



RELATIONSHIP BETWEEN UNIVERSITY STUDENTS' DIGITAL AND FINANCIAL LITERACY

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ABSTRACT: In this study, the digital literacy levels of university students and how these levels relate to their financial knowledge and behaviors were examined, with particular emphasis on how digital competencies shape financial decision-making processes. Furthermore, the study aimed to highlight the complementary relationship between digital and financial literacy in enabling individuals to make more informed and effective decisions in an increasingly digital financial system, thereby offering scientific contributions to efforts aimed at enhancing financial literacy. The research was conducted using a quantitative design and employed a relational survey model. Data were collected through the Digital Literacy Scale and the Financial Literacy Attitude and Behavior Scale, and analyses included independent samples t-test, one-way ANOVA, and Pearson correlation methods. Data obtained from 549 students enrolled at Aksaray University Ortaköy Vocational School indicate that the sample predominantly falls within the 18–20 age range, with one-third studying in technical programs and two-thirds in social sciences programs. Descriptive findings show that students possess moderate-to-high levels of digital literacy, whereas their financial literacy remains more limited, particularly in the dimensions of basic financial behavior and risk management. Correlation analyses reveal a low but statistically significant relationship between digital and financial literacy. Additionally, significant differences were found across demographic variables such as department, income level, and type of academic program. Overall, the findings suggest that although students actively use digital tools, they tend to be more cautious in financial decision-making processes, and digital competencies serve as a supportive factor in shaping financial behaviors.

Keywords: Digitalization, Digital Literacy, Financial Literacy, University Students

1. INTRODUCTION

The integration of digital technologies into all areas of contemporary life has profoundly transformed the ways individuals' access, evaluate, and use information. This transformation affects not only individuals' ability to operate digital tools but also directly shapes their financial decision-making processes. Therefore, Digital Literacy (DL) and Financial Literacy (FL) have emerged as two complementary skill domains that are essential for individuals to participate effectively in the digital economy. In this regard, individuals' levels of both digital and financial literacy hold critical importance for personal and societal well-being. Young adults, particularly university students, are expected to possess the core components of digital literacy, including the ability to access, evaluate, and meaningfully utilize information in digital environments [8]; [18]. On the other hand, the accurate understanding and management of financial products and services encountered in digital environments depend on individuals' levels of financial literacy [16]. According to the OECD (2015) report, the increasing use of digital tools in education and daily life necessitates the integrated

development of individuals' digital and financial literacy skills. Recent studies indicate that individuals with higher levels of digital competence have broader access to financial information, stronger capacities to manage online financial risks, and more informed financial decision-making processes.

Although there is a growing body of literature on digital literacy and financial literacy, empirical research examining the relationship between these two constructs, particularly among young adults and university students, remains limited. Most existing studies have treated digital literacy and financial literacy as separate concepts and have paid insufficient attention to the influence of digital competencies on financial behavior and decision-making. This highlights an important gap in the literature.

To address this gap, the present study focuses on university students in Türkiye, a population for which empirical evidence on the interplay between digital literacy and financial literacy remains scarce. As university students represent one of the most active user groups of digital financial services, investigating these constructs within this population provides valuable insights into the competencies required for effective participation in an increasingly digital financial environment. Furthermore, the study is conducted in the context of the rapid expansion of digital banking, mobile payment systems, fintech applications, and other digital financial services. Consequently, it provides timely empirical evidence that reflects the evolving digital financial ecosystem while offering practical implications for the design of integrated digital and financial literacy education and policy initiatives.

Against this background, this study aims to examine the relationship between digital literacy and financial literacy from a holistic perspective by investigating how digital competencies are associated with individuals' financial awareness, attitudes, spending behavior, and interest in financial matters. By integrating these two constructs within a single analytical framework, the study contributes to a better understanding of the cognitive and technological competencies that support informed financial decision-making and financial sustainability in an increasingly digitalized society.

2. LITERATURE REVIEW

Financial literacy is generally defined as individuals' ability to understand financial concepts, accurately evaluate financial products, and make informed financial decisions [16]. Digital literacy, on the other hand, encompasses individuals' ability to access, evaluate, create, and securely share information using digital technologies [18]. With the acceleration of digitalization, financial transactions have increasingly shifted to digital platforms, leading to a rapid transformation of the financial system and its integration into the digital sphere. While this transformation has introduced various risks, it has also created new advantageous opportunities [23]. In order for individuals to both protect themselves and benefit from these opportunities, their financial literacy must be supported by adequate digital competencies. Today, the effective use of innovative financial tools such as mobile banking, digital wallets, and cryptocurrency transactions requires the coexistence of both financial knowledge and digital skills.

Financial literacy supported by digital competencies enhances individuals' financial security by enabling them to use digital payment systems safely and consciously. An increasing number of consumers worldwide now rely on digital payments for money transfers and the purchase of goods and services. According to the OECD's 2025 report, the proportion of

individuals using digital payments in developing economies increased from 55 percent in 2021 to 62 percent in 2024, while this rate reached 96 percent in OECD countries. This increase demonstrates the growing importance of digital financial literacy and individuals' expanding access to digital financial services [22].

Although digital payments offer speed, convenience, and low-cost financial transactions, they also bring certain risks, especially for individuals with limited levels of digital financial literacy. Research indicates that individuals with low digital financial literacy may fail to benefit sufficiently from digital financial services and can face the risk of digital financial exclusion [22]. Moreover, the widespread use of digital payment tools can increase tendencies toward uncontrolled spending among some individuals. Several studies suggest that digital payments—particularly mobile wallets and contactless cards—reduce the psychological “pain of paying,” leading individuals to spend more [9]. This may negatively affect financial well-being and increase the risk of indebtedness. Therefore, although digital payments provide significant advantages, without adequate digital and financial literacy, they may transform into financial risks for individuals. Enhancing digital financial literacy is essential for ensuring that individuals can use digital financial services safely and responsibly, thereby protecting their financial well-being.

