Research Article

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Analysis of Demographic Variables Affecting Digital Citizenship in Turkey

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Abstract: The new technologies generated by the digital age are changing how individuals and societies communicate, learn, work, and manage. Although digital citizenship is defined as the behavioral norms regarding the use of technology in the most general sense, it also includes ethical and appropriate behaviors and being informed about this issue while using technology. However, there is a generational gap in digital information and literacy. In this context, the research analyzes digital citizenship according to gender, age, number of children, job position, and education level. In this analysis, which was structured as exploratory research to examine the digital citizenship status of participants, the descriptive model was preferred over quantitative research models. According to the analysis results, it can be said that the participants' digital citizenship behavior is in the range of "I am undecided" (at a moderate level). Citizenship behavior with the lowest score was "political activism on the internet." The groups with a significantly higher level of digital citizenship are women, those between the ages of 22 and 42 working as managers, and those at the graduate level.

Keywords: digital age, digitization, digital citizenship

1 Introduction

Information and communication technologies have significant effects on economic development. The differences in countries' economic performance and global competitiveness largely depend on the adoption, availability, and use of information and communication technologies (Mitrović, 2020). The development of information and communication technologies and innovations also increases the growth performance of economies because technological innovations play an essential role in growth (Taşel, 2020, p. 128). The effects of digitalization on both the economy and trade are of great importance. In particular, there are factors, such as global epidemics experienced today, that make the benefit of digital technologies necessary to reach their customers differently (Taşel, 2020, p. 127). The issue of digital citizenship has gained more importance in this context.

Digital citizenship is the digital dimension of citizenship (Lyons, 2012, p. 40). Behavioral standards are required to use digital technologies (Ribble, 2011, p. 10). The concept of digital citizenship has emerged to provide standards for fulfilling general citizenship responsibilities, providing rights and opportunities, and maintaining their daily lives in this digital society. Responsible digital citizens avoid criticizing others while using information and communication resources, know the ethical consequences of online behavior, make moral decisions online, avoid harming others and misusing technology, and encourage the correct behavior when communicating and collaborating in the virtual world.

The sense of isolation created by the coronavirus epidemic has made the use of digital technologies and the lack of digital skills more evident. The youth of the digital age, who are born into the digital world and are accustomed to acquiring new information quickly and easily, see the use of digital technologies as an effective strategy for accessing education, reducing social isolation among people, as well as providing new information and helping them adapt to the changing society.

The popularity and use of digital technologies will continue to grow. However, some websites and apps pose risks to the health of vulnerable youth by promoting ideas such as self-harm, suicide, or anorexia.

Moreover, there is a generational gap in the approach to digital information and literacy. Digital citizenship encompasses the technical ability to participate online and act appropriately and responsibly using digital technology. It

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is necessary for parents and educators to understand the levels of digital citizenship first in order to teach children and young people digital skills and online safety.

Technological developments, innovations, and digitalization in every sector increase the importance of helping people adapt to digitalization. Digital citizenship is an issue that should be carefully addressed at all educational levels, starting with the family. This subject being examined among different faculties and departments can be associated with lifelong learning, and activities can be organized to increase information sharing between departments and faculties.

Digital citizenship courses or subjects can be integrated into existing curricula so that university students become more conscious of digital citizenship. An action plan can be created by using the opinions of instructors and administrators on the factors that emerged in this study, which was carried out from the perspective of university students. It would be recommended to inform instructors about this aspect of the research.

Employees across professions should take part in ensuring human rights and equality while using digital media, as well. Training employees in digital competencies will support the creation of responsible digital citizens for the future.

Helping people adapt to digitalization will enhance the digital citizenship skills of people born into the digital world and who became digital citizens before their citizenship identities were developed through training, from an early age. In order to teach children and young people digital skills and online safety, it is necessary for parents and educators to understand the levels of digital citizenship first. Effective understanding of the concept of digital citizenship often depends on a person's age, that is, whether they were born in the digital world. Are there criteria other than age that affect digital citizenship? This research aims to evaluate the participants' approaches to digital media, increase awareness about digitalization according to the research results, and provide suggestions for training and practices that will enable the development of digital citizenship skills. In this context, the research aims to analyze the participants' digital citizenship levels based on their demographic variables. Although digital citizenship is a concept that attracts attention in international literature, this research is also essential in providing a source for future research, as there are very few studies on this subject in Turkey.

The lack of awareness about digital citizenship, especially considering the intense use of social media, increases the importance of this study. This article will focus and shed light on the adverse effects of low levels of digital citizenship on social interactions carried out on social media platforms widely used in Turkey. This article will also focus on the importance of digital citizenship, especially in an era of intense social media use. Overall, this article aims to emphasize the critical need to raise and generate self-aware digital citizens to mitigate social media's negative impact on our society. It will emphasize how critical it is to create responsible digital citizens.

In today's fast-paced world, digital citizenship has become a crucial aspect of social responsibility with the rapid evolution of technology. This article highlights the concept of digital citizenship in Turkey, urging individuals to comprehend their obligations and corresponding rights while interacting on the internet. Furthermore, we aim to draw the reader's attention to the significance of cyber security concerns and the positive impact of responsible digital citizens on society's overall security.

