Examining the Digital Literacy Levels of Syrian Refugee University Students

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Abstract:

The aim of this study is to examine the digital literacy levels of Syrian refugee students studying at universities in Turkey across different variables. A descriptive survey model was used in the research. The sample of the study consisted of 184 Syrian university students studying at Selçuk University in Konya. The "Student Information Form" and the "Digital Literacy Scale" were used as data collection tools. In the analysis of the data, independent sample t-tests and ANOVA analysis were conducted using the SPSS software package.

According to the findings, the digital literacy levels of Syrian university students were found to be above average. The study concluded that there was no significant difference in digital literacy scores between male and female students. Additionally, the digital literacy scores of 4th-year students were found to be significantly higher than those of 1st-year students. An analysis of age groups revealed that the digital literacy scores of students aged 19-21 were significantly higher than those of students aged 25-27.

Keywords: digital literacy, migrant, Syrian student

1. Introduction

The rapid development of information and communication technologies (ICT) has profoundly impacted education, social interaction, and professional environments. Digital literacy, defined as the ability to effectively access, evaluate, use, and communicate information in digital environments, has become an indispensable skill in the 21st century (Doğan, 2020). Coined as more than just the ability to use computers or navigate the internet, digital literacy refers to the capacity to critically evaluate, create, and ethically utilize digital information while engaging with various digital tools and platforms (Eshet-Alkalai, 2004). It encompasses technical competencies, critical thinking, and ethical considerations, enabling individuals to adapt to the demands of a digitalized world. Particularly in higher education, digital literacy is essential for academic success, lifelong learning, and global competitiveness. For university students, digital literacy is a foundational skill, shaping not only academic success but also career readiness and lifelong learning abilities. The importance of digital literacy in higher education has grown exponentially, particularly with the shift toward blended and online learning environments. Technological advancements and the integration of digital tools into educational settings have created new opportunities for learning, collaboration, and innovation (Hague & Payton, 2010). However, this transition has also highlighted disparities in digital competencies among university students, influenced by factors such as socioeconomic background, gender, and prior exposure to technology (Calvani et al., 2012). Studies have shown that university students with higher levels of digital literacy are better equipped to access academic resources, participate in digital learning platforms, and engage in collaborative learning activities (Holm, 2024). Conversely, students lacking these competencies face challenges in navigating digital environments, which can negatively impact their academic performance and self-efficacy.

For refugees, digital literacy holds transformative potential in bridging educational, cultural, and socioeconomic gaps. Education systems in host countries play a critical role in empowering refugee populations, promoting social cohesion, and mitigating the negative effects of forced migration (Keeley,

2009). Syrian refugees, who represent the largest refugee group globally due to the ongoing conflict since 2011, have encountered significant challenges in accessing quality education. Turkey hosts over 3.6 million Syrian refugees, with approximately 37,000 enrolled in Turkish universities as of the 2020–2021 academic year (YÖK, 2021). These students face unique barriers, such as language difficulties, financial constraints, and social integration issues, which impact their overall educational experiences (Levent et al., 2021).

Despite the growing presence of Syrian refugee students in higher education, there is limited research examining their digital literacy levels and the factors influencing these competencies. While studies have explored issues such as linguistic adaptation, social integration, and access to educational resources, the critical role of digital skills remains understudied (Levent et al., 2021; Stark & Bloom, 1985). Understanding digital literacy in the refugee context is vital, particularly in light of the increasing reliance on digital technologies in education, accelerated by the COVID-19 pandemic. Online learning environments, e-resources, and digital communication have become central to higher education, further emphasizing the need for digital literacy among all students, including refugees.

Research suggests that digital literacy levels among university students vary significantly based on factors such as gender, academic discipline, and socioeconomic background (Doğan, 2020). This study seeks to explore the digital literacy levels of Syrian refugee students studying in Turkish universities and to analyze how these levels vary across different demographic and academic variables. Specifically, it examines the role of factors such as gender, academic year, and socioeconomic status in shaping digital competencies.

By focusing on digital literacy, this research contributes to the broader discourse on equitable access to education for displaced populations. It emphasizes the importance of integrating digital skills training into educational frameworks, recognizing the transformative potential of technology in addressing the unique challenges faced by refugee students.

2. Method
2.1 Research Model
Since this study aims to determine the digital literacy levels of Syrian refugee students studying at universities in Turkey and to examine these levels across different variables, a descriptive survey model was used as the research design.

2.2 Population and Sample
The population of the study consists of Syrian refugee students studying at universities in Turkey during the fall semester of the 2023-2024 academic year. The sample of the study includes 184 Syrian university students enrolled at Selçuk University in Konya.
The convenience sampling method was chosen to select the study's sample. First, the target group was identified, and participation was ensured from volunteers. The frequency and percentage values of the variables related to the students are presented in Table 1.

