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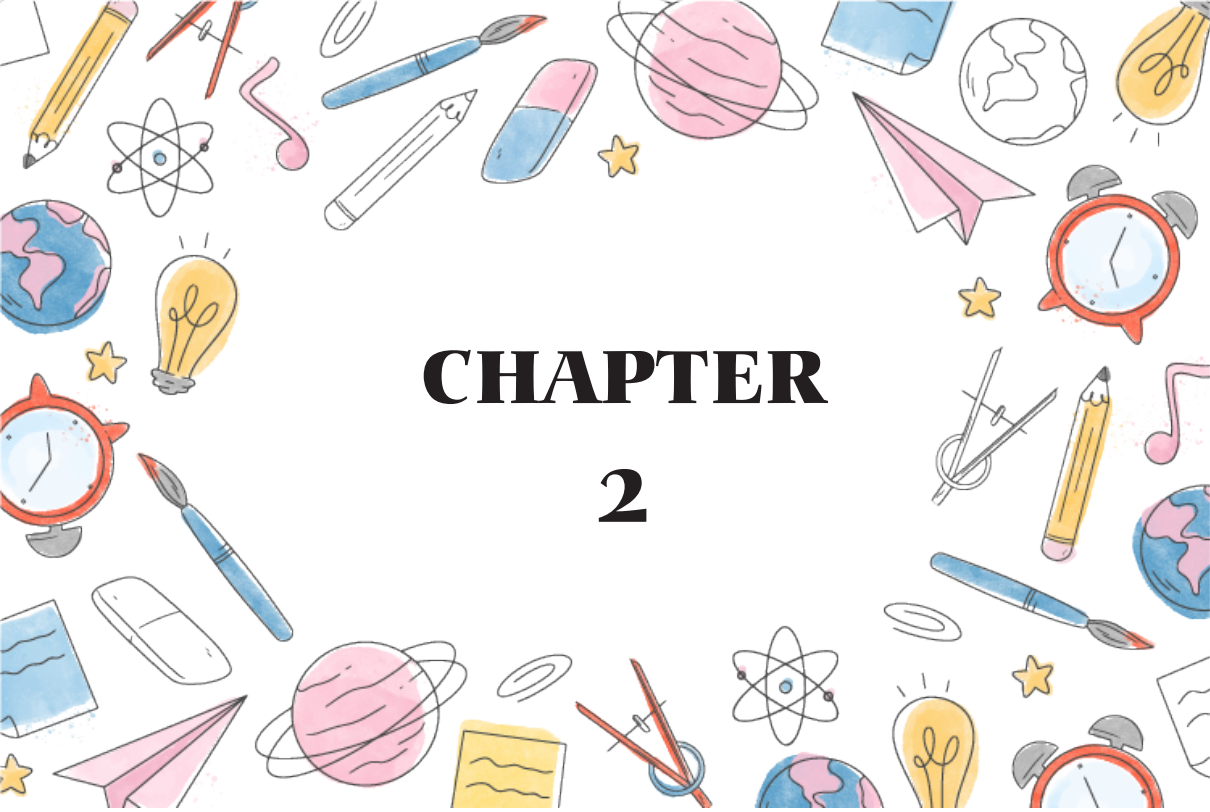
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HIGHER EDUCATION STUDENTS' ETHICAL ATTITUDES TOWARDS INFORMATION TECHNOLOGIES: A DEMOGRAPHIC ANALYSIS

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1. Introduction

The word "ethics" is derived from the Greek word "ethos," which encompasses meanings such as customs, morals, traditions, habits, character, temperament, among others. Similarly, the word "morality," originating from Latin, carries meanings related to customs, habits, traditions, character, nature, among others. Likewise, the Turkish term "ahlak," which is the plural of the Arabic word "hulk," is used to denote customs, habits, traditions, character, nature. Hence, it can be said that etymologically, these terms generally convey similar meanings. However, their philosophical meanings in context differ from the meanings derived from their etymology, and therefore, these concepts should be addressed within the philosophical context (Pieper, 1999; Akarsu, 1984; Özlem, 2017; Tepe, 2007).