The digital citizenship identity that emerged with digitalization has directly affected the lifestyles and processes of governments, corporations, and individual people. Mainly the COVID-19 pandemic, which affected the whole world, and the emergence of using digital technologies to access health services, have paved the way for people to obtain a digital identity and accelerated the process of obtaining this identity. While collecting Turkish literature to review for this analysis, research examining the concept of digital citizenship using a demographic breakdown was found. It was understood that the sample populations needed to be expanded. For example, Yılmaz and Doğusoy (2020) examined a specific population of teachers in their study to determine the digital citizenship levels of teacher candidates, but the results could not be generalized. In an empirical evaluation study to examine the perception of digital citizenship, Yalçınkaya and Cibaroğlu (2019) analyzed just the digital citizenship dimensions but did not analyze them according to demographic variables. While there are differences in digital citizenship levels among different demographics, the limited number of studies examining digital citizenship based on demographic variables is the main reason for conducting more research on this topic in Turkey. In this context, the research question is "Do digital citizenship levels differ according to demographic variables? If digital citizenship levels differ, which demographic variables differ?"

The research method and findings will be shared after the concept and dimensions of digital citizenship are defined in light of relevant sources from the current literature. Finally, the results will be discussed along with the limitations and suggestions for future research.

2 Literature Review

The digital age is the time that encompasses the beginning, climax, and culmination of the digital and information revolution from the late twentieth and early twenty-first centuries.

Within the digital age, new technologies have profoundly changed development patterns in childhood and adolescence. Internet access tools, such as tablets, smartphones, social media platforms, and messaging applications, have become integral to young people's lives. It has digitized their education and learning, how they form and maintain friendships, how they spend their free time, and more broadly, how they interact with society.

While the world is changing so quickly, digital platforms are essential sources for people to get information about what is happening worldwide (Gentry, 2022, p. 1). While digital technologies change people's thoughts, attitudes, and behaviors, they also offer some opportunities. The sense of isolation created by the coronavirus epidemic has made the good and bad aspects of using digital technologies more evident. For instance, there are websites and apps that pose risks to the health of vulnerable youth, by promoting such ideas as self-harm, suicide, or eating disorders. Current trends show us that the popularity and use of digital technologies will only continue to grow. Digitalization can offer significant opportunities for socioeconomic development, as well.

The twenty-first century, under the influence of globalization and near-constant technological transformation, alongside economic difficulties and new ideas on citizenship, is a century of controversy. New concepts such as "constitutional citizenship, world citizenship, European citizenship, and digital citizenship" have emerged in this process (Ersoy, 2013, p. 70).

Access, commerce, communication, literacy, ethics, law, security, health, and rights responsibilities are sub-dimensions of digital citizenship in Turkey, and it is essential to be mobilized on these levels to learn responsible digital citizenship practices. In order to pursue all these sub-dimensions, financial resources are required, which are directly affected by Turkey's economy. While planning for economic and social development issues in the country, having a solid digital infrastructure behind all sectors and projects should be a strategic goal. In addition to the existence of digital infrastructures, citizens must know how to use them.

Parallel to the increasing rate of using digital technologies every year, the popularity of the concept of digital citizenship in the relevant literature has also increased. The features that make the concept of digital citizenship so popular are listed as follows (Mossberger et al., 2007, pp. 1–6):

- The risks and advantages created by the rapidly increasing use of digital technology, opportunities offered to people who can access the internet regardless of time and place, thanks to digital tools,
- The need to ensure the safe, responsible, and effective use of digital tools and technologies,
- Advantages of using digital tools and technologies more intensively and widely in learning activities. Ribble (2004), who was the first to use the concept of digital citizenship, defined the concept as the necessary standards and rules for using digital technologies (Ribble, 2004, p. 7).

There are also different definitions of digital citizenship in the related literature. The International Association for Technology in Education has defined digital citizenship as the ability to actively use digital media in matters involving the nation and people in the societies that make up a nation.

When the effects of the digital age were seen, asked the following question: *"Why is almost everyone, from children to families, from employees to managers, being driven to digitalization?"* While this problem was a subject that could not be explained in that time period, the answer was found 5 years after the coronavirus epidemic. Physical and psychological isolation that occurred as a result of the coronavirus epidemic forced people to communicate, work, study, and socialize through digital platforms (Buchholz et al., 2020, p. 11).

The transformation of society into an e-society and its digitalization have affected interpersonal relations, education, the business world, and people's well-being. While digital socialization allows people to express themselves more freely and interact democratically, it has increased inequality in people's rights (Lemos de Paiva & Miranda, 2022). There has been a need for legislation on this issue as the effects of digital transformation on social exclusion and inclusion have become a rapidly developing problem for professionals, citizens, and law enforcement (Picornell-Lucas & López-Peláez, 2022, p. 33). Being a digital citizen is not just about having the competence to use digital platforms and tools, but to participate in the digital world knowing their responsibilities and rights (Buchholz et al., 2020, p. 12). An inclusive digitalization strategy should be implemented to ensure democracy in digital societies. Citizenship rights and responsibilities should also be maintained in digital media (Picornell-Lucas & López-Peláez, 2022, p. 36).

