Original Article

UNIVERSITY STUDENTS' ATTITUDES TOWARD DIGITAL TECHNOLOGY

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Abstract

This study examined university students' attitudes toward digital technology. The sample comprised 211 university students, 96 females and 112 males, studying at a private university. The data were collected using The Attitude Scale for Digital Technology developed by Cabı (2016). The scale had 39 items and eight sub-dimensions. The obtained data were analyzed using SPSS 25. program. Descriptive frequency analysis was performed on demographic data. The Kolmogorov-Smirnov test was performed, and the results showed that the data had normal distribution, so the independent sample t-test and one-way ANOVA tests were performed. The analysis results indicated a significant difference in students' attitudes toward digital technology according to gender, age, internet-use intent, daily internet use time, and digital device preference. It was concluded that university students' attitudes toward digital technology differed according to socio-demographic characteristics.

Keywords: University students, digital technology, attitude.

INTRODUCTION

The concept of attitude is derived from the Latin word "appus," meaning "ready to act." In other words, it refers to the beginning of a behavior and the decision of an action. Attitude is one of the critical concepts in social psychology as it affects social perception and behavior (Pratkanis & Greenwald, 1989). The concept of attitude has been defined in many ways by researchers. According to McClelland (1979), "attitude is a summary of one's experiences that determine their current state and behavior." Attitude is one's reaction to the events around them. Experience is the essential component of attitude. It is the knowledge of anything that protects personality and fundamental values. In general, attitudes have three dimensions: the cognitive dimension, including ideas and propositions; the affective dimension, including emotions and accompanying ideas; and the behavioral dimension suggesting being ready for behavior (Gagne, 1985).

Technology is the solution proposed by scientific knowledge to facilitate, support, or improve life. We use technological solutions in different aspects and periods of our lives. For example, a compass, telescope, elevator, television, and computer are among them (Kalelioğlu, 2013). Technology is a practical application utilized in achieving goals, meeting needs, and organizing information that has been proven true to ease life (İşman, 2015).

Digital technology involves applications that electronically display, store and transmit information, such as computers, the internet, mobile phone, camera, and web technologies on a screen (Cabi, 2016). In a world of rapidly developing technology and increasing information, it has become a must to acquire lifelong learning skills. Technology has also affected educational programs, urging individuals to research, question, wonder, and discover (Topaloğlu, 2020). Diverse research opportunities have become available thanks to technology, facilitating access to information.

In Turkey, as in the world, innovative instructors who constantly improve themselves closely follow current developments and changes play a key role in realizing an efficient education system in which scientific and technological developments can have a place, and students can benefit from them easily (Seferoğlu, 2001). In this digital age, it is vital for young people to have digital devices, knowledge, and competence to follow the world's changing norms (Erten, 2019). Digital technology plays an influential and active role in educational environments, as it does in all spheres of life. In this sense, determining students' attitudes toward digital technology would impact the design and organization of educational environments (Tanoğlu, 2019).

Improving students' attitudes toward digital technology can accelerate their learning. Today, learning processes in educational institutions interact with technology. Distance education, which has especially spread after the Covid-19 pandemic, has provided students with the opportunities to use technology more actively. It is thought that raising individuals who can keep up with the digital age would raise the development level. In this regard, the study aimed to examine university students' attitudes toward digital technology.

METHODS AND MATERIAL

Model

The research was conducted using the descriptive survey model, which attempts to determine the opinions and attitudes of a large-scale group about a phenomenon or an event (Karakaya, 2012).

Universe and Sample

The research group selected by the convenient sampling method consisted of 211 university students studying at a private university in Istanbul.

Data Collection Tools

In the study, a "Personal Information Form" including five questions and the "Attitude Scale for Digital Technology," of which validity and reliability studies were completed by Cabı (2016) were administered to the participants.

Personal Information Form

The form with five questions, including gender, age, internet-use intent, daily internet use time, and digital device preference, was administered to the participants.

The "Attitude Scale for Digital Technology"

The validity and reliability studies of the scale were completed by Cabı (2016). The 7-point Likert-type scale (from (1) "Strongly disagree" to (7) "Strongly agree") had 39 items and eight sub-dimensions. The reliability coefficient of the total scale was measured as .90 by Cabı (2016), and it was calculated as .91 in this study.