There is extensive evidence in the literature indicating that digital literacy directly and indirectly influences individuals' financial behaviors. Studies show that individuals with higher levels of digital skills have greater access to financial information, manage online financial risks more effectively, and make financial decisions in a more informed manner. The OECD (2018) report states that digital financial literacy helps consumers understand the benefits and risks of digital financial services, make informed decisions, and protect themselves from fraud and data misuse. Ng (2012) emphasizes that digital literacy is not limited to technical skills but is also associated with the ability to approach information critically, contributing to more rational financial decision-making. Therefore, individuals with high digital literacy exhibit greater financial awareness, faster access to information, and higher levels of financial security consciousness, all of which are reflected in their financial behaviors.

Prete (2022) examined the relationship between the use of digital payment tools and platforms, personal financial preferences, and levels of digital and financial literacy. The study shows that the use of digital payment tools is associated with digital literacy, while personal financial preferences are linked to financial literacy. These findings emphasize the necessity of addressing digital and financial literacy together when evaluating the effects of digitalization on individual investors.

Survey results from Vik et al. (2024), conducted among adults living in low-income regions, indicate that digital skills increase participation in financial activities such as online banking transactions, money transfers, and contactless payments. However, household income was found to be a stronger determinant than digital skills in behaviors such as checking account balances online; low-income individuals preferred cash, enabling them to monitor their spending more effectively. The study highlights that digital skills support financial inclusion, yet economic conditions also play a determining role, underlining the importance of digital literacy training for policymakers.

Choung et al. (2023) found that digital financial literacy significantly affects financial well-being independently of financial knowledge. Their study shows that the impact of digital

financial literacy on financial well-being is largely mediated through financial knowledge and the ability to protect oneself from digital fraud. This highlights that beyond financial concepts, individuals' ability to use digital tools safely and effectively plays a critical role in enhancing financial well-being.

Kang et al. (2024) investigated the effects of financial literacy and digital competencies on entrepreneurial intentions and tested the mediating role of entrepreneurial orientation. Conducted with university students in South Korea using quantitative methods and structural equation modeling (SEM), the analysis revealed that financial literacy and digital competencies significantly affect entrepreneurial intentions both directly and indirectly. Particularly, digital skills were found to strengthen entrepreneurial intentions through entrepreneurial orientation. The study offers an important contribution by emphasizing the role of digital and financial knowledge in shaping entrepreneurial behavior in the digital age.

Çetin and Kızılaslan (2024) examined the effect of digital literacy on financial literacy among university students. Based on data from 416 students and analyzed using SPSS and AMOS through t-tests, ANOVA, and structural equation modeling, the findings show that students' digital literacy levels significantly influence their financial literacy. The study provides empirical evidence of the causal link between digital skills and financial competencies by demonstrating that individuals' ability to use digital tools safely, consciously, and effectively plays a strong role in acquiring, interpreting, and utilizing financial information.

Çavuş (2023) reported no statistically significant relationship between digital literacy and financial literacy. Similarly, Belen (2025) found no significant relationship between financial literacy and digital literacy in her study. Mulyono (2023) focused on the increasing adoption of digital technologies and the growing use of fintech services during the Covid-19 pandemic. Examining the effect of digital literacy on fintech usage with financial literacy as a mediating variable among university students, the study collected data from 165 undergraduate and graduate students and analyzed them using SmartPLS. The findings show that digital literacy positively and significantly influences fintech usage through financial literacy, and this effect is significantly moderated by education level. The study emphasizes that integrating digital and financial literacy into education programs will strengthen individuals' adaptation to the fintech ecosystem.

Sabila and Hasnawati (2024) examined the effects of financial literacy and digital literacy on the adoption of mobile banking services. Conducted with 210 participants in Indonesia's Jabodetabek region, the study measured mobile banking adoption through perceived ease of use, perceived usefulness, and relative advantage. The results show that both financial literacy and digital literacy have significant and positive effects on mobile banking adoption. Individuals with higher financial and digital competencies benefit more from mobile banking, use it more easily, and perceive it as an advantageous financial tool. These findings indicate that financial and digital literacy are key determinants in effective use of digital financial services and enhancing financial inclusion.

Doğan et al. (2025) analyzed whether digital literacy mediates the relationship between financial literacy and attitudes toward internet banking. Their findings show that digital literacy does not have a direct effect on this relationship but has a partial mediating role. In other words, the effect of financial literacy on attitudes toward internet banking is partly shaped indirectly through digital literacy. This suggests that digital skills play a supportive role rather than operating independently of financial literacy.

Coşkun and Güven (2024) examined the effect of financial literacy and digital literacy on cryptocurrency investment behaviors. Conducted among students at Uşak University Faculty of Applied Sciences, the study found that students with higher financial and digital literacy levels were more likely to invest in cryptocurrency markets and made more informed investment decisions. The study emphasizes that digital financial literacy involves not only having knowledge but also using digital financial tools effectively and safely.

3. METHOD

In this study, a quantitative research method was adopted. The research was conducted during the 2025–2026 academic year with students enrolled at Aksaray University Ortaokul Vocational School. As the research design, the relational survey model—one of the general survey designs—was preferred. Survey designs are research approaches that aim to describe an existing or past situation as it is. In these designs, events, phenomena, or individuals are examined within their natural contexts. The general survey model seeks to reach broad conclusions regarding a large population, and the data collection process is carried out on either the entire population or a representative sample. The relational survey model, a sub-type of this design, aims to identify the relationship between two or more variables as well as the degree of that relationship [14].

For data collection, the Digital Literacy Scale developed by Bayrakcı and Narmanlıoğlu (2021) and the Financial Literacy Attitude and Behavior Scale developed by Sarıgül (2015) were used. Permission to use these scales was obtained via email from the respective authors. In addition, a personal information form prepared by the researchers was employed to gather demographic information about the participants.

4. FINDINGS

In this section, descriptive statistics regarding the demographic characteristics of the participating students are first presented. This is followed by findings related to students' digital literacy and financial literacy levels. In addition, data obtained from questions concerning students' online banking behaviors, cryptocurrency use, and financial decision-making processes are evaluated in this section.