Ribble (2011) introduced the concept of digital citizenship and defined it in detail with nine sub-dimensions. Those nine sub-dimensions of digital citizenship are

organized under three principal dimensions. It is briefly expressed by the definition of "REP," which takes its name from the initials of the English equivalents of self-respect, education, and protection. The main and sub-dimensions within the scope of REP (Ribble & Bailey, 2006) are Respect for yourself and those around you (digital ethics, access, and law), education for yourself and those around you, and communicating with yourself and those around you (digital communication, literacy, and commerce), and protecting yourself and others (digital rights and responsibilities, security, and health).

Digital Ethics: They are the norms of behavior in the digital environment. It is the reflection of traditional citizenship in the digital environment. It is the continuation of ethical principles, moral responsibilities, and appropriate and decent behavior in the internet environment (Ribble & Bailey, 2006). Digital ethics means being responsible and respecting the rights of others when using digital tools, not engaging in cyberbullying, complying with etiquette while communicating digitally, respecting other people in digital media, not harming others while using digital tools, and ensuring that the information being shared is ethical, accurate, and reliable, being sure is the first level of etiquette that should be considered within the scope of digital ethics (Ribble, 2011).

Digital Access: This is the act of accessing digital media whenever and wherever a person wants, regardless of time and place (Ribble, 2004). Digital access is also interpreted as the unlimited participation of citizens in the online environment (Siira & Wolf, 2022).

Digital Law: Within the scope of digital law, which is one of the most critical dimensions of digital citizenship, people need to have information about digital law in order to know what they can download and use without permission (Ribble, 2011).

Digital Communication: To be a digital citizen, one must communicate with digital tools. In order to communicate in digital environments, people may face many financial or moral obstacles. Having the necessary equipment to communicate in the digital environment, knowing how to use digital communication tools, and having an internet connection to communicate in the digital environment are seen as the most critical obstacles to digital communication (Girardin, 2020).

Digital Literacy: This is perceiving and making sense of the information in digital media. In order for an individual to be recognized as literate in the digital environment, he or she must have the following skills: computer skills, problem-solving competence, being able to use software and standard tools, and being able to communicate in the digital environment, internet literacy (Ba et al., 2002, pp. 5–6).

Digital Commerce: This allows consumers to search, browse, compare, and purchase goods online (Ather and Ejaz, 2015, p. 634). Although digital commerce is a tool that makes people's lives easier, people face some risks when shopping in digital environments. The most critical risks are fraud, when the product displayed and received is not the same, theft of personal information, the risks involved in purchasing intangible services such as virtual games, and the deceptions that may be encountered from products sold through auction (Ribble, 2011).

Digital Rights and Responsibilities: Behaviors such as not using the information found in digital media without permission, using the information and displaying its source even if permission is obtained, complying with rules and ethics while using the information, and reporting inappropriate behaviors are the most important digital rights and responsibilities (Ribble, 2011).

Digital Security: People store and share information about themselves on the internet, so the importance of taking continuous precautions against the misuse of technology should be noted (Hollandsworth et al., 2017). The misuse of technology poses a significant risk within the scope of digital security. For instance, using an internet connection not protected against viruses and attacks or connecting to the internet without a password are behaviors that affect digital security, equal to leaving the house door open to thieves (Ribble, 2011). Digital citizens must take some precautions when online or using digital tools. These are precautions such as using secure browsers and installing antivirus programs on computers, tablets, and phones. These measures will minimize the risks in the online environment (Çubukçu & Bayzan, 2013).

Digital Health: There are mental and physical risks when using digital tools, especially online technology. These risks start with health problems such as musculoskeletal disorders and addiction to gaming and being online. Digital citizens should be aware of the psychological problems caused by the digital environment (Çubukçu & Bayzan, 2013).

Technological developments, innovations, and digitalization in every sector increase the importance of helping people adapt to digitalization. This research aims to evaluate the participants' approaches to digital media, increase awareness about digitalization according to the research results, and provide suggestions for training and practices that will enable the development of digital citizenship skills. In this context, the research aims to analyze the digital citizenship levels of participants based on demographic variables.

3 Methods and Findings

3.1 Model and Data Collection Tool

The descriptive model was preferred over quantitative research models for this analysis, which was structured as exploratory research to examine the digital citizenship status of participants.

Since the research population was generalized simply as white-collar employees, it is not practically possible to determine a specific population description beyond that. An exhaustive list of every white-collar position within that designation is nearly impossible to generate, so succinctly, this research was conducted with white-collar employees currently working in a non-specified institution using the cluster sampling method. Within the scope of the research, the demographic information form and the developed Digital Citizenship Scale were applied online to 415 white-collar employees and managers working in the public sector reached by convenience sampling method between May and June 2022.

A questionnaire consisting of two parts was used as a data collection tool in the research. In the first part of the data collection tool, a personal information form consists of the participant's gender, age, marital status, number of children, position, education status, working time, and spouse's employment status.

In the second part of the questionnaire, there is the Digital Citizenship Scale and adapted into Turkish by Erdem and Koçyiğit (2019), to evaluate the level of digital citizenship. The scale has a seven-point Likert type (1: I strongly disagree, 7: I completely agree) and 18 items exploring five dimensions (political activism on the internet, technical skills, local/global awareness, critical perspective, and network activity). In this study, the Cronbach Alpha coefficient of the whole scale was 0.91; Cronbach Alpha coefficients of the sub-dimensions were determined as 0.90/0.88/0.79/0.88/0.81.