Table 1: Frequency and percentage values of the sample group variables

Category	Variable	f	%
Gender	Male	84	45,7
	Female	100	54,3
Grade Level	1st Year	40	21,7
	2nd Year	48	26,1
	3rd Year	48	26,1
	4th Year	48	26,1
Age	19-21	80	43,5
	22-24	68	37,0
	25-27	28	15,2
	>28	8	4,3
Length of Stay in Turkey	3-6 years	32	17,4
	7-10 years	64	34,8
	>11 years	88	47,8

According to Table 1, 84 students (45.7%) are male, while 100 students (54.3%) are female. In terms of grade level, 40 students (21.7%) are in their 1st year, while 48 students (26.1%) are in their 2nd, 3rd, and 4th years, respectively.

Regarding age groups, 80 students (43.5%) are aged 19-21, 68 students (37.0%) are aged 22-24, 28 students (15.2%) are aged 25-27, and 8 students (4.3%) are 28 years or older.

In terms of their length of stay in Turkey, 32 students (17.4%) have lived in Turkey for 3-6 years, 64 students (34.8%) for 7-10 years, and 88 students (47.8%) for more than 11 years.

2.3 Data Collection Tools

In this study, a "Personal Information Form", prepared by the researcher, was used to determine the demographic characteristics of students studying at vocational schools. This form included questions regarding students' gender, age, grade level, and employment status.

To assess students' digital literacy levels, the "Digital Literacy Scale" (DLS) developed by Ng (2012) and adapted into Turkish by Hamutoğlu et al. (2017) was used. The scale consists of 17 items and employs a 5-point Likert-type rating scale, ranging from Strongly Agree (5) to Strongly Disagree (1). The scale does not include any reverse-scored items.

The scale has a four-dimensional structure, consisting of Attitude, Technical, Cognitive, and Social subdimensions:
- Attitude Subdimension: Contains 7 items, with scores ranging from a minimum of 7 to a maximum of 35.
- Technical Subdimension: Contains 6 items, with scores ranging from 6 to 30.
- Cognitive Subdimension: Contains 2 items, with scores ranging from 2 to 10.
- Social Subdimension: Contains 2 items, with scores ranging from 2 to 10.

The confirmatory factor analysis (CFA) results indicate that the Digital Literacy Scale (DLS) provides sufficient fit indices at both the first-order and second-order levels, meaning that scores can be analyzed based on individual subdimensions or as a total digital literacy score. Higher scores obtained from the subdimensions and the overall scale indicate higher digital literacy levels.

2.4 Data Collection and Analysis

In this study, data were collected by having students complete the scale directly. The collected data were processed and analyzed using SPSS software.

To describe the demographic characteristics of the participants, frequency and percentage calculations were performed. To determine whether students' digital literacy levels differed significantly across various variables, independent sample t-tests and ANOVA analysis were conducted.

3. Findings and Interpretation

According to the research results, the values related to students' digital literacy levels are presented in Table-2

Table 2: Digital Literacy Levels of Students

	N	min.	max.	$\bar{X}$	Sd
Digital Literacy Level	184	29,00	85,00	67,8696	10,6275

According to Table-2, the total digital literacy scores of Syrian refugee students studying at universities in Turkey range from a minimum of 29.00 to a maximum of 85.00, with an average score of 67.8696 and a standard deviation of 10.6275. Since the maximum possible score on the Digital Literacy Scale is 85.00 and the minimum possible score is 17.00, the students' average digital literacy score is considered above average and high.

The results of the t-test, conducted to examine the differences in students' digital literacy scores based on gender, are presented in Table-3.

Table 3: t-Test Results for Digital Literacy Scores by Gender

Gender	N	$\bar{X}$	Sd	t	p
Male	84	69,0952	12,14	1,438	0,152
Female	100	66,8400	9,10		

According to Table-3, the digital literacy mean score of male students ($\bar{X}$ = 69.0952) is higher than that of female students ($\bar{X}$ = 66.8400). However, the t-test results indicate that this difference is not statistically significant (t = 1.438; p > 0.05).

The digital literacy scores of students based on their grade level are presented in Table-4.

Table 4: Digital Literacy Scores by Grade Level

Grade Level	N	min	max	$\bar{X}$	Sd
1st Year	40	53,00	77,00	64,7000	7,2614
2nd Year	48	49,00	85,00	67,0833	11,7742
3rd Year	48	28,00	85,00	67,1667	13,7381
4th Year	48	58,00	81,00	72,0000	6,4445

According to Table-4, the highest digital literacy mean score ($\bar{X}$ = 72.0000) belongs to 4th-year students, while the lowest mean score ($\bar{X}$ = 64.7000) belongs to 1st-year students. The ANOVA results conducted to determine whether there is a statistically significant difference in digital literacy scores based on grade level are presented in Table-5.

Table 5: ANOVA Results for Digital Literacy Scores by Grade Level

		SS	df	MS	F	p	Post-Hoc
Digital Literacy	Between Groups	1274,136	3	424,712	3,942	,009	4th Year > 1st Year
	Within Groups	19394,733	180	107,749			
	Total	20668,870	183				

According to Table-5, there is a statistically significant difference in students' digital literacy scores based on their grade level (F = 3.942; p < 0.05). The Bonferroni post-hoc analysis results indicate that the digital literacy scores of 4th-year students are significantly higher than those of 1st-year students.