In philosophy, the term "ethics" refers to the science of morals or moral philosophy. Ethics, as a branch of philosophy, encompasses the pursuit of a good life, contemplation of good and evil, defining correct behavior, making morally correct choices, and the doctrine of making correct decisions (Cevizci, 2008).

The complexity of modern life has brought ethical studies into the realm of applied ethics. While fundamental ethical issues remain unchanged, new ethical dilemmas constantly arise, and there are also changes in how these issues are addressed. In our age, applied ethics deals with new ethical domains such as racism, gender discrimination, issues related to sexual orientation, violence and capital punishment, suicide, abortion, cloning, war and terrorism, animal rights, match-fixing, gambling, doping, environmental concerns, and other emerging ethical areas. In this context, applied ethics has been subdivided into subcategories such as biomedical ethics, business ethics, and environmental ethics (Cevizci, 2008; Tepe, 2016; Yılmaz, 2009).

Information and Communication Technologies (ICT) refer to digital tools and systems used in processes of information gathering, storing, processing, transmission, and sharing. These technologies encompass computers, smartphones, internet infrastructure, software applications, data storage systems, networks, and other electronic devices. ICT has become an indispensable part of modern life, affecting a range of fields and facilitating business processes, easing communication, and accelerating access to information. Analyses of the frequency of ICT usage paint a striking picture. With the proliferation of computers and smartphones, the average technology usage time increased from 6 hours per day in 1999 to 7.5 hours in 2005, 10 hours and 45 minutes in 2009, and up to 13 hours per day in 2013 (Raven, 2018). In 2016, the number of internet users in Turkey was reported as 46,196,720, which accounted for 58% of the population at that

time (Internet Users by Country, 2016). According to the Household Information Technologies (IT) Usage Survey conducted by the Turkish Statistical Institute (TUIK) in 2022, the percentage of individuals using the internet is 85% (TUIK, 2022).

The integration of the internet and computers into the daily lives of society has brought with it ethical challenges alongside the advantages these technologies offer. One of these challenges is ethical issues, which extend to computer crimes. Particularly with the widespread use of the internet, unethical behaviors such as misuse of personal information, verbal attacks, copyright infringement, dissemination of misleading information, unauthorized access, and fraud have come to the forefront (Dedeoğlu, 2006).

Information technologies are important because they provide great convenience in terms of information and access. However, to prevent the negative impacts of these technologies on human life, a field such as computer ethics has been developed. Computer ethics aims to prevent harmful integration of these technologies into human life (Moor, 1985).

Computer ethics is a branch of philosophy that examines the use of computer and communication technologies and discusses the application of general ethical principles to the use of these technologies (TBD, 2010). Moor (1985) defines computer ethics as a field that encompasses principles and rules regarding the development and use of computer technologies. Tıngöy (2009) describes computer ethics as the written and unwritten rules we should adhere to when using information technologies. According to Sevindik (2011), these rules ensure that users utilize the electronic environment with minimal harm and maximum benefit in information and communication environments. Computer ethics is based on determining and implementing these principles and rules and seeks ethically based solutions to problems encountered in the computing environment. According to Cerrah (2002), failure to use technology properly and regulate it regularly can have negative effects not only on individuals' physical and psychological health but also on social peace and integrity.