Informed consent: Informed consent has been obtained from all individuals included in this study.

3.2 Analysis of Data

SPSS 21.0 software was used to analyze the data in this study. The demographic characteristics of the participants are shown in the frequency and percentage tables. Scale and sub-dimension scores are shown in the descriptive statistics table consisting of mean, standard deviation, skewness, and kurtosis. In testing the normality of the scale scores, the skewness and kurtosis coefficients were taken into account. The fact that the skewness and kurtosis coefficients used in the regular distribution feature of the scores obtained from a continuous variable are within the limits of ±1 can be interpreted as the scores do not show a significant deviation from the normal distribution. Parametric tests can be performed by performing square root, logarithmic, or inverse transformations of scores that do not show normal distribution (Büyüköztürk, 2011). The Pearson correlation test was used to determine the relationship between sub-dimension scores after square root transformations of non-normally distributed dimension scores (political activism on the internet, technical skills, and critical perspective) were made. In comparing the scale and sub-dimension scores according to gender, age, marital status, position, and spouse's employment status, from two independent sample *t*-test, the ANOVA test was used to compare the number of children according to the variables of educational status and working time. When a significant difference was observed in the ANOVA test, the LSD post hoc test was used to determine the difference between those groups. The statistical significance level in the analysis was accepted as 0.05 ($p < 0.05$).

4 Findings

4.1 Demographic Findings

Table 1 shows the distribution of the participants according to their demographic characteristics.

Female participants made up 15.4% of the population ($N = 415$), and 84.6% were male. Participants in the 23–42 age group made up 68.4% of the population, and 31.6% were in the 43–58 age group. Married participants made up 68.4% of the population, and 31.6% were single. Participants without children made up 22.2% of the population, where 16.1% have one child, 30.1% have two children, 22.7% have three children, and 8.9% have four or more children. Employees make up 90.6% of the participants, and 9.4% are in managerial positions. Participants with only a primary education made up 30.8% of the population, while 29.6% completed high school, 17.1% completed an associate degree, 17.1% completed an undergraduate degree, and 5.3% completed postgraduate education. The working period of 6.5% of the participants is less than one year, 27.7% of them had worked 1–5 years, 32.5% had worked 6–11 years, and 33.3% had worked 12 years or more. The spouses of 22.2% of the participants also have a job.

4.2 Descriptive Findings

Descriptive statistics from the Digital Citizenship Scale and sub-dimension scores are given in Table 2.

Table 1: Distribution of the participants by demographic characteristics

Demographic variable	Groups	*N*	%
Gender	Female	64	15.4
	Male	351	84.6
Age	22–42 age	284	68.4
	43–58 age	131	31.6
Marital status	Married	332	80.0
	Single	83	20.0
Number of children	None	92	22.2
	1 Child	67	16.1
	2 Children	125	30.1
	3 Children	94	22.7
	4 Children and above	37	8.9
Position	Employee	376	90.6
	Manager	39	9.4
Education status	Primary Education	128	30.8
	High School	123	29.6
	Associate Degree	71	17.1
	Undergraduate	71	17.1
	Graduate	22	5.3
Seniority	Less than 1 year	27	6.5
	1–5 years	115	27.7
	6–11 years	135	32.5
	12 years and above	138	33.3
Working status of spouse	Working	92	22.2
	Not working	323	77.8

According to Table 2, the Digital Citizenship Scale score was 3.93 ± 1.19. Accordingly, it can be said that the digital citizenship behavior of the participants is in the range of "I am undecided" (at a moderate level). When the digital citizenship dimensions are examined, the digital citizenship behavior with the highest score is "technical skills" (5.68 ± 1.29 [in the range of "agree"]), and the digital citizenship behavior with the lowest score is "political activism on the internet" (2.35 ± 1.41 [in the range of "I do not agree"]). According to the scores obtained, the range of local/global awareness fell in the "partially agree" to "I am undecided" range in the critical point of view, and it has been determined that network activity is in the range of "partially disagree."

4.3 Comparison of Digital Citizenship Scores by Demographic Variables

The results of the independent two-sample *t*-test for the comparison of digital citizenship scores by gender are given in Table 3.

It was determined that the sub-dimension scores of political activism and network activity on the internet did not differ significantly by gender ($p > 0.05$). Technical skills ($t = 3.23$; $p < 0.05$), local/global awareness ($t = 3.25$; $p < 0.05$), critical perspective ($t = 4.07$; $p < 0.05$) sub-dimension scores, and Digital Citizenship Scale ($t = 2.49$; $p < 0.05$) scores were found to differ significantly by gender. Technical skills, local/global awareness, critical perspective, and digital citizenship scores of female participants are significantly higher than those of male participants.

Table 4 shows the results of the independent two-sample *t*-test for comparing the Digital Citizenship Scale and sub-dimension scores according to age groups.

It was determined that the sub-dimension scores of political activism and network activity on the internet did not differ significantly by age group ($p > 0.05$). Technical skills ($t = 4.99$; $p < 0.05$), local/global awareness ($t = 3.90$, $p < 0.05$), critical perspective ($t = 3.38$; $p < 0.05$) sub-dimension scores, and Digital Citizenship Scale ($t = 3.58$; $p < 0.05$) scores were found to differ significantly according to age group. The technical skills, local/global awareness, critical perspective, and digital citizenship scores of the 22–42 age group participants are significantly higher than those of the 43–58 age group participants.

