

REPUBLIC OF TÜRKİYE
ÇUKUROVA UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF ENGLISH LANGUAGE TEACHING

**A STUDY ON SECONDARY SCHOOL EFL STUDENTS' DIGITAL LITERACY
LEVELS**

Emre SİPAHİ

MASTER OF ARTS

ADANA / 2025

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MASTER OF ARTS

ADANA / 2025

To ukurova University Institute of Social Sciences;

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Emre SİPAHİ

ABSTRACT**A STUDY ON SECONDARY SCHOOL EFL STUDENTS' DIGITAL LITERACY
LEVELS****Emre SİPAHİ****Master's Thesis, Department of English Language Teaching****Supervisor: Prof. Dr. Cem CAN****December 2025, 64 pages**

This study explored the digital literacy levels of middle school EFL learners based on various factors. The study involved a quantitative research model. 173 lower secondary school students studying in a public school participated in the study during the spring semester of the 2024-25 academic year. A five point Likert type digital literacy scale developed by Pala (2019) and demographic information form developed by the researcher were used as data collection tools. T-tests, one-way analysis of variance (ANOVA), and Pearson correlation tests were used to analyze the data. The findings of the study revealed that digital literacy levels of middle school students are generally moderate-to-high. While there was not a significant relationship between students' digital literacy levels and economic status, parental education status, internet access, and device used, certain factors such as gender, age, grade level, daily internet usage and frequency of doing homework using digital technologies had a significant effect on digital literacy.

Keywords: Secondary school students, digital literacy level, educational technologies, digital skills, English language teaching

ÖZET

ORTAOKUL EFL ÖĞRENCİLERİNİN DİJİTAL OKURYAZARLIK DÜZEYLERİ ÜZERİNE BİR ÇALIŞMA

Emre SİPAHİ

Yüksek Lisans Tezi, İngiliz Dili Eğitimi Anabilim Dalı

Danışman: Prof. Dr. Cem CAN

Aralık 2025, 64 sayfa

Bu çalışma, çeşitli faktörlere dayalı olarak, İngilizce'yi yabancı dil olarak öğrenen ortaokul öğrencilerinin dijital okuryazarlık düzeylerini araştırmıştır. Çalışma, nicel bir araştırma modelini içermektedir. 2024-25 akademik yılının bahar döneminde, bir devlet okulunda okuyan 173 ortaokul öğrencisi çalışmaya katılmıştır. Veri toplama araçları olarak Pala (2019) tarafından geliştirilen beş puanlık Likert tipi dijital okuryazarlık ölçeği ve araştırmacı tarafından geliştirilen demografik bilgi formu kullanılmıştır. Verilerin analizi için T-testleri, tek yönlü varyans analizi (ANOVA) ve Pearson korelasyon testleri kullanılmıştır. Çalışmanın bulguları, ortaokul öğrencilerinin dijital okuryazarlık seviyelerinin genel olarak orta-yüksek düzeyde olduğunu ortaya koymuştur. Öğrencilerin dijital okuryazarlık düzeyleri ile ekonomik durum, ebeveyn eğitim durumu, internet erişimi ve kullanılan cihaz gibi değişkenler arasında anlamlı bir ilişki bulunmazken, cinsiyet, yaş, sınıf düzeyi, günlük internet kullanımı ve dijital teknolojileri kullanarak ödev yapma sıklığı gibi belirli faktörlerin dijital okuryazarlık üzerinde önemli bir etkisi olduğu görülmüştür.

Anahtar Kelimeler: Ortaokul öğrencileri, dijital okuryazarlık seviyesi, eğitim teknolojileri, dijital beceriler, İngiliz dili eğitimi

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LIST OF ABBREVIATIONS

DLS: Digital Literacy Scale

EFL: English as a Foreign Language

ELT: English Language Teaching

FATİH Project: Movement of Enhancing Opportunities and Improving
Technology Project

ICT: Information and Communication Technology

MEB: Milli Eğitim Bakanlığı

MoNE: Ministry of National Education in Türkiye

SPSS: Statistical Package for the Social Sciences



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CHAPTER I

INTRODUCTION

1.1. Problem Statement

The rapid development of technology has changed the skills that are needed in today's world. More and more digital tools such as computers, smartphones, and online platforms are used in daily life. Besides accessing information, it is also crucial for individuals to evaluate, analyze, and use information safely especially as young people spend increasing amounts of time online. In this context, digital literacy, which can be defined as an awareness of the social practices that surround the appropriate use of new technologies as explained by Dudeney and Hockly (2016), has gained importance as one of the key competencies.

In the past years, communication, entertainment, commerce, education and daily activities were transformed by the internet and digital technologies. Individuals are now in an environment that requires more than just basic skills as they are constantly interacting with digital content such as articles, videos, social media posts, online news, and educational materials. Since modern life requires the ability of using digital technologies, using the technological tools while focusing on awareness, purpose and safety has been a literacy that is critical in the 21st century (Polizzi, 2020). Digital literacy, at this point, does not only involve using devices or software. It is the ability to search for, access, assess, and produce content in an effective way across a range of digital environments (Bawden, 2008). Individuals with high digital literacy levels locate and use digital content effectively as well as critically assess it, collaborate online, and communicate in a responsible way across platforms (Öçal, 2017). For EFL learners in particular, digital literacy is inseparable from language learning, since most online resources, platforms, and communication environments are dominated by English. Thus, developing digital literacy directly supports learners' access to authentic materials and global interaction.

The increasing risks of online misinformation, digital addiction, data privacy and cyberbullying urge the need to provide younger generations with digital literacy skills from an early age. Students that are educated to think critically and act ethically while engaging with technology are more likely to become informed digital citizens who are capable of adapting to the demands of a rapidly evolving digital society (Dayanıklı, 2019).

As a result, the necessity to improve digital literacy with the help of education has emerged as one of the important topics. As Polizzi (2020) stressed, lifelong learning, social inclusion, and employability can be improved when digital literacy is included in the process.

Digital literacy is also an important part of educational settings like distance education, online learning platforms and classrooms. Not only using it but also creating, sharing and evaluating digital content in a responsible way is essential. When classrooms are equipped with digital technologies, this process requires adaptation at the same time. Digital learning environments such as virtual classrooms and educational websties require students to use digital content in a responsible and critical way.

In Türkiye, technological devices have been integrated into classrooms as a result of FATİH, which is a national project. However, some studies provide insight that digital content production and evaluation of online information critically are still not in a good position (Ata & Yıldırım, 2019). Despite being able to use digital devices to access the internet effortlessly, students may lack the skills that are needed to use them effectively for academic tasks. As it can be seen, high competence does not come as a package with only access, focusing on the importance of improving digital literacy using educational strategies. This difficulty is visible in English Language Teaching classroom since content production and evaluation in English are parts of them. Besides using digital technology tools in their daily lives, their use of them in an effective way need further studies to discover digital literacy levels in English Language Teaching classrooms.

Daily life and modern education require people thinking, communicating and behaving in a critical and responsible way in digital environments like educational websites, online education platforms and digital tools meaning that digital literacy has gained importance. How we access knowledge and interact with others is shaped with the change of technology, which means that there is a need to improve digital literacy among students. In light of this, it can be concluded that students' digital literacy levels are not only related to general education, but also for English Language Teaching, since digital practices are part of it. Combining digital literacy and English Language Teaching may help students engage with digital tools in a responsible, effective and safe way, leading to digital and linguistic improvement.

1.2. Purpose of the Study

The aim of this study is to determine the digital literacy level of secondary school students and the factors affecting digital literacy. The research focuses on gender, age, grade level, economic status, internet access, parental education, device type used, daily internet usage and the frequency of doing homework using digital tools whether they affect students' digital literacy levels. It is intended to examine which factors are more related to higher or lower levels of digital literacy. The findings of the study will be beneficial to understand the current levels of digital literacy among middle school students and will help to clarify how demographic and personal characteristics might influence digital skill improvement. From an ELT perspective, beyond mapping predictors of digital literacy, the present study provides a baseline for task design in English lessons.

1.3. Research Questions

1. What is the level of digital literacy among secondary school EFL students?
2. To what extent do gender, age, grade level, economic status, and parental education relate to students' digital literacy levels?
3. How do factors such as internet access at home, type of device used, daily internet usage, and frequency of homework with digital tools influence digital literacy development?

1.4. Importance of the Study

Since digital transformation changes modern life continuously, the necessity to have adaptation skills to cope with technological changes and engaging with technological devices responsibly has become essential. People within all age groups use smartphones, tablets, computers, etc. commonly. This situation requires students to use digital environments effectively, which can be achieved through having necessary digital skills. For learners of English as a foreign language, these digital environments also serve as authentic contexts for accessing and producing content in English, which makes digital literacy directly relevant to ELT.

In today's world, where information is rapidly updated and widely available online, reaching, filtering, and using digital content such as articles, videos, social media posts, online news, and educational materials has become important. Digital platforms

are frequently used by students for education, entertainment, and communication, yet they don't always use these platforms efficiently and consciously. Identifying reliable sources, how to behave responsibly online, and using digital skills in educational, social, and practical contexts.

Although there are many studies focused on digital literacy among adult learners, teachers and teacher candidates, there are still a few studies that focus on lower secondary school students, particularly those learning English as a foreign language, even though technology is widely used among them in and out of the classroom. Especially after FATİH project and COVID19 pandemic, understanding how students at this level develop digital literacy and what factors affect their abilities has become more important.

Considering these factors, it is crucial to examine the current level of digital literacy among middle school students and understand the factors that affect it. Age, gender, socio-economic background, internet access, daily internet use, and educational support at home may play a role in improving students' digital skills. Understanding how these factors affect digital literacy skills of students may provide beneficial insights for educators, English language teachers, curriculum developers, and policymakers that want to support students in terms of improving their digital skills. In terms of ELT, within Türkiye's ELT curriculum, integrating digital literacies can support receptive, productive, and interactive skills, and helps learners develop mediation strategies. Hence, this study aims to examine the digital literacy levels of secondary school EFL students and to discover how various demographic and educational variables influence these levels.

1.5. Assumptions

This study has some assumptions. To begin with, it is assumed that the students who participated in the study understood the items on the data collection tools and answered them honestly. The accuracy of students' self-reported responses regarding their digital literacy skills and personal information form is the foundation of the study. In addition, the researcher assumes that uncontrolled variables did not have a significant impact on the results of the study.

Also, it is assumed that the students answered the questionnaire and DLS items with a serious attitude and they did not provide random answers, which could affect the findings. Finally, it is assumed that students' digital practices also reflect their behavior during English lessons, such as searching for information and composing tasks in English.

1.6. Limitations

The study has some limitations. First, the study focused on 173 5th, 6th, 7th, and 8th grade students in a secondary school in Adana during the academic year 2024-2025. So, the results cannot be generalized entirely. Second, the data of the research is limited to the data obtained from the Digital Literacy Scale (DLS) developed by Pala (2019), which may lead to potential biases such as exaggeration or minimization of responses.

Additionally, the study measured the digital literacy levels of the students at a single point in time, which does not provide digital literacy development progress. Deeper knowledge into how digital literacy skills improved can be provided with longitudinal studies.



CHAPTER II

LITERATURE REVIEW

2.1. Definition of Literacy

The way we see literacy has changed in time due to changes in technology, education and society. As a traditional view, literacy was seen as the ability to read and write as Reinking (1994) defined literacy fundamentally as the capacity to read and write. But, the definition of literacy has gained additional meaning over the years. UNESCO (2008, p. 18), considers a person literate if they can engage in activities demanding literacy within their environment and improve personal and societal situation through the use of reading, writing and numeracy.

Another definition belongs to PISA (OECD, 2006, p. 46), which considers literacy as an individual's ability to comprehend, use and reflect on written texts in order to reach goals, enhance knowledge and potential and actively participate in society. This definition is important because it emphasizes that literacy is not only about decoding text, but also about using information critically and contextually. McClure (1994) also contributes to the definition of literacy by saying that it is the foundational ability not only to read, write, speak and listen in one's mother language, but also to communicate ideas in an effective way, address difficulties, achieve aims, improve their knowledge and realize one's own potential.

When these views are considered together, it can be seen that literacy is a multidimensional concept that is more than basic reading and writing skills and it includes effective communication, critical thinking and understanding context.

2.2. Definition of Digital Literacy

Since technology increased its importance in modern life, digital literacy has gained importance together with it. In almost every part of life, individuals benefit from technological tools and devices. According to Gilster (1997, p. 1), digital literacy is being able to use and understand information given by computers in different styles and from several sources. Eshet-Alkalai (2004) contributes to the definition by giving details regarding five distinct literacies, which are photovisual, reproduction, information, branching, and socio-emotional literacy.

