroom.

CHAPTER VI

CONCLUSION

6.1. Introduction

This chapter presents a detailed summary of the current study, which enlightens the conclusions to related research questions and suggested pedagogical implications. Additionally, the chapter illustrates some limitations of the study, following suggestions for future research in the field with a similar context or scope.

6.2. Conclusions

This study aims to examine and improve Turkish EFL students' Digital Literacy (DL) levels in a state university. To this end, an intervention program (DLT) was conducted with 60 preparatory students as participants during the 2023- 2024 academic year. The DLT program was adopted by the researcher from the Open Educational Resources (OERs) such as the syllabi of LLSC and YouTube videos. The training program, which was instructed to the experimental group students, lasted 10 weeks while the control group carried out standard education. On the other hand, the Digital Literacy Achievement test (DLAT) prepared by the researcher and the adapted Digital Literacy Scale (DLS) were administered to track possible changes in the participants' DL levels. These measures were applied as a pre and post-test before and after the intervention of the DLT program. SPSS 25.0 statistical program was used to analyze the collected quantitative data by utilizing independent t-tests, paired sample t-tests, and correlation techniques.

To gain deeper insights into the research process and the participants' perspectives, focus group interviews (FGI), semi-structured interviews, and field notes were used as qualitative data collection tools. Data obtained from the qualitative data collection tools were analyzed following the six steps of the thematic content analysis method. The results suggested that the DLT program may significantly impact the achievement-based and evaluated DL levels of Turkish EFL learners.

This study demonstrates that Turkish EFL students possess diverse digital literacy levels, which can be enhanced through well-structured instruction as the participants' DL

levels increased after implementing the DLT program. While most participants had very low and low levels of DL before the DLT training, they achieved higher levels of DL after the DLT.

What is more, it turned out that the participants tended to have higher digital literacy perceptions before the study was conducted. It was ensured that the DLT program made these students more aware of their background knowledge and potential. By the end of this study, they have gained increasing awareness of the recent and updated technological improvements, especially when it comes to the improvement in artificial intelligence. In their daily lives, these students were encouraged to make use of these kinds of innovations, as well.

6.3. Implications of the Study

The findings of this study underline the crucial role of structured and well-designed instruction in enhancing digital literacy (DL) among Turkish EFL students. The present study suggests that with deliberate interventions and organized training, students' DL levels and competencies can be leveraged, as seen in the case of the implementation of the DLT program during the study process. In terms of these increases in students' DL levels, there are several pedagogical implications for all stakeholders, such as educators, curriculum designers, and policymakers considering EFL contexts;

Digital Literacy Integration in EFL Curricula: When we consider the substantial enhancements in DL levels of the students following the intervention, it should be emphasized that DL is methodically incorporated into EFL curricula. DL lessons should be carried out by teachers that address basic digital skills and promote higher-order thinking skills, such as critical evaluation and creative use of digital tools.

Accurate Self-Assessment: The tendency of students to overestimate their DL levels highlights the need for pedagogical strategies that foster accurate self-assessment. Educators should carry out reflective practices and formative assessments to help students realistically gauge their digital skills, leading to more targeted learning efforts and self-improvement.

Self-perception and Self-realization: One of the most striking outcomes of the study asserts that by means of a well-organized digital literacy training, learners can become better at detecting their actual competency levels. Their self-perception and self-realization levels

can be leveraged and become more accurate by an appropriate training program. That is to say, through targeted and organized training, learners can develop a more realistic understanding of their actual skill levels, bridging the gap between perceived and actual abilities. This process not only enhances their self-awareness but also fosters greater self-realization, empowering them to identify their strengths and areas for improvement with greater precision.

Awareness of Emerging Technologies: Incorporating contemporary digital topics into the curriculum can prepare students for future technological landscapes when we consider the increased awareness of technological innovation usages such as AI among students thanks to the DLT program. Educators should regularly update their teaching content to include the latest technological developments. Only by doing this can we ensure that students remain informed and adaptable in a rapidly evolving digital world.

Professional Development/ Teacher Training: As in any other scope in this field, teacher training is also the paramount element of effectively delivered DL education, as suggested by the implementation of the DLT program. Teachers must be proficient in DL and stay abreast of technological advancements in their targeted fields. To this end, ongoing professional development programs should be provided to teachers to help enhance their DL skills and integrate these into their teaching practices effectively.

6.4. Limitations of the Study

First, the sample size used for this study was confined to 60 participants, a factor that may lead to limitations in overtly generalizing findings. The sample size can be increased for more robust statistical analysis and greater external validity, which will make the findings applicable to the broader population of Turkish EFL students. In this respect, it is to be noted that all the participants in the present study were exclusively Turkish EFL students; therefore, the results can hardly be generalized to students from different cultural or linguistic backgrounds. The studies that will be conducted in the future might benefit from a more diverse sample to explore the influences of digital literacy training on various demographic groups. In addition, the researcher of the study did not follow up on whether the participants continued to develop their digital literacy for a more extended period after completion of the DLT program. It, therefore, remains uncertain if further improvements

will be made once the training is over. Also, the duration of the actual study was 10 weeks, which can be too short to observe the longer-term retention and utilization of acquired DL competencies. With a more extended training program, more time would be given for the consolidation of acquired skills, thus facilitating the assessment of improvements concerning digital literacy levels.

Finally, due to the complete absence of specific computer laboratory equipment during the implementation of the study, access to technology and digital resources may have varied, compelling each student to rely on personally owned devices. This variance may have an impact on participant learning experiences and results, forming a more complex layer to consider in the implications of findings in this study. In support of this fact, digital literacy training conducted in a computer laboratory may enable students to experience hands-on practice of DL and standardize education for each and every student.

6.5. Suggestions for Further Research

Considering this research's limitations and potential for future studies, several suggestions might be given to help other researchers interested in digital literacy. For example, future studies might be carried out with larger and more heterogeneous samples of participants in order to extend the generalizability of findings. Other upcoming studies might also analyze digital literacy training in other cultural and linguistic contexts to test how different demographic factors modulate such program effectiveness. Investigating students from different educational backgrounds or levels could give more information about the effect of digital literacy training. In addition, longitudinal studies could also yield valuable insights into the understanding of the development of digital literacy skills and their sustainability. In this respect, it might be useful if researchers follow up with those participants long after they finish the DLT training to establish how well the digital literacy interventions serve their former students in the long term. Similarly, an extended intervention period may allow more time for the internalization and application of the DL competencies under study. Moreover, follow-up assessments after several months or even years might be included in further studies to test for longer-term retention and utilization of digital literacy skills.

Another critical topic is the provision of equal access to technology for all participants. Future research could be designed to take into consideration digital literacy training that shall be conducted in a controlled environment, such as a computer laboratory. In this case, all participants will have the same access to digital tools and resources, hence bringing consistent and reliable results. From a future research perspective, it would also be interesting to look at advanced technologies, such as AI and virtual reality, that are being integrated into training programs in digital literacy. These digital tools might provide new perspectives into how these emerging technologies can further enhance students' digital competencies.

Finally, future studies might compare the efficacy of several instructional approaches to digital literacy, such as blended learning, gamification, or peer-assisted learning. Understanding which methods are most effective in different contexts could help educators design more impactful DL programs. Therefore, such suggestions for further research can lead future studies toward building upon the positive findings of this study, overcoming its limitations, and opening new avenues of research that can enhance DL education in EFL and beyond.

REFERENCES

- Ahmed, K. H., & Akyıldız, S. T. (2022). Determining the role of digital literacy in EFL teaching concerning the views of Turkish EFL Teachers. *RumeliDE Dil ve Edebiyat Araştırmaları Dergisi*, (29), 966-986.
- Akayoglu, S., Satar, H. M., Dikilitas, K., Cirit, N. C., & Korkmazgil, S. (2020). Digital literacypractices of Turkish pre-service EFL teachers. *Australasian Journal of Educational Technology*, 36(1), 85-97.
- Anggraeni, F. K. A., Prastowo, S. H. B., & Prihandono, T. (2022). Development of integrated QR code module on physics learning module to increase learning interest and knowing students' digital literacy. *Jurnal Penelitian Pendidikan IPA*, 8(5), 2203-2209.
- Ata, R., & Yıldırım, K. (2019). Exploring Turkish pre-service teachers' perceptions and views of digital literacy. *Education Sciences*, 9(1), 40.
- Ayedoun, E., Hayashi, Y., & Seta, K. (2019). Adding communicative and affective strategies to an embodied conversational agent to enhance second language learners' willingness to communicate. *International Journal of Artificial Intelligence in Education*, 29(1), 29-57.
- Ayyıldız, P., Yılmaz, A., & Baltacı, H. S. (2021). Exploring Digital Literacy Levels and Technology Integration Competence of Turkish Academics. *International Journal of Educational Methodology*, 7(1), 15-31.
- Bakır, E. (2016). Sınıf öğretmeni adaylarının dijital vatandaşlık seviyelerinin dijital vatandaşlık alt boyutlarına göre incelenmesi. *Karadeniz Teknik Üniversitesi, Trabzon*.
- Bandura, A. (1997). Self-efficacy: The exercise of control. *Freeman google schola*, 2, 143-154.
- Bashir, M., Afzal, M. T., & Azeem, M. (2008). Reliability and validity of qualitative and operational research paradigm. *Pakistan journal of statistics and operation research*, 35-45.
- Bayrakçı, S. (2020). Dijital yetkinlikler bütünü olarak dijital okuryazarlık: Ölçek geliştirme çalışması. *Unpublished doctoral dissertation*. Marmara Üniversitesi.

- Bayrakcı, S., & Narmanlıoğlu, H. (2021). Investigation of digital literacy levels of undergraduate students and graduates in Turkey. *Academic Journal of Information Technology*, 12(46), 46-67.
- Belshaw, D. (2011). What is 'digital literacy'. *A Pragmatic investigation. A thesis submitted in*, 32.
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merely a nod to validation?. *Qualitative health research*, 26(13), 1802-1811.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative" Research in Psychology*, 3(2), 77–101
- Buckingham, D. (2015). Defining digital literacy-What do young people need to know about digital media?. *Nordic journal of digital literacy*, 10(Jubileumsnummer), 21-35.
- Candy, P. C. (1989). Constructivism and the study of self-direction in adult learning. *Studies in the Education of Adults*, 21(2), 95-116.
- Cappello, M. (2022). Visual Literacy. Routledge. <https://doi.org/10.4324/9781138609877REE97-1>
- Chenail, R. J. (2011). Interviewing the investigator: Strategies for addressing instrumentation and researcher bias concerns in qualitative research. *Qualitative report*, 16(1), 255-262.
- Cheng, K. W. (2007). A study on applying focus group interview on education. *Reading Improvement*, 44(4), 194-199.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Routledge.
- Cohen, S. M., Rosett, B. E., & Shifrin, D. A. (2017). An analysis of independent variables affecting surgical outcomes in patients undergoing repair of maxillofacial trauma: an American College of Surgeons National Surgical Quality Improvement Program Study. *Journal of Craniofacial Surgery*, 28(3), 596-599.
- Colton, J. (2021). Digital technologies and inclusive literacy teaching: A response. *Literacy Learning: The Middle Years*, 29(1), 24-27.
- Commonwealth of Learning (COL) (2020), Keeping the doors of learning open COVID-19 j COL, Col. Org Retrieved from <https://oasis.col.org/items/8f404d49-5427-462b9c484b7d499ba2ba> (accessed 23 August 2024).

- Considine, D. M. (1986). Visual Literacy and Children's Books: An Integrated Approach. *School Library Journal*, 33(1), 38-42.
- Corti, L., Van den Eynden, V., Bishop, L., & Woollard, M. (2014). *Managing and Sharing Research Data: A Guide to Good Practice*. SAGE Publications.
- Covello, S., & Lei, J. (2010). A review of digital literacy assessment instruments. *Syracuse University*, 1, 31.
- Creswell, J. W. (2021). *A concise introduction to mixed methods research*. SAGE publications.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
- Creswell, J. W., & Miller, D. L. (2000). *Determining validity in qualitative inquiry. Theory into Practice*, 39(3), 124-130.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research*. SAGE Publications.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Çelik, S. (2024). Examining the digital literacy levels of Turkish EFL teachers. *Unpublished Master Thesis. Çukurova University*.
- Çınar Yağcı, Ş., & Aydın Yıldız, T. (2023). Is ChatGPT the foreign language student's trusted artificial intelligence chat buddy. *RumeliDE Journal of Language and Literature Studies*, 37, 1315-1333.
- de Groot, F. O. (2017). Tracing the potential of out-of-class digitally mediated language learning practice back to the classroom: A nexus of practice perspective. In *Digital language learning and teaching* (pp. 25-37). Routledge.
- DeFouw, E. R., Collier-Meek, M. A., Daniels, B., Coddling, R. S., & Veiga, M. (2021). Does intervention session length matter? A comparison of a math intervention across three durations. *Journal of Behavioral Education*, 1-27.
- Deggs, D., & Hernandez, F. (2018). Enhancing the value of qualitative field notes through purposeful reflection. *The Qualitative Report*, 23(10), 2552-2560.
- Denzin, N. K. (1978). *The Research Act: A Theoretical Introduction to Sociological Methods*. McGraw-Hill.

- DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., Lazzara, D. J., ... & Kostas-Polston, E. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship*, 39(2), 155-164.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of educational technology systems*, 49(1), 5-22.
- Duggan, F. (2013). Why universities should acquire—and teach—digital literacy. *The guardian*. Available from <https://www.theguardian.com/education/2013/apr/23/universities-should-teach-digital-literacy> (accessed 23 August 2024).
- Duncan, B. (2006). Media literacy: Essential survival skills for the new millennium. *School Libraries in Canada*, 25(4), 31-34.
- Duran, E., & Ertan Özen, N. (2018). Digital literacy in Turkish lessons. *Türkiye Eğitim Dergisi*, 3(2), 31-46.
- Edith Cowan University (2022), “Digital literacy framework”, Available at: <https://www.ecu.edu.au/centres/library-services/teaching-support/digital-literacy-framework> (accessed 23 August 2024).
- Elçiçek, M., & Kahyaoğlu, M. (2022). Postgraduate Theses on Digital Literacy in Turkey: A Content Analysis Study. *Journal of Learning and Teaching in Digital Age*, 7(1), 30-41.
- Ellis, H., Havard, B., Hastings, N., & McArthur, A. (2016, March). Educational Leaders As Technology Leaders: Technology Literacy Skill Development. In *Society for Information Technology & Teacher Education International Conference* (pp. 1217-1223). Association for the Advancement of Computing in Education (AACE).
- Ertürk, G. T. (2022). Investigation of Preservice EFL Teacher's Digital Literacy Levels and Digital Literacy Skills. *Educational Research Quarterly*, 46(1), 3-32.
- Erstad, O. (2010). Educating the digital generation. *Nordic journal of digital literacy*, 5(1), 56-71.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of educational multimedia and hypermedia*, 13(1), 93-106.

- Etike, Ş. (2023). Digital Skills Map of “Digital Natives”: Opportunities, Possibilities, Obstacles, *Yeni Medya*, (15), 112-129. Available at: <https://doi.org/10.55609/yenimedya.1267062> (accessed 23 August 2024).
- Europea, C. (2007). A European approach to media literacy in the digital environment. *Official Journal of the European Union*. Available at: <https://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM%3A2007%3A083%AFIN%3AEN%3APDF> (accessed 23 August 2024).
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—principles and practices. *Health services research*, 48(6pt2), 2134-2156.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. SAGE Publications.
- Fink, A. (2003). *The Survey Kit* (2nd ed.). SAGE Publications.
- Fisher, R. A. (1935). The logic of inductive inference (with discussion). *Journal of Royal Statistical Society* 98, 39-82.
- Fosnacht, K. (2020). Information literacy’s influence on undergraduates’ learning and development: Results from a large multi-institutional study. *College & Research Libraries*, 81(2), 272–287. <https://doi.org/10.5860/crl.81.2.272>
- Fransecky, R. B. (1972). Visual literacy: A way to learn a way to teach. *Association for Educational Communications and Technology*.
- García-Gómez, A. (2020). Intercultural and interpersonal communication failures: analysing hostile interactions among British and Spanish university students on WhatsApp. *Intercultural Pragmatics*, 17(1), 27-51.
- Gardner, H. (2010). Five minds for the future. *21st century skills: Rethinking how students learn*, 9-31.
- Ghasemi, H., & Rasekh, N. (2020). Identifying dimensions of communication literacy: Thematic analysis approach. *Journal of Health Literacy*, 4(4), 18-29.
- Gilster, P. (1997). *Digital Literacy*. New York: Wiley&Sons.
- Goffman, E. (2023). The presentation of self in everyday life. In *Social theory re-wired* (pp. 450-459). Routledge.

- Greene, J. A., Seung, B. Y., & Copeland, D. Z. (2014). Measuring critical components of digital literacy and their relationships with learning. *Computers & education*, 76, 55-69.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), 105.
- Gurak, L. J. (2001). *Cyberliteracy: Navigating the Internet with awareness*. Yale University Press.
- Guri-Rosenblit, S. (2009). *Digital technologies in higher education: Sweeping expectations and actual effects*. Nova Science Publishers, Inc..
- Gülbahar, Y., & Büyüköztürk, Ş. (2008). Değerlendirme tercihleri ölçeğinin Türkçeye uyarlanması. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 35(35), 148-161.
- Güney, Z. (2019). Visual literacy, cognitive learning approach and instructional technology. *Bartın University Journal of Faculty of Education*, 8(3), 867-884.
- Hamouma, C., & Menezla, N. (2019). The impact of digital literacy proficiency on EFL students' academic writing performance: A case study of Algerian third year EFL students. *International Journal of Digital Literacy and Digital Competence (IJDLDC)*, 10(4), 40-55.
- Hamutoğlu, N. B., Güngören, Ö. C., Uyanık, G. K., & Erdoğan, D. G. (2017). Dijital okuryazarlık ölçeği: Türkçe'ye uyarlama çalışması. *Ege Eğitim Dergisi*, 18(1), 408-429.
- Harkness, J. A., Van de Vijver, F. J., & Mohler, P. P. (2003). *Cross-cultural survey methods*. Wiley.
- Heick, T. (2019). The Definition of Digital Literacy. Retrieved from <https://www.teachthought.com/literacy/the-definition-of-digital-literacy/>
- Hongthong, T., & Temdee, P. (2018, January). Personalized mobile learning for digital literacy enhancement of Thai youth. In *2018 International Workshop on Advanced Image Technology (IWAIT)* (pp. 1-4). IEEE.
- Huang, R. H., Liu, D. J., Tlili, A., Yang, J., Wang, H., & Zhang, M. (2020). Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining uninterrupted learning in COVID-19 outbreak. *Beijing: Smart Learning Institute of Beijing Normal University*, 46.

- Huang, X., Zou, D., Cheng, G., Chen, X., & Xie, H. (2023). Trends, research issues and applications of artificial intelligence in language education. *Educational Technology & Society*, 26(1), 112-131.
- Hunter, J. (1984). Make Your Students Computer Literate. In *Business Education Forum*, 38(8), 45-50.
- Imms, W., & Kvan, T. (2021). *Teacher transition into innovative learning environments: A global perspective* (p. 334). Springer Nature.
- Inns, A., Lake, C., & Slavin, R. E. (2020). Effects of Intervention Duration on Outcomes of Experiments in Education.
- Iskandar, I., Sumarni, S., Dewanti, R., & Asnur, M. N. A. (2022). Infusing Digital Literacy in Authentic Academic Digital Practices of English Language Teaching at Universities. *International Journal of Language Education*, 6(1), 75-90.
- ITEA. (2000). *Standards for technological literacy*. Reston, VA: International Technology Education Association.
- Jaleniauskienė, E., Lisaitė, D., & Daniusevičiūtė-Brazaitė, L. (2023). Artificial intelligence in language education: a bibliometric analysis. *Sustainable Multilingualism*, 23(1), 159-194.
- Johnson, J. (2024). Most common languages used on the internet. Statista. Retrieved from <https://www.statista.com/statistics/262946/most-common-languages-on-the-internet/>
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), 14-26.
- Jones, B., & Flannigan, S. L. (2006). Connecting the digital dots: Literacy of the 21st century. *Educause Quarterly*, 29(2), 8-10.
- Joppe, M. (2000). *The Research Process*. Retrieved February 25, 1998.
- Karaboğa, M. T. (2019). Dijital medya okuryazarlığında anne ve baba eğitimi. *OPUS International Journal of Society Researches*, 14(20), 2040-2073.
- Kastis, N., & Carneiro, R. (2009). Digital Literacy-The Evolution of the 21st Century Literacies. Retrieved from <https://www.openeducationeuropa.eu/en/paper/digital-literacy-%E2%80%93-evolution-21st-century-literacies>

- Kaya, M. (2020). The impact of visual literacy awareness education on verbal and writing skills of middle school students. *International Journal of Education and Literacy Studies*, 8(2), 71-80.
- Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of higher education*, 6(5), 26-41.
- Kohnke, L., & Moorhouse, B. L. (2022). Facilitating synchronous online language learning through Zoom. *Relc Journal*, 53(1), 296-301.
- Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, culture & society*, 33(2), 211-221.
- Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. Sage publications.
- Kuhn, T. S. (1962). Historical Structure of Scientific Discovery: To the historian discovery is seldom a unit event attributable to some particular man, time, and place. *Science*, 136(3518), 760-764.
- Kul, S. (2020). Dijital okuryazarlık ve diğer değişkenlerle internet bağımlılığı ilişkisinin incelenmesi. *Uluslararası Yönetim Bilişim Sistemleri ve Bilgisayar Bilimleri Dergisi*, 4(1), 28-41.
- Kurt, A. A., Orhan, D., Yaman, F., Solak, M. Ş., & Türkan, F. (2014). Bilgi ve iletişim teknolojileri ışığında Türkiye’de yapılan okuryazarlık çalışmalarındaki eğilim. *Eğitim Teknolojileri Araştırma Dergisi*, 5 (2), 1-21.
- Kyngäs, H. (2020). Qualitative research and content analysis. In The application of content analysis in nursing science research (pp. 3-11). https://doi.org/10.1007/978-3-03030199-6_1.
- Landøy, A., Popa, D., & Repanovici, A. (2020). *Collaboration in designing a pedagogical approach in information literacy* (p. 161). Springer Nature.
- Lankshear, C., & Knobel, M. (Eds.). (2008). *Digital literacies: Concepts, policies and practices* (Vol. 30). Peter Lang.
- Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). *A global framework of reference on digital literacy skills for indicator 4.4.2*. UNESCO Institute for Statistics.

- Le Phan, T. N. (2023, November). Students' perceptions of the AI technology application in English writing classes. In *Proceedings of the AsiaCALL International Conference* 4, 45-62.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. SAGE Publications.
- Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in educational research*, 16(2), 193-205.
- Maharaj, N. (2016). Using field notes to facilitate critical reflection. *Reflective Practice*, 17(2), 114-124.
- Martin, A. (2006). A European framework for digital literacy. *Nordic Journal of Digital Literacy*, 1(2), 151-161.
- Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in teaching and learning in information and computer sciences*, 5(4), 249-267.
- Mirzaei, M. S., Zhang, Q., van der Struijk, S., & Nishida, T. (2018). Language learning through conversation envisioning in virtual reality: A Sociocultural approach. In P. Taalas, J. Jalkanen, & S. Thouësny (Eds.), *Future-Proof CALL: Language Learning as Exploration and Encounters-Short Papers from EUROCALL* (pp. 207-213). <http://doi.org/10.14705/rpnet.2018.26.838>
- Neuman, L. W. (2011). *Social research methods: Qualitative and quantitative approaches* (7thed.). Boston, MA: Allyn and Bacon.
- Ng, W. (2012). Can we teach digital natives digital literacy?. *Computers & education*, 59(3), 1065-1078.
- Onursoy, S. (2018). Üniversite gençliğinin dijital okuryazarlık düzeyleri: Anadolu üniversitesi öğrencileri üzerine bir araştırma. *Gümüşhane Üniversitesi İletişim Fakültesi Elektronik Dergisi*, 6(2), 989-1013.
- Organisation for Economic Co-operation and Development (OECD). (2019). *Artificial Intelligence in Society*. OECD Publishing. <https://dx.doi.org/10.1787/eedfee77-en>
- Ortega-Sánchez, D., Gómez-Trigueros, I. M., Trestini, M., & Pérez-González, C. (2020). Self-perception and training perceptions on teacher digital competence (TDC) in Spanish and French university students. *Multimodal Technologies and Interaction*, 4(4), 74.

- Outhwaite, L. A., Gulliford, A., & Pitchford, N. J. (2020). A new methodological approach for evaluating the impact of educational intervention implementation on learning outcomes. *International Journal of Research & Method in Education*, 43(3), 225-242.
- Özdemir, E. (2017). Promoting EFL learners' intercultural communication effectiveness: a focus on Facebook. *Computer Assisted Language Learning*, 30(6), 510-528.
- Özkaya, Y., & Erat, V. (2022). Türkiye'de Dijital Okuryazarlık Çalışmaları: Literatüre Dayalı Nitel Bir Araştırma. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi*, 12(Dijitalleşme), 240-256.
- Panel, I. L. (2002). Digital transformation: A framework for ICT literacy. *Educational Testing Service*, 1(2), 1-53.
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*. SAGE Publications.
- Pearson, G., & Garmire, E. (Eds.). (2006). *Tech tally: Approaches to assessing technological literacy*. National Academies Press.
- Pehlevan, İ., & Ünal, B. (2024) Investigating the Relationship between Digital Literacy and TPACK Levels of Pre-Service English Teachers. *Journal of Language Education and Research*, 10(1), 87-111.
- Peled, Y. (2021). Pre-service teacher's self-perception of digital literacy: The case of Israel. *Education and Information Technologies*, 26(3), 2879-2896. <https://doi.org/10.1007/s10639-020-10387-x>
- Peng, D., & Yu, Z. (2022). A literature review of digital literacy over two decades. *Education Research International*, 2022(1), 2533413.
- Petrina, S. (Ed.). (2006). *Advanced teaching methods for the technology classroom*. IGI Global.
- Phillippi, J., & Lauderdale, J. (2018). A guide to field notes for qualitative research: Context and conversation. *Qualitative health research*, 28(3), 381-388.
- Potter, W. J. (2018). *Media literacy*. Sage publications.
- Preiser, R., García, M. M., Hill, L., & Klein, L. (2021). Qualitative content analysis. In *The Routledge handbook of research methods for social-ecological systems* (pp. 270-281). Routledge.