To determine whether there were significant differences in students' digital and financial literacy levels based on demographic variables, independent samples t-tests were applied for variables with two groups (gender, department, and grade level), while one-way ANOVA was used for variables consisting of three or more groups (age, program type, and monthly income). Finally, Pearson correlation analysis was conducted to examine the relationship between students' digital literacy and financial literacy levels. The findings are presented in tables, and Table 1 includes the demographic characteristics of the students who constitute the study sample.

Table 1. Demographic Information Table

Demographic Characteristics	Groups	N	%
Gender	Female	310	56,5
	Male	239	43,5

Age	18 and below	155	28,2
	19	167	30,4
	20	112	20,4
	21	47	8,6
	22 and above	68	12,4
Grade Level	1st Year	277	50,5
	2nd Year	272	49,5
Department	Technical (Machinery, CNC, Electronics, Mechatronics)	184	33,5
	Social (Accounting, Office Management, Finance, Banking, Social Security)	365	66,5
	Electronics	49	8,9
	Mechatronics	55	10,0
Program	Machinery	56	10,2
	CNC	25	4,6
	Accounting	53	9,7
	Finance	58	10,6
	Banking and Insurance	57	10,4
	Office Management	52	9,5
	Social Security	144	26,2
	0-25000 TL	260	47,4
Family Monthly Income	25001-50000 TL	192	35,0
	50001- 75000 TL	61	11,1
	75001- 100000 TL	22	4,0
	100001 TL and above	14	2,6
Total		549	100,0

As shown in Table 1, a total of 549 students participated in the study. An examination of the demographic distribution of the participants reveals that 56.5% are female and 43.5% are male, indicating a relatively balanced sample in terms of gender. Regarding age, the majority of students are between 18 and 20 years old (28.2% are 18 or younger, 30.4% are 19, and 20.4% are 20 years old). This distribution reflects the general age profile of associate degree students who constitute the population of the study. The fact that only 12.4% of the participants are 22 years old or older indicates that the research was conducted on a predominantly young sample. In terms of grade level, 50.5% of the students are in their first year and 49.5% are in their second year, which allows for comparative analyses across grade levels. Regarding departmental distribution, 33.5% of the students are enrolled in technical departments (Machinery, CNC, Electronics, Mechatronics), while 66.5% study in social science-related programs (Accounting, Office Management, Finance, Banking, Social Security). This indicates that socio-economic oriented programs at Aksaray University Ortaköy Vocational School host more students compared to technical programs. In particular, the high participation rates in Social Security (26.2%), Finance (10.6%), and Banking (10.4%) provide strong representativeness for measuring awareness related to financial literacy.

An analysis of family monthly income shows that nearly half of the participants (47.4%) come from families with an income between 0–25,000 TL, 35% fall within the 25,001–50,000 TL range, and 11.1% are in the 50,001–75,000 TL range. Only 2.6% of the students have a family income of 100,001 TL or above. This distribution indicates that the sample predominantly consists of students from low and middle-income families, enabling an examination of financial literacy levels in relation to this socio-economic background. Overall, the sample size is sufficient for statistical analyses ($n = 549$), and the demographic distribution of the participants is consistent with the general student profile of Aksaray University Ortaköy Vocational School. In this respect, the table provides an important data set

that supports the reliability and generalizability of the study. Table 2 presents the findings of the normality analysis conducted to determine the appropriate statistical tests to be applied to the data set obtained from the students.

Table 2. Normality Test

Variable	Normality Test			Skewness And Kurtosis	
	Kolmogorov-Smirnov			Skewness	Kurtosis
	Statistic	sd	p		
DL	,053	549	,001	-,163	1,064
FL	,072	549	,000	,582	2,378

Table 2 presents the normality test results for the digital literacy and financial literacy variables. According to the Kolmogorov–Smirnov test, the p-values for both variables were found to be $p = 0.001$ for digital literacy and $p < 0.001$ for financial literacy. Since these values are lower than the significance level of 0.05, the distributions show statistically significant deviation from normality. However, in large samples ($n > 300$), the Kolmogorov–Smirnov test is highly sensitive and may indicate significance even for very small deviations; therefore, it is not considered a sole determinant of normality [11]. For this reason, researchers often examine the skewness and kurtosis values to reach a more reliable judgment regarding distribution normality. As shown in Table 2, the skewness value for digital literacy was -0.163 and the kurtosis value was 1.064 ; for financial literacy, the skewness value was 0.582 and the kurtosis value was 2.378 . Since these values fall within the acceptable range of -3 to $+3$, the data can be considered normally distributed, as suggested in the relevant literature [12]; [15]. Therefore, the data obtained in this study meet the assumptions required for parametric tests, and the use of parametric statistical methods such as the independent samples t-test, ANOVA, and Pearson correlation analysis is deemed appropriate. When this finding is evaluated together with the large sample size ($n = 549$) and the near-normal characteristics of the variables, it further supports the reliability and statistical validity of the analyses conducted. Table 3 presents the results of the Cronbach’s Alpha reliability analysis performed to determine the reliability levels of the scales used in the study.

Table 3. Cronbach’s Alpha Reliability Test Results

Cronbach’s Alpha	DL	FL
N	29	15
Cronbach’s Alpha	,925	,749

Table 3 presents the Cronbach’s Alpha reliability coefficients for the digital literacy and financial literacy scales. Cronbach’s Alpha is a reliability indicator used to assess the internal consistency of a scale, that is, the extent to which the items are correlated with each other and measure the same construct [29]. According to the table, the digital literacy scale consists of 29 items, and its Cronbach’s Alpha coefficient was calculated as 0.925 . This value indicates a very high level of internal consistency and demonstrates that the scale is a reliable measurement instrument. Based on the classification proposed by George and Mallery (2010), values of 0.90 and above represent “excellent” reliability. Therefore, this result shows that the

digital literacy scale has a highly consistent structure in measuring students' digital competency levels.