Table 5 shows the results of the independent two-sample *t*-test for comparing the Digital Citizenship Scale and sub-dimension scores according to marital status.

It was determined that political activism, technical skills, local/global awareness, and network activity on the internet sub-dimension scores and digital citizenship scores did not differ significantly according to marital status ($p > 0.05$). It was determined that critical perspective scores differed significantly according to marital status ($t = -2.07$; $p < 0.05$).

Table 2: Descriptive statistics of digital citizenship scores

Dimensions	*N*	Available for purchase		Obtained		$\bar{X}$	SS	Skew	Stickiness
		Min.	Maks.	Min.	Maks.				
Political activism on the internet	415	1	7	1.00	7.00	2.35	1.41	0.80	−0.23
Technical skills	415	1	7	1.00	7.00	5.68	1.29	−0.94	0.57
Local/Global awareness	415	1	7	1.00	7.00	4.69	1.77	−0.66	−0.74
Critical perspective	415	1	7	1.00	7.00	3.85	1.77	0.32	−0.84
Network activity	415	1	7	1.00	7.00	3.09	1.64	0.53	−0.74
Digital citizenship	415	1	7	1.00	7.00	3.93	1.19	−0.04	−0.53

Table 3: Comparison of digital citizenship scores by gender

Dimensions	Gender	*N*	$\bar{X}$	SS	*t*	*p*
Political activism on the internet	Female	64	2.26	1.52	−0.83	0.407
	Male	351	2.37	1.39		
Technical skills	Female	64	6.13	0.94	3.23	**0.001**
	Male	351	5.60	1.32		
Local/Global awareness	Female	64	5.34	1.60	3.25	**0.001**
	Male	351	4.57	1.78		
Critical perspective	Female	64	4.64	1.71	4.07	**0.000**
	Male	351	3.71	1.74		
Network activity	Female	64	3.00	1.72	−0.48	0.628
	Male	351	3.11	1.63		
Digital citizenship	Female	64	4.27	1.12	2.49	**0.013**
	Male	351	3.87	1.20		

Bold value indicates the scores of female participants are significantly higher than male participants.

Table 4: Comparison of digital citizenship scores by age groups

Boyutlar	Age groups	*N*	$\bar{X}$	SS	*t*	*p*
Political activism on the internet	22–42 age	284	2.38	1.42	0.71	0.479
	43–58 age	131	2.29	1.39		
Technical skills	22–42 age	284	5.88	1.18	4.99	**0.000**
	43–58 age	131	5.26	1.41		
Local/Global awareness	22–42 age	284	4.92	1.72	3.90	**0.000**
	43–58 age	131	4.20	1.80		
Critical perspective	22–42 age	284	4.05	1.74	3.38	**0.001**
	43–58 age	131	3.42	1.76		
Network activity	22–42 age	284	3.14	1.64	0.83	0.404
	43–58 age	131	2.99	1.64		
Digital citizenship	22–42 age	284	4.07	1.12	3.58	**0.000**
	43–58 age	131	3.63	1.30		

Bold value indicates the scores of the 22–42 age group participants are significantly higher than the 43–58 age group participants.

The critical perspective score of the single participants is significantly higher than married participants.

The results of the ANOVA test for comparing the Digital Citizenship Scale and sub-dimension scores according to the number of children are given in Table 6.

It was determined that the Digital Citizenship Scale score and the sub-dimension scores of political activism, critical perspective, and network activity on the internet were similar according to the number of children ($p > 0.05$).

Technical skills ($F = 3.02$; $p < 0.05$) and local/global awareness ($F = 2.61$; $p < 0.05$) sub-dimension scores were found to differ significantly according to the number of children. According to the results of the LSD post hoc test performed to determine the difference between groups:

– The technical skills score of the participants who do not have children and have one child is significantly higher than those with three or more children.

Table 5: Comparison of digital citizenship scores by marital status

Dimensions	Marital status	*N*	$\bar{X}$	SS	*t*	*p*
Political activism on the internet	Married	332	2.34	1.39	−0.17	0.865
	Single	83	2.40	1.50		
Technical skills	Married	332	5.64	1.27	−1.68	0.093
	Single	83	5.85	1.35		
Local/Global awareness	Married	332	4.62	1.75	−1.55	0.122
	Single	83	4.96	1.83		
Critical perspective	Married	332	3.76	1.77	−2.07	**0.039**
	Single	83	4.22	1.71		
Network activity	Married	332	3.03	1.63	−1.53	0.128
	Single	83	3.34	1.67		
Digital citizenship	Married	332	3.88	1.19	−1.89	0.060
	Single	83	4.15	1.18		

Bold value is the one which score differed significantly according to the marital status.

– The local/global awareness score of the participants who do not have children, who have one child and two children, is significantly higher than that of those with three or more children.

Two independent samples *t*-test results for comparing the digital citizenship scale and sub-dimension scores according to position are given in Table 7.

It was determined that the sub-dimension scores of political activism, technical skills, critical perspective, and network activity on the internet were similar according to work position ($p > 0.05$).