Another definition comes from Ng (2012), who defined digital literacy together with technical, cognitive and socio-emotional competencies. In a similar way, Perdeu (2017) gives the definition of digital literacy as the ability to reach, evaluate and use information technologies for communication objectives. Although the definitions are different, it is widely considered that digital literacy is more than technical skills. As Law et al. (2018) stated, social, cognitive and emotional skills are included in digital literacy to engage in digital settings in an effective way. This means that the process includes interacting with digital information, choosing and evaluating content, communicating, producing content in an appropriate and safe way and solving problems when they appear.

Martin (2005), states that digital literacy is an essential part of our life that is shaped with technology. He also defines digital literacy as being able to function in an effective way when using technological tools. Martin (2008) divides digital literacy into several sections which can be seen below.

The first definition includes being able to engage successfully with the digital activities that are found in free time, education and work.

The second definition includes a continuous process related to person's situation, meaning that it is a broader term than ICT literacy, and it includes varied digital literacies;

The third explanation mentions that it is a process that includes learning and using information, techniques, attitudes and personal aspects as well as planning, execution of digital engagements.

The final explanation focuses on its self consciousness in terms of being digitally literate and being able to evaluate self development regarding digital literacy.

When all of the views above are considered together, it can be concluded that digital literacy is a rich term combining technical knowledge with critical evaluation, never-ending learning and ethical attitudes. As one of the necessities of today's world, it is fair to say that, besides accessing and understanding information, it is also crucial for people to improve to digital literacy to adapt to digital culture.

2.3. Theoretical Framework

To be able to understand how students interact with information, structure meaning, and behave in digital environments, it is important to comprehend the theoretical background in this study, which is based on constructivism and sociocultural theory.

To begin with, constructivism focuses on the conception that knowledge is built actively rather than receiving information passively by learners. Piaget (1970), mentions in his studies that individual cognitive development involves problem solving and exploration. Jonassen (1991), also emphasizes that learners benefit from technology-oriented tasks in terms of manipulating information, testing ideas, and improve their understanding. When taken together, besides using digital tools, it can be said that digital literacy is a multidimensional concept involving construction of meaning while engaging in digital content. In terms of ELT, students can improve their autonomy with the help of this kind of experiences.

Another theory, on which this study is based is Vygotsky's sociocultural theory categorizing learning as a socially mediated process affected by community interactions, language and cultural tools. Vygotsky (1978), emphasizes the importance of the Zone of Proximal Development saying that it is the distance between a learner can do individually and with help. In terms of this zone, digital materials can support students in their learning process. While learning English, online materials can give students opportunities to use language.

Digital literacy's multi dimensions can be understood by these two theories. While constructivism focuses on how learners structure information through interaction, sociocultural theory prioritizes the importance of social support and cultural tools. These theories provide a foundation to understand how secondary school EFL students improve digital literacy.

2.4. Digital Literacy and ELT

English Language Teaching is an area where digital literacy has taken considerable attention, meaning that teachers and learners are part of it in today's technology-focused digital environments. By the integration of digital tools into classrooms, student not only get more learning opportunities but also they improve their student performance and they get prepared for the requirements of the digital world. English is the most used language on the Internet and digital competence has become a priority for learners' academic, social, and professional participation (Johnson, 2024).

One of the benefits of Digital Literacy in terms of ELT is that it enriches learning resources for students. Using learning resources such as digital applications, interactive tools and videos improve students' language skills as well as foster their different learning

styles and keep motivation (Du, 2023; Liando et al., 2021). According to Adeoye & Akinnubi (2023), various multimedia resources like presentations and quizzes can be used to provide different learning opportunities and platforms such as Zoom and Google classroom can give students opportunities to interact with each other.

Critical and responsible evaluation and sharing are also parts of digital literacy apart from accessing digital tools. English language learners can use digital literacy to improve their language skills and improve their critical thinking ability. This aspect matters since students must be able to manage a large amount of digital material and notice what is reliable or not (Dan et al., 2021).

Intercultural awareness and creativity are other fields that can be improved by digital literacy. Weninger (2022) states that when learners create digital products such as memes, videos or podcasts, they get familiar with authentic self expression besides discovering various cultural perspectives. Additionally, teachers benefit from adaptive learning technologies in terms of personalizing their teaching so that students do not have a problem with progressing at their own pace and focusing on areas that demand more attention.

Integrating DL into classrooms is an important topic for EFL teachers. When teachers have higher competence in selection and using appropriate digital content and tools, students have a more beneficial learning process in digital environments. Scholars agree that teachers need training to be confident in terms of guiding learners' responsible use of digital platforms (Son et al., 2017). Because of the fact that technological developments are fast, there is also a need for teachers to remain adaptable and innovative in updating their classroom practices (Fitria & Suminah, 2020).

Lastly, digital literacy and English Language teaching combination is more than classroom context. According to Rinekso et al. (2021), students benefit from digital resources to engage in everyday communication besides achieving their academic purposes. Studies indicate that collaborative learning, vocabulary improvement and intercultural awareness can be supported by messaging and social media applications and video conference tools, meaning that digital literacy plays an important role in real world language interaction (García-Gómez, 2020).

Consequently, digital literacy in EFL has various functions; providing different learning materials, giving opportunities for communication and collaboration, keeping learners' motivation, preparing students for the future skills that will be needed, and improving their academic writing skills. Integrating digital literacy into ELT provides

teachers and students with environment that enables them to remain competent in a digital world.

2.5. Studies from Türkiye

When the previous studies are analyzed, it can be seen that much of the research in Türkiye has focused on adults such as teachers, teacher candidates, and university students. While these groups are crucial in terms of shaping educational practices, fewer studies focused on the digital literacy levels of secondary school students. Therefore, although Turkish research demonstrates the significance of digital literacy across many educational levels, a clear gap exists regarding secondary school students. This gap is particularly important considering students at this age are at a formative stage, where digital competencies can strongly influence both their academic development and their lifelong learning skills. This study focuses on a group that has received less attention, thereby filling an important gap in the literature and it is the main contribution of the study. The previous studies are listed below.

2.5.1. Studies on Primary and Secondary School Students

Pala and Başbüyük (2020) conducted a study focusing on the digital literacy levels of 5th grade students. 742 5th grade students studying in Erzincan participated in the study. It was found that the participants had high digital literacy levels. They discovered that students' digital literacy levels differentiated in accordance with their settlement, number of sisters and brothers, parents' educational status and jobs, social studies grades, having computers/tablets and internet connection and frequency of connecting to the internet. Also, they concluded that students' gender did not play a role in their digital literacy levels. This study underlines the effect of both familial and technological variables on students' digital competencies. Importantly, while the study demonstrates that access-related and family background factors still matter, the absence of gender differences contrasts with earlier international findings where gender gaps were often reported.

Bahadırtürk (2025), in her MA study, studied the relationship between critical thinking dispositions of primary school students and their digital literacy. 812 students from schools in Konya participated in the study. The researcher found a weak but positive relationship between students' digital literacy levels and their critical thinking

dispositions. The study is important since it highlights the need to foster these two skills at an early age. It also focuses on the relation between cognitive and digital skill development.

Çelik (2021) focused on lower secondary school students' digital literacy levels. 632 middle school students from Gaziantep participated in the study. The researcher found that students' digital literacy levels differed based on factor such as parental education, grade level, gender, internet-device access, family income and internet usage. But, it was found that factors like parental occupation, number of siblings, or purposes of internet use did not play a role in students' digital literacy levels.

Aydoğdu (2022), in a similar study, studied digital literacy levels of middle school students in Kastamonu. 268 students were included in the study. The researcher explored whether lower secondary school students' digital literacy varied based on factors such as gender, education, parental occupation, grade level, internet and computer access at home, frequency of internet use, and place of residence. The results of the study revealed that students' digital literacy scores were moderate-to-high. He also concluded that students' digital literacy levels decreased when there were more siblings while students with working mothers and frequent internet access had higher digital literacy as well as students living in central districts. .

2.5.2. Studies on University Students

Kara (2021) conducted an MA study focusing on digital literacy and learner autonomy readiness among ELT first year students in online education and 49 students participated in it. The participants were given a 10 week long online education. He concluded that the digital literacy and learner autonomy levels of students increased as a result of the online education they received and the students found technology and autonomous learning in online classes beneficial. This result supports the idea that independent learning and digital skills can be improved with the help of structured exposure to digital environments especially in language education contexts. Compared with Pala and Başbüyük's (2020) emphasis on background variables, Kara's findings highlight the importance of pedagogical design and instructional support as a factor shaping digital literacy.

Yalçın (2022), in her MA study, focused on the relationship between 21st century learning skills of university students and their digital literacy levels. 122 students from

multiple Turkish universities participated in the study and she used two scales. She could not find any significant differences in terms of class level, department, and gender. But, there was a positive relationship between cognitive and collaboration skills and digital literacy levels of the university students. Her study suggests that digital literacy and 21st century skills should be included in university programs to help students with technology-based learning activities. The previous studies also focused on the importance of integrating DL into the curriculum.

İbekci (2025), at Atatürk University, studied the relationship between digital literacy and awareness of digital data security of undergraduate students. 194 students participated in the study. She found that the students had a moderate level of digital literacy while they had a high level of awareness of data security. She could not find a significant difference in terms of class level and gender. She concluded that the digital literacy levels of students who used technology for 9 hours and more had a higher level of digital literacy than the others. There was also a positive relationship between students' data security awareness and their digital literacy levels. The study is important in terms of highlighting that interacting with technology frequently leads to higher competence and digital safety. The researcher diversifies the skills that are connected to digital literacy among the Turkish studies.

Ekinici (2024) explored digital literacy levels of university students who study English as a foreign language. The study involved 60 Turkish students. The results of the study indicated that digital literacy education affected their digital literacy levels based on their self-perception and achievement. Additionally, she found that most students had high level of awareness about artificial intelligence and they had positive thoughts regarding digital literacy education.

Alattabi (2024) studied whether there was a relationship between social media attitudes of university students and their digital literacy. In the study, he focused on factor such as gender, department, grade level, daily usage time and social media experience. 391 university students participated in the study. Results showed that gender, department and daily social media use did not significantly affect students' social media attitudes or digital literacy. However grade level impacted social isolation and social competence: 4th-year students reported higher social isolation while 3rd-year students showed greater social competence. Although grade level did not effect total digital literacy, some departmental differences appeared, students from the recreation department reported stronger teacher-student connections. Additionally, students with longer histories of social

media use had higher scores in contextual use and digital identity management. Overall, the connection between digital literacy and social media attitudes was found to be minimal.

Amuce (2024) explored the effect of using dashboards in online learning on students' digital literacy levels and sense of community. 279 students were involved in the study and they were given an asynchronous "Digital Literacy" course at a university. The researcher could not find any significant difference in digital literacy levels of students at the beginning regardless of dashboard use. He found that digital literacy levels of students who used dashboards were higher than the others at the end.

Eğri (2024) conducted a study to explore the relationship between digital literacy levels of university students and their attitudes toward information ethics. The study involved 363 students. The researcher found a weak but insignificant positive relationship between university students' attitudes towards information ethics and digital literacy levels of them. The results of this study underline the fact that digital skills and ethical considerations may not always be related.

In her MA thesis study, Kara (2021) explored the relationship between teacher candidates' digital literacy levels and their information search and interpretation strategies in the web environment. 500 teacher candidates participated in the study. As a result, she could not find any relationship between gender, grade, academic success, daily internet usage, daily social media usage, consistency in internet connection, parental education level, and digital literacy levels as well as information search and interpretation strategies in the web environment. But, the study found significant differences based on the frequency of online information searching and prior training in digital literacy. Unlike many other studies, a lack of correlation between commonly considered variables and digital competence can be seen here. This raises an important point: while some studies emphasize demographic predictors, others suggest that behavioral and training-related factors may be more decisive.

2.5.3. Studies on Teachers

Doğan and Birişçi (2022) aimed to examine 124 secondary school teachers' digital literacy levels in Bursa during the pandemic. The researchers reached the conclusion that the teachers had high digital literacy levels. Their results are matching with other studies underlining educators' growing adaptation to digital platforms, especially during the COVID19 teaching periods. In contrast to the student-focused

studies above, this teacher-centered study shows how an external crisis (the pandemic) accelerated digital competence regardless of pre-existing conditions suggesting that contextual pressures can drive rapid improvement in digital skills.

Çelik (2024) conducted a study to examine Turkish EFL teachers' digital literacy levels. She investigated whether there was a difference in teachers' digital literacy levels in terms of gender, age, teaching experience as well as their preference of using digital tools, social media, the difficulties they face when using digital tools and their suggestions regarding improving their digital literacy skills. 250 English teachers participated in the study. The quantitative results showed that the teachers had an average digital literacy level. The researcher found a relationship between the teachers' digital literacy level and their age and gender while there was not a meaningful relationship between the levels and teaching experience. The qualitative analysis showed that the teachers had partial knowledge regarding digital literacy and they could use different social media and digital literacy tools. The results indicate that teachers are familiar with social media platforms, but further improvement for digital literacy may still be necessary. This finding sits between Doğan and Birişçi (2022), who reported high teacher literacy, and Kara (2021), who found no strong demographic effects. It suggests a more complex, detailed picture where certain demographics such as age matter in some cases but not universally.