According to the Turkey Informatics Association Report, issues related to computer ethics include the right to access electronic data and digital inequality, the reliability, accuracy, and currency of electronic data, distortion of reality, system security, intellectual property rights, privacy violations, protection of personal data, protection of corporate data, internet usage issues, problems on websites, electronic mailing lists, and social media debates (TBD, 2010). In the literature of computer ethics, ethical issues related to information technologies are classified as follows:

- Privacy,

- Intellectual property, copyright, license agreements, patents,
- Security and quality,
- Accuracy,
- Freedom of expression,
- Digital divide,
- Cyberbullying

(Mason, 1986; Johnson, 2009; Dedeoğlu, 2006; Duymaz, 2013; Himma and Tavani, 2008; Reynolds, 2009; Uysal and Odabaşı, 2006).

The principles of computer ethics were first formulated by the Computer Ethics Institute (CEI) in 1972 under the name "Ten Commandments of Computer Ethics" and are considered a significant step in the field of computer ethics (Kallman and Grillo, 1996). These principles were developed to regulate the ethical use and misuse of information technologies.

Internationally, the Computer Ethics Institute (CEI) and the British Computer Society (BCS) are among the influential organizations in the field of computer ethics. In Turkey, the Turkey Informatics Foundation (TBV), the Turkey Informatics Association (TBD), and the Turkey Informatics Industry Association (TÜBİDER) are important organizations working in this field (Dedeoğlu, 2006).

The 10 fundamental principles of computer ethics developed by the CEI are important values that should be instilled in students in education. These principles aim to prevent the misuse of computers and provide ethical guidance. Particularly, providing education on computer ethics from an early age helps students develop ethical awareness. In Turkey, this education is included in the Computer Technologies and Software course at the middle school level.

This approach emphasizes the importance of developing social awareness and responsibility regarding the ethical use of information technologies. The ethical use of computers and information technologies is an important issue that individuals need to learn consciously from an early age. The imparting of this ethical awareness and consciousness, especially at a young age, is of great importance for internalizing ethical values among students (Çelen, 2012; Duymaz, 2013).

In Turkey, education on computer ethics is currently provided within the Computer Technologies and Software course at the middle school level. This approach emphasizes that directly and comprehensively conveying the concept of computer ethics to students is effective in the development of ethical awareness.

Studies such as those by Beyhan and Tunç (2012), Duymaz (2013), Ghazali (2003), Genç, Kazez, and Fidan (2013), Haines and Leonard (2007), Kuzu (2009), Masrom et al. (2010), Namlu and Odabaşı (2007), Uysal (2006), and Uysal and Odabaşı (2007) have provided important data on students' unethical behaviors. However, it is observed that the issue of computer ethics in higher education curricula is inadequately addressed in these studies.

Therefore, there is a need to more accurately define the knowledge and skills that higher education students need to develop regarding computer ethics and to redesign the curriculum to meet these needs. The findings of such research can provide important guidance for improving curricula and making computer ethics education more effective.

The main objective of this study is to examine the ethical views and attitudes of higher education students towards the use of information technologies in terms of various demographic characteristics. In line with this aim, we aim to answer the following questions:

1. How are the ethical views and attitudes scores of participants according to four different scenarios?
2. Is there a significant relationship among them?
3. Does it show a significant difference according to gender?
4. Does it show a significant difference according to income perception?
5. Does it show a significant difference according to class level?
6. Does it show a significant difference according to the enrolled undergraduate program?

2. Method

2.1 Research Design

In this study, a general survey model was used as the quantitative research design. This model aims to achieve a general understanding in a broad research universe. The general survey model is used especially to obtain general information about a specific topic or to understand a phenomenon. This model aims to provide a general overview rather than searching for specific or detailed answers. The events, situations, objects, or individuals examined in the research were attempted to be described in detail within their own conditions. The researcher proceeded by observing and determining the current situation without interventions such as influencing or

changing it (McMillan and Schumacher, 2010; Karasar, 2004). The method and principles specified by Karasar (2004) were adopted in this study.

2.2 Study Group

While the population of the study consists of students of Erzincan Binali Yıldırım University Faculty of Education, the sample group consists of university students studying in various fields of the Faculty of Education during the Spring semester of the 2022-2023 Academic Year. Of these students, 106 are female and 250 are male, and they participated in the research voluntarily.