- Prensky, M. (2001). Digital natives, digital immigrants part 2: Do they really think differently? *On the horizon*, 9(6), 1-6.
- Radyo Televizyon Üst Kurulu (RTÜK). (2022). Gençlerin medya kullanımı ve dijital okuryazarlık araştırması [Youth media use and digital literacy research]. Retrieved from <https://www.rtuk.gov.tr/genclerin-medya-kullanimi-ve-dijital-okuryazarlik-arastirmasi-2022/4402> (accessed 23 August 2024).
- Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu* (No. JRC107466). Joint Research Centre (Seville site).
- Reddy, P., Chaudhary, K., Sharma, B., & Hussein, S. (2023). Essaying the design, development and validation processes of a new digital literacy scale. *Online Information Review*, 47(2), 371-397.
- Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital literacy: A review of literature. *International Journal of Technoethics (IJT)*, 11(2), 65-94.
- Reddy, P., Sharma, B., & Chaudhary, K. (2022). Digital literacy: a review in the South Pacific. *Journal of Computing in Higher Education*, 34(1), 83-108.
- Reddy, P., Sharma, B., Chaudhary, K., Lolohea, O., & Tamath, R. (2023). Visual literacy shown through a magnifying lens by high school students. *Interactive Technology and Smart Education*, 20(4), 493-511.
- Reimers, F., Schleicher, A., Saavedra, J., & Tuominen, S. (2020). Supporting the continuation of teaching and learning during the COVID-19 Pandemic. *Oecd*, 1(1), 1-38.
- Rinekso, A. B., & Muslim, A. B. (2020). Synchronous online discussion: teaching English in higher education amidst the covid-19 pandemic. *JEES (Journal of English Educators Society)*, 5(2), 155-162.
- Rinekso, A. B., Rodliyah, R. S., & Pertiwi, I. (2021). Digital literacy practices in tertiary education: A case of EFL postgraduate students. *Studies in English Language and Education*, 8(2), 622-641.
- Sağiroğlu, Ş., Bülbül, H. İ., Kılıç, A., & Küçükali, M. (2020). *Dijital okuryazarlık: araçlar, metodolojiler, uygulamalar ve öneriler*. Ankara: Nobel Akademik Yayıncılık.
- Salazar, M. K. (1990). Interviewer bias: How it affects survey research. *Aaohn Journal*, 38(12), 567-572.

- Scher, R. (1984). The computer backlash. *Electronic Learning*, 5, 23-27.
- Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry. *Handbook of qualitative research*, 1(1994), 118-137.
- Shopova, T. (2014). Digital literacy of students and its improvement at the university. *Journal on Efficiency and Responsibility in Education and Science*, 7(2), 26-32.
- Silik, Y., & Aydın, F. (2021). Dijital okuryazarlık ve teknoloji okuryazarlığı: karşılaştırmalı bir inceleme. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, 19(4), 17-34.
- State Educational Technology Directors Association. (2007). 2007 Technology literacy assessment and educational technology standards report. Retrieved from <https://www.setda.org/wpcontent/uploads/2015/03/TEchnologyLiteracy2007Final.pdf>
- Stokes, S. (2002). Visual literacy in teaching and learning: A literature perspective. *Electronic Journal for the integration of Technology in Education*, 1(1), 10-19.
- Stričević, I. (2018, February). Literacies in the digital age new teaching paradigms and solutions for academic libraries. In *2018 5th International Symposium on Emerging Trends and Technologies in Libraries and Information Services (ETTLIS)* (pp. 169-173). IEEE.
- Şengül, M., & Demirel, A. (2022). The relationship between the digital literacy levels of Turkish language teacher candidates and their attitudes towards digital writing. *International Journal of Education and Literacy Studies*, 10(4), 19-26.
- Tabachnick, B. G. (2007). Experimental designs using ANOVA. *Thomson/Brooks/Cole*.
- Tashakkori, A., & Teddlie, C. (2003). The past and future of mixed methods research: From data triangulation to mixed model designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 671-702). Thousand Oaks, CA: Sage
- Tashakkori, A., & Teddlie, C. (2010). *SAGE Handbook of Mixed Methods in Social & Behavioral Research*. SAGE Publications.

- Thurmond, V. A. (2001). The point of triangulation. *Journal of Nursing Scholarship*, 33(3), 253-258.
- Tinmaz, H., Fanea-Ivanovici, M., & Baber, H. (2023). A snapshot of digital literacy. *Library Hi Tech News*, 40(1), 20-23.
- Tomei, L. A. (2005). Technology (Level 6.0). In *Taxonomy for the Technology Domain* (pp. 217-237). IGI Global.
- Town, S. (2000) Wisdom or welfare: the seven pillars model, in: S. Corral & H. Hathaway (Eds) *Seven Pillars of Wisdom? Good Practice in Information Skills Development* (London, Standing Conference of National and University Libraries).
- Tucker, P. (2015). *The Naked Future: What happens in a world that anticipates your every move?*. Penguin.
- UNESCO, N. (2003). The Prague Declaration Towards an Information Literacy Society, Information Literacy Meeting of Experts, Prague, The Czech Republic. 2003-09 20]. http://portal.unesco.org/ei/en/ev.php-URL_ID=19636&URL_DO=DO_TOPIC&URL_SECTION=201.html
- UNESCO (2018). *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2*. Available from <https://www.emerald.com/insight/content/doi/10.1108/JICE-072022-0020/full/pdf> (accessed 23 August 2024).
- Van Joolingen, W. (2004) The PISA framework for assessment of ICT literacy. *Powerpoint presentation* Online at: <http://www.ictliteracy.info/rl.pdf/PISA%20framework.ppt>
- Vuorikari, R., Punie, Y., Gomez, S. C., & Van Den Brande, G. (2016). *DigComp 2.0: The digital competence framework for citizens. Update phase 1: The conceptual reference model* (No. JRC101254). Joint Research Centre.
- Wang, J. (2012). The use of e-dictionary to read e-text by intermediate and advanced learners of Chinese. *Computer Assisted Language Learning*, 25(5), 475-487.
- Wang, M. J., Yang, L. Z., & Chen, T. L. (2023). The effectiveness of ICT-enhanced learning on raising intercultural competencies and class interaction in a hospitality course. *Interactive Learning Environments*, 31(2), 994-1006.
- Webber, S., Boon, S., & Johnston, B. (2005). A comparison of UK academics' conceptions of information literacy in two disciplines: English and Marketing. *Library and information research*, 29(93), 4-15.

- Wei, L. (2023). Artificial intelligence in language instruction: impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, 14, 1261955.
- Weninger, C. (2022). Skill versus social practice? Some challenges in teaching digital literacy in the university classroom. *Tesol Quarterly*, 56(3), 1016-1028.
- Widana, I. W. (2020, July). The effect of digital literacy on the ability of teachers to develop HOTS-based assessment. In *Journal of Physics: Conference Series* (Vol. 1503, No. 1, p. 012045). IOP Publishing.
- Wilden S. (2022, 02, 04). Teaching Digital Literacy – Whose Job Is It? Oxford University Press ELT. Retrieved in 23.08.2022 <https://oupeltglobalblog.com/2022/02/04/teaching-digitalliteracy/>
- Yıldırım, M., Kesik, C., & Cığerci, F. M. (2023). The effect of digital literacy levels and e learning attitudes on screen reading self-efficacy: A structural equation modelling. *Journal of Educational Technology and Online Learning*, 6(3), 625-646.
- Yin, R. K., (2014). *Case Study Research Design and Methods* (5th ed.). Thousand Oaks, CA: Sage. 282 pages. (ISBN 978-1-4522-4256-9)
- Yükseköğretim Kurulu (YÖK) (2020). Retrieved from <https://www.yok.gov.tr/Sayfalar/Haberler/2020/dijital-egitimde-3-fazagecildi.aspx>

1. Bilgisayar kullanımında kendinize ne kadar güvenirsiniz?

Çok fazla güvenirim

Fazla güvenirim

Kısmen güvenirim

Az güvenirim

Çok az güvenirim

2. Hangi uygulamaları ne amaçla kullanırsınız? (Birden fazla işaretleyebilirsiniz)

	İş	Araştırma	Sosyalleşme	Ders Çalışma	Kişisel Hayat
Email					
Zoom					
Blogs					
Facebook					
Instagram					
LinkedIn					
Moodle					
Spotify					
Youtube					
Wiki					
Drobox					
Whatsapp					
Twitter					
Drive					

3. Dijital Okuryazarlık seviyeniz nedir?

Medya Okuryazarlığı

Değişkenler (anlama ya da kullanma seviyesi)	Yok (0%)	Az Düzeyde (1-30%)	Orta düzeyde (31-60%)	İyi Düzeyde (61-80 %)	İleri Düzeyde (81-100%)
Word/Excel/PowerPoint uygulamalarında yeni içerik üretme					
Pdf dosyası oluşturma					
Hazır içerikleri değiştirme					
Uygun medya araçlarını seçme					
Telif hakkı kavramını anlama					
Fikri Mülkiyet Haklarını anlama					
Bilgisayar, akıllı telefon, tablet ve akıllı medya kullanımını bilme					
Dış bağlantılar (tıklayınca yeni sekme açan bağlantılar) arasında gezinebilme					
Medya mesajlarını yorumlama					
Çevrimiçi gazeteler, çerezler, web siteleri ve haber kanalları arasında seçim yapabilme					

Bloglar ve YouTube gibi medyaları kullanarak iletişim kurma ve sunum yapma					
İnternet ve sosyal ağlar gibi farklı bilgi kaynaklarını ve medyayı kullanma					
Sosyal medya ve e-postaları kullanarak çevrimiçi forumlara ve tartışmalara katılma					

İletişim Okuryazarlığı

Değişkenler (anlama ya da kullanma seviyesi)	Yok (0%)	Az Düzeyde (1-30%)	Orta düzeyde (31-60%)	İyi Düzeyde (61-80 %)	İleri Düzeyde (81-100%)
Açık Eğitim Kaynaklarını kullanma					
Öğrenme ve araştırma için çevrimiçi sohbetlere ve forumlara katılma					
Çevrimiçi rezervasyon ve randevular gibi kişisel kullanım için dijital platformu kullanabilme					
Yayın teknolojilerini kullanma					
İnterneti iletişim kurmak için kullanma					

Bilgi Okuryazarlığı

Değişkenler (anlama ya da kullanma seviyesi)	Yok (0%)	Az Düzeyde (1-30%)	Orta düzeyde (31-60%)	İyi Düzeyde (61-80 %)	İleri Düzeyde (81-100%)
İnternette hangi bilginin, nasıl bulacağına dair bilgi sahibi olma					
Bilgi edinmek amacıyla internette gelişmiş arama seçeneklerini kullanma					
Podcast veya video gibi farklı ortamlardaki bilgileri kullanma					
Çevrimiçi bir kaynağın (ör. Web sayfası, blog, wiki, video, podcast, akademik dergi makalesi) güvenilir olup olmadığını değerlendirme					
Sizi alakadar eden bilgilerin dijital kaydını tutma					
Çevrimiçi iletişim için bloglara, forumlara veya web sayfalarına yorum ekleme					
Farklı medya ortamlarında içerik oluşturma					
Çevrimiçi olarak başkalarıyla güvenli bir şekilde örneğin güvenli şifrelerle, sahte web sitelerinin ve istenmeyen e-postaların farkında olarak işbirliği yapma					

Kullanılan çevrimiçi kaynaklar için referanslarla atıfta bulunma					
Dosyaları yasal olarak başkalarıyla paylaşma					
Kaynakçanın ne olduğunu bilme					

Görsel Okuryazarlık

Değişkenler (anlama ya da kullanma seviyesi)	Yok (0%)	Az Düzeyde (1-30%)	Orta düzeyde (31-60%)	İyi Düzeyde (61-80 %)	İleri Düzeyde (81-100%)
Bir görsele olan ihtiyacı tanımlama ve belirleme					
Görseller için çeşitli kaynaklar belirleme					
Gerekli görsellere ve görsel medyaya erişebilme					
Görselleri ve bilgi kaynağını düzenleyebilme					
Bir görselin fiziksel, teknik ve tasarım bileşenlerini belirleyebilme					
Bir görseli yorumlama ve analiz etme					
Bir görselin etkisini ve güvenilirliğini değerlendirme					
Resimlere eşlik eden metinsel bilgilerin değerlendirilmesi					

Görsellerle çalışmak için teknolojiyi kullanma					
Görselleri yorumlayabilme ve bunları bilimsel projelere dâhil etme					
Görüntü ve görsel medya üretmek için farklı araçları ve teknolojiyi kullanma					
Görüntüleri ve görsel medyayı çevreleyen etik, yasal, sosyal ve ekonomik yaptırımları anlama ve bunlara uyma					
Proje ve sunumlarda görsellere ve görsel medyaya atıfta bulunma					

Teknoloji Okuryazarlığı

Değişkenler (anlama ya da kullanma seviyesi)	Yok (0%)	Az Düzeyde (1-30%)	Orta düzeyde (31-60%)	İyi Düzeyde (61-80 %)	İleri Düzeyde (81-100%)
Farklı bilgisayar platformlarını ve yazılım sürümlerini tanımlama					
Yazılım yükleme ve kaldırma					
Dosyaları sıkıştırma ve açma					
Verileri yedekleme ve kurtarma					

Belirli bir görev için en iyi donanımı / yazılımı seçme					
Gelişen teknolojiyi ve sınırlılıklarını bilme					
Kelime işlem, elektronik tablo, veri tabanı ve sunum yazılımı gibi yazılımlarla ilgili bilgi sahibi olma					
Elektronik posta birleştirme işlemi yapabilme					
Arama motorlarının ve çevrimiçi dizinlerin nasıl kullanıldığı hakkında bilgi sahibi olma					
Şifre koruması hakkında bilgi sahibi olma					
Sunumları, videoları, animasyonları, simülasyonları ve podcast'leri planlama, oluşturma ve düzenleme					
İnternet ağı geliştirme araçları hakkında bilgi sahibi olma					

Bilgisayar Okuryazarlığı

Değişkenler (anlama ya da kullanma seviyesi)	Yok (0%)	Az Düzeyde (1-30%)	Orta düzeyde (31-60%)	İyi Düzeyde (61-80 %)	İleri Düzeyde (81-100%)
Belirli bir konu hakkında Google kullanarak arama yapma					
Bir e-posta hesabına sahip olma					
Ofis uygulamalarını kullanma (Word, Excel, PowerPoint vs.)					
Temel teknik donanım sorunlarını çözebilme					
Antivirüs yazılımı kullanma					
Sosyal medya hesaplarına sahip olma ve kullanma					

Ankete katıldığınız için çok teşekkür ederim.