Additionally, Kuş (2024) studied digital literacy levels of preparatory school English as a foreign language teachers. The researcher examined the effect of gender, age, experience, education status, field of graduation, and the amount of internet usage on digital literacy levels. After the quantitative analysis, it was seen that the teachers had a medium level of digital literacy. The researcher concluded that there was an important difference between the preparatory school teachers' digital literacy levels based on their gender, field of graduation, and internet usage while there was not an important difference based on their age, experience and education status. Çelik's (2024) findings are similar to the results of this study since experience and age did not play a role in digital literacy. It is important to note that both of the studies show teacher experience is not a determining factor in shaping digital literacy but other factors such as usage habits and personal characteristics may affect it.

Arslan (2025) focused on the relationship between classroom teachers' technological pedagogical content knowledge (TPACK) and their digital literacy levels. 324 public school teachers from Konya participated in the study. She found a significant positive relationship between the two while there was not any significant difference based

on age. Other factors like age, years of teaching, prior computer training and using technology in class were determinant factors in terms of differences in digital literacy and TPACK levels. The results of the study indicated that teachers who used technology more had higher scores. The study is in line with the claim that more technology practice enables more advanced educational competencies.

Özdemir (2024) conducted a study to explore whether there was a relationship between digital literacy of classroom teachers and their attitudes towards distance education by focusing on demographic factors such as gender, years of experience, education level, technology training and daily internet use. 379 public school classroom teachers participated in the study and a descriptive survey model was used. The researcher concluded that teachers' digital literacy levels and their attitudes towards distance education were moderate. Alongside Arslan (2025), who found a strong relationship between digital literacy and TPACK, Özdemir further suggests that moderate digital competencies are insufficient when new instructional modes such as distance education emerge and demand higher adaptability.

Güngör (2024) focused on the digital literacy levels of teachers and how these relate to their subjective well-being. Using a descriptive research design, data was collected from 220 high school teachers in Muş, Türkiye which was selected through convenience sampling. Results showed that teachers had high levels of digital literacy, especially in contextual use while they felt least confident using basic tools such as spreadsheet programs. Teachers' overall well-being levels were also high with stronger self-perceptions in teaching competence than in school engagement. A positive relationship was found between digital literacy and subjective well-being and digital literacy was found to be a good predictor of teachers' well-being levels. The results of the study indicate that educators can improve their personal and professional well-being if they also focus on digital competencies.

Ayık (2024) studied whether there was a relationship between digital literacy levels of classroom teachers and their cyberbullying awareness. 398 teachers in Kırşehir participated in the study. Results showed that teachers had high levels of both digital literacy and cyberbullying awareness. A low but positive correlation was found between the two, which means as digital literacy increases so does sensitivity to cyberbullying. Significant differences in digital literacy were found based on gender, internet use time, digital tool use and education level (in the social dimension only). No significant differences were found based on age, teaching experience or in cyberbullying sensitivity

across any demographic variables. These findings emphasize that shaping ethical engagement is related to digital awareness, especially for educators who are responsible to guide students in online spaces. Taken together with Eğri (2024), these results highlight a broader debate on whether digital literacy guarantees ethical responsibility, which is a debate that remains unresolved in Turkish literature.

Avcı (2024) used a relational survey model to investigate the relationship between teachers' digital literacy and their levels of cyberchondria. Findings showed no significant overall relationship between digital literacy and cyberchondria. However weak and negative correlations were found between digital literacy and the sub-dimensions of cyber anxiety and cyber strain. Digital literacy varied significantly based on age, gender, education, parental status, institution type, internet device used and internet purpose. On the other hand, the researcher found that demographic variables did not play an important role on cyberchondria levels.

Tekkoyun (2024) explored the relationship between digital literacy of preschool teachers and digital citizenship. The study involved 282 teachers from Denizli. The researcher found that preschool teachers' digital literacy levels were high despite the fact that they had moderate skills in creating professional digital content. It was found that preschool teachers' digital literacy differed significantly based on factors such as age, experience, gender, class size, digital citizenship levels, the situation of following digital platforms, the usage of web 2.0 tools. The researcher found that there was a significant relationship between teachers' digital literacy and digital citizenship levels, meaning that as digital literacy increases, digital citizenship levels increase as well.

Kötüğ (2024) conducted a study focusing on digital literacy of Math teachers living in Osmaniye. The researcher found that digital literacy levels of Math teachers who had completed doctorate programmes and with a personal computer as well as long term computer use were higher. The results showed that the common perception of teachers regarding digital literacy was using technology in a responsible way and digital safety and content creation were problematic areas. It is important to note this study underlines the fact that the perception of digital literacy can vary based on factors such as prior experience, access, and personal needs even in the same branch.

Kalinkol (2023) studied classroom teachers' digital literacy levels and 306 participants living in Van participated in the study. The researcher concluded that digital literacy levels of teachers who were male, younger, less experienced, and with a higher education level were higher than the others. The results revealed that digital literacy was

defined as accessing and understanding information by the participants in the study. The researcher also found that participants saw themselves as digitally literate as they interacted with technology frequently. The results of this study underline the necessity of integrating digital literacy into teacher education.

2.5.4. Other Studies

Gündoğdu (2025) examined the digital literacy levels of football referees and observers working under the Turkish Football Federation during the 2023–2024 season. 630 participants (428 referees, 202 observers) was involved in the study. He found that referees had significantly higher scores of digital literacy than observers in all dimensions. The study suggests that referees that are found in a broader network are more successful than observers in digital literacy, meaning that digital skills can be improved by more active roles. The study indicates that the necessities of specific roles play an important role in improving digital literacy.

Çiçek (2024) aimed to assess the 21st-century skills and digital literacy levels of school stakeholders, which are administrators, teachers and other Ministry of National Education (MEB) personnel after emergency distance education. Correlation and regression analyses revealed a moderate, positive and significant relationship ($r = .643$) between 21st-century skills and digital literacy. The results showed that 21st-century skills explained 41.34% of the variance in digital literacy levels. Further analysis found statistically significant differences in these skills and digital literacy across several demographic variables such as gender, age, education level, years of service and school type. However no significant differences were found based on daily internet use or distance education experience. The findings were discussed in light of existing literature, and suggestions were offered. These results suggest that there is a strong relationship between digital literacy and broader competencies and personal characteristics. These findings, consistent with Yalçın (2022), reinforce the argument that digital literacy is part of a larger skillset of 21st-century competencies, and thus policies must address it as a systemic competence rather than an isolated skill.

CHAPTER III

METHODOLOGY

In this section, research design, participants, data collection tools, data collection procedure, and data analysis are explained.

3.1. Research Design

Johnson and Christensen (2014) defines research design as a structured framework or approach developed to conduct a study that tries to answer a specific research question. To examine the digital literacy levels of secondary school students and the variables that affect them, quantitative descriptive research design is used in the study. Quantitative research includes collecting and analyzing numerical data to explain, predict, or control study variables (Creswell, 2014).

3.2. Participants

Participants consist of 173 students studying in a secondary school in Adana during the 2024-2025 school year. Convenience sampling is used in the study since it is the most appropriate one for the researcher because it refers to the research participants of the population that are simple for the researcher to reach (Etikan et al., 2016). Participants study English under the national curriculum; thus, results are directly relevant to EFL classes.

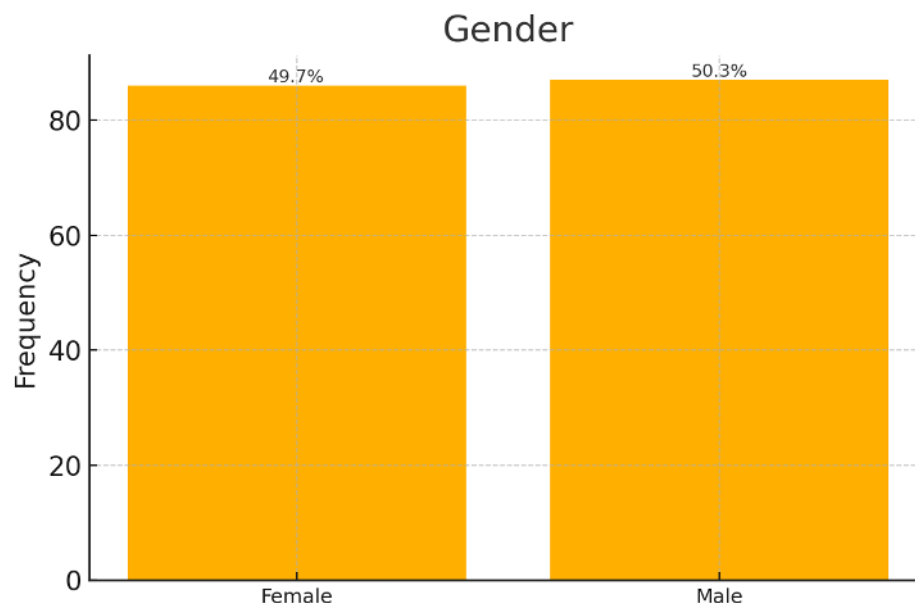


Figure 1. Gender Distribution of Participants

A total of 173 secondary school students participated in the study. Of these, 86 students (49.7%) were female, while 87 students (50.3%) were male, indicating a balanced gender distribution.

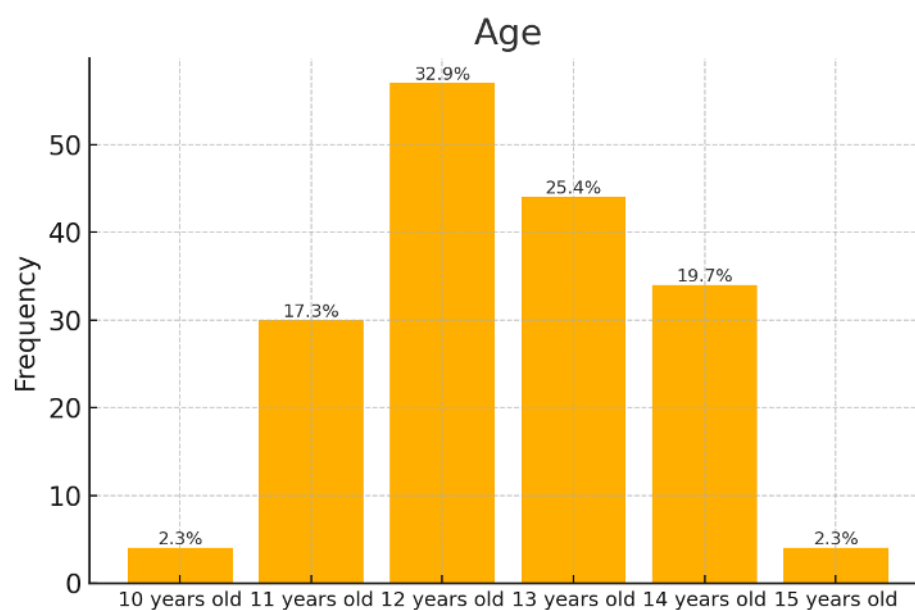


Figure 2. Age Distribution of Participants

The participants' ages ranged from 10 to 15 years. The largest age group was 12 years old, consisting of 57 students (32.9%), followed by 13 years old with 44 students (25.4%), and 14 years old with 34 students (19.7%). A smaller number of students were

11 years old (30 students, 17.3%), and both the 10 and 15-year-old groups included 4 students each (2.3%).

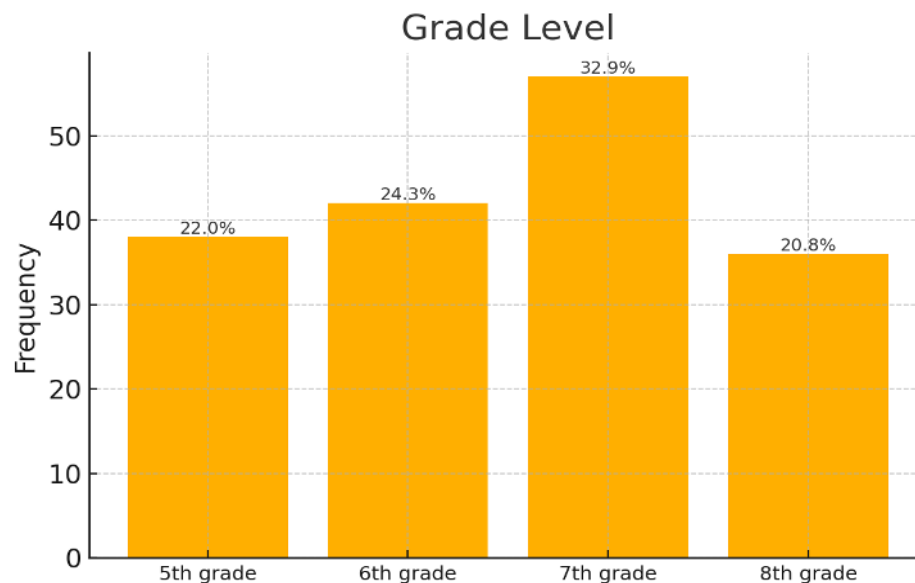


Figure 3. Grade Distribution of Participants

In terms of grade level, 38 students (22.0%) were in 5th grade, 42 students (24.3%) were in 6th grade, 57 students (32.9%) were in 7th grade, and 36 students (20.8%) were in 8th grade.