2.3 Data Collection Tools

For the purpose of data collection, a information form created by the researchers and the Scenarios of Real Life Situations with Information Ethics (RLSSIE) Scale were used. The information form includes questions about the student's gender, Faculty/School, Department/Main Discipline, class, internet access, and economic situation perception. RLSSIE, developed by Yoon (2011), was adapted into Turkish by Arıkan and Duymaz (2014). The original scale consists of 17 items and is a seven-point Likert-type scale. The items in the scale are structured in a five-point Likert type. Table 1 provides the internal consistency coefficients of the adapted scale with the original.

Tablo 1. *Internal Consistency Coefficients for RLSSIE Scale Scenarios*

Scenarios	Item Count	Cronbach's Alpha		
		Current Implementation	Turkish Adaptation (Arıkan & Duymaz, 2014)	Original Scale (Yoon, 2011)
Scenario 1	17	.949	.919	.773 - .939
Scenario 2	17	.950	.815	.722 - .940
Scenario 3	17	.937	.884	.824 - .968
Scenario 4	17	.959	.965	.787 - .954

The internal consistency coefficients (Cronbach's Alpha) found in the original scale and the current application are shown in Table 1. The calculated internal consistency coefficients for the current application were found to be .937 for Scenario 1, .952 for Scenario 2, .948 for Scenario 3, and .987 for Scenario 4. It is understood that the obtained internal consistency coefficients are at an acceptable level (Murphy & Davidshofer, 1988), indicating their usability in answering the research questions.

Four different scenarios were utilized, each representing ethical dilemmas encountered in the real-world context of the Internet. In creating these scenarios, initially, scenarios used in IS ethics studies were analyzed (Banerjee et al., 1998; Chow, 2001; Leonard & Cronan, 2001). Subsequently, visits to newspaper websites and obtaining education from Internet ethics websites were conducted to gather ideas and data. Based on these ideas and data, four separate scenarios were developed. The created scenarios were reviewed by ethics professors and subjected to adjustments based on their recommendations.

Scenario 1 addresses privacy violation.

Scenario 2 involves the spread of unhealthy materials, particularly explicit content. This scenario was adapted from scenarios used by Zippy (2024) for teaching Internet ethics.

Scenario 3 deals with the situation of software piracy as an infringement of intellectual property.

Scenario 4 focuses on the dissemination of false information over the Internet.

2.4. Statistical Analysis

During the data analysis process, independent samples t-test was employed for comparing binary groups. Additionally, one-way ANOVA test was applied to assess the mean differences among three or more groups. Upon detecting significant differences from these statistical analyses, Tukey test was utilized to determine which groups the differences were statistically significant between.

3. Findings

Descriptive statistics regarding the demographic characteristics of the participants are presented in Table 2.

Table 2. *Descriptive statistics on participants' characteristics*

Measurement	Value	Frequency (%)
Gender	Female	106 (29.8)
	Male	250 (70.2)
Income Perception	Very Good + Good	64 (18.0)
	Medium	247 (69.4)
	Very Poor + Poor	45 (12.6)

Class Level	1st Year	136 (38.2)
	2nd Year	64 (18.0)
	3rd Year	69 (19.4)
	4th Year	87 (24.4)
Undergraduate Program	Classroom Teaching	150 (42.1)
	Primary Mathematics Teacher Education	77 (21.6)
	Turkish Language Teaching	16 (4.5)
	Preschool Education	79 (22.2)
	Social Studies Teacher Education	26 (7.3)
	Science Teacher Education	8 (2.2)

A total of 356 students participated in the study, with 250 being male and 106 being female. Participants' income perceptions were categorized as follows: those perceiving their income as "Very Good" or "Good" (18.0%), those perceiving it as "Average" (69.4%), and those perceiving it as "Very Poor" or "Poor" (12.6%). Regarding class levels, participants were distributed as follows: 1st-year students (38.2%), 2nd-year students (18.0%), 3rd-year students (19.4%), and 4th-year students (24.4%). The distribution of participants according to their registered undergraduate programs is as follows: Class Teaching program (42.1%), Elementary Mathematics Teaching program (21.6%), Turkish Language Teaching program (4.5%), Preschool Education program (22.2%), Social Studies Teaching program (7.3%), and Science Education program (2.2%).