APPENDIX B. Digital Literacy Survey (DLS)- Original Version



Digital Literacy Pre-Workshop Questionnaire

questionnaire you agree to participate in this workshop . Personal identification details are not asked in this survey therefore you remain anonymous. All responses will be confidential, compiled and analysed as a group.)Please circle or tick where necessary.

Tertiary Institute: _____ | Year: _____ | Programme: _____ |
 Gender: ☐ Male ☐ Female Age: _____ | Country: _____
 Name: _____

1. How confident are you using computers?

- ☐ Very Confident
☐ Confident
☐ Neutral
☐ Fairly Confident
☐ Not Confident at all

2. Which of the technologies do you use?(You can have more than one choice)

	Work	Research	Networking	Teaching	Work	Research
Email						
Skype						
Blogs						
Facebook						
LinkedIn						
Moodle						
Youtube						
Wikis						
Dropbox						
Whatsapp						
Viber						
Twitter						

3. How digital literate are you?

Media Literacy

Variables (understanding or usage)	No Understanding (0%)	Low Understanding (1-30%)	Average Understanding (31-60%)	High level of Understanding (61-80 %)	Advanced level of understanding (81-100%)
Creating new content word/excel/powerpoint					
Creating pdf documents					
Revising existing content					
Choosing appropriate media					
Understanding copyright					
Understanding Intellectual property rights					
Knowing how to use computers, smartphones, tablets and smart media					
Navigating through hyperlinks					
Interpreting media messages					
Selecting possibilities through online newspapers, cookies, websites and news channels					
Communicating and presenting using media such as using Blogs and YouTube					
Using different sources of information and media devices eg Internet and social networks					
Participating in public through debates and online forums eg using social media and emails					

Communication Literacy

Variables (understanding or usage)	No Understanding (0%)	Low Understanding (1-30%)	Average Understanding (31-60%)	High level of Understanding (61-80 %)	Advanced level of understanding (81-100%)
Using Open Educational Resources (OERs)					
Participating in online chats and forums for learning and research					
Using digital platform for personal use – online booking and appointments					
Using publication technologies					
Using Internet to communicate					

Information Literacy

Variables (understanding or usage)	No Understanding (0%)	Low Understanding (1-30%)	Average Understanding (31-60%)	High level of Understanding (61-80 %)	Advanced level of understanding (81-100%)
Knowing what and how to find information on the web					
Using advanced search options to look for information on the web					
Using information in different media, for example, podcasts or videos					
Assessing whether an online resource (e.g. web page, blog, wiki, video, podcast, academic journal article) credible and trustworthy					
Keeping a digital record of the information relevant to you					
Adding comments to blogs, forums or web pages for online communications					

Creating content in different media					
Collaborating safely with others online for example with secured passwords, aware of fake websites and spams					
Citing references for online resources used					
Sharing files legally with others					
Knowing what a bibliography is					

Visual Literacy

Variables (understanding or usage)	No Understanding (0%)	Low Understanding (1-30%)	Average Understanding (31-60%)	High level of Understanding (61-80 %)	Advanced level of understanding (81-100%)
Defining and identifying the need for an image					
Identifying a variety of sources for images					
Accessing required images and visual media					
Organising images and the source of information					
Identifying the physical, technical and design components of an image					
Interpreting and analysing an image					
Evaluating the effectiveness and reliability of an image					
Evaluating textual information accompanying the images					
Using technology to work with images					
Knowing how to interpret images and including them in your scholarly projects					
Using tools and technology to produce images and visual media					
Understanding and following ethical, legal, social, and economic					

issues surrounding images and visual media					
Citing images and visual media in projects and presentations					

Technology Literacy

Variables (understanding or usage)	No Understanding (0%)	Low Understanding (1-30%)	Average Understanding (31-60%)	High level of Understanding (61-80 %)	Advanced level of understanding (81-100%)
Identifying different computer platforms and software versions					
Installing and uninstalling software					
Compressing and Decompressing files					
Backing up and Recovery of data					
Choosing best hardware / software for a given task					
Knowledge of emerging technology and its limitations					
Knowledge of word processing, spreadsheet, database and presentation software					
Creating mail merge					
Knowing how to use search engines and online directories					
Knowledge about password protection					
Planning, creating and editing presentations, video, animations, simulations and podcasts					
Knowledge about web authoring tools					

Computer Literacy

Variables (understanding or usage)	No Understandin g (0%)	Low Understandi ng (1-30%)	Average Understandi ng (31-60%)	High level of Understandin g (61-80 %)	Advanced level of understanding (81-100%)
Using google to search for topics					
Having an email account					
Using of office applications					
Resolving basic technical equipment problems					
Using anti-virus software					
Having and using social media accounts					

Thank you very much for taking part in this survey.

APPENDIX C. Digital Literacy Achievement Test with Answer Key

1. Which of the following is **not** among the operating systems?

- a. Microsoft Windows
- b. Norton**
- c. Linux
- d. iOS
- e. Android

2. What is the function of Google Instant?

- a. predicting what you are searching for and starts showing the results faster**
- b. finding the results in seconds
- c. narrowing down the results of your research
- d. changing Google into your homepage
- e. excluding keywords from the results

3. What should you do if you **don't** find information you search on Google?

- a. write the full sentences about your search
- b. click on the button says I feel lucky
- c. try to type URL on Google toolbar
- d. use quotation marks (") to search for an exact phrase or thing**
- e. upload a document on your Gmail account about your search

4. Which of the following is **not** among the most common online threats (virus) to computers?

- a. Doodle**
- b. Trojan
- c. Worm
- d. Malware
- e. Spyware

5. Which of the following is **not** among the tips for avoiding online threats?

- a. keeping your operating system and programs updated
- b. installing an antivirus program
- c. changing the password of your computer regularly**
- d. avoiding pirated (stolen or illegal) software
- e. deleting email attachments from people you don't know

6. Which of the lists below include the elements that constitute a Digital Identity of a person?

- a. Browser history, download history, cookies, media accounts
- b. Block chain, reputation, community memberships, start-ups, VPNs
- c. Employment, profiles, reputation, cache, cookies
- d. Persona, credentials, passwords, updates, logins, notifications
- e. Digital footprints, credentials, media posts, interactions, publications, affiliations**

7. Which of the following is **not** among the importance of Digital Footprint?

- a. A digital footprint can determine a person's digital reputation
- b. Employers can check their potential employees' digital footprints, particularly their social media, before making hiring decisions.
- c. Words and photos which you post online can be misinterpreted or altered, causing unintentional offence.
- d. **It can make a person famous on social media such as an influencer.**
- e. Content intended for a private group can spread to a broader circle, potentially damaging relationships and friendships.

8. What are the alternative names of Digital Footprint?

- a. **Digital Shadow and Electronic Footprint**
- b. Electronic Portfolio and Digital History
- c. Digital Identity and Electronic Shadowing
- d. Reputation and Credentials
- e. Blockchain and Overshadowing

9. What is Cache?

- a. It refers to the list of web pages a user has visited, as well as associated metadata such as page title and time of visit.
- b. **It is a hardware or software component that stores data so that future requests for that data can be served faster.**
- c. It is the reputation of a company, person, product, service or any other element on the Internet and digital platforms.
- d. It is a collection of previous achievements, training, and general background, which indicate that a person is qualified to do something.
- e. It is a decentralised, distributed and public digital ledger that is used to record transactions across many computers

10. Which of the following steps is **not** appropriate to create a strong password?

- a. making passwords at least 8 characters long
- b. **using private or personal information in your passwords**
- c. including different types of characters (letters, numbers & symbols) in your passwords
- d. using both uppercase letters and lowercase letters
- e. making sure it is a password you can remember

11. What does VPN stand for?

- a. Virtual Personal Name
- b. Vendor Part Number
- c. **Virtual Private Network**
- d. Volunteer Production Net
- e. Vertical Pattern Number

12. Which of the following is **not** a way for the fraudsters to get access to a system or a computer?

- a. **Logbook**
- b. Phishing
- c. Social Engineering
- d. SMSing
- e. Farming

13. Which of the following information is among the personal information of an individual?

- a. Address
- b. Phone number
- c. **Gender**
- d. E-mail
- e. Credit card information

14. Which of the following terms is **not** related to evaluating online information?

- a. Biassed
- b. **Domain**
- c. Fake news
- d. Clickbait
- e. Echo chamber

15. Which of the following is the name of a strategy used by Google to evaluate the reliability of a photo on the internet?

- a. Image on Truth Search
- b. Viral Photo detective
- c. Fact Photo Search
- d. **Reverse Image Search**
- e. Fake Image Test

16. What should you do to realise whether you are in an echo chamber?

- a. Search about conflicted topics
- b. Log out the accounts that are not frequently used
- c. Ignoring the counter arguments on an issue
- d. **Thinking about confirmation bias and filter bubbles in similar contents**
- e. Preventing finding new perspectives on complicated topics

17. Which of the following information is **not** a part in a citation of an article?

- a. Name of the author
- b. Title of the work
- c. DOI number
- d. Name of the journal
- e. **Phone number**

18. What is Copyright?

- a. Kind of request from the author to copy his/her artefact to use or adapt in several other fields.
- b. **A type of intellectual property that gives its owner the exclusive right to copy, distribute, adapt, display, and perform a creative work, usually for a limited time.**
- c. It can be any word, phrase, symbol, design, or a combination of these things that identifies your goods or services.
- d. It is a string of numbers, letters and symbols used to uniquely identify an article or document, and to provide it with a permanent web address.
- e. It is a subset of netiquette that aims to preserve the reputation of companies and individuals on social media.

19. What is the function of hashtag (#) symbol in Twitter?

- a. to create an environment for like-minded people to get together
- b. to connect media content to specific topic, theme or conversation**
- c. to mention someone to make them see the media content or reply your entry
- d. to send direct messages to people by entering short codes
- e. to stick or pin a notice on a wall in order to make it publicly known

20. Which feature below is **not** among the ones to interact with other tweets in Twitter?

- a. Retweeting
- b. Favouring
- c. Pinning**
- d. Quoting
- e. Replying

21. Which one of the social media below is preferred for formal occasions and for career representation?

- a. Pinterest
- b. LinkedIn**
- c. Twitter
- d. Instagram
- e. YouTube

22. Which issues below are not among the things we should think about before posting something on social media?

- a. Identity Theft
- b. Behaviour Tracking
- c. Geolocation
- d. Reputation
- e. Big Data**

23. What is a Hyperlink?

- a. It is a text or an icon that you can click on to get to another website.**
- b. It is a feature that automatically adds location information to photos taken with cell phones.
- c. It a short paragraph that appears on your profile and states your professional strengths and skills
- d. It is a set of separate words that build a phrase for multi-word search
- e. It is a server program that allows users to collaborate in forming the content of a Web site

24. Which of the following strategies is not among the ones to fight against the FOMO effect?

- a. Taking digital detox
- b. Limiting time spent online
- c. Learning about Choice Paralysis**
- d. Spending more time in nature
- e. Taking up an actual hobby beside social media

25. Which of the following is not a kind of cyberbullying?

- a. Trolling
- b. Catfishing
- c. Swatting
- d. Detoxing**
- e. Exclusion

26. Which of the following is an example of a domain name of an email server?

- a. http.
- b. @
- c. **gmail.com**
- d. .com
- e. .gov.tr

27. What is the function of mail merge in MS Word documents?

- a. **to create a similar letter or document to multiple recipients in a single format at once**
- b. to collect and distribute emails to their intended destination
- c. to handle mail, including interoffice communications, coming into and leaving businesses
- d. to count the number of words in a document while you type
- e. to add a page break and continue to create the next mail

28. Which of the following communication apps enables video and audio meetings besides webinars, live chats and screen sharing with up to 1000 participants?