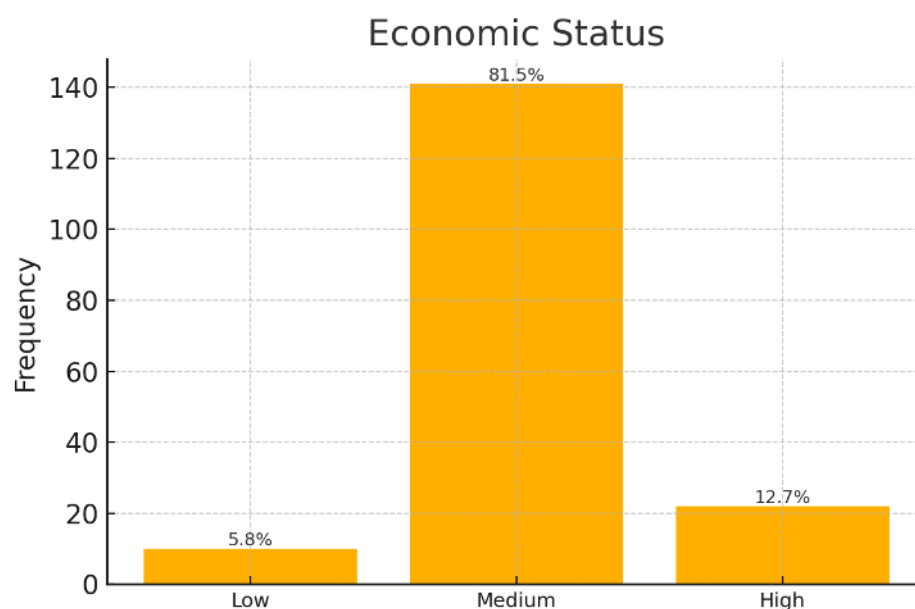


Figure 4. Economic Status of Participants

In terms of economic status of the families, the most of the students reported an average level of economic status (141 students, 81.5%), while 22 students (12.7%)

reported their economic status as high, and 10 students (5.8%) described a low economic status.

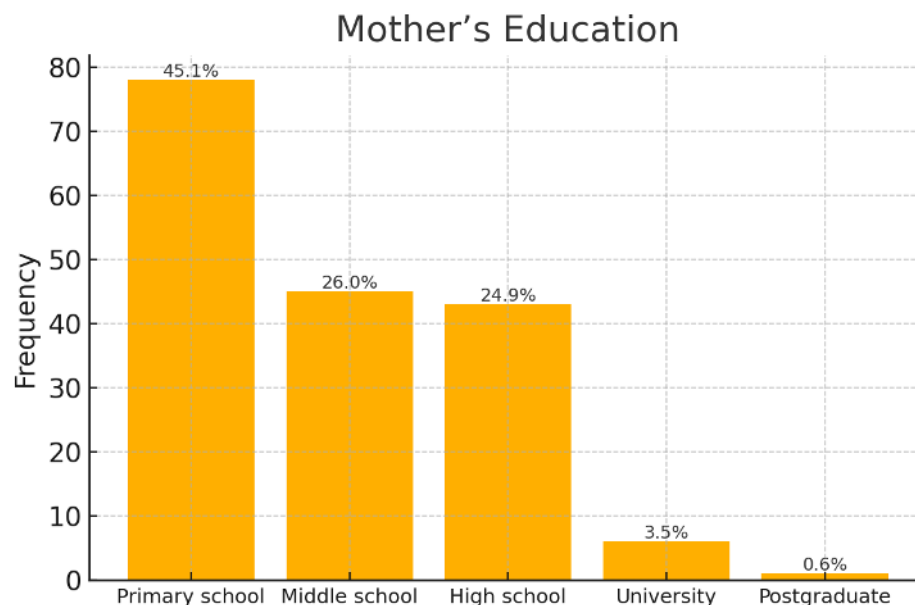


Figure 5. Education Levels of Participants' Mothers

Parents' educational backgrounds also varied among participants. Most mothers had completed primary school (78 students, 45.1%), followed by middle school (45 students, 26.0%), and high school (43 students, 24.9%). Only a small proportion had a university degree (6 students, 3.5%) or postgraduate education (1 student, 0.6%).

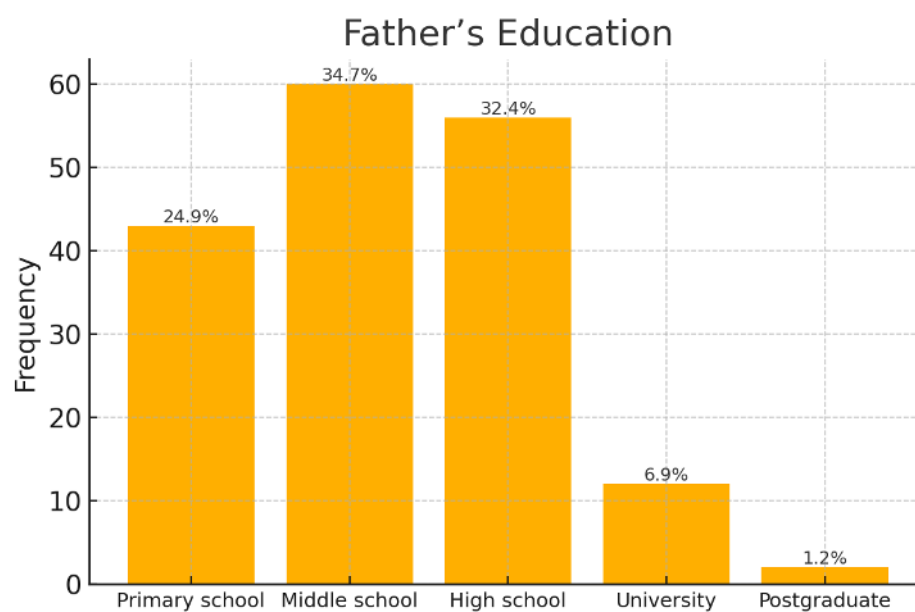


Figure 6. Education Levels of Participants' Fathers

Similar to the previous results, most fathers had completed middle school (60 students, 34.7%) or high school (56 students, 32.4%), while 43 students' fathers (24.9%) had a primary school education. University and postgraduate graduates among fathers were relatively few, with 12 (6.9%) and 2 (1.2%) respectively.

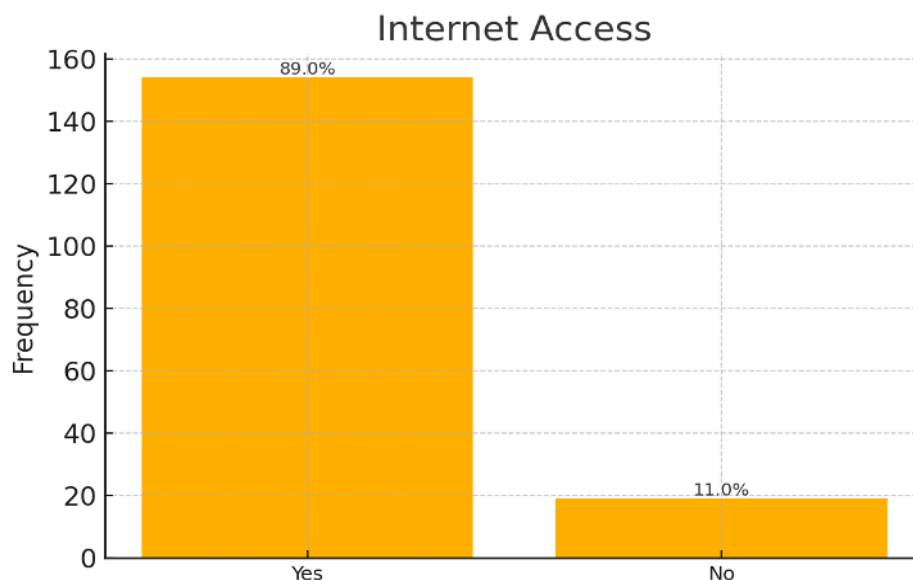


Figure 7. Internet Access Situation of Participants

In terms of having internet access, the majority of participants reported having internet access at home, with 154 students (89.0%) showing access, while only 19 students (11.0%) stated that they did not have any internet connection.

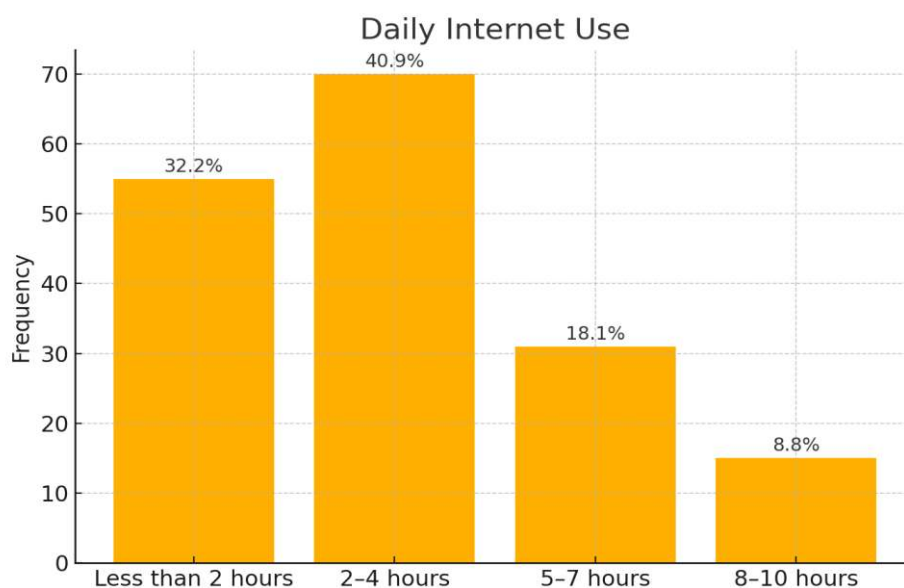


Figure 8. Daily Internet Use of Participants

The daily internet use of students showed variation. The majority of participants reported that they used the internet for around 1 hour (39 students, 22.5%) or 2 hours (36 students, 20.8%) daily. In addition, 21 students (12.1%) reported that they used the internet for 4 hours, and 13 students (7.5%) reported 3 hours. Fewer students reported using the internet for longer hours, such as 5 hours (12 students, 6.9%), 6 hours (10 students, 5.8%), or more than 7 hours. Only a few participants (9 students, 5.2%) reported that they spent less than 1 hour online daily.

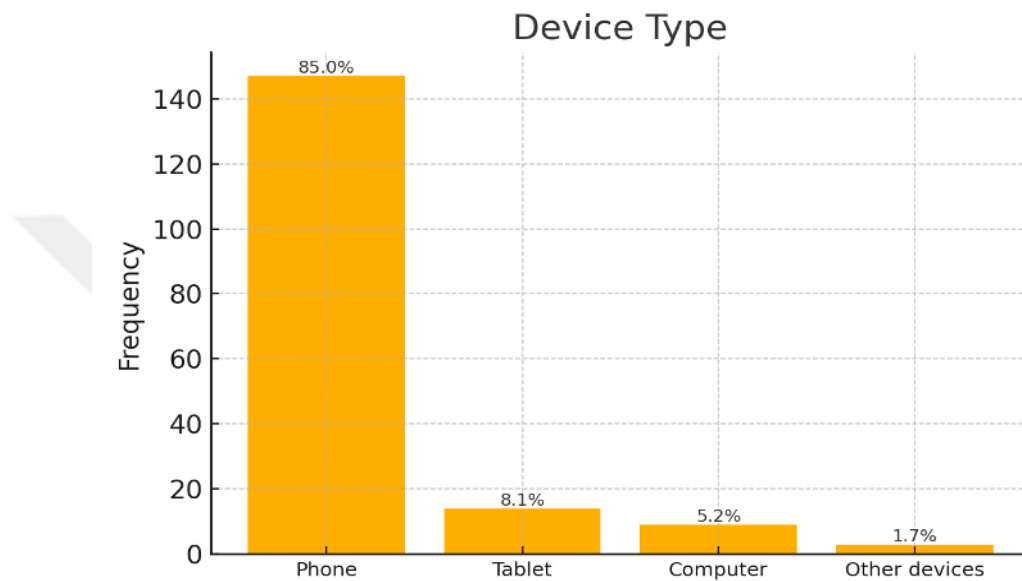


Figure 9. Device Choice of Participants

In terms of devices used for internet access, the majority of students reported that they used smartphones (147 students, 85.0%), while fewer participants reported using tablets (14 students, 8.1%), computers (9 students, 5.2%), or other devices (3 students, 1.7%).