Table 3. *Descriptive statistics for participants' ethical views and attitude scores for the four different scenarios*

	N	**Minimum**	**Maximum**	**$\bar{X}$**	**Sd**
Scenario 1	356	37	85	75.51	9.018
Scenario 2	356	21	85	71.29	11.666
Scenario 3	356	41	85	70.47	11.456
Scenario 4	356	17	85	72.90	18.053

Descriptive statistics regarding participants' ethical views and attitude scores for the four different scenarios are presented in Table 3. Scores ranging from 17 to 85 were assigned for the 17 items on the scale. Participant scores are distributed as follows: for Scenario 1, they range from 37 to 85, for Scenario 2, they range from 21 to 85. Scenario 3 scores range from 41 to 85, while Scenario 4 scores vary between 17 and 85. The mean scores are as follows: 75.51 for Scenario 1, 71.29 for Scenario 2, 70.47 for Scenario 3, and 72.90 for Scenario 4. These scores being close to the highest score of 85 indicate that participants generally possess high ethical views and attitudes.

Table 4. *Correlation Between Ethical Views and Scenario-Based Attitude Scores*

		Scenario 1	Scenario 2	Scenario 3	Scenario 4
Scenario 1	Correlation	1			
	Significance				
	N	356			
Scenario 2	Correlation	.224**	1		
	Significance	.000			
	N	356	356		
Scenario 3	Correlation	.395**	.516**	1	
	Significance	.000	.000		
	N	356	356	356	
Scenario 4	Correlation	.027	.087	.091	1
	Significance	.611	.099	.088	
	N	356	356	356	356

** Correlation is significant at the 0.01 level.

The results of the simple correlation analysis conducted to assess the relationship between participants' ethical views and attitude scores for different scenarios are presented in Table 4. According to these results, a positive correlation is observed between Scenario 1 and Scenario 2, although this correlation is found to be weak. There is also a positive correlation between Scenario 1 and Scenario 3; however, this relationship is at a low level. On the other hand, a positive correlation is identified between Scenario 2 and Scenario 3, which is at a moderate level.

Table 5. *Results of independent samples t-test for participants' ethical views and attitude scores according to gender*

	Gender	N	$\bar{X}$	Sd	df	t	p
Scenario 1	Female	106	73.17	10.667	354	-3.228	.001*
	Male	250	76.50	8.041			
Scenario 2	Female	106	67.64	11.979	354	-3.918	.000*
	Male	250	72.84	11.201			
Scenario 3	Female	106	66.13	11.150	354	-4.793	.000*
	Male	250	72.31	11.103			
Scenario 4	Female	106	83.45	24.259	354	-0.119	.905
	Male	250	83.79	24.655			

*p<0.01

The independent samples t-test results for ethical views and attitudes scores according to gender are presented in Table 5. For Scenario 1, it was found that the ethical views and attitudes scores of male participants (76.50) were significantly higher than those of female participants (73.17) ($t_{(354)} = -3.228$, $p < 0.01$). Similarly, for Scenario 2, the ethical views and attitudes scores of male participants (72.84) were significantly higher than those of female participants (67.64) ($t_{(354)} = -3.918$, $p < 0.01$). Likewise, for Scenario 3, the ethical views and attitudes scores of male participants (72.31) were significantly higher than those of female participants (66.13) ($t_{(354)} = -4.793$, $p < 0.01$).