Local/global awareness ($t = -2.59$; $p < 0.05$) sub-dimension score and Digital Citizenship Scale ($t = -2.35$; $p < 0.05$) score were found to differ significantly according to work position. The local/global awareness and digital citizenship scores of the participants in a managerial role are significantly higher than those of the non-managerial participants.

The results of the ANOVA test for the comparison of the Digital Citizenship Scale and sub-dimension scores according to educational status are given in Table 8.

It was determined that the sub-dimension scores of political activism and network activity on the internet did not differ significantly according to educational status ($p > 0.05$).

It was determined that technical skills ($F = 12.97$; $p < 0.05$), local/global awareness ($F = 10.47$; $p < 0.05$), critical perspective ($F = 7.36$; $p < 0.05$) sub-dimension scores and the Digital Citizenship Scale ($F = 5.11$; $p < 0.05$) score differed significantly according to the education level. According to the results of the LSD post hoc test performed to determine the differences between groups:

– The technical skills scores of the graduate students are significantly higher than those of the participants studying at primary, high school, and associate degree levels. The technical skills scores of the participants studying at the undergraduate

Table 6: Comparison of digital citizenship scores by number of children

Dimensions	Number of children	*N*	$\bar{X}$	SS	*F*	*p*	Significant difference
Political activism on the internet	A – None	92	2.34	1.44	1.16	0.329	
	B – 1 child	67	2.55	1.58			
	C – 2 children	125	2.16	1.20			
	D – 3 children	94	2.52	1.54			
	E – 4 children and above	37	2.25	1.29			
Technical skills	A – None	92	5.86	1.32	3.02	**0.018**	**A, B > D, E**
	B – 1 child	67	5.89	1.12			
	C – 2 children	125	5.75	1.15			
	D – 3 children	94	5.42	1.44			
	E – 4 children and above	37	5.32	1.40			
Local/Global awareness	A – None	92	4.81	1.93	2.61	**0.035**	**A, B, C > D, E**
	B – 1 child	67	5.05	1.81			
	C – 2 children	125	4.82	1.62			
	D – 3 children	94	4.30	1.70			
	E – 4 children and above	37	4.28	1.82			
Critical perspective	A – None	92	4.05	1.72	2.17	0.071	
	B – 1 child	67	4.26	1.81			
	C – 2 children	125	3.71	1.77			
	D – 3 children	94	3.73	1.69			
	E – 4 children and above	37	3.39	1.89			
Network activity	A – None	92	3.11	1.77	0.61	0.659	
	B – 1 child	67	2.94	1.65			
	C – 2 children	125	2.99	1.55			
	D – 3 children	94	3.28	1.66			
	E – 4 children and above	37	3.19	1.57			
Digital citizenship	A – None	92	4.03	1.19	1.23	0.299	
	B – 1 child	67	4.14	1.21			
	C – 2 children	125	3.88	1.07			
	D – 3 children	94	3.85	1.28			
	E – 4 children and above	37	3.69	1.34			

level are significantly higher than those of the participants studying at the primary and high school levels.

- Local/global awareness scores of participants studying at the associate, undergraduate, and graduate levels are significantly higher than those of participants at primary and high school levels.
- The critical perspective score of the participants studying at the graduate level is significantly higher than the scores of the participants studying at primary, high school, and associate degree levels. The critical perspective score of the participants studying at the undergraduate level is significantly higher than those of the participants studying at the primary education level.
- The digital citizenship score of the participants studying at the graduate level is significantly higher than those studying at the primary, high school, and associate degree levels. The digital citizenship scores of the participants studying at high school, associate degree, and undergraduate levels are significantly higher than those of participants studying at the primary education level.

The results of the ANOVA test for comparing the Digital Citizenship Scale and sub-dimension scores according to working time are given in Table 9.

Table 7: Comparison of digital citizenship scores by position

Dimensions	Position	*N*	$\bar{X}$	SS	*t*	*p*
Political activism on the internet	Employee	376	2.31	1.38	−1.82	0.070
	Manager	39	2.76	1.64		
Technical skills	Employee	376	5.64	1.31	−1.92	0.055
	Manager	39	6.06	0.91		
Local/Global awareness	Employee	376	4.62	1.78	−2.59	**0.010**
	Manager	39	5.38	1.50		
Critical perspective	Employee	376	3.81	1.76	−1.52	0.130
	Manager	39	4.24	1.85		
Network activity	Employee	376	3.06	1.64	−1.07	0.286
	Manager	39	3.36	1.68		
Digital citizenship	Employee	376	3.89	1.20	−2.35	**0.019**
	Manager	39	4.36	1.07		

Bold values are the ones which scores differed significantly according to the position.