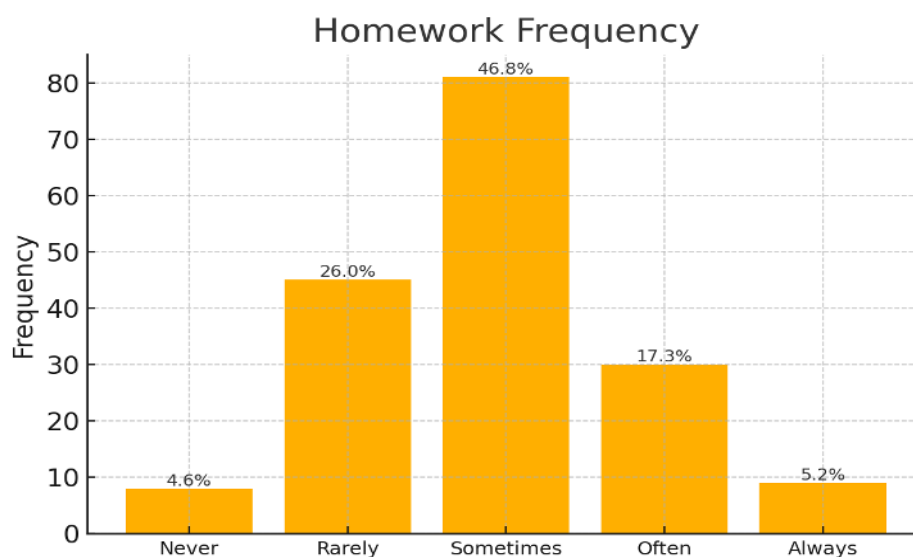


Figure 10. Homework Frequency of Participants

Finally, the frequency of doing homework also showed variation among participants. Most students indicated that they “sometimes” completed homework by using digital technologies (81 students, 46.8%), while 45 students (26.0%) stated that they “rarely” did so. Additionally, 30 students (17.3%) reported doing homework “often,” 9 students (5.2%) reported “always,” and 8 students (4.6%) reported “never” completing homework.

3.3. Data Collection Tools

The study includes the Digital Literacy Scale (see Appendix 1) developed by Pala (2019) and a student information form (see Appendix 2) developed by the researcher as data collection instruments.

3.3.1. Digital Literacy Scale

With the permission of the researchers (see Appendix 3), the digital literacy scale developed by Pala (2019) was used in the study. At the request of the Adana Provincial Directorate of National Education, the terms “Facebook, Twitter, Instagram” were removed from the scale and replaced with the term “social media networks.” The scale consists of 21 items trying to measure digital literacy levels of secondary school students and it is scored as ‘always=5’, ‘never=1’. The scales’ factors were divided into four categories, which are “Information Processing”, “Communication”, “Safety”, and

“Problem Solving”. Cronbach’s Alpha value was calculated by the researchers. Since the value is above .70, the researchers concluded that the scale was reliable.

In this study where secondary school students’ digital literacy levels are examined, the researcher calculated the Cronbach’s Alpha value of the DLS and it was found to be .790, which ensures the reliability of the scale.

Although the DLS is domain-general, its subdimensions map onto ELT practices: Information Processing ↔ reading/research in English; Communication ↔ interactive tasks; Safety ↔ digital citizenship in L2 contexts; Problem Solving ↔ project-based language work.

3.3.2. Student Information Form

In addition to the Digital Literacy Scale, a student information form developed by the researcher was used in this study. The form was designed to obtain students’ demographic and background information regarding the study. It involved questions related to gender, age, grade level, parental education levels and economic status, access to the internet, daily internet use, device type used for online access, and the frequency of doing homework through digital tools. The collected data provided important variables that are needed to examine students’ digital literacy levels.

3.4. Data Collection Procedure

Before the data gathering process, the necessary permissions were obtained from the Ethics Committee of Çukurova University (see Appendix 4), and the Ministry of National Education in Türkiye (MoNE). Students were informed about the purpose of the study and parental consent forms including detailed information about the research were given for parents’ signatures. The signed consent forms were collected before the implementation of the data collection tools. The official approval letter issued by the Ministry of National Education was submitted to the administration of the participating school and the school administration was informed about the schedule, including the specific week and lesson hours during which the scale would be distributed to the students. The data collection process lasted approximately one class hour for each group.

3.5. Data Analysis

In order to analyze the data, SPSS was used. First, to examine whether the data followed a normal distribution, a normality test was conducted. Kolmogorov-Smirnov test was employed for this study as this test is used when the sample size exceeds 50 participants as suggested by Büyüköztürk (2008, p. 42). The test result revealed a significance value of $p=.200$, which is greater than $.05$, indicating that the data do not significantly deviate from a normal distribution. In addition, skewness and kurtosis values were analyzed. The skewness value (-0.138) and kurtosis value (-0.347) were both within the range of -1 to $+1$, which is generally accepted as an indicator of normal distribution (George & Mallery, 2010). These findings together show that the data meet the normality assumption.

To test the homogeneity of variances assumption, Levene's test was conducted for all independent variables. The results indicated that variances were homogeneous across groups for gender ($F=0.187$, $p=.666$), grade level ($F=1.05$, $p=.371$), economic status ($F=0.556$, $p=.574$), mother's education level ($F=1.08$, $p=.358$), father's education level ($F=0.938$, $p=.443$), internet access ($F=0.266$, $p=.606$), device type used ($F=0.961$, $p=.413$), and homework frequency ($F=0.945$, $p=.439$). Since all p -values were greater than $.05$, the assumption of homogeneity of variances was met.

Descriptive statistics (mean, standard deviation, percentage distribution, etc.) were calculated to determine students' digital literacy levels. Independent sample t-test was used to determine whether there was a significant difference between the digital literacy levels of male and female students. The same test was also used to find out whether internet access and digital literacy were related. One-way analysis of variance (ANOVA) was applied to analyze whether students' digital literacy levels differ according to variables such as economic status of their families, parental education level, device type used and homework frequency. Pearson Correlation Analysis was applied to discover whether there was a relationship between age, daily internet use and the students' digital literacy levels.

CHAPTER IV

FINDINGS

In this study, the digital literacy levels of the participants were examined in relation to several variables including gender, age, grade level, parental education levels, economic status, daily internet use, device type used, and homework frequency. The findings are presented below in line with the research questions.

4.1. Digital Literacy Levels of Secondary School Students

Table 1.

Digital Literacy Levels of Secondary School Students

Subdimensions	n	Min	Max	M	SD
Information Processing	173	10	25	17.95	.69
Communication	173	6	25	15.95	.89
Safety	173	10.02	30	23.34	.69
Problem Solving	173	6	25	16.60	.78

With 21 items rated from 1 to 5, the Digital Literacy Scale produces a total score ranging between 21 and 105. Participants achieving higher points are considered to have more advanced digital literacy skills compared to those with lower scores. As the average point is 63 and students' mean total score is 73.84, it can be said that students' digital literacy level is moderate-to-high. A moderate-to-high overall score indicates readiness for task-based, digitally mediated English activities.

Table 2.
Participants' Responses to the Digital Literacy Scale

Items	Options												M	SD
	Always		Often		Sometimes		Rarely		Never					
	F	%	F	%	F	%	F	%	F	%				
1. I can use search engines to access information on the internet.	64	37	55	31.8	39	22.5	13	7.5	2	1.2	3.96	1.00		
2. I can use certain filters when searching (e.g., searching only in images, videos, or maps).	36	20.8	41	23.7	56	32.4	28	16.2	12	6.9	3.35	1.18		
3. I am aware that not all information I find on the internet is reliable.	70	40.5	35	20.2	33	19.1	25	14.5	10	5.8	3.75	1.28		
4. I can verify the reliability of the information I find on the internet by comparing it with different sources.	37	21.4	43	24.9	47	27.2	33	19.1	13	7.5	3.34	1.22		
5. I can save files or content (e.g., text, images, music, videos, web pages) on a computer, tablet, or phone.	58	33.5	40	23.1	35	20.2	21	12.1	19	11	3.56	1.35		
6. I can access the files and content I have saved again.	63	36.4	37	21.4	41	23.7	19	11	13	7.5	3.68	1.28		
7. I can communicate through mobile phones, the internet, email, and chat programs.	53	30.6	32	18.5	30	17.3	26	15	32	18.5	3.28	1.50		
8. I can share files and content through websites (e.g., attaching pictures and files to emails, sharing photos on social media networks).	24	13.9	30	17.3	34	19.7	34	19.7	51	29.5	2.66	1.42		
9. I can contribute to any document created/shared by others on the internet.	9	5.2	32	18.5	44	25.4	44	25.4	44	25.4	2.53	1.20		
10. I can use social media networks.	76	43.9	38	22	23	13.3	18	10.4	18	10.4	3.79	1.38		
11. I know that there are rules to follow when using digital tools (e.g., when commenting, sharing personal information).	90	52	26	15	22	12.7	17	9.8	18	10.4	3.88	1.41		
12. I can transfer/share information on the internet.	34	19.7	36	20.8	39	22.5	39	22.5	25	14.5	3.09	1.34		
13. I can use passwords to protect my devices such as computers, smartphones, and tablets.	118	68.2	22	12.7	14	8.1	10	5.8	9	5.2	4.33	1.17		
14. I am aware that my personal information may be stolen, so I know I should not share it online.	113	65.3	15	8.7	10	5.8	7	4	28	16.2	4.03	1.53		
15. I am aware that excessive use of digital technology can negatively affect my health.	80	46.2	46	26.6	29	16.8	12	6.9	6	3.5	4.05	1.11		
16. I can understand the positive and negative effects of technology on the environment.	73	42.2	48	27.7	29	16.8	17	9.8	6	3.5	3.95	1.14		
17. When a technical problem occurs while using a new device or application, I can find support and help.	50	28.9	53	30.6	39	22.5	18	10.4	13	7.5	3.63	1.22		
18. I can solve most of the common problems that arise while using digital technologies	34	19.7	48	27.7	43	24.9	36	20.8	12	6.9	3.32	1.21		
19. I can solve non-technical problems while using digital technologies.	23	13.3	35	20.2	54	31.2	38	22	23	13	2.98	1.22		
20. I can solve technological problems of programs or devices.	23	13.3	44	25.4	52	30.1	26	15	28	16.2	3.05	1.26		
21. When I face a problem related to technology, I can use digital tools to solve the problem.	54	31.2	45	26	42	24.3	20	11.6	12	6.9	3.63	1.23		

The following section describes participants' responses to each of the 21 items on the Digital Literacy Scale. For each item, the number and percentage of students who selected 'Always,' 'Often,' 'Sometimes,' 'Rarely,' or 'Never' are explained.

Most students reported that they can use search engines to access information on the internet, with 37% always and 31.8% often selecting this option. (Always: 64 students, 37.0%; Often: 55 students, 31.8%; Sometimes: 39 students, 22.5%; Rarely: 13 students, 7.5%; Never: 2 students, 1.2%).

Responses to using specific filters while searching were more balanced with 32.4% sometimes using them and smaller percentages reporting 'always' or 'never'. (Always: 36 students, 20.8%; Often: 41 students, 23.7%; Sometimes: 56 students, 32.4%; Rarely: 28 students, 16.2%; Never: 12 students, 6.9%).

Awareness that not all online information is dependable was high, with 40.5% always considering this and 20.2% often doing so. (Always: 70 students, 40.5%; Often: 35 students, 20.2%; Sometimes: 33 students, 19.1%; Rarely: 25 students, 14.5%; Never: 10 students, 5.8%).

The ability to verify information by comparing sources was moderate, with only 21.4% always verifying information. (Always: 37 students, 21.4%; Often: 43 students, 24.9%; Sometimes: 47 students, 27.2%; Rarely: 33 students, 19.1%; Never: 13 students, 7.5%).

One-third of the participants reported that they can always save files or content on their devices, while 11% reported that they never do it. (Always: 58 students, 33.5%; Often: 40 students, 23.1%; Sometimes: 35 students, 20.2%; Rarely: 21 students, 12.1%; Never: 19 students, 11.0%).