However, for Scenario 4, there was no significant difference between the ethical views and attitudes scores of male participants (83.79) and female participants (83.45) ($t_{(354)} = -0.119$, $p > 0.05$). Based on this result, it can be said that gender is a variable influencing ethical views and attitudes scores in all scenarios except Scenario 4.

Table 6. *One-Way ANOVA Results for Ethical Views and Attitude Scores by Perceived Income Status.*

	Source	Sum of Squares	df	Mean Square	F	p	Tukey
Scenario 1	Between Groups	432.15	2	216.075	2.682	0.070	
	Within Groups	28438.82	353	80.563			
	Total	28870.98	355				
Scenario 2	Between Groups	875.07	2	437.533	3.256	0.040*	Good-Very Poor
	Within Groups	47442.13	353	134.397			
	Total	48317.2	355				
Scenario 3	Between Groups	703.54	2	351.770	2.706	0.068	
	Within Groups	45883.12	353	129.981			
	Total	46586.66	355				
Scenario 4	Between Groups	539.76	2	269.878	0.448	0.639	
	Within Groups	212618.26	353	602.318			
	Total	213158.01					

*p<.05

The one-way ANOVA test results regarding ethical views and attitudes scores according to participants' perceived income status are presented in Table 6. No significant difference was found between participants' perceived income status and ethical views and attitudes scores for Scenarios 1, 3, and 4. However, a significant difference was observed between participants' perceived income status and ethical views and attitudes scores for Scenario 2 [$F_{(2, 353)} = 3.256$, $p < 0.05$].

According to the Tukey test results, participants' perceived income status was significantly higher between "good" and "very poor-poor".

Table 7. *One-Way ANOVA Results for Ethical Views and Attitude Scores by Class Level*

	Source	Sum of Squares	df	Mean Square	F	p	Tukey
Scenario 1	Between Groups	957.455	3	319.152	4.025	0.008*	1st -4th Year, 3rd-4th Year
	Within Groups	27913.519	352	79.300			
	Total	28870.975	355				
Scenario 2	Between Groups	1194.542	3	398.181	2.974	0.032*	1st -3rd Year, 3rd-4th Year
	Within Groups	47122.657	352	133.871			
	Total	48317.199	355				
Scenario 3	Between Groups	604.534	3	201.511	1.543	0.203	
	Within Groups	45982.126	352	130.631			
	Total	46586.660	355				
Scenario 4	Between Groups	600.196	3	200.065	0.331	0.803	
	Within Groups	212557.815	352	603.857			
	Total	213158.011	355				

*$p<.05$

Table 7 presents the results of the one-way ANOVA test regarding ethical views and attitudes scores according to participants' class levels. For Scenario 1, a significant difference was found between participants' class levels and ethical views and attitudes scores [$F_{(2, 353)} = 4.025$, $p < 0.05$]. According to the Tukey test results, participants' class levels were significantly higher between "1st Year" and "4th Year" and between "3rd Year" and "4th Year".

For Scenario 2, a significant difference was observed between participants' class levels and ethical views and attitudes scores [$F_{(2, 353)} = 2.974$, $p < 0.05$]. According to the Tukey test results, participants' class levels were significantly higher between "1st Year" and "3rd Year" and between "3rd Year" and "4th Year".

However, no significant difference was found between participants' class levels and ethical views and attitudes scores for Scenario 3 and Scenario 4.