The financial literacy scale consists of 15 items, and its Cronbach's Alpha value was found to be 0.749. Since this value is above 0.70, it is considered to reflect "acceptable reliability" [19]. This result indicates that the financial literacy scale functions consistently with the construct it aims to measure, although its internal consistency is somewhat lower compared to the digital literacy scale. This may be due to the multidimensional nature of financial literacy, which encompasses components such as attitudes, behaviors, and knowledge. Table 4 presents the items with the highest and lowest arithmetic means regarding participants' perceptions of digital literacy and financial literacy.

Table 4. Items with the Highest and Lowest Arithmetic Means Regarding Participants' Digital Literacy and Financial Literacy Perceptions

Scale	Items	N	$\bar{X}$
DL	Items with the Highest Arithmetic Means		
	I know how I should behave in order to protect my own and others' personal data (photos, address, family information, etc.) in online environments.	549	4,39
	I am aware of how to create a strong password.	549	4,38
	Items with the Lowest Arithmetic Means		
	I can change the proxy/DNS settings of devices to access restricted websites.	549	2,74
	I can use at least one programming language (Java, C, Visual Basic, PHP, etc.).	549	2,64
FL	Items with the Highest Arithmetic Means		
	It is necessary to keep money aside for unplanned expenses.	549	4,28
	I take my financial situation into account when purchasing something.	549	4,12
	Items with the Lowest Arithmetic Means		
	Making spending plans for short periods such as daily or weekly is unnecessary.	549	2,10
	No matter what I do, nothing will change in my financial situation.	549	2,00

Table 4 presents the findings related to the items with the highest and lowest arithmetic means regarding participants' perceptions of digital literacy and financial literacy. Examination of the Digital Literacy Scale shows that the items with the highest means are "I know how I should behave in order to protect my own and others' personal data in online environments" ($\bar{X} = 4.39$) and "I am aware of how to create a strong password" ($\bar{X} = 4.38$). The items with the lowest arithmetic means are "I can change the proxy/DNS settings of devices to access restricted websites" ($\bar{X} = 2.74$) and "I can use at least one programming language (Java, C, Visual Basic, PHP, etc.)" ($\bar{X} = 2.64$). For the Financial Literacy Scale, the items with the highest arithmetic means were identified as "It is necessary to keep money aside for unplanned expenses" ($\bar{X} = 4.28$) and "I take my financial situation into account when purchasing something" ($\bar{X} = 4.12$). The items with the lowest means were found to be "Making spending plans for short periods such as daily or weekly is unnecessary" ($\bar{X} = 2.10$), and "No matter what I do, nothing will change in my financial situation" ($\bar{X} = 2.00$). Table 5 presents the mean scores of students' digital literacy and financial literacy levels according to demographic variables.

Table 5. Mean Scores of Students' Digital Literacy and Financial Literacy Levels by Demographic Variables

Demographic Characteristics	Groups	N	DL							FL				
			DL	ER	GKFS	EU	PP	PS	SD	FL	S	A	P	I
Gender	Female	310	3,49	4,12	3,13	3,81	2,58	4,10	3,23	3,01	3,06	3,78	2,17	3,02
	Male	239	3,78	4,35	3,69	4,01	2,88	4,43	3,34	2,96	2,50	3,95	2,33	3,09
	18 and below	155	3,61	4,22	3,35	3,85	2,71	4,27	3,27	2,96	2,83	3,74	2,25	3,02
Age	19	167	3,65	4,25	3,42	4,00	2,66	4,30	3,29	2,97	2,78	3,96	2,10	3,06
	20	112	3,52	4,18	3,26	3,82	2,55	4,18	3,13	3,07	3,05	3,83	2,36	3,05
	21	47	3,71	4,23	3,49	3,84	2,98	4,22	3,48	2,90	2,37	3,91	2,21	3,10
	22 and above	68	3,67	4,22	3,42	3,91	2,92	4,18	3,35	3,03	2,78	3,88	2,40	3,06
Grade Level	1st Year	277	3,55	4,25	3,31	3,85	2,55	4,26	3,07	2,95	2,69	3,94	2,11	3,07
	2nd Year	272	3,69	4,19	3,44	3,94	2,87	4,23	3,48	3,03	2,94	3,77	2,38	3,03
	Technical (Machinery, CNC, Electronics, Mechatronics)	184	3,81	4,39	3,72	4,05	2,95	4,47	3,32	2,96	2,47	4,00	2,28	3,11
Department	Social (Accounting, Office Management, Finance, Banking, Social Security)	365	3,52	4,14	3,20	3,82	2,59	4,13	3,25	3,00	2,99	3,78	2,22	3,01
	Electronics	49	3,77	4,36	3,56	4,04	2,93	4,47	3,23	3,05	2,49	3,99	2,46	3,24
	Mechatronics	55	3,95	4,45	3,93	4,11	3,07	4,51	3,61	2,92	2,43	4,05	2,14	3,04
Program	Machinery	56	3,77	4,34	3,71	3,93	2,97	4,44	3,25	2,96	2,54	3,93	2,28	3,07
	CNC	25	3,68	4,37	3,52	4,18	2,64	4,38	2,98	2,93	2,36	3,99	2,25	3,11
	Accounting	53	3,67	4,41	3,41	4,05	2,36	4,46	3,32	3,04	3,17	3,89	2,03	3,10
	Finance	58	3,43	4,12	3,09	3,73	2,47	4,13	3,06	2,92	2,62	3,91	2,10	3,05
	Banking and Insurance	57	3,66	4,10	3,28	3,92	2,85	4,26	3,54	3,05	3,18	3,77	2,24	3,02
	Office Management	52	3,67	4,27	3,36	3,97	2,76	4,24	3,41	3,07	3,15	3,84	2,37	2,94
	Social Security	144	3,40	4,02	3,08	3,68	2,56	3,93	3,14	2,98	2,94	3,69	2,28	3,00
	0-25000 TL	260	3,56	4,18	3,32	3,78	2,72	4,11	3,24	3,00	2,85	3,89	2,23	3,05
Family Monthly Income	25001-50000 TL	192	3,68	4,28	3,43	3,98	2,72	4,37	3,32	3,01	2,74	3,86	2,37	3,08
	50001- 75000 TL	61	3,59	4,18	3,30	4,06	2,50	4,34	3,18	2,94	3,11	3,75	1,96	2,94
	75001- 100000 TL	22	3,74	4,48	3,57	3,94	2,66	4,47	3,34	2,89	2,41	3,90	2,08	3,18
	100001 TL and above	14	3,81	4,06	3,65	4,04	3,39	4,21	3,50	2,75	2,52	3,43	2,24	2,83