Over one-third of students (36.4%) can always retrieve saved files, while a small proportion (7.5%) cannot. (Always: 63 students, 36.4%; Often: 37 students, 21.4%; Sometimes: 41 students, 23.7%; Rarely: 19 students, 11.0%; Never: 13 students, 7.5%).

Communication through mobile phones and internet programmes was strong, with 30.6% always and 18.5% often engaging in this activity. (Always: 53 students, 30.6%; Often: 32 students, 18.5%; Sometimes: 30 students, 17.3%; Rarely: 26 students, 15.0%; Never: 32 students, 18.5%).

File sharing through websites was less common, with only 13.9% always sharing content, while 29.5% never share content online. (Always: 24 students, 13.9%; Often: 30 students, 17.3%; Sometimes: 34 students, 19.7%; Rarely: 34 students, 19.7%; Never: 51 students, 29.5%).

Contribution to documents shared online was very limited, with only 5.2% always contributing and one-quarter of participants never engaging in this activity. (Always: 9 students, 5.2%; Often: 32 students, 18.5%; Sometimes: 44 students, 25.4%; Rarely: 44 students, 25.4%; Never: 44 students, 25.4%).

Using social media platforms was high, with 43.9% always and 22% often using social networks. (Always: 76 students, 43.9%; Often: 38 students, 22.0%; Sometimes: 23 students, 13.3%; Rarely: 18 students, 10.4%; Never: 18 students, 10.4%).

Following rules online was widely recognized, with more than half (52%) always following them. (Always: 90 students, 52.0%; Often: 26 students, 15.0%; Sometimes: 22 students, 12.7%; Rarely: 17 students, 9.8%; Never: 18 students, 10.4%).

Transferring and sharing information online showed a balanced distribution, with around 20% in each category from always to rarely. (Always: 34 students, 19.7%; Often: 36 students, 20.8%; Sometimes: 39 students, 22.5%; Rarely: 39 students, 22.5%; Never: 25 students, 14.5%).

Being able to use passwords for protection was very high, with 68.2% always using this measure. (Always: 118 students, 68.2%; Often: 22 students, 12.7%; Sometimes: 14 students, 8.1%; Rarely: 10 students, 5.8%; Never: 9 students, 5.2%).

A majority of the participants (65.3%) reported that they never shared personal information online, reflecting the fact that they were aware of privacy risks. (Always: 113 students, 65.3%; Often: 15 students, 8.7%; Sometimes: 10 students, 5.8%; Rarely: 7 students, 4.0%; Never: 28 students, 16.2%).

Nearly half of the participants (46.2%) were always aware that excessive use of technology may harm their health. (Always: 80 students, 46.2%; Often: 46 students, 26.6%; Sometimes: 29 students, 16.8%; Rarely: 12 students, 6.9%; Never: 6 students, 3.5%).

Understanding the positive and negative effects of technology on the environment was high, with 42.2% always and 27.7% often acknowledging this. (Always: 73 students,

42.2%; Often: 48 students, 27.7%; Sometimes: 29 students, 16.8%; Rarely: 17 students, 9.8%; Never: 6 students, 3.5%).

Participants' technical problem-solving skills are average, with 28.9% always finding support or help when needed. (Always: 50 students, 28.9%; Often: 53 students, 30.6%; Sometimes: 39 students, 22.5%; Rarely: 18 students, 10.4%; Never: 13 students, 7.5%).

About one-fifth (19.7%) always solve frequent digital technology issues, while 27.7% often do so. (Always: 34 students, 19.7%; Often: 48 students, 27.7%; Sometimes: 43 students, 24.9%; Rarely: 36 students, 20.8%; Never: 12 students, 6.9%).

Non-technical problem-solving is lower, with only 13.3% always confident in resolving such issues. (Always: 23 students, 13.3%; Often: 35 students, 20.2%; Sometimes: 54 students, 31.2%; Rarely: 38 students, 22.0%; Never: 23 students, 13.0%).

When addressing technical issues in programs, 13.3% always manage to solve them, but 16.2% never succeed. (Always: 23 students, 13.3%; Often: 44 students, 25.4%; Sometimes: 52 students, 30.1%; Rarely: 26 students, 15.0%; Never: 28 students, 16.2%).

Around one-third (31.2%) always use digital tools to overcome problems, while 6.9% never do so. (Always: 54 students, 31.2%; Often: 45 students, 26.0%; Sometimes: 42 students, 24.3%; Rarely: 20 students, 11.6%; Never: 12 students, 6.9%).

4.2. Students' Digital Literacy Levels Based on the Second Research Question

The second research question in the study addressed whether students' digital literacy levels differ based on several factors. In this section, students' digital literacy levels are explained based on gender, age, grade level, economic status, and parental education.

4.2.1. Students' Digital Literacy Levels Based on Gender

The second research question focused on whether students' digital literacy levels vary by various factors and gender was included as one of the key variables. T test was conducted as it is used when there are two categories. Table 3 presents the findings related to digital literacy scores of the participants.

Table 3.
Independent Samples T-Test Results for Gender

Dimensions	Gender	n	M	SD	t	df	p
Information Processing	Male	87	3.60	.69	-.067	171	.947
	Female	86	3.59	.69			
Communication	Male	87	3.38	.82	-2.89	171	.004
	Female	86	3.00	.91			
Safety	Male	87	3.85	.67	.708	171	.480
	Female	86	3.93	.70			
Problem Solving	Male	87	3.49	.84	-2.936	164.43	.004
	Female	86	3.15	.68			

As seen in Table 3, Sig. (2-tailed) p value was found to be .004 in communication and problem solving subdimensions, which is below 0.05. This means that there is a significant difference in terms of their digital literacy levels between male and female students in these fields.

4.2.2. Students' Digital Literacy Levels Based on Age

The second research question focused on whether students' digital literacy levels vary by various factors and age was included as one of the key variables. Pearson Correlation Analysis was used in order to understand whether age affects digital literacy. Table 4 presents the findings related to digital literacy and age.

Table 4.
Pearson Correlation Analysis for Age and Digital Literacy

Variables	r	p	n
Age – Information Processing	-.04	.59	173
Age – Communication	.19	.01	173
Age – Safety	.11	.16	173
Age – Problem Solving	.07	.38	173

Pearson Correlation Analysis showed a positive and significant association between age and communication subdimension of the digital literacy scale ($p = .01 < .05$). This correlation means statistical significance at the .05 level, indicating that age was

meaningfully related to the digital literacy's communication subfield.

4.2.3. Students' Digital Literacy Levels Based on Grade Level

The second research question focused on whether students' digital literacy levels vary by various factors and grade level was included as one of the key variables. Table 5 presents the findings related to digital literacy and descriptive statistics based on grade level.

Table 5.

Descriptive Statistics Based on Grade Level

Subdimensions	Grade Level	N	M	SD
Information Processing	5th Grade	38	3.53	.12
	6th Grade	42	3.70	.09
	7th Grade	57	3.66	.09
	8th Grade	36	3.44	.12
Communication	5th Grade	38	2.85	.92
	6th Grade	42	3.36	.93
	7th Grade	57	3.07	.82
	8th Grade	36	3.53	.76
Safety	5th Grade	38	3.63	.86
	6th Grade	42	3.92	.62
	7th Grade	57	4.02	.62
	8th Grade	36	3.92	.60
Problem Solving	5th Grade	38	3.34	.81
	6th Grade	42	3.44	.82
	7th Grade	57	3.29	.79
	8th Grade	36	3.22	.71

As shown in Table 5, in information processing subdimension, the 5th grade students had the lowest mean digital literacy score of 3.53, while the 6th grade students have the highest mean score of 3.70. In communication and safety subdimensions, higher grades had higher points. In order to examine whether the differences in students' digital literacy levels based on grade level are statistically significant, a one way ANOVA test was conducted. Table 6 presents the findings related to digital literacy and grade level according to the ANOVA test.

Table 6.

One-Way ANOVA Results for Grade Level

Subdimensions		SS	df	MS	F	P	η^2
Information Processing	Between Groups	1.707	3	.569	1.208	.308	0.02
	Within Groups	79.601	169	.471			
	Total	81.309	172				
Communication	Between Groups	10.695	3	3.565	4.851	.003	0.08
	Within Groups	124.197	169	.735			
	Total	134.892	172				
Safety	Between Groups	3.669	3	1.223	2.678	.049	0.05
	Within Groups	77.179	169	.457			
	Total	80.849	172				
Problem Solving	Between Groups	.987	3	.329	.535	.659	0.01
	Within Groups	103.935	169	.615			
	Total	104.922	172				

The results in Table 6 indicate that the differences in digital literacy subdimensions communication and safety among students from different grade levels were statistically significant. Since the p values (.003, .049) in these subdimensions are below .05, it is seen that the students' levels significantly differ according to grade level. In order to specify the differences Post Hoc Test was done.

Table 7.

Post Hoc Comparisons of Students' Digital Literacy Levels Based on Grade Levels

Subdimensions	Grade	Mean Difference	Standard Error	p
Communication	5 th -6 th	-.51	.19	.043
	5 th -8 th	-.69	.20	.004
Safety	5 th -7 th	-.39	.14	.031

Table 7 reveals that 6th and 8th grade students' points are significantly higher than 5th grade students in communication subdimension of the digital literacy scale. Additionally, 7th grade students got significantly higher points than 5th grade students in safety dimension

4.2.4. Students' Digital Literacy Levels Based on Economic Status

The second research question focused on whether students' digital literacy levels vary by various factors and economic status was included as one of the key variables. Table 8 presents the findings related to digital literacy and descriptive statistics based on economic status.

Table 8.

Descriptive Statistics Based on Economic Status

Subdimensions	Economic Status	N	M	SD
Information Processing	Low	10	3.68	.81
	Medium	141	3.57	.67
	High	22	3.68	.79
Communication	Low	10	3.36	1.07
	Medium	141	3.14	.86
	High	22	3.44	.92
Safety	Low	10	4.07	.66
	Medium	141	3.88	.71
	High	22	3.86	.52
Problem Solving	Low	10	3.32	.88
	Medium	141	3.29	.74
	High	22	3.54	.99

The findings related to digital literacy and economic status of secondary school students can be seen in Table 8. In order to examine whether the differences in students' digital literacy levels based on economic status are statistically significant, a one way ANOVA test was conducted. Table 9 presents the findings related to digital literacy and economic status according to the ANOVA test.

Table 9.

One-Way ANOVA Results for Economic Status

Subdimensions		SS	df	MS	F	P	η^2
Information Processing	Between Groups	.313	2	.157	.329	.720	0.01
	Within Groups	80.995	170	.476			
	Total	81.309	172				
Communication	Between Groups	2.032	2	1.016	1.300	.275	0.02
	Within Groups	132.860	170	.782			
	Total	134.892	172				
Safety	Between Groups	.347	2	.173	.366	.694	0.01
	Within Groups	80.502	170	.474			
	Total	80.849	172				
Problem Solving	Between Groups	1.161	2	.581	.951	.388	0.01
	Within Groups	103.761	170	.616			
	Total	104.922	172				

As the p values (.720, .275, .694, .388) in all subdimensions are greater than .05, the results in Table 9 shows that the differences in mean digital literacy scores regarding the three economic status groups are not statistically significant. In other words, the students' economic status does not play an important role on their digital literacy levels within this sample.

4.2.5. Students' Digital Literacy Levels Based on Mother's Education Level

The second research question focused on whether students' digital literacy levels vary by various factors and mother's education level was included as one of the key variables. Table 10 presents the findings related to digital literacy and descriptive statistics based on mother's education level.

Table 10.

Descriptive Statistics Based on Mother's Education Level

Subdimensions	Mother's Education	N	M	SD
Information Processing	Primary School	78	3.57	.72
	Middle School	45	3.47	.65
	High School	43	3.79	.63
	University	6	3.67	.72
	Postgraduate	1	2.40	-
Communication	Primary School	78	3.16	.91
	Middle School	45	3.01	.82
	High School	43	3.42	.88
	University	6	3.40	.84
	Postgraduate	1	2.00	-
Safety	Primary School	78	3.89	.76
	Middle School	45	3.73	.69
	High School	43	4.10	.54
	University	6	3.67	.33
	Postgraduate	1	3.67	-
Problem Solving	Primary School	78	3.23	.88
	Middle School	45	3.28	.72
	High School	43	3.47	.61
	University	6	3.90	.75
	Postgraduate	1	2.60	-

Descriptive statistics in Table 10 showed that students whose mothers were high school graduates had the highest mean digital literacy scores in all four subdimensions, together with those whose mothers completed university. The lowest mean scores belong to the Postgraduate category. However, as the group consists of less than 2 participants, the result cannot be generalized. In order to examine whether the differences in students' digital literacy levels based on mother's education level are statistically significant, a one way ANOVA test was conducted. Table 11 presents the findings related to digital literacy and mother's education level according to the ANOVA test.

Table 11.