Table 8: Comparison of digital citizenship scores by educational status

Scale and dimension	Education status	*N*	$\bar{X}$	SS	*F*	*p*	Significant difference
Political activism on the internet	A – Primary education	128	2.42	1.49	1.57	0.183	
	B – High school	123	2.44	1.43			
	C – Associate degree	71	2.26	1.23			
	D – Undergraduate	71	2.03	1.17			
	E – Graduate	22	2.82	1.97			
Technical skills	A – Primary education	128	5.18	1.49	12.97	**0.000**	**E > A, B, C**
	B – High school	123	5.72	1.04			**D > A, B**
	C – Associate degree	71	5.77	1.37			
	D – Undergraduate	71	6.14	0.98			
	E – Graduate	22	6.63	0.50			
Local/Global awareness	A – Primary education	128	4.03	1.87	10.47	**0.000**	**C, D, E > A, B**
	B – High school	123	4.60	1.68			
	C – Associate degree	71	5.11	1.57			
	D – Undergraduate	71	5.26	1.61			
	E – Graduate	22	5.82	1.38			
Critical perspective	A – Primary education	128	3.47	1.75	7.36	**0.000**	**E > A, B, C, D**
	B – High school	123	3.80	1.68			**D > A**
	C – Associate degree	71	3.87	1.64			
	D – Undergraduate	71	4.13	1.83			
	E – Graduate	22	5.39	1.68			
Network activity	A – Primary education	128	3.09	1.72	0.40	0.810	
	B – High school	123	3.22	1.52			
	C – Associate degree	71	3.05	1.56			
	D – Undergraduate	71	2.92	1.67			
	E – Graduate	22	3.06	2.08			
Digital citizenship	A – Primary education	128	3.64	1.36	5.11	**0.001**	**E > A, B, C, D**
	B – High school	123	3.96	1.12			**B, C, D > A**
	C – Associate degree	71	4.01	1.01			
	D – Undergraduate	71	4.10	1.06			
	E – Graduate	22	4.74	1.07			

Bold values are the ones which scores differed significantly according to the education level.

It was determined that the Digital Citizenship Scale and sub-dimension scores were similar according to a participant's seniority ($p > 0.05$).

Table 10 shows the results of the independent two-sample *t*-test for comparing the Digital Citizenship Scale and sub-dimension scores according to the spouse's employment status.

It was determined that political activism, network activity on the internet sub-dimension scores and Digital Citizenship Scale scores did not differ significantly according to the working status of the spouse ($p > 0.05$).

It was determined that the sub-dimension scores of technical skills ($t = 2.73$; $p < 0.05$), local/global awareness ($t = 2.52$; $p < 0.05$), and critical perspective ($t = 2.01$; $p < 0.05$) differed significantly according to the spouse's employment status. The technical skills, local/global awareness, and critical perspective scores of the participants whose spouses are working are significantly higher than those of whose spouses are not working.

4.4 Findings Regarding the Relationship Between the Sub-Dimensions of Digital Citizenship

The results of the Pearson correlation analysis between digital citizenship sub-dimension scores are given in Table 11.

It was determined that there was a positive and significant relationship between political activism on the internet and technical skills ($r = 0.16$; $p < 0.05$), local/global awareness ($r = 0.34$; $p < 0.05$), critical perspective ($r = 0.48$; $p < 0.05$), and network efficiency ($r = 0.61$; $p < 0.05$) according to Table 11.

According to Table 11, technical skills and local/global awareness ($r = 0.53$; $p < 0.05$), critical perspective ($r = 0.41$; $p < 0.05$), network activity ($r = 0, 25$; $p < 0.05$) have a positive and significant relationship between them.

It was determined that there was a positive and significant relationship between local/cultural awareness and

Table 9: Comparison of digital citizenship scores by seniority

Scale and dimension	Seniority	*N*	$\bar{X}$	SS	*F*	*p*	Significant difference
Political activism on the internet	A – Less than 1 year	27	2.17	1.23	2.60	0.052	
	B – 1–5 years	115	2.67	1.58			
	C – 6–11 years	135	2.25	1.43			
	D – 12 years and above	138	2.23	1.25			
Technical skills	A – Less than 1 year	27	5.65	1.41	1.32	0.268	
	B – 1–5 years	115	5.85	1.25			
	C – 6–11 years	135	5.66	1.34			
	D – 12 years and above	138	5.57	1.23			
Local/Global awareness	A – Less than 1 year	27	4.30	2.21	2.07	0.104	
	B – 1–5 years	115	5.02	1.72			
	C – 6–11 years	135	4.58	1.84			
	D – 12 years and above	138	4.60	1.63			
Critical perspective	A – Less than 1 year	27	3.64	1.72	1.29	0.279	
	B – 1–5 years	115	4.10	1.80			
	C – 6–11 years	135	3.76	1.85			
	D – 12 years and above	138	3.78	1.66			
Network activity	A – Less than 1 year	27	3.12	1.88	1.12	0.342	
	B – 1–5 years	115	3.32	1.75			
	C – 6–11 years	135	3.02	1.62			
	D – 12 years and above	138	2.97	1.51			
Digital citizenship	A – Less than 1 year	27	3.78	1.39	2.56	0.055	
	B – 1–5 years	115	4.19	1.21			
	C – 6–11 years	135	3.85	1.20			
	D – 12 years and above	138	3.83	1.10			

critical perspective ($r = 0.64$; $p < 0.05$) and network activity ($r = 0.47$; $p < 0.05$) according to Table 11.

Table 11 shows a positive and significant relationship between critical perspective and network effectiveness ($r = 0.55$; $p < 0.05$).