- a. Whatsapp
- b. Telegram
- c. Messenger
- d. **MS Teams**
- e. Zoom

29. What is a caption?

- a. a photo editing and raster graphic design software which allows users to create, edit, and manipulate various graphics as well as digital art.
- b. **a short piece of text placed under/ beside a picture in a social media post, magazine, book, or newspaper that describes that specific picture or explains what is happening in the picture.**
- c. a collection of images and videos casually gathered together in one carousel post including blurry, and sometimes ugly photos.
- d. a form of visual storytelling, a way to present a narrative through a series of images.
- e. a process in digital photography of making adjustments to photographs in a photo editing program.

30. Which of the following is not among the basic photo editing tools?

- a. Exposure
- b. Contrast
- c. **Reputation**
- d. Saturation
- e. Noise Reduction

APPENDIX D. Semi-Structured Interview Questions- Turkish

Semi-structured Interview Questions- Turkish

1) Dijital Okuryazarlık seviyenizi nasıl değerlendirirsiniz? 10 üzerinden kaç verirdiniz?

- Dersten önce/sonra nasıl hissediyorsunuz?
- Hangi yönlerden geliştiniz/ farkındalık kazandınız?

2) Bu dönem boyunca aldığınız Dijital okuryazarlık dersi hakkında ne düşünüyorsunuz?

- Dersin içeriğini nasıl buldunuz/yeterli miydi? Tavsiye ve önerileriniz nelerdir?
- Ders süresini yeterli buldunuz mu (uzun/kısa)? Tavsiye ve önerileriniz nelerdir?
- Hocanın derste dağıttığı ders notlarını nasıl buldunuz? Tavsiye ve önerileriniz nelerdir?
- Derste destek amaçlı izlenen videolar hakkındaki düşünceleriniz nelerdir? Tavsiye ve önerileriniz nelerdir?
- Derste yapılan aktiviteleri yeterli buldunuz mu? Tavsiye ve önerileriniz nelerdir?
- Dersin olumlu/olumsuz yönleri nelerdir? Tavsiye ve önerileriniz nelerdir?
- En çok aklınızda kalan ne oldu? Tavsiye ve önerileriniz nelerdir?
- Bu tür eğitimleri/dersleri arkadaşlarınıza önerir misiniz? Tavsiye ve önerileriniz nelerdir?

3) Her ne kadar ders içeriğimizde Yapay Zekâ olmasa da sonraki dönemde hızla geliştiği için bununla ilgili birkaç sorumuz olacaktır.

- Yapay Zekâ uygulamalarını (ChatGPT/Google Gemini) duyduunuz mu? Ne zaman, kimden?
- Yapay Zekâ (uygulamalarını) hiç deneyimlediniz mi? Deneyiminizi anlatır mısınız?
- Yapay Zekâyı hangi amaçlarla kullanırsınız?
- Yapay Zekâyı dil öğreniminizi desteklemek için kullanıyor musunuz?
- Yapay Zeka kullanırken karşılaştığınız zorluklar nelerdir?
- Sizce yapay zekâ gelecekte neler yapabilecektir?

APPENDIX G. Examples from the DLT Syllabi

Syllabus of the 5th week

Topic: Evaluating Online Information

Targeted Literacy: Information Literacy

the ability to find and locate resources through digital platforms, analyse and synthesise them, evaluate the credibility of information and understand legal and ethical issues surrounding information

Outcomes: Students will learn

- why it is important to evaluate online information
- what fake news is
- some questions to try and determine if the information found on the internet is true and comes from a reliable source

New Words and Terms

Googling
hits
fake news
biased

echo chamber
clickbait
domain

Supplementary Video Links

Judging Online Information <https://www.youtube.com/watch?v=SjLma6thE6E>
 Tips for Reading Webpages <https://www.youtube.com/watch?v=Il9oG8Rsig&t=2s>
 CLICKBAIT explained https://www.youtube.com/watch?v=A_ZluBgewQY
 Fact-Checking Tools — Video 1: Verifying Images and Videos
https://www.youtube.com/watch?v=7eKG9RuqUE4&list=PLzkkUIf_8agti6g3etkmlPvanLZRnAfFQ&index=6
 What is an Echo Chamber?
https://www.youtube.com/watch?v=Se20RoB331w&list=PLzkkUIf_8agti6g3etkmlPvanLZRnAfFQ&index=7

Today we have tons of online information at our fingertips. You can search for almost anything

online. It is important to make sure the information you get from the Internet is true. You also want to make sure it comes from a reliable source. Anyone can publish information on the Internet, so it is important to make sure the information is good.

Google is a web search engine on the Internet. The term “Google” is so widely recognized that it is now commonly used as a verb. You will often hear people talk about “googling” something on the Internet. Google is one of the most widely used search engines. When you search on Google, you put a search term in, and the engine will give you back “hits” or pages where your search term is found.

What is Fake News?

Fake news is a pretty new term but one we hear all the time today. The term has become so popular that it was one of Collins Dictionary’s Words of the Year in 2017. Fake news describes news that is false, made up, or not real. It is posted online so it looks real and is meant to try and trick people into thinking it is real. There are millions of fake news pages and websites on the internet and the problem keeps growing. It makes evaluating what you read even more important.

Try this/Practice

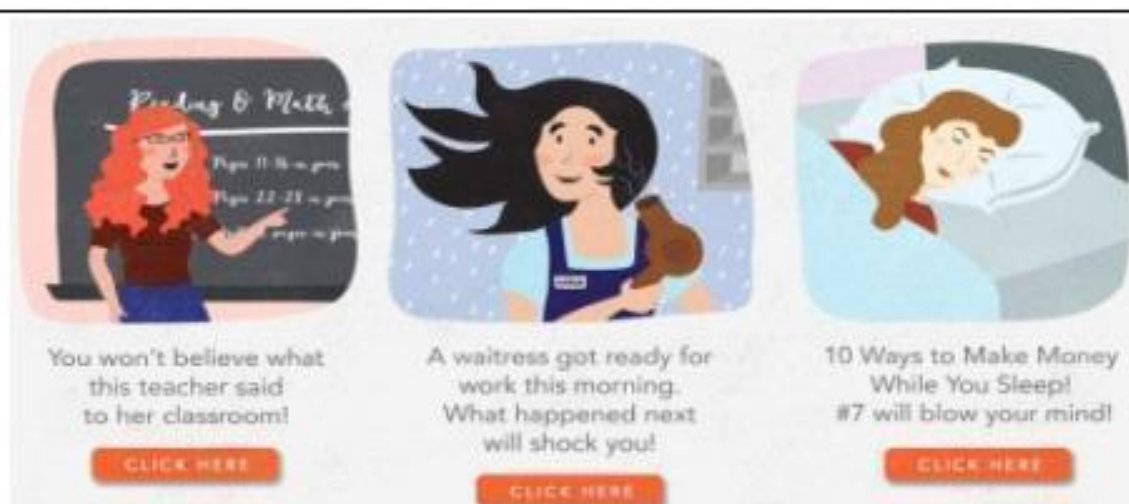
1. Think of a movie star.
2. Google or search for their name on the Internet.
3. What did you find out about them?
4. Do you think everything you read is true?

Key Questions to Ask When You Are Evaluating Online Information

1. What is the purpose of the website? A good place to start is the “About” page if the website has this.
2. Does the website seem like it might be biased? Does it have information that seems to be prejudiced against something or someone? Does it have a lot of advertisements?
3. What is the website’s top level domain? In other words, what does the website address end in? For example, .gov, .edu, .org, or .com? See the table below for more information about top level domains.
4. Is the author reliable? Have you heard of them? Have you read other things they have written?
5. Is the information current or up to date?

Website Top Level Domains

- .com Commercial. It is mostly used by commercial websites, but anyone who wants to register a domain can use this. This is where the term .com comes from.
- .org An organisation
- .edu Higher level education institutions like colleges and universities
- .gov Official government sites



Clickbait is a sensationalist headline that encourages you to click a link to an article, image, or video. Instead of presenting objective facts, clickbait headlines often appeal to your emotions and curiosity. Once you click, the website hosting the link earns revenue from advertisers, but the actual content is usually of questionable quality and accuracy. Websites use clickbait to draw in as many clicks as possible, thus increasing their ad revenue. Have you ever clicked one of them?

Try this/Practice

To verify Images and Videos

1. Find an image from Twitter using #news hashtag
2. Reverse Image Search: Photos
3. Figure out whether the news is a hoax or real.

An **echo chamber** is an environment where a person only encounters information or opinions that reflect and reinforce their own. Echo chambers can create misinformation and distort a person's perspective so they have difficulty considering opposing viewpoints and discussing complicated topics. They're fueled in part by **confirmation bias**, which is the tendency to favour info that reinforces existing beliefs. On the Internet, almost anyone can quickly find like-minded people and perspectives via social media and countless news sources. This has made echo chambers far more numerous and easy to fall into thanks to the filter bubbles. **Filter bubbles** are created by algorithms that keep track of what you click on. Websites will then use those algorithms to primarily show you content that's similar to what you've already expressed interest in. This can prevent you from finding new ideas and perspectives online.

Try this/Practice

To avoiding Echo Chambers

1. Open up one of your social media accounts
2. Think about whether they tend to only give you one perspective on an issue
3. Is that viewpoint mainly supported by rumour or incomplete evidence?
4. Are facts ignored whenever they go against that viewpoint?

Syllabus of the 7th Week

Topic: Social Media

Target Literacy: Media Literacy:

the ability to create content and communicate it using various digital platforms

Outcomes: Students will learn

- what social media is
- some common social media sites
- what I can use social media for
- some tips on how to stay safe and secure when using social media

New words and Terms

social media

profile

private message

timeline

post

status update

share

messenger

connection

recommendation

hyperlink

endorsement

behaviour tracking

geolocation

Supplementary Video Links

What is a hyperlink?

<https://www.youtube.com/watch?v=4PdugNTfK5I>

How to Tweet

<https://www.youtube.com/watch?v=nGODHQsqxcY>

What is LinkedIn?

<https://www.youtube.com/watch?v=ZVIUwwgOfKw>

Creating a LinkedIn Account

<https://www.youtube.com/watch?v=jh5eDSMPvjE>

Explanations and Activities

What is Social Media?

Social media refers to websites and applications (tools) that allow people to create, share or exchange information, career interests, ideas, and pictures or videos in virtual communities and networks.

Social media can be used for many things:

- Staying in touch with friends and family
- Promoting your cause
- Keeping up with trending topics and news

Many Internet experiences are one-way: you go to a website like a news site or a shopping site to find information or buy something. Social media is two-way or socially interactive. It's about communicating with other people. It can be with friends, family, peers or just people with the same interests as you. Social media is about sharing and communicating instead of finding and downloading information.

Social Media	Description	Social Media Explained by Kebab
 Facebook	Facebook is a social networking website that makes it easy for you to connect and share with your family, friends, co-workers and employers online.	I like Kebab!
 Twitter	Twitter is a social networking website that is designed for finding and sharing SHORT updates. Each "tweet" or post is limited to 280 characters (characters include: letters, numbers, spaces, symbols or punctuation).	I am eating #kebab.
 LinkedIn	LinkedIn is the world's largest professional network with hundreds of millions of members.	I work at a kebab restaurant. My skills include cooking kebabs.

 Instagram	Instagram is a photo and video sharing app for smartphones. It focuses on sharing photos or videos with your friends or “followers.” Instagram allows you to apply filters to the photos before posting them in order to give the photos a unique look. You can “like” or comment on photos that others have posted.	Here is a really cool picture of a kebab.
 YouTube	YouTube is a video sharing site. It allows users to upload videos they’ve created. Visitors to the site can then watch videos in the web browser. You don’t need to set up an account with YouTube to watch videos, but you do need an account if you want to upload videos of your own. Videos you upload can be either private (for viewing only by people you approve) or public.	Here is a video to show you how to eat a kebab.
 Pinterest	Pinterest is a visual discovery engine for finding ideas like recipes, home and style inspiration, and more. Users share by posting (known as ‘pinning’ on Pinterest) images or videos to their own or others’ boards. A board is a collection of ‘pins’ about a common theme or topic.	Here is a great recipe for kebab.

Why Should We Use Social Media?

Social media can be overwhelming. So, why should we use it?

- You can communicate every day
- It can be used to build relationships
- It allows you to learn from others
- It can offer personal and business development
- You can use it for job promotion/networking

The Pros of Social Media

Social media is a key player in the job search process today. Social networking sites like Facebook, Twitter, LinkedIn and Instagram also allow a connection between employers and job seekers. Social media allows job seekers to connect with employees, learn about companies, and find out about job openings in real-time. Employers use it to get a sense of who you are outside of the workplace.

The Cons of Social Media

Content a potential employer sees on social media might stop them from hiring someone. For example:

- Provocative or inappropriate photos and information
- Evidence of drinking and or drug use
- Poor communication skills
- Bad mouthing previous employers
- Discriminatory remarks regarding race, gender or religion
- Falsifying qualifications

If you use social media, make sure your content is appropriate for employers to see.