According to Table 5, the findings regarding participants' digital literacy and financial literacy levels, as well as the sub-dimensions of these variables, are as follows: Based on gender, male students have a higher digital literacy mean score ($\bar{X} = 3.78$) compared to female students ($\bar{X} = 3.49$). Male students scored higher particularly in the sub-dimensions of Ethics and Responsibility (ER), General Knowledge and Functional Skills (GKFS), Professional Production (PP), and Privacy and Security (PS). In terms of financial literacy, male students also have a higher mean score ($\bar{X} = 3.09$) compared to females ($\bar{X} = 3.02$), with the difference being more prominent in the Spending (S) and Attitude (A) sub-dimensions.

Regarding age, digital literacy scores were measured as $\bar{X} = 3.61$ among students aged 18 and below, and $\bar{X} = 3.67$ among those aged 22 and above. A slight increase in digital literacy across all sub-dimensions is observed as age increases. For financial literacy, although the differences between age groups are relatively small, the highest mean score was found in the 19-year-old group ($\bar{X} = 3.06$).

When evaluated by grade level, second-year students have a higher digital literacy mean score ($\bar{X} = 3.69$) than first-year students ($\bar{X} = 3.55$). This difference is especially notable in the ER,

GKFS, and PP sub-dimensions. For financial literacy, however, no significant difference was observed between first-year ($\bar{X} = 3.07$) and second-year ($\bar{X} = 3.03$) students.

Based on department, students enrolled in technical programs have a higher digital literacy mean score ($\bar{X} = 3.81$) compared to those in social programs ($\bar{X} = 3.52$). This difference is particularly evident in the GKFS, CCI (Critical Competence and Information), and PS sub-dimensions in favor of technical students. By contrast, in terms of financial literacy, students in social programs have a slightly higher mean score ($\bar{X} = 3.01$) than those in technical programs ($\bar{X} = 2.96$).

When examined by specific academic program, Mechatronics ($\bar{X} = 3.95$), Electronics ($\bar{X} = 3.77$), and Machinery ($\bar{X} = 3.77$) students exhibit higher digital literacy levels. In financial literacy, Accounting ($\bar{X} = 3.10$) and Banking and Insurance ($\bar{X} = 3.02$) programs have the highest mean scores.

Regarding family monthly income, digital literacy levels increase as income rises. The lowest income group (0–25,000 TL) has a mean score of $\bar{X} = 3.56$, while the highest income group (100,001 TL and above) has a mean score of $\bar{X} = 3.81$. For financial literacy, the highest mean score was found in the 25,001–50,000 TL income group ($\bar{X} = 3.08$).

Overall, the findings indicate that students' digital literacy levels are at a medium-high level, with particularly high means observed in the PS and ER sub-dimensions. For financial literacy, higher scores are seen in the Attitude (A) and Spending (S) dimensions. Table 6 presents the frequency values obtained from participants' responses regarding online banking, cryptocurrency use, and financial decision-making processes.

Table 6. Frequency Values Obtained from Questions on Online Banking, Cryptocurrency Use, and Financial Decision-Making

Questions	Yes		No		Total
	f	%	f	%	N
I actively use online banking or mobile banking applications in my daily financial transactions.	417	76	132	24	549
I actively use cryptocurrency, stock market, or digital investment applications.	43	7,8	506	92,2	549
I am influenced by social media content (YouTube, Twitter, Instagram, etc.) when making my financial decisions.	192	35	357	65	549

According to Table 6, the findings regarding students' use of digital financial tools and the influence of digital platforms on their financial decisions are as follows: A total of 76% of the participants ($n = 417$) actively use online or mobile banking applications. The proportion of students who use cryptocurrency, stock market, or digital investment applications is 7.8% ($n = 43$), while 92.2% ($n = 506$) reported that they do not use such investment tools. Additionally, 35% of the students ($n = 192$) stated that they are influenced by social media content when making financial decisions, whereas 65% ($n = 357$) reported that social media has no influence on their financial decisions. Table 7 presents the independent samples t-test results for digital literacy, financial literacy, and their sub-dimensions based on gender, grade level, and department variables.

Table 7. Independent Samples t-Test Results for Digital Literacy, Financial Literacy, and Their Sub-Dimensions Based on Gender, Grade Level, and Department Variables

Demographic Characteristic	Groups	N	t Test	DL							FL				
				DL	ER	GKFS	EU	PP	PS	SD	FL	S	A	P	I
Gender	Female	310	Levene Test	0,029	0,031	0,005	0,053	0,001	0,926	0,000	0,007	0,338	0,097	0,009	0,001
			x	3,49	4,12	3,13	3,81	2,58	4,10	3,23	3,01	3,06	3,78	2,17	3,02
			Sig. (p)	0,000	0,000	0,000	0,000	0,000	0,000	0,145	0,286	0,000	0,001	0,064	0,313
Grade Level	1st Year	277	Levene Test	0,293	0,218	0,192	0,011	0,561	0,704	0,042	0,003	0,083	0,301	0,005	0,272
			x	3,55	4,25	3,31	3,85	2,55	4,26	3,07	2,95	2,69	3,94	2,11	3,07
			Sig. (p)	0,000	0,234	0,040	0,113	0,000	0,705	0,000	0,051	0,000	0,000	0,000	0,575
Department	Technical	184	Levene Test	0,689	0,163	0,219	0,252	0,548	0,118	0,003	0,094	0,829	0,120	0,030	0,050
			x	3,81	4,39	3,72	4,05	2,95	4,47	3,32	2,96	2,47	4,00	2,28	3,11
			Sig. (p)	0,000	0,000	0,000	0,000	0,000	0,000	0,426	0,384	0,000	0,000	0,566	0,151