Table 1. Internal consistency coefficients of the sub-dimensions

Sub-dimensions	**Item No**	**Mean**	**Cronbach's Alfa**
Competence	10	3.92	.85
Social network	4	3.82	.83
Technology use in lesson	4	3.93	.75
Interest toward technology	5	4.08	.78
Technology for me	4	4.24	.62
Technology's negative aspects	5	3.10	.79
Technology for entertainment	4	3.39	.72
Conscious use	3	4.21	.62
Total	39	3.83	.91

Table 1 shows Cronbach's alpha analysis results regarding the internal consistency coefficients of the sub-dimensions. While the sub-dimensions of "technology for me" and "conscious use" had the lowest reliability coefficient (.62), the sub-dimension of "competence" had the highest coefficient of .85.

Data Analysis Process

The obtained data were analyzed using the SPSS 25.0 program. Descriptive frequency analysis was performed on demographic data. The Kolmogorov-Smirnov test was performed, and the results showed that the data had normal distribution, so the independent sample t-test and one-way ANOVA test were performed. The significance level was set at $p<0.05$.

FINDINGS

Table 2. Distribution of the demographic variables

Variables		n	%
Gender	Female	99	46.5
	Male	112	53.1
Age	18-20 years old	89	42.2
	21-23 years old	81	38.4
	24 years old and above	41	19.4
Internet use intent	Research	22	10.4
	Communication	44	20.9
	Social media	134	63.5
	Entertainment, games	11	5.2
Daily internet use time	1-2 hours	30	14.2
	3-4 hours	94	44.5
	5 hours and above	87	41.2
Digital device preference	Smartphone	149	70.6
	Computer	43	20.4
	Television	19	9.0
Total		211	100.0

Table 2 shows the demographic characteristics of the participants. Accordingly, 53.1% were "Male," 42.2% were "18-20 years old", 63.5% used the internet for "Social media", 44.5% spent "3-4 hours" on the internet daily and 70.6% used "smartphone."

Table 3. The sub-dimensions by gender

Sub-dimension	Gender	N	Mean	Sd	T	p
Competence	Female	99	3.70	.62	-5.298	**.000**
	Male	112	4.11	.48		
Social network	Female	99	3.79	.83	-.533	.595
	Male	112	3.85	.95		
Technology use in lesson	Female	99	3.73	.72	-4.097	**.000**
	Male	112	4.11	.61		

Interest toward technology	Female	99	3.96	.63	-2.663	**.008**
	Male	112	4.18	.57		
Technology for me	Female	99	4.16	.53	-2.278	**.024**
	Male	112	4.31	.42		
Technology's negative aspects	Female	99	2.90	.80	-3.054	**.003**
	Male	112	3.28	.98		
Technology for entertainment	Female	99	3.05	.83	-5.256	**.000**
	Male	112	3.68	.89		
Conscious use	Female	99	4.15	.51	-1.343	.181
	Male	112	4.26	.62		

P<0.05

Table 3 shows the independent sample t-test conducted to determine the relationship between students' attitudes toward digital technology and gender variable. Accordingly, there was a significant difference in the sub-dimensions of "competence," "technology use in the lesson," "interest toward technology," "technology for me," "technology's negative aspects," and "technology for entertainment" by gender.

Table 4. The sub-dimensions by age

Sub-dimension	Age	N	Mean	Sd	F	p
Competence	18-20 years old	89	3.88	.53	3.434	**.034**
	21-23 years old	81	3.84	.68		
	24 years old and above	41	4.13	.42		
Social network	18-20 years old	89	3.91	.85	4.634	**.011**
	21-23 years old	81	3.60	1.00		
	24 years old and above	41	4.07	.69		
Technology use in lesson	18-20 years old	89	3.87	.73	2.374	.096
	21-23 years old	81	3.89	.72		
	24 years old and above	41	4.14	.51		
	18-20 years old	89	4.01	.58		

Interest toward technology	21-23 years old	81	4.06	.66	2.760	.066
	24 years old and above	41	4.27	.51		
Technology for me	18-20 years old	89	4.18	.50	3.785	**.024**
	21-23 years old	81	4.23	.47		
	24 years old and above	41	4.42	.40		
Technology's negative aspects	18-20 years old	89	3.10	.92	.004	.996
	21-23 years old	81	3.11	.90		
	24 years old and above	41	3.10	.97		
Technology for entertainment	18-20 years old	89	3.42	.94	1.356	.260
	21-23 years old	81	3.27	.93		
	24 years old and above	41	3.55	.85		
Conscious use	18-20 years old	89	4.18	.55	3.040	.050
	21-23 years old	81	4.14	.61		
	24 years old and above	41	4.40	.51		

P<0.05

As seen in Table 4, a one-way ANOVA test was performed to determine whether there was a difference in students' attitudes toward digital technology according to age. The analysis results revealed a significant difference in the "competence," "social network," and "technology for me" sub-dimensions according to age.