One-Way ANOVA Results for Mother's Education Level

Subdimensions		SS	df	MS	F	P	η^2
Information Processing	Between Groups	3.830	4	.958	2.076	.086	0.05
	Within Groups	77.478	168	.461			
	Total	81.309	172				
Communication	Between Groups	5.406	4	1.352	1.754	.101	0.04
	Within Groups	129.486	168	.771			
	Total	134.892	172				
Safety	Between Groups	3.401	4	.850	1.845	.123	0.04
	Within Groups	77.447	168	.461			
	Total	80.849	172				
Problem Solving	Between Groups	4.119	4	1.030	1.716	.149	0.04
	Within Groups	100.803	168	.600			
	Total	104.922	172				

The results in table 11 did not reveal a statistically significant difference. This means that there is not a notable difference in mean digital literacy scores in any of the subdimensions of the scale. Since the p values (.086, .101, .123, .149) are greater .05, it can be concluded that the variable of mother's education level is not related to the students' digital literacy levels.

4.2.6. Students' Digital Literacy Levels Based on Father's Education Level

The second research question focused on whether students' digital literacy levels vary by various factors and father's education level was included as one of the key variables. Table 12 presents the findings related to digital literacy and descriptive statistics based on father's education level.

Table 12.

Descriptive Statistics Based on Father's Education Level

Subdimensions	Father's Education	N	M	SD
Information Processing	Primary School	43	3.56	.71
	Middle School	60	3.55	.73
	High School	56	3.66	.66
	University	12	3.78	.46
	Postgraduate	2	2.60	.28
Communication	Primary School	43	3.13	.94
	Middle School	60	3.07	.82
	High School	56	3.37	.86
	University	12	3.36	.95
	Postgraduate	2	1.80	.28
Safety	Primary School	43	3.93	.69
	Middle School	60	3.84	.78
	High School	56	3.96	.58
	University	12	3.74	.73
	Postgraduate	2	3.50	.24
Problem Solving	Primary School	43	3.19	.88
	Middle School	60	3.40	.73
	High School	56	3.35	.72
	University	12	3.47	.92
	Postgraduate	2	2.40	.28

Descriptive statistics in Table 12 indicated that students whose fathers were high school graduates had the highest mean digital literacy scores in all subdimensions together with students whose fathers completed university. Students whose fathers were primary or middle school graduates had lower mean digital literacy scores in total. The lowest mean digital literacy scores belonged to the Postgraduate category, but the result of this group cannot be generalized as there are only two participants in it. In order to examine whether the differences in students' digital literacy levels based on father's education level are statistically significant, a one way ANOVA test was conducted. Table 13 presents the findings related to digital literacy and father's education level according to the ANOVA test.

Table 13.

One-Way ANOVA Results for Father's Education Level

Subdimensions		SS	df	MS	F	P	η^2
Information Processing	Between Groups	2.805	4	.701	1.501	.204	0.03
	Within Groups	78.504	168	.467			
	Total	81.309	172				
Communication	Between Groups	7.123	4	1.781	2.342	.057	0.05
	Within Groups	127.769	168	.761			
	Total	134.892	172				
Safety	Between Groups	1.068	4	.267	.562	.690	0.01
	Within Groups	79.781	168	.475			
	Total	80.849	172				
Problem Solving	Between Groups	3.124	4	.781	1.289	.276	0.03
	Within Groups	101.798	168	.606			
	Total	104.922	172				

As the p values (.204, .057, .690, .276) in all subdimensions of the scale are greater than .05, it can be inferred that the differences in digital literacy scores among the groups categorized by father's education are not statistically significant. This indicates that within the sample of this study, the father's education level does not play an important role in the students' digital literacy levels.

4.3. Students' Digital Literacy Levels Based on the Third Research Question

The third research question in the study addressed whether students' digital literacy levels differ based on various factors. In this section, students' digital literacy levels are explained based on internet access at home, type of device used, daily internet usage, and frequency of homework with digital tools.

4.3.1. Students' Digital Literacy Levels Based on Internet Access at Home

The third research question focused on whether students' digital literacy levels vary by various factors and internet access at home was included as one of the key variables. Independent Samples T-test was used to find out whether internet access affects digital literacy. Table 14 presents the findings related to digital literacy and internet access at home.

Table 14.
Independent Samples T-Test Results for Internet Access at Home

Dimensions	Net	n	M	SD	t	df	p
Information Processing	Yes	154	3.61	.68	1.007	171	.316
	No	19	3.44	.72			
Communication	Yes	154	3.19	.88	.098	171	.922
	No	19	3.17	.97			
Safety	Yes	154	3.90	.70	.553	171	.581
	No	19	3.81	.59			
Problem Solving	Yes	154	3.32	.78	-.022	171	.982
	No	19	3.32	.81			

The results in Table 14 revealed no statistically significant difference between students with home internet access and those without as the p values (.316, .922, .581, .982) are greater than .05. Students with internet access showed slightly a higher performance in subdimensions such as information processing, communication, and safety though the difference is not significant

4.3.2. Students' Digital Literacy Levels Based on Daily Internet Usage

The third research question focused on whether students' digital literacy levels vary by various factors and daily internet usage was included as one of the key variables. Pearson Correlation Analysis was used to find out whether daily internet usage affects digital literacy. Table 15 presents the findings related to digital literacy and daily internet usage.

Table 15.
Pearson Correlation Analysis For Daily Internet Usage and Digital Literacy

Variables	r	p	n
Daily Internet Usage – Information Processing	-.043	.575	173
Daily Internet Usage – Communication	.23	.003	173
Daily Internet Usage – Safety	-.100	.189	173
Daily Internet Usage – Problem Solving	.190	.012	173

According to Table 15, the p values are .575 and .189 in information processing and safety dimensions of the scale, which means there is not a significant relationship. But, the p values in communication and problem solving dimensions are .003 and .012, which are below .05. It shows that as daily internet use increases, digital literacy in these dimensions tends to increase as well.

4.3.3. Students' Digital Literacy Levels Based on Device Type Used

The third research question focused on whether students' digital literacy levels vary by various factors and device type used was included as one of the key variables. Table 16 presents the findings related to digital literacy and descriptive statistics based on device used for internet access.

Table 16.

Descriptive Statistics Based on Device Used for Internet Access

Subdimensions	Device Type	N	M	SD
Information Processing	Phone	147	3.58	.68
	Tablet	14	3.67	.69
	Computer	9	3.82	.76
	Other	3	3.20	1.06
Communication	Phone	147	3.18	.86
	Tablet	14	3.26	.95
	Computer	9	3.11	1.20
	Other	3	3.40	1.25
Safety	Phone	147	3.87	.68
	Tablet	14	3.85	.74
	Computer	9	4.13	.71
	Other	3	4.28	.69
Problem Solving	Phone	147	3.29	.77
	Tablet	14	3.53	.98
	Computer	9	3.49	.79
	Other	3	3.27	.70

As illustrated in Table 16, the majority of the students stated using mobile phones (n=147), followed by tablets (n=14), computers (n=9), and other devices (n=3). Students who reported using computers had the highest mean digital literacy scores, while those

who reported using mobile phones had slightly lower mean digital literacy scores. In order to examine whether the differences in students' digital literacy levels based on device used for internet access are statistically significant, a one way ANOVA test was conducted. Table 17 presents the findings related to digital literacy and device used for internet access according to the ANOVA test.

Table 17.

One-Way ANOVA Results for Device Used for Internet Access

Subdimensions		SS	df	MS	F	P	η^2
Information Processing	Between Groups	1.054	3	.351	.740	.530	0.01
	Within Groups	80.254	169	.475			
	Total	81.309	172				
Communication	Between Groups	.262	3	.087	.110	.954	0.00
	Within Groups	134.630	169	.797			
	Total	134.892	172				
Safety	Between Groups	1.050	3	.350	.741	.529	0.01
	Within Groups	79.798	169	.472			
	Total	80.849	172				
Problem Solving	Between Groups	.973	3	.324	.528	.664	0.01
	Within Groups	103.949	169	.615			
	Total	104.922	172				

The results in Table 17 indicated that there is no statistically significant difference in digital literacy scores among the different device categories since the p values (.530, .954, .529, .664) in all dimensions are greater than .05. This suggests that device type used by the students for internet access does not have a meaningful impact on their digital literacy scores.

4.3.4. Students' Digital Literacy Levels Based on Homework Frequency

The third research question focused on whether students' digital literacy levels vary by various factors and frequency of doing homework using digital technologies was included as one of the key variables. Table 18 presents the findings related to digital literacy and descriptive statistics based on homework frequency.

Table 18.

Descriptive Statistics Based on Homework Frequency

Subdimensions	Homework Frequency	N	M	SD
Information Processing	Never	8	2.98	.80
	Rarely	45	3.56	.66
	Sometimes	81	3.57	.64
	Often	30	3.73	.72
	Always	9	4.09	.72
Communication	Never	8	2.63	.95
	Rarely	45	2.92	.88
	Sometimes	81	3.23	.82
	Often	30	3.48	.85
	Always	9	3.69	1.02
Safety	Never	8	3.21	.94
	Rarely	45	3.98	.60
	Sometimes	81	3.82	.71
	Often	30	4.02	.60
	Always	9	4.19	.56
Problem Solving	Never	8	2.90	.68
	Rarely	45	3.20	.82
	Sometimes	81	3.38	.77
	Often	30	3.25	.66
	Always	9	3.98	.83

The findings in Table 18 indicate that students who stated that they never did homework using digital technologies had the lowest mean digital literacy scores, while students who stated always doing homework had the highest mean digital literacy scores.

A gradual increase occurs as the homework frequency rises. In order to examine whether the differences in students' digital literacy levels based on frequency of doing homework using digital technologies are statistically significant, a one way ANOVA test was conducted. Table 19 presents the findings related to digital literacy and homework frequency according to the ANOVA test.

Table 19.

One-Way ANOVA Results for Homework Frequency

Subdimensions		SS	df	MS	F	P	η^2
Information Processing	Between Groups	5.894	4	1.496	3.336	.012	0.07
	Within Groups	75.325	168	.448			
	Total	81.309	172				
Communication	Between Groups	10.708	4	2.677	3.621	.007	0.08
	Within Groups	124.184	168	.739			
	Total	134.892	172				
Safety	Between Groups	5.766	4	1.441	3.225	.014	0.07
	Within Groups	75.083	168	.447			
	Total	80.849	172				
Problem Solving	Between Groups	6.357	4	1.589	2.709	.032	0.06
	Within Groups	98.565	168	.587			
	Total	104.922	172				

The results in Table 19 revealed a statistically significant difference, showing that the mean digital literacy scores differ across groups categorized by homework frequency. As the p values (.012, .007, .014, .032) in all subdimensions are below .05 and the effect size values are between .06-.08, it can be concluded that the frequency of doing homework using digital technologies is an important factor affecting the digital literacy levels of the students. However, these results do not specify which groups showed a higher performance. Hence, Post Hoc Tukey Test is required to find out the differences. Table 20 presents the findings in relation to Post Hoc Tukey Test.

Table 20.

Post Hoc Comparisons of Students' Digital Literacy Levels Based on Homework Frequency

Subdimensions	Grade	Mean Difference	Standard Error	p
Information Processing	Never-Often	-.76	.30	.039
	Never-Always	-1.11	.37	.007
Communication	Rarely-Often	-.56	.25	.049
Safety	Never-Rarely	-.77	.28	.025
	Never-Often	-.81	.29	.021
Problem Solving	Never-Always	-.98	.37	.025
	Never-Always	-1.01	.37	.034
	Rarely-Always	-.77	.28	.049

The results in table 20 showed that students who never used the internet to do homework had lower digital literacy levels compared to those who used the internet to do homework rarely, often or always. The students who always used the internet always to do their homework had the highest scores.



CHAPTER V

DISCUSSION

This study aimed to find out the digital literacy levels of secondary school students and the factors that affect them. The results regarding students' digital literacy levels are discussed based on various variables such as gender, age, grade level, economic status, mother's education level, father's education level, internet access at home, device used for internet access, daily internet usage, and frequency of doing homework using digital technologies.

5.1. Students' Digital Literacy Levels

The results of this study show that the participating secondary school students have a relatively high level of digital literacy with a mean score above the midpoint of the Digital Literacy Scale. The results are similar to the findings in other studies. For instance, Pala and Başbüyük (2020) and Aydoğdu (2022) also found that secondary school students had a similar digital literacy level in their respective research contexts. The findings mean that lower secondary school students are competent in terms of using digital tools. This proves that students at this age are capable of meeting the requirements of digital age.