Table 8. *One-Way ANOVA Results for Ethical Views and Attitude Scores by Undergraduate Program*

	Source	Sum of Squares	df	Mean Square	F	p	Tukey
Scenario 1	Between Groups	630.362	5	126.072	1.562	0.170	
	Within Groups	28240.613	350	80.687			
	Total	28870.975	355				
Scenario 2	Between Groups	935.839	5	187.168	1.383	0.230	
	Within Groups	47381.361	350	135.375			
	Total	48317.199	355				
Scenario 3	Between Groups	361.959	5	72.392	0.548	0.740	
	Within Groups	46224.701	350	132.071			
	Total	46586.660	355				
Scenario 4	Between Groups	4683.194	5	936.639	1.572	0.167	
	Within Groups	208474.817	350	595.642			
	Total	213158.011	355				

p>.05

The results of the one-way ANOVA test regarding ethical views and attitudes scores according to participants' enrolled undergraduate programs are presented in Table 8. For all scenarios (Scenario 1 [$F_{(2, 353)} = 1.562$, $p > 0.05$], Scenario 2 [$F_{(2, 353)} = 1.383$, $p > 0.05$], Scenario 3 [$F_{(2, 353)} = 0.548$, $p > 0.05$], and Scenario 4 [$F_{(2, 353)} = 1.572$, $p > 0.05$]), it was observed that the difference in ethical views and attitudes scores according to participants' enrolled undergraduate programs was not statistically significant. Based on these results, it can be concluded that participants' enrolled undergraduate programs are not a significant variable affecting their ethical views and attitudes.

4. Results, Discussion, and Recommendations

Information technologies have altered the way individuals, organizations, and society interact and exchange information. The topic of ethics is often either absent or underrepresented in discussions at various national and international conferences on Information Systems and Technologies (IST). This study aims to examine undergraduate students' ethical views and attitudes regarding the use of information technologies from various demographic perspectives.

The level of ethical views and attitudes among participants is found to be high according to the research findings. These results parallel previous studies (Erdem, 2008; Morgan & Neal, 2011; Çelen, 2012; Duymaz, 2013; Çelen & Seferoğlu, 2016; Bayra & Baysan, 2022).

Additionally, participants' ethical views and attitudes levels were found to be high across all scenarios used in the research (Scenario 1 "privacy breach", Scenario 2 "Dissemination of unhealthy materials - sexual content", Scenario 3 "Intellectual property violation", and Scenario 4 "Dissemination of false information") (Bayra & Baysan, 2022).

Based on the gender-based result analysis, a significant difference in favor of male participants was observed for Scenario 1, Scenario 2, and Scenario 3. These results indicate that male participants have higher ethical views and attitudes levels compared to female participants, which is consistent with previous studies (Uysal, 2006; Akbulut et al., 2008; Morgan & Neal, 2011; Cavalcante, 2021).

Demographic variables—particularly gender—appear to play a notable role in shaping perceptions of computer ethics. Several studies have identified gender-based differences in ethical evaluations, with some suggesting that male students tend to score higher in certain computer ethics scenarios. Contrarily, Tozdan and Keleş (2022) reported that female students in the 7th and 8th grades demonstrated significantly higher ethical attitude levels than their male counterparts. Similarly, Borkowski and Ugras (1992) observed that male participants tended to adopt more neutral stances on specific ethical issues compared to females. However, findings in the literature are not uniform. For instance, Fritzsche (1988) and McNichols and Zimmerer (1985) found no statistically significant differences based on gender. Chonko and Hunt (1985), on the other hand, noted that while women appeared to be more aware of ethical concerns, this did not necessarily translate into more ethical behavior. Further, Miesling and Preble (1985), along with Betz et al. (1989), concluded that women generally exhibited more ethically inclined judgments than men.

Furthermore, Bayra and Baysan's (2022) study indicates that the level of information technology education among secondary school students is higher for females. On the other hand, Duymaz (2013) suggests that students demonstrate a positive attitude towards information technology ethics, and no significant difference is found between genders in this regard. In this context, references to studies in the literature indicating that female participants' ethical views and attitudes towards information technology are high have also been made (Ünlü & Öz, 2024; Erdem, 2008; Söylemez & Balaman, 2015; Gökçearslan et al., 2015; Murugesan & Woodco-

ck, 2006; Schinzel, 2018; Adam, 2001; Nachouki, Ammar & Naaj, 2019; Adam, 2000; Spake, Crown & Franke, 1997).