An examination of Table 7 shows that students' digital and financial literacy levels differ significantly according to gender, grade level, and department variables. According to the independent samples t-test conducted for the gender variable, a significant difference was found in the digital literacy total score ($p < 0.001$). Male students ($\bar{X} = 3.78$) scored higher than female students ($\bar{X} = 3.49$). This difference was also observed across the sub-dimensions of digital literacy; significant differences in favor of male students were identified in Ethics and Responsibility ($p < 0.001$), General Knowledge and Functional Skills ($p < 0.001$), Everyday Use ($p = 0.001$), Professional Production ($p = 0.001$), and Privacy and Security ($p < 0.001$). However, no significant difference was found for the Social Dimension ($p = 0.145$). Although no significant difference was found in overall financial literacy scores ($p = 0.286$), significant differences in favor of male students were observed in the Spending ($p < 0.001$) and Attitude ($p = 0.010$) sub-dimensions. No significant difference was detected in the Perception ($p = 0.064$) and Interest ($p = 0.313$) sub-dimensions.

Regarding grade level, a significant difference was found in the digital literacy total score ($p = 0.003$). The mean score of second-year students ($\bar{X} = 3.69$) was higher than that of first-year students ($\bar{X} = 3.55$). This difference was significant particularly in the General Knowledge and Functional Skills ($p = 0.040$), Professional Production ($p < 0.001$), and Social Dimension ($p < 0.001$) sub-dimensions. However, no significant differences were found in the Ethics and Responsibility, Everyday Use, or Privacy and Security sub-dimensions. For financial literacy, the overall score did not differ significantly ($p = 0.055$), but significant differences in favor of second-year students were found in the Spending ($p = 0.001$), Attitude ($p = 0.009$), and Perception ($p = 0.001$) sub-dimensions. No significant difference was observed in the Interest sub-dimension ($p = 0.575$).

In analyses conducted for the department variable, a significant difference was found in the digital literacy total score ($p < 0.001$). Students in technical departments ($\bar{X} = 3.81$) scored higher than those in social departments ($\bar{X} = 3.52$). This difference was significant across all sub-dimensions (Ethics and Responsibility $p < 0.001$; General Knowledge and Functional Skills $p < 0.001$; Everyday Use $p < 0.001$; Professional Production $p < 0.001$; Privacy and

Security $p < 0.001$), except for the Social Dimension, which did not show a significant difference ($p = 0.426$). No significant difference was found in the overall financial literacy score ($p = 0.384$). However, significant differences were found in favor of students in social departments in the Spending ($p < 0.001$) and Attitude ($p = 0.002$) sub-dimensions. No significant differences were observed in the Perception ($p = 0.566$) or Interest ($p = 0.151$) sub-dimensions.

Overall, the findings in Table 7 indicate that digital literacy levels differ significantly according to gender, grade level, and department; male, second-year, and technical department students exhibit higher levels of digital skills. Although no significant overall difference was found for financial literacy, significant differences were identified in the Spending and Attitude sub-dimensions in favor of male, second-year, and social sciences students. Table 8 presents the ANOVA test results for digital literacy, financial literacy, and their sub-dimensions according to age, academic program, and family income variables.

Table 8. ANOVA Test Results for Digital Literacy, Financial Literacy, and Their Sub-Dimensions Based on Age, Program, and Family Income Variables

Demographic Characteristics	Demographic Characteristics	N	DL							FL				
			DL	ER	GKFS	EU	PP	PS	SD	FL	S	A	P	I
Age	18 and below	155	3,61	4,22	3,35	3,85	2,71	4,27	3,27	2,96	2,83	3,74	2,25	3,02
	19	167	3,65	4,25	3,42	4,00	2,66	4,30	3,29	2,97	2,78	3,96	2,10	3,06
	20	112	3,52	4,18	3,26	3,82	2,55	4,18	3,13	3,07	3,05	3,83	2,36	3,05
	21	47	3,71	4,23	3,49	3,84	2,98	4,22	3,48	2,90	2,37	3,91	2,21	3,10
	22 and above	68	3,67	4,22	3,42	3,91	2,92	4,18	3,35	3,03	2,78	3,88	2,40	3,06
	F	1,097	,290	1,001	1,534	1,817	,496	1,251	1,599	4,062	1,625	1,691	,689	
	ANOVA	Sig. (p)	,361	,919	,416	,177	,108	,779	,284	,158	,001	,151	,135	,632
Program	Electronics	49	3,77	4,36	3,56	4,04	2,93	4,47	3,23	3,05	2,49	3,99	2,46	3,24
	Mechatronics	55	3,95	4,45	3,93	4,11	3,07	4,51	3,61	2,92	2,43	4,05	2,14	3,04
	Machinery	56	3,77	4,34	3,71	3,93	2,97	4,44	3,25	2,96	2,54	3,93	2,28	3,07
	CNC	25	3,68	4,37	3,52	4,18	2,64	4,38	2,98	2,93	2,36	3,99	2,25	3,11
	Accounting	53	3,67	4,41	3,41	4,05	2,36	4,46	3,32	3,04	3,17	3,89	2,03	3,10
	Finance	58	3,43	4,12	3,09	3,73	2,47	4,13	3,06	2,92	2,62	3,91	2,10	3,05
	Banking and Insurance	57	3,66	4,10	3,28	3,92	2,85	4,26	3,54	3,05	3,18	3,77	2,24	3,02
	Office Management	52	3,67	4,27	3,36	3,97	2,76	4,24	3,41	3,07	3,15	3,84	2,37	2,94
	Social Security	144	3,40	4,02	3,08	3,68	2,56	3,93	3,14	2,98	2,94	3,69	2,28	3,00
	F	7,079	5,368	9,897	4,893	3,299	6,625	3,214	,954	8,115	2,007	1,057	,693	
	ANOVA	Sig. (p)	,000	,000	,000	,000	,001	,000	,001	,472	,000	,044	,392	,698
Family Monthly Income	0-25000 TL	260	3,56	4,18	3,32	3,78	2,72	4,11	3,24	3,00	2,85	3,89	2,23	3,05
	25001-50000 TL	192	3,68	4,28	3,43	3,98	2,72	4,37	3,32	3,01	2,74	3,86	2,37	3,08
	50001- 75000 TL	61	3,59	4,18	3,30	4,06	2,50	4,34	3,18	2,94	3,11	3,75	1,96	2,94
	75001- 100000 TL	22	3,74	4,48	3,57	3,94	2,66	4,47	3,34	2,89	2,41	3,90	2,08	3,18
	100001 TL and above	14	3,81	4,06	3,65	4,04	3,39	4,21	3,50	2,75	2,52	3,43	2,24	2,83
	F	1,927	2,154	1,404	4,007	2,165	4,340	,673	1,504	3,665	1,649	2,315	,847	
	ANOVA	Sig. (p)	,105	,073	,231	,003	,072	,002	,611	,200	,006	,161	,056	,496