Twitter Symbols

To mention another profile in your tweet insert the @ symbol before the name and that person will be notified:

- E.g., @ecemteacher

Using a # (hashtag) is another way of “tagging” something in your tweets and to find out who else is posting about the same thing you are

- After you have written something insert the # symbol followed by a trend relating to your post
- E.g., Learning about Digital Literacy you can search #digitalliteracylearning

Twitter – Options for Interacting

There are 3 options for interacting with other tweets:

1. “Retweeting”: Posting another person’s tweet on your profile
2. “Favouriting”: Allows you to save a tweet on your profile
3. “Replying”: Commenting directly on the tweet

How to Post a Tweet

1. Create an account at www.twitter.com.
2. On the left-hand panel of the Twitter page, click on the box with Compose New Tweet.
3. The box will expand. On the bottom right you'll see the number of characters you have
- left. Click on the icons on the left to add a picture and/or your location to your tweet.

LinkedIn Terminology	
Profile	• Your profile is what other people will see when they find you on LinkedIn • Your profile is like your resume: you can add information about your work history, education and skills • You can add a profile picture as well
Connection	• You can add contacts to your network, who are known as connections • You can add contacts from existing accounts such as Facebook, email, Instagram or Twitter
Recommendation	• A recommendation is like a reference letter • Once you have a connection with someone he/she can write a recommendation for you ◦ This is a short paragraph that appears on your profile and states your professional strengths and skills
Endorsement	• Your connections (contacts) can endorse the skills you have added to your profile ◦ This is a way of verifying that you have the skills you say you do ◦ It is good to have former co-workers and employers as connections because they will be the best endorsers for you!

Social Media Safety and Security

Social media can be fun and interesting, help you stay connected with friends and family and help you find a job, but:

- You have to consider your security or privacy
- You have to consider your safety

Before you post something, you should always THINK!

- Is it TRUE?
- Is it HELPFUL?
- Does it INSPIRE?
- Is it NECESSARY?
- Is it KIND?

More to Think About	
Identity Theft	Think before you post or share personal or private information about yourself.
Behaviour Tracking	Many social media sites collect data on your online activity and how you behave online. • E.g., Facebook tracks what you do on their site, as well as what you are doing on other sites and then advertises to you based on your interests • In order to prevent this, you have to install a browser plug-in such as Adblock Plus or Privacy Badger
Geolocation	• Some websites and apps for smartphones and tablets use geolocation which allows them to use a GPS to share your current location with others • Geotagging is a similar feature that automatically adds location information to photos taken with cell phones. It's a good idea to disable this feature before posting photos online if you don't want others to know your location.
Image	• Always be aware of the image you are presenting to others. • Damaging or embarrassing information can be permanent and can spread quickly across the internet. This can result in loss of job opportunities or loss of a current job.

Tips for Setting up Safer and More Secure Profiles on Social Media

Contact Information

- Avoid entering contact information in your profile, other than your email address.
- It's a good idea to have a separate email address just to be used for social networking accounts. This protects your regular email account from getting cluttered with spam.
- Some websites are requiring you to enter a phone number in order to register for an account. Never use your home phone number. Always use a mobile number.

Privacy Settings

- Review the website's privacy policy. This will help you understand how your information is being displayed and used.
- Pay attention to site policy changes.
- Always customise your privacy setting.
- Google yourself. If you find too much information about yourself, maybe you need to adjust your privacy settings.

What Is a Hyperlink?

A **hyperlink** is a text or an icon that you can click on to get to another website. The link, which is usually in blue and is underlined, serves as a reference point that connects a particular page to other pages over the web. The linked text is what's known as the [anchor text](#). For instance, when you click on the phrase "anchor text" in the previous sentence, it directs you to a page containing the definition of an anchor text.

Aside from opening new pages, a **hyperlink** can bring the reader to a particular section within the same page. This is especially useful for helping readers navigate a page with long content, like comprehensive guides or longer articles. These links are usually found in the table of contents.



Syllabus of the 9th Week

Topics: Email Basics/ Using Zoom /Using Microsoft Teams

Target Literacy: Communication Literacy:

the ability to communicate using publication technologies, the internet and other electronic communication tools

Outcomes: Students will learn

- what an email is
- how to set up an email account
- some basic email features
- how to send a basic email
- how to merge emails
- what Zoom is and what it does
- three ways to join a Zoom meeting
- some Zoom features
- what Microsoft Teams is and what it does
- some Zoom features

New words and Terms

email	draft	contact
inbox	reply	carbon copy
outbox	forward	recipients
junk mail/spam	email	subject
deleted/trash	mail merging	body
compose	folders/labels	cloud-based

Supplementary Video Links

Gmail: Sending Email

<https://www.youtube.com/watch?v=2eH0JbEE-6k&list=PL007352170EA6EB06&index=1>

Gmail Quiz (8 question)

<https://edu.gcfglobal.org/en/gmail/gmail-quiz/1/>

Time-saving email tips

<https://edu.gcfglobal.org/en/email101/timesaving-email-tips/1/>

Word: Mail Merge

<https://www.youtube.com/watch?v=do9ujnZLIC4>

How formal should an email be?

<https://edu.gcfglobal.org/en/email101/how-formal-should-an-email-be/1/>

Email Basics Quiz

<https://edu.gcfglobal.org/en/email101/email-basics-quiz/1/>

What is Zoom?

<https://www.youtube.com/watch?v=vaAUsFXDyLI>

Welcome to Microsoft Teams

https://www.youtube.com/watch?v=jugBQqE_2sM

Attaching a File to an Email

- To attach a file, you first need to create or reply to a message
- Most email accounts have a paper clip icon to indicate the link used to attach a file
- Common labels are: ATTACH or INSERT
- Click on that link
- A box should pop up that will allow you to search for a file you would like to attach.
- Search for and select the file you wish to attach (left click once to select).
- Click OPEN.
- The file should now be attached to your email. When you are ready and have double checked everything, click SEND. Or otherwise 😊



Email Safety Myths and Truths

Myth	Truth
The email says it is from someone I know. So, it must be from someone I know.	An email sender can add any from address they want. Spammers use "from" addresses that are forged. They use things that are familiar to you to try and trick you.
If I open an email but don't click any links in the email, I will be safe.	By opening a suspicious email an attacker can tell your account is active. If you are not 100% an email is safe, you shouldn't open it.

Try this/Practice

Send an email to your instructor.

What is Zoom?

Zoom is a cloud-based video communications app. Zoom lets you do:

- Video meetings
- Audio meetings
- Webinars
- Live chats
- Screen sharing

You don't need to have an account to attend a meeting in Zoom. When you open a [Zoom](#) meeting link the first time, the application will download automatically. You can also download it here: <https://zoom.us/download>

If you want to set up your own Zoom meetings, you will have to set up a Zoom account.

How to Join a Zoom Meeting

There are three main ways to join a Zoom meeting:

1. The Zoom host sends you a meeting link. When you click on the link, you will go into the meeting
2. The link that the host sends you also has a Meeting ID code. You can use this code to join a meeting from Zoom's homepage. You have to type the code in manually and click "join".
3. If you don't have a device or computer, you can dial into a Zoom meeting with a phone.

Zoom features

1. One-on-one video meetings: You can have unlimited one-on-one meetings even with the free plan.
2. Group video meetings: The free plan allows you to have video meetings for up to 60 minutes with 3-100 participants. Paid plans allow you to have longer meetings and more participants.
3. Screen sharing: You can share your screen during meetings.
4. Recording: You can record your meetings and save the recording to your device.
5. Chat: There is a chat feature that allows you to chat with other participants during a meeting. You can send a private message to a specific participant or you can send a message to everyone in the meeting.
6. Break-out rooms: You can split people into different groups.

Try this/Practice

1. Have your instructor set up a zoom meeting and send you a link. Practice joining the meeting.
2. Set up your own zoom account.
3. Set up a meeting and invite your instructor.

APPENDIX H. Focus Group Interviews with Participants



APPENDIX I. Field Notes

Pre-tests Field Notes

26/10/2023

In the second week of the term on Thursday, I started the lesson with an explanation of the main topic and made students guess what Digital Literacy is. I wrote the term in the middle of the board and I continued adding related terms and created a mind map on the board while they were trying to guess for further terms and meanings. Next, I gave details of my research after a brief explanation of what PhD and MA degrees are. I answered some general questions about academic life and then I talked about my study topic and explained the details. After those explanations, I handed out acknowledged consent forms to start the data collection.

After the consent forms, I handed out the DL survey this time. The questionnaire items were all in Turkish. Nevertheless, I wanted them to consult me when they had any trouble understanding. One of the students asked what Skype was at this point. They generally did not know about it. Because of the fact that the application is now obsolete, I wanted them to change it to Zoom instead. Actually, I was surprised about missing out on such a clear point while adapting the original questionnaire, which gave me some insights about how important it is to take feedback from students. Accordingly, they changed that part and answered the question thinking about their Zoom usage.

After students completed the survey, I gave them DLAT for the next stage of the data collection procedure. I explained to them why the test was in English and added not to hesitate at any moment to ask questions or any unknown words if they happened to have one. As I had expected most of the technical terms were not known by the majority of the students. They seemed to be surprised, even puzzled, sometimes to come across such topics, most probably because they saw these terms for the first time in their life. They asked me if they could pass the unknown questions and I replied positively. Completing the pre-test phase lasted about an hour.

1st week of Intervention- DL lessons**02/11/2023**

In the third week of the term on Thursday, we started our DL lessons. The first lesson included the introduction of a topic and some basics about computers and search. I shared the video links of the YouTube materials on the WP group with students the day before each lesson and asked them to watch the videos to make them familiar with the upcoming topics beforehand.

Before watching the videos, I handed out the notes I prepared including explanations, new words and terms, and backup activities. After giving some time to look over the papers, I made brief explanations and started the videos one by one. Following the visual material, we practiced the topic as written in the handouts. I asked the related questions such as (a) If you delete a file, where does it go? (b) How do you find an application on the computer? (b) What application do you use to find a file on the computer? The students answered each question effortlessly. We had a break after the third video and continued later.

We ended the first lesson by sharing experiences. Some of the students gave examples of their lives when they had a virus problem and how they fixed it. Even one of the students said he had to have his pc formatted because of the virus he received from an email. This experience sharing was such a trigger for the lessons because after that point both students and I felt more relaxed and eager to participate in the lessons with our own stories. The first DL lesson lasted one and a half hours, which was a little longer than what I had expected. Contributions from students were welcome even if they took time and made the lessons last longer.

2nd week of Intervention- DL lessons**09/11/2023**

Once again, I shared the video links with the students on the WP group two days before the lesson so that they could become familiar with the topics. On Thursday, we carried out our second DL lesson dealing with digital identity and digital/online footprint concepts.

The lesson began with an introduction to the concepts of digital identity and digital footprint. I engaged the students by asking them to share their initial thoughts on what these terms might mean. The class showed varying levels of awareness. Some students were familiar with the terms but lacked a deep understanding, while others were hearing them for the first time. When I asked about why they had not watched the videos, some said they had limitations on internet access because the dormitory did not provide any wi-fi service.

After watching the video clips and explanations, we did the activity together to foster learning. Thus, I asked students to Google themselves and take note of what appeared in the search results. The activity continued with these questions (a) Does this digital image represent who I am right now? (b) Are these profiles active, and do I want to change them? (c) Why do I want to use this social account? (d) What are my goals for my digital identity?

This activity was well-received, with most students appearing surprised by the amount of information available about them online. Followingly, a discussion was started on the importance of this activity, emphasizing the relevance of self-awareness in managing one's digital identity. Students reflected on their online personas and considered if they aligned with their real-life identities and future goals. Some said they would not be happy to share that available online information about themselves with their future employers. Some others mentioned they had forgotten to even have some old social media accounts. So, they decided to take control over what they had shared online. One of the students even expressed the desire to clean up old social media accounts and establish a more professional online persona, by saying he had a lot of social media accounts that he didn't use at all. After I emphasized the importance of managing one's digital footprint, particularly in the context of potential employers checking social media profiles before hiring, many students expressed a newfound awareness of the importance of managing their online presence. They came to the point in which they became eager to revise all past actions and posts they could

be traced and be ashamed of. Thus, I finished the lesson by encouraging students to check their privacy settings on social media. Some of the students started changing their privacy settings and revised shared content that was available to the public. The lesson lasted one and a half hours, which was normal after the first lesson I had done. Students seemed content at the end of the lesson.

3rd week of Intervention- DL lessons

16/11/2023

That lesson was designed to enhance students' technological literacy by teaching them how to create strong passwords and recognize various types of scams, particularly online scams. The focus was on equipping students with practical skills to protect their online accounts and personal information. I started the lesson with an overview of what passwords are and their importance in online security and highlighted common mistakes people make when creating passwords. I delivered them the handouts, and we discussed the weak passwords by examining the table. There was a list of the top 10 worst passwords of 2022 given as an example. Students appeared surprised by how common weak passwords are and engaged actively in discussions about why these passwords are ineffective. They also confessed to using the same passwords for many platforms and discovered how dangerous it is.

Afterward, I assigned them the task of creating three different secure passwords using a combination of their favorite numbers, character names, symbols, and snacks. The activity encouraged creativity while reinforcing the lesson's key points on password complexity. Some students struggled initially with making passwords both strong and memorable, but then I provided guidance and examples to assist them. We discussed the characteristics of strong passwords, emphasizing the importance of length, the use of different character types, and avoiding personal information. Students asked questions about how often they should change their passwords and how to manage multiple passwords, leading to a brief discussion on password managers. They became more aware of the importance of having a strong password for their security. While watching the video clips about creating strong passwords, students were engaged with some taking notes and others asking questions immediately after.