In conclusion, gender factors could be considered in the planning stage of course activities based on ethical views and attitudes. When examining ethical views and attitudes scores according to participants' perceived income status, a significant difference was only found for Scenario 2. This difference was determined to be between the perceived income statuses of "good" and "very poor-poor". No significant difference was found between perceived income status and ethical views and attitudes scores for other scenarios (Scenario 1, Scenario 3, and Scenario 4). This result indicates that there is no significant relationship between perceived income status and information technology ethics.

This issue is also addressed in Erdem's (2008) thesis titled "evaluation of teacher candidates' use of information technologies from an ethical perspective". Erdem's study suggests that perceived income status is not a determining factor in teacher candidates' views on computer ethics.

The relationship between information technology ethics and perceived income status is a complex issue involving multiple factors. Among these factors are income level, education, unequal opportunities, and awareness. Particularly, individuals from low-income backgrounds may have limited financial resources for accessing technological resources. This could negatively impact children's access to computers, internet, and other technological resources.

Education and awareness are crucial for understanding and implementing information technology ethics. However, a lack of awareness about ethical issues is more common among low-income families. Therefore, information technology ethics education programs should focus on the specific needs of low-income communities. Further research and analysis in this area could help us better understand the relationship between information technology ethics and perceived income status. Understanding the role of income level, education level, and awareness of ethical issues in this relationship is important for social equity and justice.

When considering ethical views and attitudes scores according to participants' class levels, a significant difference was found for Scenario 1 and Scenario 2. Specifically, for Scenario 1 (Privacy breach), a relationship was observed between the 1st and 4th grades and between the 3rd and 4th grades. Similarly, for Scenario 2 (Dissemination of unhealthy materials - sexual content), a relationship was found between the 1st and 3rd grades and between the 3rd and 4th grades.

It is observed that as the class level increases, the ethical views and attitudes scores increase. Especially, participants in higher grades have higher ethical views and attitudes scores compared to other class levels. Similar results have been found in previous studies. For example, in a study by Masrom and Ismail (2008), a significant difference was found between the 8th grade and the 5th grade and between the 8th grade and the 7th grade among middle school students. This difference could be associated with differences in educational content between classes.

On the other hand, in a study conducted by Erdem (2008), no significant difference was found between class levels and internet ethics attitudes. Similarly, Tosun, Geçer, and Kaşıkçı (2016) did not find a significant difference between class levels and internet ethics. These different results may be related to variables such as the age range of the research samples or differences in course content. In this context, it is considered beneficial to further investigate and analyze this variable. Future studies should examine the relationship between class level and ethical views and attitudes in more detail.

No significant difference was found in ethical views and attitudes scores according to participants' enrolled undergraduate programs, similar to the findings of Tosun, Geçer, and Kaşıkçı (2016). However, Erdem (2008) found that the behaviors of teacher candidates in using information technologies differed significantly according to their departments, especially in terms of Intellectual Property and Security and Quality factors. Erdem's study found that Computer and Instructional Technologies Education (CITE) and Social Studies teacher candidates exhibited more unethical behaviors than other participating teacher candidates in both factors.

The results of the four different scenarios examined in the study indicate problems related to "lack of sufficient knowledge about ethical issues" and "lack of sufficient knowledge about legal responsibilities". In this context, it is recommended that every individual receives education on ethical issues from elementary school onwards. This way, potential disadvantages such as security threats and ethical dilemmas that individuals may encounter during the use of computer and internet technologies can be minimized.

Providing training to teachers in schools on how to use computer and internet technologies ethically, efficiently, and ethically could be an important step. Additionally, in higher education institutions where computer teacher candidates are trained, it is recommended to emphasize ethics and related topics more in the content of courses related to Information and Communication Technologies (ICT). This way, individuals can be encouraged to be more conscious and respectful of ethical values during technology use.

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