An examination of Table 8 presents the ANOVA test results conducted to determine whether students' digital literacy and financial literacy levels differ according to age, program, and family monthly income variables. For the age variable, no significant difference was found in the digital literacy total score ($p = 0.361$). Similarly, no significant differences were identified in the sub-dimensions of Ethics and Responsibility ($p = 0.919$), General Knowledge and Functional Skills ($p = 0.416$), Everyday Use ($p = 0.177$), Professional Production ($p = 0.108$), Privacy and Security ($p = 0.779$), and Social Dimension ($p = 0.284$). This finding indicates that digital literacy levels are generally similar across age groups. However, no statistically significant difference was found in the overall financial literacy score ($p = 0.158$). When the

sub-dimensions were examined, only the Spending dimension showed a statistically significant difference ($p = 0.001$). This result indicates that students' financial spending behaviors differ according to age, whereas no statistically significant differences were found in the Attitude, Perception, or Interest dimensions.

In the analysis based on academic program, a significant difference was found in the digital literacy total score ($p < 0.001$). Significant differences were also identified across all sub-dimensions: Ethics and Responsibility ($p < 0.001$), General Knowledge and Functional Skills ($p < 0.001$), Everyday Use ($p < 0.001$), Professional Production ($p < 0.001$), Privacy and Security ($p = 0.001$), and Social Dimension ($p < 0.001$). These findings demonstrate that students' digital literacy levels differ substantially depending on their academic program. In particular, the Mechatronics ($\bar{X} = 3.95$), Electronics ($\bar{X} = 3.77$), and Machinery ($\bar{X} = 3.77$) programs exhibited higher mean scores. No significant difference was found in the overall financial literacy score ($p = 0.472$). However, significant differences were detected in the Spending ($p < 0.001$) and Attitude ($p = 0.044$) sub-dimensions. These results indicate that program type exerts a determining influence on both digital and financial literacy. For the family monthly income variable, no significant difference was found in the digital literacy total score ($p = 0.105$). Among the sub-dimensions, only Everyday Use ($p = 0.003$) showed a significant difference, suggesting that as income increases, students' frequency and effectiveness of digital tool use also rise. No statistically significant difference was found in the overall financial literacy (FO) score according to family income level ($p = 0.200$). This finding indicates that students' overall financial literacy levels do not differ significantly by family income level. However, among the sub-dimensions, only the Spending dimension showed a statistically significant difference ($p = 0.006$), indicating that students' financial spending behaviors vary according to family income level. No statistically significant differences were observed in the Attitude, Perception, and Interest dimensions. Overall, the findings in Table 8 indicate that digital literacy levels do not differ significantly by age; however, significant differences are found across all sub-dimensions according to academic program. In terms of financial literacy, the variables of age, academic program, and family income were found to produce statistically significant differences in certain sub-dimensions. In particular, the Spending and Attitude dimensions emerged as the primary contributors to these differences. Table 9 presents the Pearson correlation analysis results regarding the relationship between students' digital literacy levels and financial literacy levels.

Table 9. Pearson Correlation Analysis Results Between Students' Digital Literacy Levels and Financial Literacy Levels

	DL	ER	GKFS	EU	PP	PS	SD	FL	S	A	P	I
DL	1											
												r
												Sig.
												(p)
ER	,623	1										r
	,000											Sig.
												(p)
GKFS	,839	,499	1									r
	,000	,000										Sig.
												(p)
EU	,777	,550	,530	1								r
	,000	,000	,000									Sig.
												(p)
PP	,727	,144	,582	,377	1							r
	,000	,001	,000	,000								Sig.
												(p)
PS	,659	,600	,466	,622	,141	1						r

	,000	,000	,000	,000	,001							Sig. (p) r
SD	,810	,265	,626	,534	,687	,329	1					
	,000	,000	,000	,000	,000	,000						Sig. (p) r
FL	,204	,059	,155	,139	,220	,029	,246	1				
	,000	,168	,000	,001	,000	,493	,000					Sig. (p) r
S	- ,094 ,028	-,165 ,000	-,126 ,003	-,011 ,799	-,065 ,131	-,080 ,062	,005 ,911	,581 ,000	1			
A	,313 ,000	,381 ,000	,270 ,000	,242 ,000	,129 ,003	,294 ,000	,163 ,000	,276 ,000	-,278 ,000	1		
P	,101 ,018	-,095 ,026	,097 ,022	-,006 ,888	,231 ,000	-,099 ,020	,195 ,000	,678 ,000	,341 ,000	-,176 ,000	1	
I	,180 ,000	,089 ,038	,142 ,001	,127 ,003	,199 ,000	,006 ,891	,193 ,000	,644 ,000	,090 ,035	,256 ,000	,172 ,000	1