Next, we talked about the other topic ‘scams and ways to avoid them’ after giving a break between the sessions. I led an activity where students reviewed different scenarios to identify potential scams. This activity covered phishing emails, fraudulent websites, and fake social media messages. Students participated actively, showing a good understanding of how to recognize scams and discussing their experiences with online fraud. Some of them told the stories of them and their relatives and friends. The lesson continued with an explanation of what a VPN is and how it can protect online privacy. I demonstrated how to set up a VPN on a device, which intrigued many students who were unfamiliar with this technology. Students expressed interest in using VPNs, especially after learning about the additional layer of security they provide. Together we set up a VPN app on our mobile phones and tried to have access to the internet through it. Surprisingly, some students who were already aware of the concept also suggested and told stories of how they had used a VPN when there was a blockage to access Twitter some time ago. The lesson took approximately two hours of information exchange including fruitful and intruding discussions.

4th week of Intervention- DL lessons

23/11/2023

The DL lesson that week was about personal- private info online/ identity theft and storing info on the cloud. After giving brief explanations and talking about the new terms, we watched each video clip topic by topic. Videos were backed up by activities that engage students with the topics. So, the focus of that week was how to protect personal data online and how to safely use cloud services for storing information.

The lesson began with a discussion on the difference between personal and private information. I provided clear examples of each, which helped students grasp the importance of distinguishing between the two when sharing information online. Students actively participated in the discussion, sharing examples of what they considered personal versus private information. This interaction helped to clarify any misunderstandings early in the lesson. I asked students to classify different types of information (e.g., favorite food, social insurance number) as either personal or private. The students really liked the activity and the idea of creating passwords in such a way. Some students initially struggled with certain

classifications, particularly with items like date of birth and phone number, but I provided helpful explanations that clarified these points.

Then I introduced the next concept ‘identity theft’ by explaining how identity thieves use personal and private information to commit fraud. This led to an awareness of the importance of being cautious when sharing information online. Students appeared concerned about the potential risks of identity theft, with several asking questions about how to protect themselves after watching awareness-raising videos. I provided practical advice, such as being careful when signing up for online services and not sharing too much personal information on social media.

As a last topic, we talked about cloud storage and how it works. Some of them had already known the basics of them. But others paid attention and asked related questions about them. The lesson successfully conveyed the importance of protecting personal and private information and provided practical knowledge on using cloud services securely. I strongly advised them to try using cloud storage on behalf of its handiness and ease rather than simply being dependent on fragile devices like mobile phones and USBs.

5th week of Intervention- Focus-Group Interviews

27/11/2023

On Monday of that week, I arranged my office before FGI sessions by setting up spare chairs, appropriate lighting, and heating the room. When the lesson started, I explained to the students what we were going to do and gave some details about the process of the interviews. I checked the attendance list and formed the groups after taking out the absent students from the list I had prepared for FGI sessions. I designated the groups and announced the lists then requested them to come to my office down to the corridor after one another as a group. The groups consisted of 5-6 students each. There were 4 groups ready in total that day. 5 students were absent.

Then the first group and I moved to my office. When we entered the office, I asked them to make themselves home. I briefly pointed out that I would record the session to be able to analyze it later and started the recording via my smartphone. The students seemed a little shy at first, so I encouraged them to raise their voices and participate more effectively. Each group followed the other quickly. I arranged the recordings while the groups were replacing

one another. At one point, I wanted some other students to take some photos of sessions while we were talking. During the interviews, some students were rather passive while others could freely express themselves. It took about half an hour to complete all the interview sessions with 4 groups. I was a little disappointed about students' being shy and not being able to provide enough data for the study. Thus, as with many other things, I decided to omit the second FGI sessions from the data collection process, which were going to be carried out at the end of the intervention period and replaced that tool with semi-structured interviews to get to the point of data saturation.

5th week of Intervention- DL lessons

30/11/2023

Three days after conducting the FGI, we carried out our 5th DL lesson on Thursday again. They were supposed to watch the related video clips before the lessons one more time by accessing the links via the WP group of the class.

This week's topics were about evaluating online information, fake news, reliable website domains, clickbait, and echo chamber all of which deal with information literacy as an umbrella term. I began with brief explanations about how the vast amount of information available online can be both a resource and a challenge, making critical evaluation skills essential. After watching the first related video clip, we continued with the fake news concept by highlighting its prevalence and the ways it can be designed to deceive readers. The definition of fake news was linked to the term's rise in popularity, referencing its selection as one of Collins Dictionary's Words of the Year in 2017. We watched the second video clip and did the activity afterward. In the activity, students were asked to Google a movie star's name and analyze the results. They were encouraged to question the credibility of the information they found, considering whether everything they read could be true. This activity helped students practice their evaluation skills in a real-world context. Some students identified discrepancies in the information they found, which sparked further discussion about the reliability of different sources. After discussing reliable website domains such as .com, .org, .edu, .gov, I clarified the term clickbait. Students appeared particularly interested

in the concept of clickbait, with some sharing their own experiences of being misled by sensationalist headlines.

For the next activity, I assigned students to find and verify an image from Twitter using the #news hashtag through the implication of Reverse Image Search: Photos, which is part of a Google service. This activity introduced them to fact-checking tools and methods for verifying online content. The activity was well-received, with students expressing surprise at how easily images and videos can be manipulated online. This reinforced the importance of verifying sources before accepting information as true.

The lesson concluded with a discussion on echo chambers and how they can distort a person's perception by limiting exposure to diverse viewpoints. I explained how filter bubbles created by algorithms can reinforce existing beliefs and contribute to misinformation. Students reflected on their own social media use and considered whether they were in echo chambers. This prompted some to think about how they could diversify their information sources. The lesson lasted one and a half hours long.

6th week of Intervention- DL lessons

21/12/2023

After two weeks of a break following the mid-term exams, we carried out our 6th DL lesson on the 10th week of the term on Thursday again. That lesson focused on enhancing students' information literacy by teaching them the importance of academic citation, understanding the APA format, and comprehending copyright and fair use. The goal was to ensure students were equipped with the knowledge to ethically and legally use information in their academic work. After brief explanations, we watched the videos about citation and plagiarism and commented on them.

Next, I introduced the APA (American Psychological Association) format, explaining its significance in social sciences and other fields. The lesson covered the basic elements of an APA citation, including the author's name, publication date, title, and source. Students practiced creating APA citations using the provided examples. This hands-on activity helped solidify their understanding of how to properly format citations. The next activity required students to go and search for one of their professors on Google Scholar, find an article, and

identify the DOI (Digital Object Identifier) of the article. This activity introduced students to the use of DOIs in academic citations. Some students encountered difficulties while locating DOIs, but I provided guidance and demonstrated how to find this information efficiently.

After a break, we continued talking about the fair use concept this time. I explained the concept of copyright, describing it as a type of intellectual property that protects original works of authorship, and gave some examples. Students learned about the Fair Use Doctrine, which allows limited use of copyrighted material without permission under certain conditions. I also emphasized that fair use is determined on a case-by-case basis and provided examples to illustrate the concept. Lastly, I led a discussion on social media etiquette (netiquette) and its relevance to maintaining professionalism and respecting copyright in the digital age. The lesson took two hours in total.

7th week of Intervention- DL lessons

28/12/2023

Today's lesson aimed to improve students' media literacy by teaching them about social media platforms, their uses, and best practices for staying safe and secure online. The focus was on helping students understand the potential benefits and risks associated with social media use.

Firstly, I introduce the concept of 'social media' defining it as a collection of websites and applications that enable users to create, share, and exchange information in virtual communities and networks. Then I provided an overview of popular social media platforms, including Facebook, Twitter, LinkedIn, Instagram, YouTube, and Pinterest. Each platform was explained in terms of its primary functions and typical user interactions. The "Social Media Explained by Kebab" analogy was particularly effective in simplifying the differences between platforms. Students found this humorous and relatable, which helped to reinforce their understanding. After watching related videos, it was relieved in a lively discussion that the majority of the students prefer using Instagram over the other. As a matter of fact, most of the students did not have any Facebook or LinkedIn accounts, even some of them said they did not use any social media seeing them as a waste of time. Thus, in line with the

lesson objectives, I asked them to create LinkedIn profiles and follow me there. Some of the students needed assistance during that process so I made them form groups and help each other at that point. Further, we discussed LinkedIn and Twitter terminologies such as profile, connection, recommendation, retweeting, hashtag, and replying. They followed me on these platforms and followed them back.

After that, we talked about topics like staying safe on social media and the pros and cons of using social media. Some students discovered that their profiles were more public than they had realized, which led to a deeper understanding of the importance of regularly reviewing privacy settings. The lesson was an hour long.

8th week of Intervention- DL lessons

04/01/2024

This week we continued talking about media literacy. This time FOMO effect and cyberbullying, which are all important issues, were in the limelight to help students recognize the impact of social media on their emotions and understand how to protect themselves from harmful online behaviors. At first, students seemed reluctant to listen to the topics, but with the help of visual support provided by video clips, they became interested in them. After the videos, I explained one more time that FOMO can lead to feelings of inadequacy and anxiety, which can be detrimental to mental health. The concept of "choice paralysis," where too many options can overwhelm a person, was also introduced. Students related to the example of struggling to pick a movie on a streaming service due to the overwhelming number of choices. This helped them understand how too many options can lead to indecision and stress. Then we discussed how we can avoid the FOMO effect.

Later on, I presented the next topic 'cyberbullying' and gave explanations after the related video. We talked about different kinds of cyberbullying involving the use of digital platforms to harass, threaten, or embarrass someone such as "trolling," "swatting," "sh*tposting," "flaming," "outing," "griefing," "catfishing," and "frape." We finalized the lesson by emphasizing practical tips for protecting oneself from cyber bullies, such as never posting personal information, being cautious with online interactions, and using privacy settings effectively. At the end of the lesson, I encourage

students to apply digital detox practices and be mindful of their social media use. The lesson lasted an hour.

9th week of Intervention- DL lessons

11/01/2024

Communication literacy was on the target this week, which can be defined as the ability to communicate using publication technologies, the internet, and other electronic communication tools. Thus, the main objective was to teach students the basics of email usage, how to effectively use Zoom, and an introduction to Microsoft Teams. I adapted the syllabus this way especially because of the fact that these applications are to most related ones with their education in our university. Our university preferred to use these apps as a baseline in the online education period two years ago on corona days.

The majority of the students were already familiar with email accounts and had one. But some new terms like CC (Carbon Copy) and BCC (Blind Carbon Copy) and the difference between them attracted their attention.

Afterward, we watched the videos about mail merging, Zoom, and Microsoft Teams platforms. As an activity, students activated their MT accounts by using their school credentials. They were more knowledgeable about Zoom than MT because most of them used Zoom in their high school online education during the pandemic. I ended the lesson by answering questions about MT. The lesson lasted an hour long.

10th week of Intervention- DL lessons

16/01/2024

Our last DL lesson was related to visual literacy, especially about captioning a photo and Photoshop. As the topics were highly relatable to their lives, students were eager to listen to all the details and participate in the activities throughout the lesson. Thus, the particular goal was to enable students to effectively interpret visual representations and edit visuals using Photoshop and similar tools.

I started the lesson by giving information about Photoshop and its elements, including how to create, edit, and manipulate images. After watching the related videos as supplementary material, the students shared their experiences in editing photos before sharing them online. Later, I provided a detailed explanation of what a caption is, including its role in various media formats such as social media, magazines, and newspapers. The importance of critically evaluating captions was emphasized, especially in the context of media literacy. Students practiced writing captions for a series of provided images. This activity helped them understand the impact of word choice and how different captions can change the meaning or tone of an image besides challenging their creativity. Together we wrote some captions below the images on board and discussed alternatives as much as possible. The activity was fun and they really liked it. As it was the last DL lesson for us, I thanked all of the students for their participation and contributions to my study. Then they thanked me by saying they learned a lot and this awareness they gained through the lessons would make a difference in their lives. The lesson took about an hour.

Post-tests Field Notes

23/01/2024

As the pre-tests, post-tests were applied by following the same procedure. Firstly, I delivered them the DLS and waited for them to complete the survey. After collecting DLS, I handed out DLAT to the students. Some of them were absent and I recorded their names to find and make them complete their tests later. Completing DLS and DLAT lasted about an hour. Students were aware of what they were going to do and they just filled in and handed in their tests when they were done. Thus, this phase of data collection ended without any problems.

Semi-structured Interviews

24/01/2024

Because of the inadequacy of the data from FGI sessions in the middle of the intervention process, I decided not to carry out the second FGI session at the end of the process. That's why I added one more data collection tool to interview the participants. After the post-tests

were collected, semi-structured interviews were carried out by one of my colleagues. My colleague was also a researcher, who had taken part in lots of data collection processes before. We prepared his office before the time came up. That day was also the day of the final exam of the term. Thus, we scheduled the interviews after the exams were finished. I also reminded the participants of the interviews to be ready for interviews the day before the sessions. They started to compile on our office corridor toward the end of the exam.

After every participant finished exams, my colleague started interviews and recorded those sessions via his smartphone. Meanwhile, the students who were waiting for their turns were at my office, and we had chit-chat while waiting. Some of the students were nervous about the interview. When I realized that, I tried to calm them down by comforting them. 13 students were interviewed. The interviews lasted half an hour long in total. After all the sessions ended, I asked my colleague about his overall reaction, and he commented positively about them. There were no problems during the interviews. So, we arranged the recordings and provided online backups to be able to transcribe and analyze them for the later phases of the study.