Table 5. The sub-dimensions by the internet-use intent

Sub-dimension	Internet use intent	N	Mean	Sd	F	p
Competence	Research	22	4.11	.51	2.839	**.039**
	Communication	44	3.72	.68		
	Social media	134	3.96	.52		
	Entertainment, games	11	3.81	.84		
	Research	22	3.54	1.22	4.696	**.003**

Social network	Communication	44	3.53	1.04		
	Social media	134	4.00	.68		
	Entertainment, games	11	3.45	1.36		
Technology use in lesson	Research	22	4.19	.59	2.304	.078
	Communication	44	3.74	.75		
	Social media	134	3.96	.68		
	Entertainment, games	11	3.84	.60		
Interest toward technology	Research	22	4.35	.51	2.183	.091
	Communication	44	3.95	.70		
	Social media	134	4.08	.59		
	Entertainment, games	11	4.05	.50		
Technology for me	Research	22	4.36	.43	1.021	.384
	Communication	44	4.15	.55		
	Social media	134	4.25	.46		
	Entertainment, games	11	4.27	.49		
Technology's negative aspects	Research	22	2.74	.83	1.536	.206
	Communication	44	3.06	.78		
	Social media	134	3.18	.94		
	Entertainment, games	11	3.03	1.19		
Technology for entertainment	Research	22	2.85	1.01	7.555	**.000**
	Communication	44	3.02	.88		
	Social media	134	3.58	.84		
	Entertainment, games	11	3.63	1.03		
Conscious use	Research	22	4.46	.55	1.759	.156
	Communication	44	4.15	.65		
	Social media	134	4.18	.55		
	Entertainment, games	11	4.27	.44		

P<0.05

Table 5 presents the results of one-way ANOVA, which was performed to determine whether there was a relationship between students' attitudes toward digital technology and their intent to use the internet. The analysis results found a significant difference in the sub-dimensions of "competence," "social network," and "technology for entertainment" according to participants' intent of using the internet.

Table 6. The sub-dimensions by daily internet-use time

Sub-dimension	Daily internet-use time	N	Mean	Sd	F	p
Competence	1-2 hours	30	3.65	.48	4.131	**.017**
	3-4 hours	94	3.92	.60		
	5 hours and more	87	4.01	.58		
Social network	1-2 hours	30	3.35	.95	5.347	**.005**
	3-4 hours	94	3.84	.84		
	5 hours and more	87	3.96	.90		
Technology use in lesson	1-2 hours	30	3.90	.42	.698	.499
	3-4 hours	94	3.88	.77		
	5 hours and more	87	4.00	.67		
Interest toward technology	1-2 hours	30	4.01	.51	1.023	.361
	3-4 hours	94	4.04	.66		
	5 hours and more	87	4.15	.58		
Technology for me	1-2 hours	30	4.22	.38	3.365	.036
	3-4 hours	94	4.16	.56		
	5 hours and more	87	4.34	.38		
Technology's negative aspects	1-2 hours	30	2.83	.77	1.626	.199
	3-4 hours	94	3.13	.89		
	5 hours and more	87	3.17	.98		
Technology for entertainment	1-2 hours	30	2.78	.88	8.616	**.000**
	3-4 hours	94	3.43	.94		
	5 hours and more	87	3.56	.83		
Conscious use	1-2 hours	30	4.26	.48	2.324	.100
	3-4 hours	94	4.11	.64		

	5 hours and more	87	4.29	.52		

P<0.05

As seen in Table 6, a one-way ANOVA test was performed to determine whether there was a difference in the attitudes toward digital technology according to participants' daily internet-use time. Accordingly, a significant difference was found in the sub-dimensions of "competence," "social network," and "technology for entertainment" according to their daily internet use.