An examination of Table 9 shows that the relationship between students' digital literacy levels and financial literacy levels was evaluated using Pearson correlation analysis. According to the results, a positive and low-level significant relationship was found between digital literacy and financial literacy ($r = 0.204$, $p < 0.001$). This finding indicates that as students' digital literacy levels increase, their financial literacy levels also rise to a certain extent. When the sub-dimensions of digital literacy are examined, significant relationships were observed particularly in General Knowledge and Functional Skills ($r = 0.155$, $p = 0.001$), Everyday Use ($r = 0.139$, $p = 0.001$), and Professional Production ($r = 0.220$, $p < 0.001$). These sub-dimensions represent the practical and production-oriented aspects of digital literacy, revealing that students' functional use of digital technologies is associated with their level of financial awareness. From the perspective of financial literacy sub-dimensions, the strongest relationship with digital literacy was found in the Attitude dimension ($r = 0.313$, $p < 0.001$). This result suggests that students with higher digital competence act more consciously and systematically in their financial behaviors and decision-making processes. A positive and statistically significant relationship was also found between digital competence and the Interest dimension ($r = 0.180$, $p < 0.001$). In contrast, a weak but statistically significant negative relationship was observed with the Expenditure dimension ($r = -0.094$, $p = 0.028$). Overall, the results presented in Table 9 indicate that students' digital literacy levels are significantly related to their financial literacy levels, and that increases in digital skill and production-oriented sub-dimensions strengthen financial awareness, attitudes, and interest. These findings demonstrate that digital competencies serve as an important cognitive support mechanism in financial decision-making processes and confirm the main objective of the study, namely the relationship between the two variables.

5. CONCLUSION, DISCUSSION, AND RECOMMENDATIONS

In this study, students' digital literacy and financial literacy levels were examined across various demographic variables, and the relationships between these two constructs were evaluated. The findings revealed that students' digital literacy levels differed significantly based on department, academic program, gender, and grade level. Students enrolled in technical programs had higher digital literacy scores compared to those in social sciences programs, with this difference being particularly evident in the sub-dimensions of General Knowledge and Functional Skills, Everyday Use, and Privacy and Security. In contrast,

financial literacy levels were slightly higher among students studying in social programs. At the program level, Mechatronics, Electronics, and Machinery students demonstrated higher digital literacy levels, whereas Accounting and Banking and Insurance students stood out in financial literacy.

Regarding grade level, second-year students scored higher in both digital literacy overall and in certain financial literacy sub-dimensions, suggesting that digital and financial competencies increase with educational progression and experience. Additionally, the superior financial literacy performance of students in Accounting and Banking and Insurance programs strongly indicates that program-specific coursework contributes to the enhancement of financial literacy. Findings related to age and income showed that digital literacy levels did not differ significantly across age groups, whereas significant differences emerged in the Everyday Use sub-dimension depending on family income. This result aligns with the literature emphasizing the role of socioeconomic conditions in access to technological tools. Indeed, Silva-Quiroz et al. (2022) reported income-based disparities in access to digital services, supporting the findings of this study. Financial literacy levels, on the other hand, differed significantly across both age and income groups, with the Spending dimension being particularly determinant. These differences align with the findings of Rahman et al. (2022), who reported that higher income levels are associated with more rational and planned financial behaviors. Consequently, the results of this study support the frequently emphasized notion that financial skills tend to increase with age and economic capital.

Although the majority of students actively used digital banking applications, the use of digital investment tools was considerably limited. This suggests that young adults adapt well to digitalization in daily financial transactions but remain cautious regarding investment decisions, likely due to limited knowledge and experience. Similar findings were reported in previous research; for instance, Saydar (2024) found that the tendency to use technological financial products increases with higher levels of digital financial literacy. Similarly, Fettahoğlu and Kıldize (2019) reported that while many individuals are aware of digital financial products and services, they tend to avoid tools requiring more advanced knowledge. These findings underscore that income level, experience, and digital awareness are key determinants in financial investment decisions. Therefore, seeking professional financial advice from experienced individuals may contribute to more conscious and rational investment choices.

The analysis of the relationship between digital literacy and financial literacy revealed a positive, low-level, yet significant correlation. Notably, significant relationships were identified between financial literacy and the practical, skill-based sub-dimensions of digital literacy—namely General Knowledge and Functional Skills, Everyday Use, and Professional Production. Among financial literacy sub-dimensions, the strongest association emerged in the Attitude dimension. This suggests that students with higher digital competence tend to behave more consciously and systematically in their financial decision-making processes. These findings are consistent with those of Çetin and Kızılaslan (2024), who demonstrated that digital literacy is a significant determinant of financial literacy levels among university students. Similar consistency is observed with the studies conducted by Mulyono (2023), Sabila and Hasnawati (2024), Doğan et al. (2025), Vik et al. (2024), and Prete (2022). Collectively, the findings confirm that digital literacy not only reflects technological proficiency but also constitutes an essential cognitive foundation for shaping financial decision-making, investment preferences, and financial behaviors.

Considering the Pearson correlation analysis results overall, the findings indicate that students' digital literacy levels are significantly associated with their financial literacy levels, and that increases in digital skill– and production-oriented sub-dimensions strengthen financial awareness, attitudes, and interest. This reinforces the argument that digital competence serves as an important cognitive support mechanism in financial decision-making processes and confirms the relationship between digital literacy and financial literacy identified in this study.

The findings of this study show that although the correlation between digital literacy and financial literacy is modest, it is statistically significant, and that variables such as department, program, and income level shape this relationship. Accordingly, future research should employ advanced statistical models incorporating mediator and moderator variables to more clearly uncover the structure of this relationship. Comparative and longitudinal studies across different universities and educational levels may further illuminate how digital and financial competencies develop over time. Additionally, qualitative research exploring students' digital behaviors and risk perceptions in financial decision-making processes would enhance the explanatory depth of the findings.

From a policy perspective, the results highlight the need to strengthen digital financial literacy training at universities. While technical programs emphasize digital skills, financial knowledge appears to be higher in social sciences programs, suggesting the necessity of developing program-specific educational content. Despite widespread use of digital banking, the cautious approach toward investment tools indicates that students require more education on digital financial risks. Therefore, universities should offer regular training programs on cybersecurity, digital data protection, budgeting, and responsible digital investing. Furthermore, providing digital access support and financial counseling services—particularly for low-income students—would be beneficial. Such a comprehensive approach would help students act more safely in digital environments and make more informed financial decisions.

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