5.2. Students' Digital Literacy Levels Based on Gender

The findings of this study revealed that there was a significant relationship between middle school students' digital literacy levels and their gender. Male students performed better in subdimensions communication and problem solving. There are other studies who found a relationship between digital literacy and gender. For instance, Çelik (2024) explored that gender played an important role in English teachers' digital literacy levels. Kuş (2024), also, found a significant difference between digital literacy levels and gender among preparatory school teachers, suggesting that there might still be gender-related imbalances within specific age groups and in professional settings. But, there are studies that followed an opposite direction. In Yalçın's (2022) research, gender was not a

determining factor in digital literacy. Similarly, Kara (2021) found no relationship between gender and digital literacy levels.

5.3. Students' Digital Literacy Levels Based on Age

The researcher of this study found a positive and significant relationship between communication subdimension of digital literacy and age, meaning that age plays an important role in digital literacy level of students. There have been studies that followed the same path. In Bahadırtürk's (2025) study, students who were 4th grades had higher levels of digital safety awareness than students who were 3rd grade students. The difference between these results could be due to specific conditions. Opposingly, according to Yalçın (2022), age did not affect university students' digital literacy scores, which supports the idea that age is not a determining factor in shaping digital literacy.

5.4. Students' Digital Literacy Levels Based on Grade Level

The results of this study revealed a significant difference between grade and digital literacy levels of middle school students. 6th and 8th grade students performed better than 5th grade students in communication subdimension while 7th grade students got significantly higher points than 5th grade students in safety subdimension of digital literacy. The results are in line with Çelik's (2021) findings, who also found a significant difference based on age. It supports the idea that students' digital literacy level is affected by grade level. In contrast to this, according to Kara (2021), grade level did not affect teacher candidates' digital literacy scores.

5.5. Students' Digital Literacy Levels Based on Economic Status

The researcher of this study could not find any significant difference between economic status and digital literacy scores of middle school students. There are example studies that are in the opposite direction. Çelik (2021), explored that economic status affected digital literacy levels. When these results are combined, it can be concluded that economic status and digital literacy level relation depends on the context and it does not always lead to statistically significant differences.

5.6. Students' Digital Literacy Levels Based on Mother's Education Level

The results of this study did not reveal a significant difference in digital literacy levels among middle school students although based on the descriptive statistics, digital literacy scores of students whose mothers completed highschool and university were higher than students whose mothers completed primary and secondary school. There have been some unexpected mean score differences in digital literacy, which may derive from contextual differences and sample distribution.

The results are in line with the assumption that mother's education may not play an important role in students' digital literacy levels. On the contrary, Çelik (2021) found that students whose mothers had higher education had higher digital literacy scores, meaning that students' digital literacy may be affected by mother's education status.

5.7. Students' Digital Literacy Levels Based on Father's Education Level

Similar to mother's education level, the researcher could not find a significant relationship between father's education status and students' digital literacy scores. Although the descriptive statistics indicated that students whose fathers graduated high school and university had higher digital literacy scores, the difference was not statistically significant, meaning that father's education level may not play an important role in students' digital literacy levels.

5.8. Students' Digital Literacy Levels Based on Internet Access at Home

The results of the study indicated that there was not a significant relationship between middle school students' digital literacy scores and internet access. It was seen that students who had internet access had higher digital literacy scores but the difference was not statistically significant. In contrast to these results, Pala and Başibüyük (2020), reached the conclusion that the internet access at home affected students' digital literacy levels. When taken together, it can be said that internet access alone does not always mean higher digital literacy levels.

5.9. Students' Digital Literacy Levels Based on Device Used for Internet Access

When the results were analyzed, it was seen that there was not a significant relationship between device used for internet access and middle school students' digital literacy scores, which means device used for internet access did not affect students' digital literacy levels. As opposed to these results, Pala and Başbüyük's (2020) study revealed a significant difference showing that students who had computers and tablets had higher digital literacy levels. For explanation, factors such as educational support and sample characteristics can be given.

5.10. Students' Digital Literacy Levels Based on Daily Internet Usage

The researcher of the study found a significant relationship between daily internet usage and the communication and problem solving scores of middle school students, meaning that daily internet use of students affected their digital literacy levels. The statistics revealed that student who used the internet more had higher communication and problem solving scores and the differences were statistically significant. The results are compatible with İbekci's (2025) research, who found that students who used technology more frequently had higher digital literacy scores.

5.11. Students' Digital Literacy Levels Based on Homework Frequency

The results of the study revealed a clear conclusion whether doing homework with digital tools affect middle school students' digital literacy levels. The researcher found that students who use digital tools more often to do homework had higher scores of digital literacy. He also noted that students who reported never doing homework using digital tools had the lowest digital literacy scores while who reported using digital tools always to do homework had the highest scores. The results suggest that meaningful use of digital tools for academic purposes can improve digital literacy. This is in line with Ng (2012), who states that digital literacy dimensions, which are technical, cognitive and socio-emotional can be developed by engaging with digital technologies. Similar to the results of this study, Amuce (2024) found that digital literacy scores of students who used digital dashboards more actively had higher levels of digital literacy. The findings of the current study

highlight the importance of academic assignments in terms of improving digital literacy among students.

The most important conclusion in this section is that students can improve their digital literacy by meaningful and frequent use of digital tools. This suggests that educators and families should focus on giving students more opportunities to use digital tools in meaningful ways. Structured and meaningful use of digital tools may result in higher digital literacy levels among students. In ELT, this supports regular, rubric-guided digital homework (e.g., source-triangulated mini-inquiries and collaborative writing in English).



CHAPTER VI

CONCLUSION

6.1. Overview

This study aimed to examine the digital literacy levels of secondary school students and the factors that affect them. Based on the results of the study, it was found that students generally have a moderate-to-high level of digital literacy showing that secondary school students who participated in the study are familiar with technology. While some students scored higher than others, some of the differences between groups were statistically significant. The results showed that learners are ready for digitally enriched English instruction.

6.2. Conclusions

The study showed that economic status, parental education, having internet access, and device used for the internet access did not make a significant difference in students' digital literacy levels while gender, age, grade level, daily internet usage and the frequency of doing homework using digital technologies affected students' digital literacy.

One important finding was that students who do digital homework more often had higher digital literacy scores. The meaning of it is that when students use technology for learning purposes, they develop their skills more.

To sum up, the findings of this study suggest that students can improve their digital literacy levels by using digital tools meaningfully and frequently. Schools and teachers should continue to give students chances to use digital tools during and after lessons. By incorporating digital technologies into the classroom, students can find opportunities to improve their digital literacy skills. Teachers can give students assignments that are related to technology so that students can participate in technological activities after school. Parents can also support their children by motivating them to use digital tools for learning in a safe and helpful way.

Additionally, the results underline the need for curriculum designers to integrate digital literacy with subjects rather than leaving it as an isolated skill. Digital tasks that demand finding, comparing, synthesizing, and presenting information should be incorporated. Besides multiple choice tests, performance-based tasks such as multimedia presentations, reports, and infographics should be used. Other actionable recommendations are embedding digital literacies in every unit, using mobile-first design, incorporating mediation outcomes, adopting rubrics combining language and digital criteria.

6.3. Implications for ELT

Digital Literacy Integration and ELT: The results of the current study revealed that participants had moderate-to-high digital literacy levels, which can be used by English language teachers as an indicator to use digital assignments while instructing students. By doing so, students can benefit from interactive production, safe communication, and critical reading.

More Than Just Access: The researcher could not find a significant difference based on device type used and internet access at home, but there was a significant and positive relationship between daily internet usage and the communication and problem solving subdimensions of digital literacy. This supports the idea that students should be given opportunities to interact with digital tools to achieve academic purposes. Thus, pedagogical strategies and curriculum integration should be taken into consideration instead of focusing only on providing devices or increasing connectivity.

Meaningful Use of Technology: The results of the current study revealed that students who used digital tools frequently to do homework had higher levels of digital literacy, indicating that meaningful use of technology plays an important role in shaping students' digital literacy. Therefore, teachers should prioritize assigning students structured homework, which enables them to use digital technologies in a meaningful way. With this kind of assignments, students can find opportunities to improve themselves in fields such as research, collaborative writing and problem solving.

Policy and Teacher Training: The results of the study highlight the need to integrate teacher training into education contexts in order to help teachers move beyond occasional technology use and focus on valuable practices that enable students to solve problems

online and evaluate information. Policy makers could also design a curriculum that fosters digital literacy in terms of daily classroom practices.

6.4. Limitations and Suggestions for Further Research

The current study has some limitations despite focusing on a group that did not have enough attention and providing insights into the digital literacy levels of middle school EFL learners. Firstly, the study included one geographical region and one lower secondary school, meaning that the results cannot be generalized to all students. Future studies may involve diverse groups from different schools.

The second limitation is that the study included a quantitative method and its main data collection tool was a DL scale. It means that although the data collection tool was reliable, students reported the data themselves. Future studies may include qualitative collection tools such as focus groups and interviews.

Lastly, in one of the groups in the study, there was an unequal distribution. Future research may include more comparable participants.

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APPENDICES

Appendix 1. Digital Literacy Scale (DLS)

	Her Zaman	Çoğu Zaman	Bazen	Nadiren	Hiçbir Zaman
İnternette bilgiye ulaşmak için arama motorlarını kullanabilirim.					
Arama yaparken bazı filtreleri kullanabilirim (Örneğin:sadece resimlerde,videolarda,haritalarda arama).					
İnternette ulaştığım bilgilerin tamamının güvenilir olmadığını bilirim.					
İnternette ulaştığım bilgilerin güvenilirliğini sağlamak için bilgiyi farklı kaynaklarla karşılaştırabilirim.					
Dosyaları veya içerikleri(ör:metin,resim,müzik, video, websayfaları) bilgisayarda, tablette ve telefonda kaydedebilirim.					
Kaydettiğim dosya ve içeriklere tekrar ulaşabilirim.					
Cep telefonu, internet e-posta ve sohbet etme programlarıyla iletişim kurabilirim.					
İnternet siteleri üzerinden dosya ve içerik paylaşabilirim (e-postaya resim ve dosya eklemek, sosyal medya ağlarında fotoğraf paylaşmak gibi).					
İnternette başkalarının oluşturduğu/paylaştığı herhangi bir dokümana katkıda bulunabilirim.					
Sosyal medya ağlarını kullanabilirim.					
Dijital araçları kullanırken uyulması gereken kurallar olduğunu bilirim (ör:yorum yaparken, kişisel bilgi paylaşırken).					
İnternette bilgi aktarımında/paylaşımında bulunabilirim.					
Bilgisayar, akıllı telefon, tablet gibi araçlarımı korumak için şifreler kullanabilirim.					
Kimlik bilgilerimin çalınabileceğinin farkında olduğum için kişisel bilgilerimi internette paylaşmamam gerektiğini bilirim.					
Dijital teknolojiyi yoğun kullanmanın sağlığını olumsuz etkileyebileceğini bilirim.					
Teknolojinin çevreye pozitif ve negatif etkilerini anlayabilirim.					
Yeni bir cihaz veya uygulamayı kullanırken teknik bir sorun olduğunda destek ve yardım bulabilirim.					
Dijital teknolojileri kullanırken sıkça ortaya çıkan sorunların çoğunu çözebilirim.					
Dijital teknolojileri kullanırken teknik olmayan problemleri çözebilirim.					
Programlar veya araçların teknolojik problemlerini çözebilirim.					
Teknoloji ile ilgili bir problem ile karşılaştığımda, problemi çözmek için dijital araçları kullanabilirim.					

Appendix 2. Student Information Form

Öğrenci Bilgi Formu

Bu form, araştırma kapsamında öğrencilerin demografik bilgilerini toplamak amacıyla hazırlanmıştır. Lütfen aşağıdaki soruları eksiksiz ve doğru bir şekilde cevaplayınız. Bilgileriniz yalnızca bilimsel araştırma amaçlı kullanılacaktır.

1. Kişisel Bilgiler

Cinsiyetiniz:

☐ Kız ☐ Erkek

Yaşınız: _____

Sınıfınız: _____

2. Aile Bilgileri

Ailenizin ekonomik durumu hakkında genel bir değerlendirme yapınız:

☐ Düşük ☐ Orta ☐ Yüksek

Anne eğitim durumu:

☐ İlkokul ☐ Ortaokul ☐ Lise ☐ Üniversite ☐ Lisansüstü

Baba eğitim durumu:

☐ İlkokul ☐ Ortaokul ☐ Lise ☐ Üniversite ☐ Lisansüstü

3. Teknoloji ve İnternet Kullanımı

Evde internet erişiminiz var mı?

☐ Evet ☐ Hayır

Günde kaç saat internet kullanıyorsunuz? _____ saat

İnternete erişmek için en sık kullandığınız cihaz nedir?

☐ Telefon ☐ Tablet ☐ Bilgisayar ☐ Diğer: _____

Dijital teknolojileri kullanarak ödev yapma sıklığınız nedir?

☐ Hiç ☐ Nadiren ☐ Bazen ☐ Sık sık ☐ Her zaman