Member Checking sessions at the end of the year

28/06/2024

After the verbatim transcriptions were edited, in line with the encouragement of my jury members, I realized that there was still enough time for the member checking to make the data collection procedure reliable. Thus, at the end of the year, I arranged member-checking sessions by informing those interviewee students via the WP group of the class. All the interviewees were acknowledged and agreed to participate in the member-checking session. My colleague carried out these sessions one more time because of the fact that he was the interviewer of those previous sessions. They approved the transcribed data after they read their utterances. The sessions lasted really short. We wanted interviewees to read their previous responses to the questions. By the way, we added a few more questions related to the scope of my research. The sessions took half an hour long in total.

APPENDIX I. Procedure and Outcomes

Phase	Procedure	Outcome
Quantitative Data Collection 	• Pre-test measure of DL levels	• Participant demographics • Numeric Data
Quantitative Data Analysis	• SPSS Data Analysis ◦ Frequencies ◦ Pearson Product Moment Correlation	• Descriptive statistics • Examination of relationships among variables. • Associated between and within group differences • Predictive values of DL level
INTERVENTION		
10-week-training programme		
Qualitative Data Collection 	• Focus Group Interviews with 5-8 participants each time in the middle of the intervention	• 4 focus group interview sessions • Transcribed interviews
Qualitative Data Analysis	• Fieldnotes	• Documentation • Critical nonverbal content addition
Qualitative Data Analysis	• Thematic Content Analysis	• Conceptual model of emergent themes • Codes and themes • Coding matrix
Quantitative Data Collection	• Post-test measure of DL levels	• Numeric Data
Qualitative Data Collection 	• Semi-structured Interviews with 13 participants at the end of the intervention	• Semi-structured interviews • Transcribed interviews
Qualitative Data Collection	• Fieldnotes	• Documentation • Critical nonverbal content addition
Quantitative Data Analysis	• Paired-sample t-test • Independent sample t-test	• Differences between pre and post tests
Qualitative Data Analysis	• Thematic Content Analysis	• Conceptual model of emergent themes • Codes and themes • Coding matrix
Integration of Quantitative and Qualitative Findings	• Integration and explanation of quantitative and qualitative findings	• Discussion • Implications on Practice • Future Research

APPENDIX İ. Informed Consent Form

BİLGİLENDİRİLMİŞ GÖNÜLLÜ ONAM FORMU

Bir doktora çalışmasında katılımcı olarak yer almak üzere davet edildiniz. Bu çalışmada yer almayı onaylamadan önce, çalışmanın ne amaçla ve nasıl yapılacağını anlamanız ve kararınızı buna göre özgürce vermeniz çok önemlidir. Size özel hazırlanmış bu onam formunu lütfen dikkatlice okuyunuz.

Çalışmanın amacı:

Bu çalışmanın amacı dijital okuryazarlık olgusunun önemini göz önüne alarak İngilizceyi yabancı dil olarak öğrenen Türk öğrencilerin dijital okuryazarlık seviyelerini incelemektir.

Çalışmanın uygulanması:

Çalışmada gönüllü öğrencilerin araştırmacı tarafından haftalık olarak verilecek olan Dijital Okuryazarlık Eğitimi derslerine katılması gerekmektedir. Bu derslerin öncesinde ve sonunda verilecek olan anketleri doldurmanız istenecektir. Eğitim devam ederken ve yine eğitim sonrasında odak grup görüşmeleri gerçekleştirilecektir. Araştırmanın verimliliği ve doğru sonuçların elde edilmesi adına her aşamadaki gönüllü katılımınız oldukça önemli olacaktır.

Çalışmanın süresi:

Bu araştırma öngörülen süre on haftadır. Anketlerin ve görüşmelerin uygulaması ile birlikte on iki haftaya kadar sürülecektir.

Çalışmanın olası yararları ve riskleri:

Bu çalışmada yapılan uygulamalar ile katılımcıların Dijital Okuryazarlık seviyeleri ortaya çıkarılmak istenmektedir. Çalışmaya bağlı herhangi bir risk söz konusu değildir.

Sizden istenen kişisel bilgiler ve iletişim bilgileri sadece gerekli durumlarda sizinle iletişime geçmek için kullanılacaktır. Çalışmaya katılmaktan istediğiniz zaman ve herhangi bir nedenle vazgeçme hakkınız vardır. Katılımcıların tüm kişisel bilgileri gizli tutulacak ve elde edilen veriler sadece ilgili doktora çalışmasında ve ona bağlı gelecek çalışmalarda akademik amaçlarla kullanılacaktır.

CURRICULUM VITAE

ECEM EKİNCİ

ÖĞRETİM GÖREVLİSİ

E-Posta Adresi

Telefon (İş)

Telefon (Cep)

Adres

Öğrenim Bilgisi

Doktora 2018	ÇUKUROVA ÜNİVERSİTESİ/SOSYAL BİLİMLER ENSTİTÜSÜ/İNGİLİZ DİLİ EĞİTİMİ (DR) (İNGİLİZCE)
Yüksek Lisans 2013 19/Ocak/2017	ÇUKUROVA ÜNİVERSİTESİ/SOSYAL BİLİMLER ENSTİTÜSÜ/İNGİLİZ DİLİ EĞİTİMİ (YL) (TEZLİ) (İNGİLİZCE)/
Lisans 2007 27/Mayıs/2011	ÇUKUROVA ÜNİVERSİTESİ/EĞİTİM FAKÜLTESİ/YABANCI DİLLER EĞİTİMİ BÖLÜMÜ/İNGİLİZCE ÖĞRETMENLİĞİ PR./

Akademik Görevler

ÖĞRETİM GÖREVLİSİ 2013	OSMANİYE KORKUT ATA ÜNİVERSİTESİ/YABANCI DİLLER YÜKSEKOKULU (Okutman)
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Eserler

Uluslararası hakemli dergilerde yayımlanan makaleler:

1. EKİNCİ MİTHAT, EKİNCİ ECEM (2021). The Impact of Online Teaching on the Vocabulary Achievement Levels of Turkish EFL Learners. International Journal of Language Academy, 9(3), 13-23., Doi: 10.29228/ijla.52240 (Yayın No: 7223129)
2. EKİNCİ MİTHAT, EKİNCİ ECEM (2021). Online-Based Grammar Instruction via Microsoft Teams: A Quantitative Study. Pearson Journal of Social Sciences & Humanities, 6(14), 32-39., Doi: 10.46872/pj.276 (Yayın No: 7223116)
3. EKİNCİ ECEM (2020). Mobile Assisted Language Learning (Mall) as a Foreign Language Aid: A Literature Review. Pearson Journal of Social Sciences Humanities, 5(9), 152-166., Doi: 10.46872/pj.186. (Yayın No: 6793110)
4. EKİNCİ ECEM (2020). Exploring the Professional Identities of EFL Lecturers in Turkey. International Journal of Languages' Education and Teaching, 8(4), 146-158., Doi: 10.29228/ijlet.44083 (Yayın No: 6793017)

Uluslararası hakemli dergilerde yayımlanan makaleler:

5. EKİNCİ MİTHAT, EKİNCİ ECEM (2020). Verb Constructions in the Speeches of Turkish Children: A Cross-Sectional Study. *Pearson Journal of Social Sciences & Humanities*, 5(8), 246-254., Doi: 10.46872/pj.168 (Yayın No: 6910208)
6. EKİNCİ MİTHAT, EKİNCİ ECEM (2020). Using Error Correction Codes to Improve Writing Success of EFL Learners. *International Journal of Language Academy*, 8(4), 282-293., Doi: 10.29882 (Yayın No: 6461038)
7. EKİNCİ ECEM, EKİNCİ MİTHAT (2020). VoScreen as a Listening Aid: A Digitalized Learning Experience. *International Journal of Languages Education*, 83(8), 100-117. (Yayın No: 6461047)
8. EKİNCİ ECEM, KAYA EBRU (2018). Effects of Twitter on EFL Students' Academic Success in Writing. *International Journal of Languages' Education and Teaching*, 1, 89-102., Doi: 10.18298/ijet.3136 (Yayın No: 4369454)
9. EKİNCİ ECEM (2017). Motivation Levels of Prep Class Students in Different Classroom Activities. *International Online Journal of Teachers in Collaboration*, 1(1), 12-20. (Yayın No: 4320172)
10. EKİNCİ ECEM, EKİNCİ MİTHAT (2017). Perceptions of EFL Learners about Using Mobile Applications for English Language Learning: A Case Study. *International Journal of Language Academy*, 5(18), 175-193., Doi: 10.18033/ijla.3659 (Yayın No: 4320142)
11. EKİNCİ ECEM, EKİNCİ MİTHAT (2017). Self-Perceptions of Non-native English Teachers and Their Perceptions about Native English Teachers: Current Case in Turkey. *International Online Journal of Teachers in Collaboration*, 1(1), 1-11. (Yayın No: 4320185)

B. Uluslararası bilimsel toplantılarda sunulan ve bildiri kitaplarında (proceedings) basılan bildiriler :

1. KARAGÜLLE ECEM, EKİNCİ MİTHAT (2017). PERCEPTIONS OF EFL LEARNERS ABOUT USING MOBILE APPLICATIONS FOR ENGLISH LANGUAGE LEARNING: A CASE STUDY. *CUELT*, Doi: 10.18033/ijla.3659 (Tam Metin Bildiri/Sözlü Sunum) (Yayın No: 4022443)

C. Yazılan ulusal/uluslararası kitaplar veya kitaplardaki bölümler:

C2. Yazılan ulusal/uluslararası kitaplardaki bölümler:

1. Current Debates on Social Sciences 15, Bölüm adı: (Multifaceted Benefits of the Flipped Classroom Model in Education) (2023)., EKİNCİ MİTHAT, EKİNCİ ECEM, ŞANVERDİ MEHMET, BİDGE Yayınları, Editör: BULUT, Meryem, Basım sayısı: 1, Sayfa Sayısı 341, ISBN: 978-625-6488-28-1, İngilizce (Bilimsel Kitap) (Yayın No: 8744496)
2. Language Horizons: Diverse Vistas in English Language Pedagogy II, Bölüm adı: (An Introspective Teacher Education Model: Reflective Approach) (2023)., ŞANVERDİ MEHMET, EKİNCİ ECEM, BİDGE Publications, Editör: KALAY, Dilşah, Basım sayısı: 1, Sayfa Sayısı 84, ISBN: 978-625-6707-36-8, İngilizce (Bilimsel Kitap) (Yayın No: 8744343)
3. Language Horizons: Diverse Vistas in English Language Pedagogy I, Bölüm adı: (The Influence of Twitter Use on English Proficiencies of EFL Students) (2023)., EKİNCİ MİTHAT, EKİNCİ ECEM, BİDGE Publications, Editör: Kalay, Dilşah, Basım sayısı: 1, Sayfa Sayısı 91, ISBN: 978-625-6707-35-1, İngilizce (Bilimsel Kitap) (Yayın No: 8808258)
4. Academic Research and Reviews in Education Sciences, Bölüm adı: (Blended Learning as A Language Learning Aid) (2023)., EKİNCİ MİTHAT, EKİNCİ ECEM, ŞANVERDİ MEHMET, Platanus Publishing®, Editör: UĞUR, Oruç Ali, Basım sayısı: 1, Sayfa Sayısı 363, ISBN: 978-625-6517-62-2, İngilizce (Bilimsel Kitap) (Yayın No: 8745152)
5. Academic Research and Reviews in Education Sciences, Bölüm adı: (Use of Video Games as Contemporary Language Learning Facilitators) (2023)., EKİNCİ MİTHAT, EKİNCİ ECEM, ŞANVERDİ MEHMET, Platanus Publishing®, Editör: UĞUR, Oruç Ali, Basım sayısı: 1, Sayfa Sayısı 363, ISBN: 978-625-6517-62-2, İngilizce (Bilimsel Kitap) (Yayın No: 8745219)
6. Current Debates on Social Sciences 15, Bölüm adı: (Gamification: A Booster for Language Learning Motivation) (2023)., EKİNCİ MİTHAT, EKİNCİ ECEM, ŞANVERDİ MEHMET, BİDGE Yayınları, Editör: BULUT, Meryem, Basım sayısı: 1, Sayfa Sayısı 341, ISBN: 978-625-6488-28-1, İngilizce (Bilimsel Kitap) (Yayın No: 8744433)
7. New Trends in Educational Sciences., Bölüm adı: (An Implementation of Descriptive Discourse Analysis) (2022)., ŞANVERDİ MEHMET, EKİNCİ ECEM, Duvar Publishing, Editör: Ünüvar Perihan, Basım sayısı: 1, Sayfa Sayısı 401, ISBN: 978-625-8261-99-8, İngilizce (Bilimsel Kitap) (Yayın No: 8138348)
8. New Trends in Educational Sciences, Bölüm adı: (Influence of Social Media in EFL Settings) (2022)., EKİNCİ ECEM, Duvar Publishing, Editör: Ünüvar Perihan, Basım sayısı: 1, Sayfa Sayısı 401, ISBN: 978-625-8261-99-8, İngilizce (Bilimsel Kitap) (Yayın No: 8138210)
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