Table 7. The sub-dimensions by digital device preferences

Sub-dimension	Digital device	N	Mean	Sd	F	p
Competence	Smartphone	149	3.88	.57	1.837	.162
	Computer	43	4.07	.53		
	Television	19	3.84	.76		
Social network	Smartphone	149	3.84	.89	.892	.411
	Computer	43	3.87	.93		
	Television	19	3.56	.86		
Technology use in lesson	Smartphone	149	3.89	.71	2.032	.134
	Computer	43	4.12	.60		
	Television	19	3.82	.71		
Interest toward technology	Smartphone	149	4.07	.60	2.953	.054
	Computer	43	4.23	.58		
	Television	19	3.83	.66		
Technology for me	Smartphone	149	4.26	.43	.778	.460
	Computer	43	4.25	.62		
	Television	19	4.11	.45		
Technology's negative aspects	Smartphone	149	3.06	.92	1.269	.283
	Computer	43	3.30	.99		
	Television	19	3.02	.61		
Technology for entertainment	Smartphone	149	3.39	.91	1.391	.251
	Computer	43	3.52	.97		
	Television	19	3.10	.84		
Conscious use	Smartphone	149	4.19	.52		

	Computer	43	4.37	.56	3.277	**.040**
	Television	19	3.98	.87		

P<0.05

Table 7 shows the results of one-way ANOVA performed to determine the relationship between attitudes toward digital technology and participants' digital device preference. Accordingly, there was a significant difference in the "conscious use" sub-dimension by digital device preference.

DISCUSSION AND CONCLUSION

Digitalization has dramatically changed every aspect of life, including education. Digital materials used in educational processes serve to make learning faster and more efficient. The use of digital platforms has become prevalent, especially in universities. Due to the Covid-19 pandemic, distance education courses have been integrated into curriculums, and digital networks have become available and practical. In this sense, this study aimed to determine university students' attitudes toward digital technology. A total of 211 students, 99 females and 112 males, studying at a private university, participated in the study.

The relationship between the sub-dimensions according to gender was examined. As seen in Table 3, the analysis results indicated a significant difference in the sub-dimensions of "competence," "technology use in the lesson," "interest toward technology," "technology for me," "technology's negative aspects," and "technology for entertainment" by gender. In the literature, although Erten (2019) did not find a significant difference in the attitudes toward digital technology according to gender, a significant difference was found between the gender variable and sub-dimensions in a study conducted by Vural (2020). It can be inferred that there are both similarities and differences in this sense.

When the participants' attitudes toward digital technology were examined according to their age, a significant difference was found in the sub-dimensions of "competence," "social network," and "technology for me." Eroglu et al. (2018) examined refugee students' attitudes toward digital technology and found a significant difference in attitudes according to age, which overlaps with the current study's findings.

According to Table 5, which showed the results regarding participants' attitudes toward digital technology and their internet-use intentions, there was a significant difference in the sub-dimensions of "competence," "social network," and "technology for entertainment." It was seen that the mean scores for using the internet for social media and research were higher than other intentions. Considering the current state of technology, young individuals' use of social media has gradually increased. For example, the use of social media by American adults aged 18-29 years, who constitute most of the university student population in the USA, increased from 12% in 2005 to 90% in 2015 (Tükenmez et al., 2019). Thus, it can be suggested that social media platforms have become prevalent today, especially among young university students. Besides, digital technology has become widespread in educational environments, which has also allowed students to use technological devices for research purposes.

When students' attitudes toward digital technology according to daily internet use time were examined, a significant difference was found in the sub-dimensions of "competence," "social network," and "technology for entertainment." Similarly, in a study by Tanoğlu (2019) examining the relationship between art education students' digital citizenship levels and attitudes toward digital technology, a statistically significant difference was found in the sub-dimensions regarding the frequency of internet use, which shows parallelism with our results.

According to the analysis performed to determine the relationship between students' attitudes toward digital technology and digital device preference, there was a significant difference in the "conscious use" sub-dimension. The mean scores of "computers" were higher than those of other devices. It might stem from the fact that computers are more practical and functional for doing research, homework, or receiving online education than smartphones.

In conclusion, digital technology penetrates almost every sphere of academic life. We concluded that using social media and the internet has increased, and computers are still a popular educational device today despite their less common use than

smartphones. Future studies can compare the attitudes of public and private university students, or the relationship between attitudes toward digital technology and productivity can be investigated on large samples.

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