Table 10: Comparison of digital citizenship scores by spouse's employment status

Dimensions	Spouse	*N*	$\bar{X}$	SS	*t*	*p*
Political activism on the internet	Working	92	2.29	1.45	−0.58	0.562
	Not working	323	2.37	1.40		
Technical skills	Working	92	5.98	1.11	2.73	**0.007**
	Not working	323	5.60	1.32		
Local/Global awareness	Working	92	5.10	1.62	2.52	**0.012**
	Not working	323	4.57	1.80		
Critical perspective	Working	92	4.17	1.78	2.01	**0.045**
	Not working	323	3.76	1.76		
Network activity	Working	92	2.98	1.71	−0.75	0.454
	Not working	323	3.12	1.63		
Digital citizenship	Working	92	4.11	1.15	1.57	0.118
	Not working	323	3.89	1.20		

Bold values are the ones which was differed significantly according to the spouse's employment status.

5 Conclusion

5.1 Theoretical Implications

According to the analysis results, the participants' digital citizenship behaviors are moderate. It is an expected result. The unequal access to digital technologies and the unequal quality of technology are the most ethical problems underlying digital citizenship. The income inequality

Table 11: The relationship between the sub-dimensions of digital citizenship

Dimensions	*N*	2	3	4	5	6
1. Political activism on the internet	415	0.16	0.34	0.48	0.61	0.68
2. Technical skills	415	1	0.53	0.41	0.25	0.60
3. Local/Global awareness	415		1	0.64	0.47	0.81
4. Critical perspective	415			1	0.55	0.84
5. Network activity	415				1	0.78
6. Digital citizenship	415					1

of people worldwide is the most important criterion that prevents them from meeting the digital citizenship criteria. There is only one piece of research that supports the results of this research (Öztürk, 2015). Unlike the research results, some studies argue that digital citizenship knowledge levels are pretty low (Elçi & Sarı, 2016; Ünal, 2017) and high (Akduman & Karahan, 2022).

The groups with a significantly higher digital citizenship level are women between the ages of 22–42, acting as managers, at a postgraduate education level. The Digital Citizenship Scale score of the participants was determined as 3.93 ± 1.19. Accordingly, it can be said that the digital citizenship behavior of the participants is in the range of "I am undecided" (at a moderate level). When the digital citizenship dimensions are examined, technical skills (5.68 ± 1.29 [in the range of "I agree"]) was the digital citizenship behavior with the highest score, and it was determined that the digital citizenship behavior with the lowest score was political activism on the internet (2.35 ± 1.41 [in the range of "disagree"]).

According to the scores obtained, local/global awareness falls in the "partially agree" range (in the range of "I am undecided"), and it was determined that the network activity sub-dimension is in the range of "partially disagree."

When the related literature is examined, there are studies that support and contradict the results of this research. As a result of their research, Elçi and Sarı (2016) and İşman and Güngören (2013) found that there is no difference between the digital citizenship values of female and male participants, and the average values of all dimensions of digital citizenship and the sum of the scales are higher for those who have a computer at home. As a result of their research, Akduman and Karahan (2022) found that digital skills, digital commerce, and digital citizenship scores did not differ significantly according to gender and age, and the scores of the perception of digital rights and responsibility differed significantly according to gender alone. The digital rights and responsibility perception score of female participants is significantly higher than that of male participants.

Supporting these findings, there are also studies (Karaaslan Aydoğdu & Budak, 2012; Vural, 2016) that argue that women's digital citizenship levels are higher than men, in parallel with the high rate of internet use.

Steps can be taken to develop digital citizenship in Turkey by implementing the following:

- Educational Programs: Creating educational programs on digital citizenship to raise awareness of this issue among younger generations through schools and other educational institutions.
- Campaigns and Seminars: Organizing campaigns and seminars that inform society about digital security, information sharing, and online respect.
- Social Media Tags: Launching unique tags or campaigns on social media platforms to raise awareness about digital citizenship.
- Raising Internet Security Awareness: Organizing awareness campaigns on internet security and guiding individuals on safe internet use.
- Cooperation and Joint Projects: Developing joint projects by providing cooperation between the public and private sectors, and non-governmental organizations.
- Legal Regulations: Updating legal regulations regarding digital crimes to fight against crimes in the digital world effectively.

Implementing these steps can offer effective strategies to increase society's awareness of digital citizenship and create a safer digital environment.

5.2 Limitations and Future Research Direction

The most important limitations of the study are the number of participants and the scale used. Since the research population was generalized simply as white-collar employees, it is not practically possible to determine a specific population description beyond that. An exhaustive list of every white-collar position within that designation is nearly impossible to generate, so succinctly, this research was conducted with white-collar employees currently working in a non-specified institution using the cluster sampling method. A study using larger sample populations will better support reaching more generalizable results. Research based on more of the participants' demographic characteristics, such as city, sociocultural status, and economic conditions, will also provide more comprehensive results.

The sample is heavily skewed towards the male populace, which makes the findings questionable and biased. So, this is another big limitation of the study.

Future studies can be designed in different ways. In particular, more in-depth and more detailed findings can be reached through research in which qualitative data collection methods, such as observation and interviews, are used. The results from this research were obtained from quantitative data based on scale application.

In addition, evaluation by adding different independent variables such as technology perspectives, digital technology habits and duration of use, purposes of internet use, internet use history, membership in social networks, ownership of digital tools and applications, and family income will also provide more detailed results.

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