The digital literacy scores of students based on their age are presented in Table-6.

Table 6: Digital Literacy Scores by Age

Age	N	min	max	$\overline{X}$	Sd
19-21	80	53,00	85,00	68,9000	8,6091
22-24	68	29,00	85,00	68,3529	13,0941
25-27	28	49,00	75,00	62,2857	7,7692
>28	8	65,00	81,00	73,0000	8,5524

According to Table 6, the highest digital literacy mean score ($\overline{X}$ = 73.0000) belongs to students aged 28 and above, while the lowest mean score ($\overline{X}$ = 62.2857) belongs to students aged 25-27. The ANOVA results conducted to determine whether there is a statistically significant difference in digital literacy scores based on age are presented in Table 7.

Table 7: ANOVA Results for Digital Literacy Scores by Age

		SS	df	MS	F	p	Post-Hoc
Digital Literacy	Between Groups	1184,426	3	394,809	3,647	,014	19-21>25-27
	Within Groups	19484,444	180	108,247			
	Total	20668,870	183				

According to Table 7, there is a statistically significant difference in students' digital literacy scores based on their age (F = 3.647; p < 0.05). The Bonferroni post-hoc analysis results indicate that the digital literacy scores of students aged 19-21 are significantly higher than those of students aged 25-27.

4. Conclusion and Discussion

This study provides significant findings by examining the digital literacy levels of Syrian refugee students studying at universities in Turkey in relation to various demographic variables. According to the results, students' digital literacy scores are above average, indicating high access to and proficiency in technology among Syrian students. The findings align with most existing studies on digital literacy. For instance, Göldağ (2021) states that university students generally have moderate to high digital literacy levels. This can be explained by the technical infrastructure provided by Turkish universities, such as online library access, distance learning systems, and digital education programs (Narmanlıoğlu & Bayrakcı, 2023). However, these findings contradict studies reporting low digital literacy levels among the general Syrian refugee population (Vollmer, 2020). This paradox may be due to the university student sample being a selected group (i.e., more educated and motivated) and having access to campus resources (Erdogan & Erdogan, 2020).

The lack of a significant gender difference suggests that digital literacy is less influenced by gender roles in this group. While this finding partially contradicts studies emphasizing that Syrian women generally face disadvantages in accessing education and technology (Erdogan & Erdogan, 2020), it is consistent with the fact that female university students represent a selected subgroup. Syrian women pursuing higher education in Turkey may have had better family support, language proficiency, or social capital, providing greater exposure to digital tools (Erdogan & Erdogan, 2021). Additionally, gender equality policies at Turkish universities may have contributed to this outcome.

The differences observed in grade level and age variables highlight that digital literacy is a dynamic process. The higher scores of 4th-year students compared to 1st-year students indicate a linear relationship between academic progress and digital skills. This can be explained by the increased integration of technology in

upper-level university courses (e.g., online research projects, data analysis tools) and students gaining digital confidence over time (Narmanlıoğlu & Bayrakcı, 2023). Similarly, the higher scores of the 19-21 age group compared to the 25-27 age group may be linked to younger students being "digital natives" with a greater familiarity with technology. However, older students may face barriers such as language proficiency limitations, family responsibilities, or socio-economic integration challenges, which could negatively impact their digital literacy (Erdemir, 2022). These findings align with lifelong learning and technological adaptation theories. Pedersen (2018) states that digital skills are directly related to hands-on experience, and extending the duration of formal education enhances these skills. Likewise, Livingstone and Helsper (2007) argue that younger individuals use digital tools more intensively for socialization and education, suggesting a negative correlation between age and digital literacy.

Based on the findings of this study, the following recommendations are proposed to further enhance digital literacy levels and ensure that students use these skills more effectively:
Digital Literacy Training Programs: Universities should establish digital literacy training programs to help students effectively use digital tools, raise awareness about cybersecurity, and properly utilize digital academic resources.

Support Programs for Different Age Groups: Since digital literacy levels tend to decline with age, special support programs should be developed for older students. Workshops on basic digital skills should be organized, especially for students aged 25 and above.

Digital Literacy Courses in University Curricula: Digital literacy courses should be incorporated into university curricula and made mandatory for all students. This would allow students to systematically develop their digital skills throughout their academic journey.

Technological Support Mechanisms: Projects should be developed to facilitate access to digital tools, particularly for disadvantaged groups such as Syrian refugee students. This includes establishing digital laboratories and providing free internet access points on university campuses.

Raising Awareness About Digital Security: Digital literacy should not only focus on tool usage but also include cybersecurity, digital ethics, and data protection. Awareness programs on digital security should be implemented for students.

Through these recommendations, it is possible to enhance university students' digital literacy levels and promote the conscious use of digital tools in educational processes. Supporting the digital integration of refugee students will further increase their academic success and enable them to participate more effectively in higher education.

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